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Surface Acoustic Wave Filters LIOB for TV Applications

Data Book 1987/88

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32.70	-6.5	F/50	L/E	SIP5	364	29	■
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	-6.5	F/50	L/E	SIP5L	L 3952	35	S
	-6.5	F/50	L/E	SIP5L	L 3953	39	
33.40	-6.5	F/41	L/E, B/G	SIP5L	G 3950	43	
36.88	5.5	N/20	B	SIP5L	LB 1950	47	
37.00	6.5	F/20	D/K	SIP5L	D 1950[4]	–	
	6.5	N/20	D/K	SIP5L	D 1951	51	
38.00	5.5/6.5	F/26,26	D/K, B/G	SIP5	368	55	■ S
	5.5/6.5	F, C/18,16	D/K, B/G	SIP5	K 1950	58	
	6.5	F/27	D/K	SIP5	367	62	
	6.5	N/20	D/K	SIP5L	D 1952	66	
38.90	5.5	N, C/20,5	B/G	SIP5	361 D	70	■
	5.5	N, C/26	B/G	SIP5	361 S	74	■
	5.5	N, C/20	B/G	DIP10	661	78	
	5.5	N/19	B/G	SIP5	G 1954	82	■
	5.5	N/20	B/G	SIP5	G 1956	86	S
	5.5	N/20	B/G	SIP5L	G 1958	91	
	5.5	N, C/20	B/G	SIP5L	G 1959	95	
	5.5	N, C/21	B/G	SIP5L	G 1961	99	
	5.5	N, C/20	B/G	SIP5L	G 1962	103	
	5.5	F/6	B/G, L	SIP5L	G 3950	107	
	5.5/6.5	F/6,44	D/K, L, B/G	SIP5	K 3950	111	
	5.5/6.5	N, C/18,20	D/K, B/G	SIP5L	K 2950	115	
	6.0	F/27	I	SIP5	362-G	119	■
	6.0	F/21	I	SIP5L	J 1952	122	S
	6.5	F/27	D/K	SIP5	366	126	
39.50	6.0	F/25	I	SIP5	363	130	■
	6.0	F/20	I	SIP5	J 1950	133	S
	6.0	F, C/22	I	SIP5L	J 1951	137	S
45.75	4.5	F/23	M/N	SIP5	431	141	■
	4.5	F/19	M/N	SIP5	M 1950	145	
	4.5	F/18	M/N	SIP5L	M 1952	149	
	4.5	F/21	M/N	SIP5L	M 1953	153	
	4.5	F/16	M/N	SIP5	M 1954	157	
	4.5	F/23	M/N	SIP5L	M 1955	161	
	4.5	F/21	M/N	SIP5L	M 1956[4]	–	
	4.5	F/45	M/N	SIP5L	M 3950	165	

Application-Oriented Survey of Types

IF filters for quasiparallel/parallel sound applications

Vision carrier MHz	Vision-to-sound interval MHz	Group delay[1]/ Sound carrier trap[2] (video channel) dB	Standard[3]	Package	Type OFW...	Page	
32.70	–6.5	F / 46	L/E	DIP10	734	171	
	–6.5	F / 45	L/E	DIP10	L 3250[4]	–	
38.90	5.5	N / 46	B/G	DIP10	731	176	■
	5.5	N / 45	B/G	DIP10	G 3201	181	
	5.5	N / 40	B/G	DIP10	G 3203	187	S
	5.5	F, C / 45	B/G	DIP10	G 3204	193	
	5.5	N,C / 39	B/G	DIP10	G 3205	198	
	5.5*)	N,C / 40	B/G	DIP10	G 3206	203	
	5.5	N,C / 42	B/G	DIP10	G 3250[4]	–	
	6.0	F / 44	I	DIP10	J 3201	208	S
	6.0	F / 20	I	DIP10	J 3205	213	
	6.5	F / 45	L	DIP10	K 3252[4]	–	
39.50	6.0	F / 40	I	DIP10	J 3203	218	
45.75	4.5	F / 20	M/N	DIP10	M 3201	223	
	4.5	F / 30	M/N	DIP10	M 3250	227	S
	4.5	F / 42	M/N	DIP10	M 3251	232	

1) N : comparable standard
C : customer-oriented
F : flat

2) Typ., referred to filter roof

3) B : Australia
B/G : CCIR, Germany, Europe (7/8 MHz)
D/K : OIRT, Eastern standard, China
L : France
L/E : France
I : Great Britain, Republic of Ireland
M/N : FCC, USA

4) In preparation

*) Sound channel is limited to sound transmission

■ Not for new design

S Preferred product (refer to page 4)

Application-Oriented Survey of Types

Vestigial sideband filters

Vision carrier MHz	Bandwith[1]) (3 dB) MHz	Bandwith[1]) (35 dB) MHz	Standard[3])	Package	Type OFW...	Page	
38.9	6.8	8.5	B/G	SIP5	369	239	S
	7.7	9.7	B/G	SIP5	G 4952	243	S
	7.7	8.2	B/G	DIP16[2])	G 4950	247	S
	6.1	7.1	B/G	DIP16[2])	B 4501	250	
	7.1	7.9	B/G	DIP24[2])	B 522	253	
	5.8	6.6	B/G	DIP24[2])	B 523	256	
	8.6	10.0	I	SIP5L	B 513	259	
45.75	5.9	7.4	M/N	SIP5L	M 4950	262	

Filters for TV channels

Vision carrier MHz	Channel	Bandwith[1]) (3 dB) MHz	Bandwith[1]) (35 dB) MHz	Standard[3])	Package	Type OFW...	Page
48.25	E2	6.5	8.8	B/C	SIP5L	E 250	269
55.25	E3	6.6	8.8	B/C	SIP5L	E 351	273
62.25	E4	6.6	8.8	B/C	SIP5L	E 450	277
55.25	A02	4.8	6.9	M/N	SIP5L	X 250	281
61.25	A03	5.0	7.3	M/N	SIP5L	X 350	285
61.25	A03	5.8	7.3	M/N	SIP5L	X 351[4])	–
67.25	A04	4.9	7.3	M/N	SIP5L	X 450	289
61.25/67.25	A03/A04	6.4/8.1	12.1/14.2	M/N	DIP10	W 150	293
83.25	A06	5.0	7.2	M/N	SIP5L	X 650	300

Satellite and bandpass filters

Center frequency (nominal) MHz	Bandwith[1]) (3 dB) MHz	Bandwith[1]) (35 dB) MHz	Package	Type OFW...	Page	
134.0	19.2	37.2	DIP10	Y 101	307	
479.5	28.7	45.3	DIP10(HF)[5])	Y 6950	311	S
479.5	36.3	46.7	TO8 [2])	B 526	315	
479.5	27.8	44.7	TO8 [2])	B 527	318	

[1]) typ., referred to maximum amplitude range
[2]) Metal case
[3]) B/C : Europa (7 MHz)
B/G : CCIR, Germany, Europe (7/8 MHz)
I : Great Britain
M/N : FCC, USA
[4]) In preparation
[5]) Modified pin configuration in comparison to DIP 10
S Preferred product (refer to page 4)

Alphanumeric Survey of Types

Type OFW...		Ordering code	Package	Page
361 D	■	B 39936-A1-X21	SIP 5	70
361 S	■	B 39936-A1-X18	SIP 5	74
362–G	■	B 39936-A2-G	SIP 5	119
363	■	B 39936-A3	SIP 5	130
364	■	B 39936-A4-Y	SIP 5	29
366		B 39936-A6	SIP 5	126
367		B 39936-A7	SIP 5	62
368	■ S	B 39936-A8	SIP 5	55
369	S	B 39936-A9	SIP 5	239
431	■	B 39943-A1	SIP 5	141
661		B 39966-A1	DIP 10	78
664 B		B 39966-A4-B	DIP 10	32
731	■	B 39973-A1	DIP 10	176
734		B 39973-A4	DIP 10	171
B 513		B 39380-B513-N100	SIP 5L	259
B 522		B 39380–B522-G410	DIP 24	253
B 523		B 39380-B523-G410	DIP 24	256
B 526		B 39481-B526-C210	TO 8	315
B 527		B 39481-B527-C210	TO 8	318
B 1950		B 39369-B1950-N100	SIP 5L	47
B 4501		B 39389-B4501-E110	DIP 16	250
D 1950		in preparation	SIP 5L	–
D 1951		B 39370-D1951-N100	SIP 5L	51
D 1952		B 39380-D1952-N100	SIP 5L	66
E 250		B 39483-E250-N100	SIP 5L	269
E 351		B 39553-E351-N100	SIP 5L	273
E 450		B 39623-E450-N100	SIP 5L	277
G 1954	■	B 39389-G1954-N100	SIP 5	82
G 1956	S	B 39389-G1956-N100	SIP 5	86
G 1958		B 39389-G1958-N100	SIP 5L	91
G 1959		B 39389-G1959-N100	SIP 5L	95
G 1961		B 39389-G1961-N100	SIP 5L	99
G 1962		B 39389-G1962-N100	SIP 5L	103
G 3201		B 39389-G3201-P100	DIP 10	181
G 3203	S	B 39389-G3203-P100	DIP 10	187
G 3204		B 39389-G3204-P100	DIP 10	193
G 3205		B 39389-G3205-P100	DIP 10	198
G 3206		in preparation	DIP 10	203
G 3250		in preparation	DIP 10	–
G 3950		B 39389-G3950-N100	SIP 5L	43,107
G 4950	S	B 39380-G4950-E110	DIP 16	247
G 4952	S	B 39389-G4952-N100	SIP 5	243
J 1950	S	B 39395-J1950-N100	SIP 5	133
J 1951	S	B 39395-J1951-N100	SIP 5L	137
J 1952	S	B 39389-J1952-N100	SIP 5L	122
J 3201	S	B 39389-J3201-P100	DIP 10	208
J 3203		B 39395-J3203-P100	DIP 10	218
J 3205		B 39389-J3205-P100	DIP 10	213

to be cont'd on next page

Alphanumeric Survey of Types

Type OFW...		Ordering code	Package	Page
K 1950		B 39380-K1950-N100	SIP 5	58
K 2950		B 39389-K2950-N100	SIP 5L	115
K 3252		in preparation	DIP 10	–
K 3950		B 39389-K3950-N100	SIP 5	111
L 3250		in preparation	DIP 10	–
L 3952	S	B 39327-L3952-N100	SIP 5L	35
L 3953		B 39327-L3953-N100	SIP 5L	39
M 1950		B 39458-M1950-N100	SIP 5	145
M 1952		B 39458-M1952-N100	SIP 5L	149
M 1953		B 39458-M1953-N100	SIP 5L	153
M 1954		B 39458-M1954-N100	SIP 5	157
M 1955		B 39458-M1955-N100	SIP 5L	161
M 1956		in preparation	SIP 5L	–
M 3201		B 39458-M3201-P100	DIP 10	223
M 3250	S	B 39458-M3250-P100	DIP 10	227
M 3251		B 39458-M3251-P100	DIP 10	232
M 3950		B 39458-M3950-N100	SIP 5L	165
M 4950		B 39458-M4950-N100	SIP 5L	262
W 150		B 39613-W150-P100	DIP 10	293
X 250		B 39553-X250-N100	SIP 5L	281
X 350		B 39613-X350-N100	SIP 5L	285
X 351		in preparation	SIP 5L	–
X 450		B 39673-X450-N100	SIP 5L	289
X 650		B 39833-X650-N100	SIP 5L	300
Y 101		B 39134-Y101-P100	DIP 10	307
Y 6950	S	B 39480-Y6950-H100	DIP 10(HF)	311

General Technical Information

1 Introduction

Surface acoustic wave filters (SAW filters) are integrated, passive components with bandpass filter characteristics. Their operation is based on the interference of mechanical surface waves. Compared to coil filters, surface acoustic wave filters provide a series of favorable characteristics:

- Fixed, non-shifting filter characteristic
- No alignment required
- Amplitude response and phase response can be specified independently of each other
- Close tolerances on important data
- Small space requirements – a complete vision IF filter only takes up 0.5 cm^2.

The user of a surface acoustic wave filter has a component which fully replaces complex *LC* combinations, such as TV IF filters.

1.1 Design

A metal layer (Al) is vapor-deposited onto a single-crystal, piezoelectric substrate (lithium niobate $LiNbO_3$). Using a photo-etching technique, metal is removed to obtain fine, finger-like interspersed electrodes (interdigital transducers), which serve as piezoelectrical input and output transducers. The substrate is then bonded to a metal base and connected to the terminals by means of bonding wires.

An attenuating compound prevents surface wave contents reflected from the edges of the substrate from resulting in interfering signals. The surface acoustic wave filter is encapsulated to protect it from external influences.

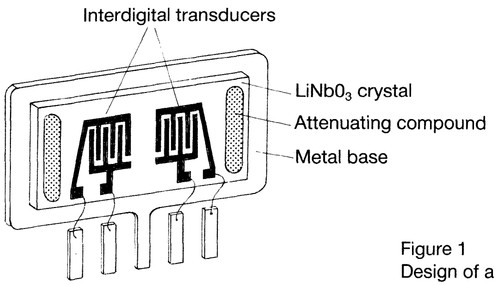


Figure 1
Design of a surface acoustic wave filter

2 Mode of operation

2.1 Basic principle

If electrical signals are applied to the input transducer, it emits mechanical ("acoustic") surface waves which, in turn, produce electrical signals in the output transducer. The transducers act as transmit/receive "antennas" for surface acoustic waves. Widely varying „antenna characteristics" can be achieved as a result of the transducer structure. The center frequency, amplitude response and group delay are governed by the number, length, arrangement and spacing of the transducer fingers. Superposing of the "antenna characteristics" of the input and output transducers results in the filter characteristic. The phase velocity of surface acoustic waves is approx. 1/100.000 of the speed of light; consequently, the short wavelength (approx. 0.1 mm at 40 MHz) results in correspondingly small transducer configurations.

2.2 Phase velocity of the surface acoustic waves

The phase velocity of surface acoustic waves is frequency-independent. With symmetrical weighting of the transducers, the filters produced have a constant group delay. By using asymmetrical transducer weighting, any group delay curve can be obtained, irrespective of the amplitude response.

2.3 Substrate surface

The required substrate surface largely depends on the desired filter data. Narrowband performance, steep slopes and great group delay distortion necessitate transducers with many fingers and, hence, with a large substrate surface.

3 Characteristics

Surface acoustic wave filters are based on the interference of mechanical surface waves, i.e. on delay effects and not on resonance. This is the reason why some characteristics differ from those of coil filters.

3.1 Direct breakthrough

Surface acoustic wave filters have a basic delay of approx. 1 μs. If unfavorable circuitry has been selected, it is quite possible for direct electrical breakthrough to be exhibited as a preliminary echo. It is therefore advisable to terminate the filter symmetrically at its output. Moreover, the input and output circuitry should be appropriately spaced; long filter leads should also be avoided.

3.2 Triple-transit echo (T-T echo)

The triple-transit echo is an interfering signal typical of surface acoustic wave filters: the surface acoustic wave from the input transducer is reflected by the output transducer, returns to the input transducer where it is again reflected, and appears as an echo signal at the output with 3-times the basic delay.

In principle, this signal is always present; however, its level is not a filter constant, but is a function of insertion loss, i.e. of internal filter attenuation and the wiring. In practice, it is important for the triple-transit echo to be quasi-short-circuited by low-impedance filter drive.

3.3 Reflections

A transducer emits surface acoustic waves in both directions. The waves impinging on the substrate edge and reflected there can appear as echo signals. For this reason, the substrate edges are provided with an attenuating compound which absorbs the surface acoustic waves. In this way, reflections are reduced to a non-critical level.

3.4 Pulse response

The interfering effects mentioned – direct breakthrough, triple-transit echo and reflections – are echo signals and are therefore in the time domain. In order to assess a surface acoustic wave filter, it is therefore important to record the time-domain performance, the so-called pulse response (see 4.3).

3.5 Frequency response

The frequency response complies with the relevant standard and is adjusted in detail to the user's applications, where permitted by the technology and state of development.

On account of the finite length of the transducers (≙ time-limited pulse response), a surface acoustic wave filter has a ripple-type frequency response in principle, both in the passband region and in the stop band region. The ripple caused by echo signals can also be superimposed on this. This is the reason for the less smooth amplitude response, compared to that of a coil filter.

3.6 Group delay

The average group delay complies with the relevant standard and is characterized as follows in the special data sheets:

Example for Standard B/G

Group delay Reference frequency: 38.9 MHz	Typical values
Max. deviation at 36.60 MHz Increase at 34.47 MHz	−90 ns 30 ns

Example for Standard M

Group delay Reference frequency: 45.75 MHz	Typical value
Constant group delay up to 42.17 MHz	± 0 ns

The group delay also exhibits a system-related ripple, on which echo-related ripple can become superimposed.
The latter is sometimes quite conspicuous, because it is proportional to the amplitude and delay of the echo.
Furthermore, several quite non-critical reflections of the order of 50 dB, for instance, can be added to a conspicuous group delay ripple of 50 ns, for example.
Specified in the data sheets are peak-to-peak values for typical (40 ns) and maximum (80 ns) group delay ripple. Since, however, the "short" group delay ripple, which is typical of surface acoustic waves, causes practically no phase shifting, these values are of little use. Thus, a sinusoidal group delay ripple of 100 ns peak-to-peak and a period of 0.8 Hz (1.4 μs echo delay) results in a negligible phase shifting of ± 2°.

3.7 Filter impedances

The input and output impedance of a surface acoustic wave filter consists of the transducer's basic capacitance, the electrical image of the mechanical radiation and the influence of the "reflection" of the other transducer. The transducer impedances are therefore greatly frequency-dependent.
A result of this frequency-dependence is that the terminating impedances can affect the filter characteristics.

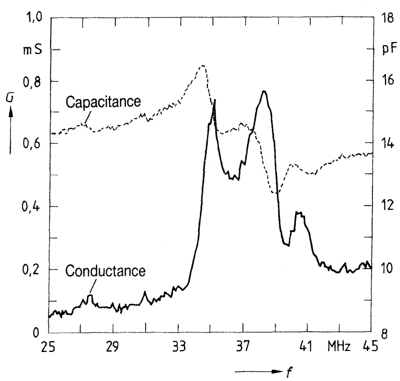


Figure 2
Input transducer impedance taking the example of OFW 361 S

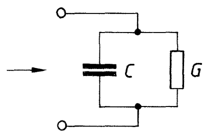


Figure 3
Equivalent circuit

Filter output terminated with 2 kΩ in parallel with 3 pF

Shown below are the effects of different drive impedances (30 Ω . . . 1 kΩ) on the 2 T step response (2-T signal) taking the example of the OFW 361 S.

x-axis:
0,5 µs/Div.

1 kΩ

300 Ω

100 Ω

30 Ω

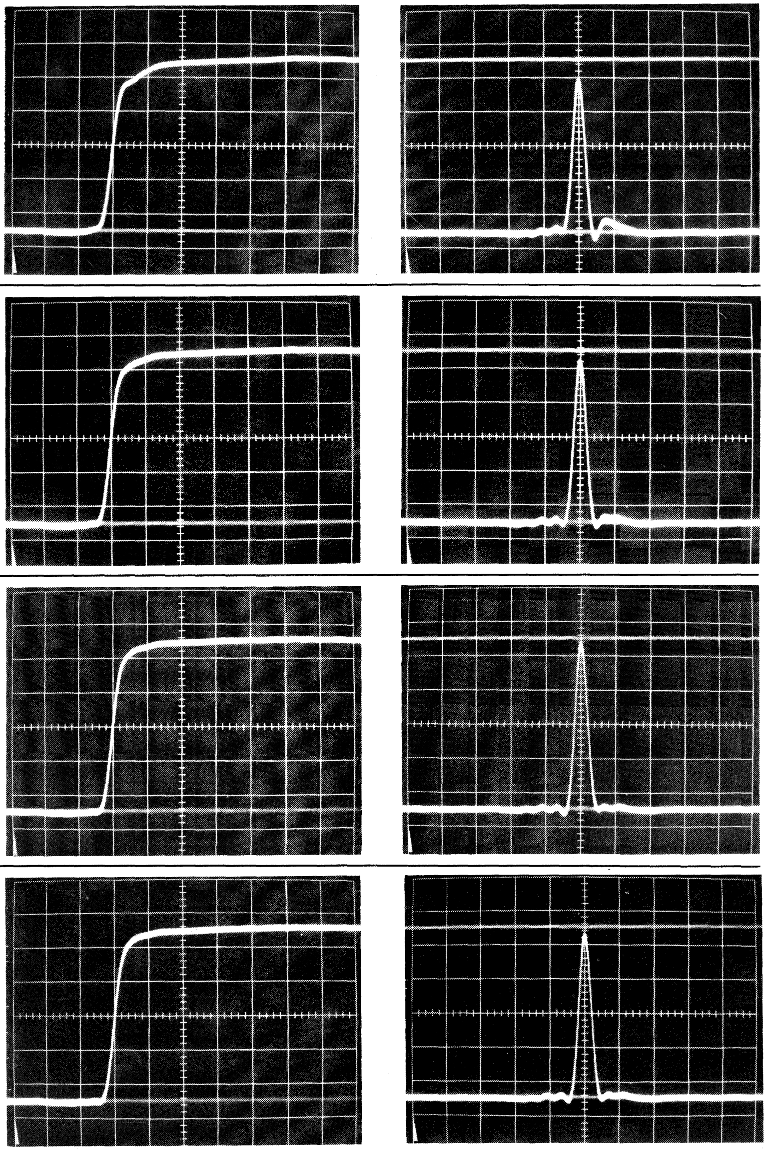


Figure 4 Step signal

The effect of the drive impedance varies with the different types of SAW filters. All 2-T step signals given in the data sheets are related to a 50 Ω source impedance. When driver stages with considerably deviating impedance are used (e.g. 200 Ω), it should be examined which filter types are capable of producing the desired results.

3.8 Temperature coefficient of the frequency

The temperature coefficient of a surface acoustic wave filter is governed by the substrate material or crystal cut. With the lithium niobate YZ cut (standard cut), it is –94 ppm/K, and with the rYX cut ("turned cut") it is –70 ppm/K. The temperature coefficient causes the filter curve to shift towards lower frequencies as the temperature rises. For operation within a TV set, therefore, a frequency variation of the order of 50 kHz will be produced, compared to the frequency at room temperature.

4 Testing

4.1 Final measurements

Surface acoustic wave filters are subject to a 100% final test in a specially developed automatic measuring instrument. The RF section of this automatic measuring instrument consists of a network analyzer, the measuring sensor and an auxiliary unit; this allows the pulse response to be measured, for example. A process computer assumes the task of sequence control, as well as the assessing and statistical processing of all measured data. During final testing an explanatory record of time and frequency parameters is compiled. It contains major filter data and, in addition, guarantees characteristics which have not been directly measured, as, for example, the 2-T step response. Thus, minimum measuring time and maximum selectivity are favourably combined in this final measuring process.

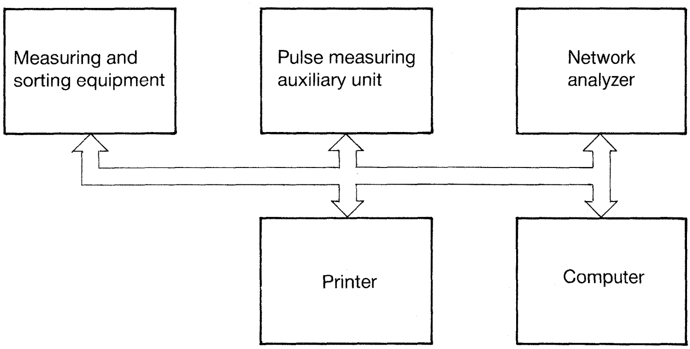


Figure 5
Computer-controlled testing station

4.2 Measured values and frequency range (e.g. B/G Standard)

Insertion loss
Reference level for the following values is 37.4 MHz

Attenuation values

Vision carrier	38.9 MHz	Adjacent sound carrier VHF	40.4 MHz
Color carrier	34.47 MHz	Adjacent sound carrier UHF	41.4 MHz
Sound carrier	33.4 MHz	Lower sidelobe *)	25.0 . . . 31.9 MHz
Adjacent vision carrier	31.9 MHz	Upper sidelobe *)	40.4 . . . 45.0 MHz

*) The minimum value of attenuation is quoted in this range.

4.3 Pulse response (time-domain measurement)

In order to measure the pulse response, a carrier-borne pulse is applied to the filter input and the output voltage is assessed according to the following diagram. The illustration shows the schematic envelope curve of the RF output voltage (oscilloscope trace).

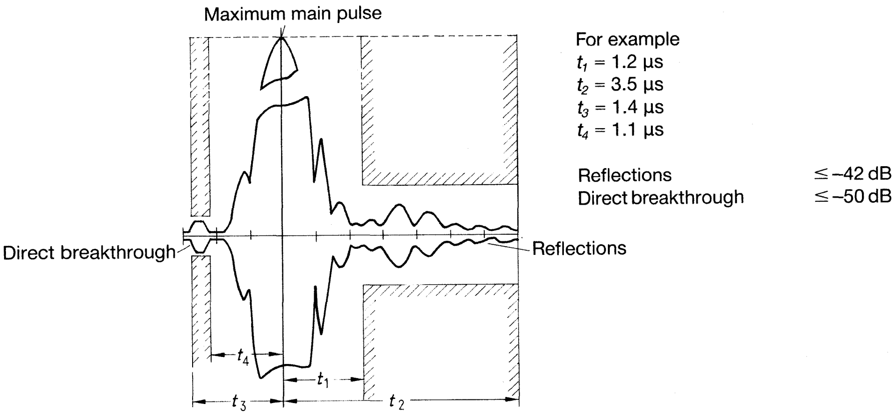


Figure 6
Envelope curve of the RF output voltage

4.3.1 Measuring arrangement

The circuit shown in fig. 7 allows the pulse response to be assessed.
In order to obtain the required dynamic range of 70 dB . . . 80 dB, the measuring instrument consists of two electronic mixers. Fig. 8 shows the keyed pulse used: the half pulse width t_{hw} = 250 ns is matched to the filter bandwidth. The exact slope of the pulse is non-critical.

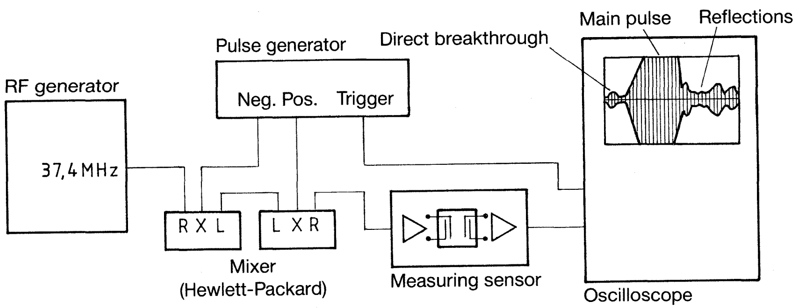
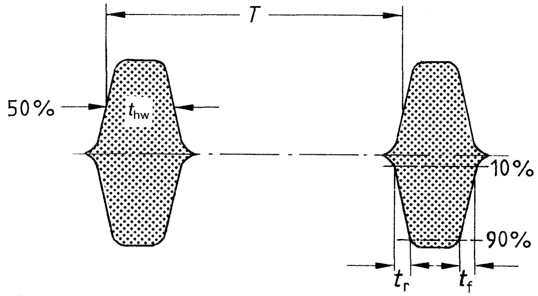


Figure 7
Pulse measuring set-up



t_{hw} = 250 ns
t_r = t_f = 50 ns
T = 7 µs
f_T = Carrier frequency equal to the reference frequency

Figure 8
Carrier-borne keyed pulse

4.4 Test circuits

For the automatic measuring instrument mentioned in 4.1, special test circuits were designed; all data sheet information relates to these circuits. Different circuits are used for SIP-5 and DIP-10 filters (fig. 9 and 10). In both cases, wideband drivers with an output impedance of 50 Ω were used. Filters of all standards can thus be driven without switching or adjustment. Post-amplifiers cater for symmetrical filter termination. The measuring sensors have a common-mode rejection of ≥ 30 dB at up to 80 MHz; the frequency response is negligible, and the gain is set to 26 dB. The measuring sensors are thus fully interchangeable.

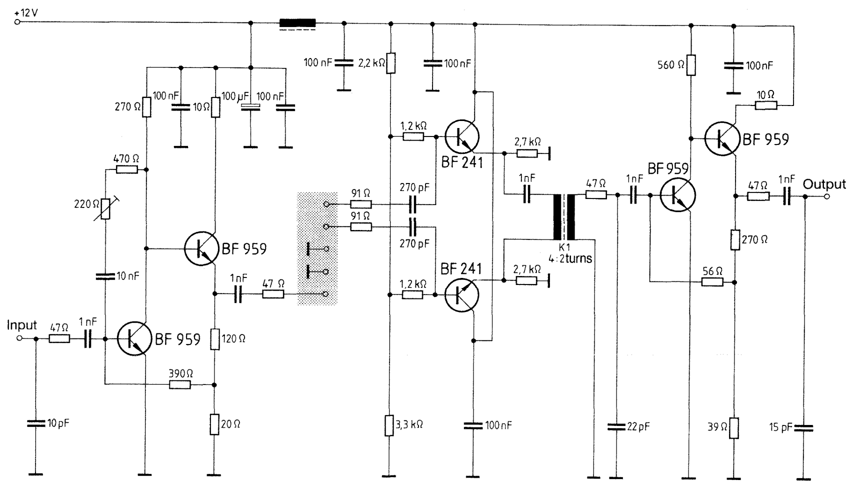


Figure 9
Test circuit for SIP-5 filter
Input impedance of the symmetrical post-amplifier: 2 kΩ in parallel with 3 pF

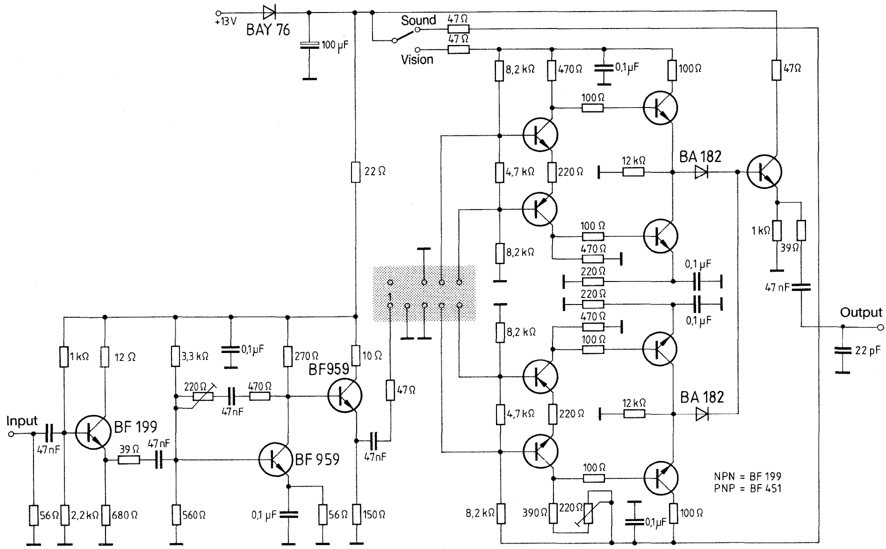


Figure 10
Test circuit for DIP-10 filter
Input impedance of the symmetrical post-amplifier: 2 kΩ in parallel with 5 pF

5 Application notes

5.1 Other operating conditions

All the filter data quoted in the data sheets apply to the measuring conditions mentioned. It is possible and sometimes necessary to operate the filters under different conditions. In these cases, any changed characteristics exhibited by the filters should be checked and noted. In the event of questions, the Siemens applications laboratory will be pleased to advise you. Siemens will also be pleased to provide you with detailed documentation on, for example, the T-T echo or 2-T step signal.

5.2 Driver stages

A low-impedance drive source is required in order to suppress the triple-transit signal. For this reason, a driver stage is recommended, in which the low-impedance is achieved by collector-base feedback.

Base resistor *R1* ensures the defined input impedance of 50 Ω. To obtain the greatest possible drive range, the BF 959 transistor is used and operated at a collector current of approx. 20 mA. The gain can be adjusted within certain limits by means of *R2.* The input voltage (useful level only) is referred to a signal-to-intermodulation ratio of 50 dB at the same useful and noise levels. The specified drive at the collector is equal to the sum of useful level and noise level.

On account of the heavy feedback, adjustment cannot be made on the basis of maximum RF level at the collector but at minimum RF level at the base. A pick-off can be made using, for example, 470 Ω and 1 nF. This therefore compensates for the filter capacitance, i.e. the optimum drive range is ensured.

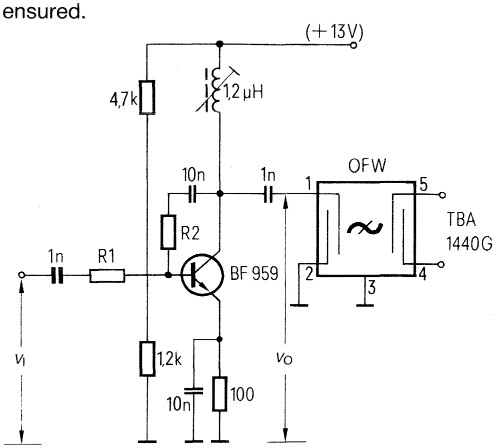


Figure 11
Driver stage

R_2	R_2	Gain V_O/V_I	Output impedance	Max. input voltage	Drive at collector
47 Ω	1,8 kΩ	29 dB	approx. 100 Ω	V_{rms} approx. 80 mV	V_{pp} approx. 13 V

5.3 Tuner IF matching

In order not to falsify the filter data, we recommend that an additional bandpass filter be fitted. The proposed OFW driver stage is particularly suitable for band filter extension since, due to the negative feedback, its input impedance is practically independent of transistor scatter.

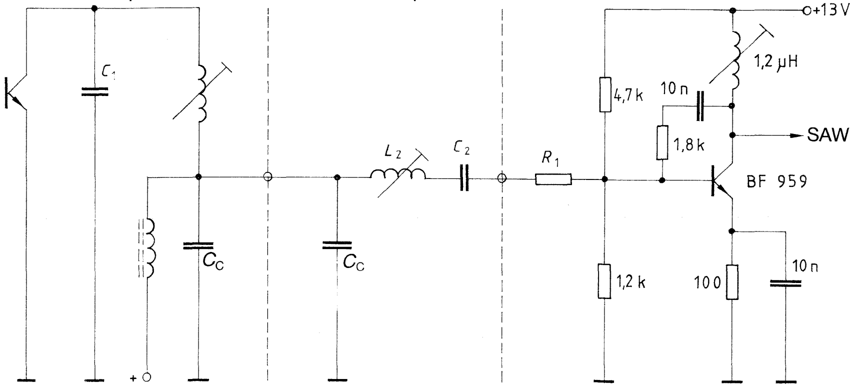


Figure 12
Tuner IF matching circuit

6. Quality

6.1 Specification conformance

This is the conformance with specified data at the time of delivery.

6.2 Random sampling

The stated AQL values (acceptable quality level) are based on the random-sampling requirements DIN 40080 (content conforms to MIL-STD 105 D and IEC 410), single sampling plan for normal inspection, test level II. The testing instructions of this standard are such that a delivery batch will be accepted with greater probability than 90% if the percentage share of defectives is not more than the given AQL value. Generally the percentage share of defectives of our supplies is well below the AQL value.

6.3 Classification of defects and defectives

A component is considered defective if it does not comply with the characteristics specified in the data sheet or in a delivery specification agreed-upon. Defectives can be divided into inoperatives, which generally exclude a functional application of the component and defectives of less significance.

Inoperatives are:
- short circuit
- broken components, broken package, broken terminals, broken encapsulation
- missing or incorrect marking
- intermixing with other component types

The remaining defectives can be divided into:

- electrical defectives
  (maximum ratings exceeded)
- mechanical defectives
  (dimensions not adhered to, package damaged, illegible marking, bent leads)

6.4 AQL values

For the mentioned defectives the AQL values are as follows:

– Inoperatives (mechanical and electrical)	0.15
– Sum of electrical defectives	0.4
– Sum of mechanical defectives	0.4

The sums include the associated inoperatives.

Grouping into major defects and minor defects according to DIN 40080 has been purposely avoided here because these terms are defined primarily on the basis of applications and not specifications. In contrast to this the defective classes that we use – for which AQL values are given below – are clearly outlined by the specifications and the mentioned inoperatives.

6.5 Incoming inspection

If the user wishes to carry out incoming inspection, the use of a random-sampling plan acc. to DIN 40080 (content conforms to MIL-STD 105 D and IEC 410) is recommended. The testing technologiy should be harmonized between the customer and the supplier.

For the assessment of any complaints the following details are necessary: test circuit, sample size, number of defective elements found, form sample.

Single sampling plan for normal inspection, test level II (extract)

N \ Sampling plan	AQL 0.065	AQL 0.10	AQL 0.15	AQL 0.25	AQL 0.40	AQL 0.65	AQL 1.0	AQL 1.5	AQL 2.5	AQL 4.0
2... 8	N	N	N	N	N	N	N	N	N or 5–0	N or 3–0
9... 15	N	N	N	N	N	N	N or 13–0	8–0	5–0	3–0
16... 25	N	N	N	N	N	N or 20–0	13–0	8–0	5–0	3–0
26... 50	N	N	N	N	N or 32–0	20–0	13–0	8–0	5–0	13–1
51... 90	N	N	N or 80–0	50–0	32–0	20–0	13–0	8–0	20–1	13–1
91... 150	N	N or 125–0	80–0	50–0	32–0	20–0	13–0	32–1	20–1	20–2
151... 280	N or 200–0	125–0	80–0	50–0	32–0	20–0	50–1	32–1	32–2	32–3
281... 500	200–0	125–0	80–0	50–0	32–0	80–1	50–1	50–2	50–3	50–5
501... 1200	200–0	125–0	80–0	50–0	125–1	80–1	80–2	80–3	80–5	80–7
1201... 3200	200–0	125–0	80–0	200–1	125–1	125–2	125–3	125–5	125–7	125–10
3201... 10000	200–0	125–0	315–1	200–1	200–2	200–3	200–5	200–7	200–10	200–14
10001...35000	200–0	500–1	315–1	315–2	315–3	315–5	315–7	315–10	315–14	315–21
35001...150000	800–1	500–1	500–2	500–3	500–5	500–7	500–10	500–14	500–21	315–21
150001...500000	800–1	800–2	800–3	800–5	800–7	800–10	800–14	800–21	500–21	315–21
>500000	1250–2	1250–3	1250–5	1250–7	1250–10	1250–14	1250–21	800–21	500–21	315–21

N = batch size
Columns 2 to 11: left number = sample size, right number = admissible defectives

Failure criteria:
total failure (short-circuit, break) and changes in characteristics that lead to failure of the functional unit in the majority of applications.

6.6 Supplementary notes

Quality data, which always refer to a fairly large number of components, are no legal guarantee of characteristics. The agreement of such data does mean however that the customer can claim replacements for defective components under the terms of delivery. No liability can be accepted beyond this, especially for the consequences of component defects.

TV IF Filters

Video and Intercarrier Applications

Survey of IF filters for video and intercarrier applications

Vision carrier MHz	Vision-to-sound interval MHz	Group delay[1] Sound carrier trap[2] (video channel) dB	Standard[3]	Package	Type OFW...	Page	
32.70	–6.5	F/50	L/E	SIP5	364	29	■
	–6.5	F/50	L/E	DIP10	664 B	32	
	–6.5	F/50	L/E	SIP5L	L3952	35	S
	–6.5	F/50	L/E	SIP5L	L3953	39	
33.40	–6.5	F/41	L/E, B/G	SIP5L	G3950	43	
36.88	5.5	N/20	B	SIP5L	B1950	47	
37.00	6.5	F/20	D/K	SIP5L	D1950[4]	–	
	6.5	N/20	D/K	SIP5L	D1951	51	
38.00	5.5/6.5	F/26,26	D/K, B/G	SIP5	368	55	■ S
	5.5/6.5	F, C/18,16	D/K, B/G	SIP5	K1950	58	
	6.5	F/27	D/K	SIP5	367	62	
	6.5	N/20	D/K	SIP5L	D1952	66	
38.90	5.5	N, C/20.5	B/G	SIP5	361 D	70	■
	5.5	N, C/26	B/G	SIP5	361 S	74	■
	5.5	N, C/20	B/G	DIP10	661	78	
	5.5	N/19	B/G	SIP5	G1954	82	■
	5.5	N/20	B/G	SIP5	G1956	86	S
	5.5	N/20	B/G	SIP5L	G1958	91	
	5.5	N, C/20	B/G	SIP5L	G1959	95	
	5.5	N, C/21	B/G	SIP5L	G1961	99	
	5.5	N, C/20	B/G	SIP5L	G1962	103	
	5.5	F/6	B/G, L	SIP5L	G3950	107	
	5.5/6.5	F/6,44	D/K, L, B/G	SIP5	K3950	111	
	5.5/6.5	N, C/18,20	D/K, B/G	SIP5L	K2950	115	
	6.0	F/27	I	SIP5	362-G	119	■
	6.0	F/21	I	SIP5L	J1952	122	S
	6.5	F/27	D/K	SIP5	366	126	
39.50	6.0	F/25	I	SIP5	363	130	■
	6.0	F/20	I	SIP5	J1950	133	S
	6.0	F, C/22	I	SIP5L	J1951	137	S
45.75	4.5	F/23	M/N	SIP5	431	141	■
	4.5	F/19	M/N	SIP5	M1950	145	
	4.5	F/18	M/N	SIP5L	M1952	149	
	4.5	F/21	M/N	SIP5L	M1953	153	
	4.5	F/16	M/N	SIP5	M1954	157	
	4.5	F/23	M/N	SIP5L	M1955	161	
	4.5	F/21	M/N	SIP5L	M1956[4]	–	
	4.5	F/45	M/N	SIP5L	M3950	165	

■ Not for new design

S Preferred product (refer to page 4)

[1]) N : comparable standard
C : customer-oriented
F : flat

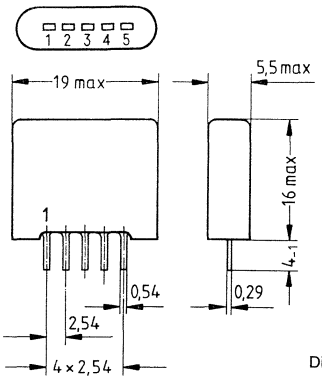
[2]) Typ., referred to filter roof

[3]) B : Australia
B/G : CCIR, Germany, Europe (7/8 MHz)
D/K : OIRT, Eastern standard, China
L : France
L/E : France
I : Great Britain, Republic of Ireland
M/N : FCC, USA

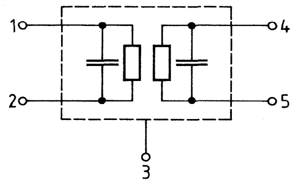
[4]) In preparation

Not for new design

Standard	L/E France
Application	TV IF filter including Nyquist slope and sound suppression. Vision carrier at 32.70 MHz
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW 364	B39936-A4-Y

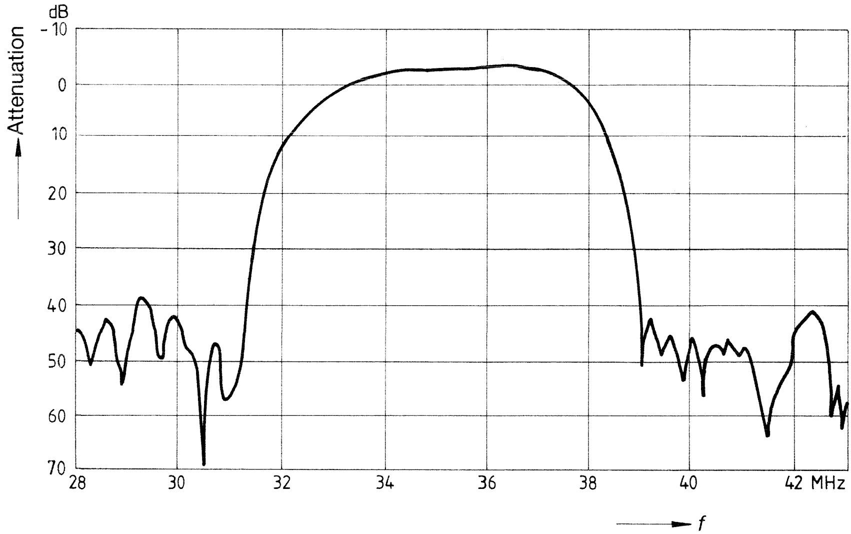
Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

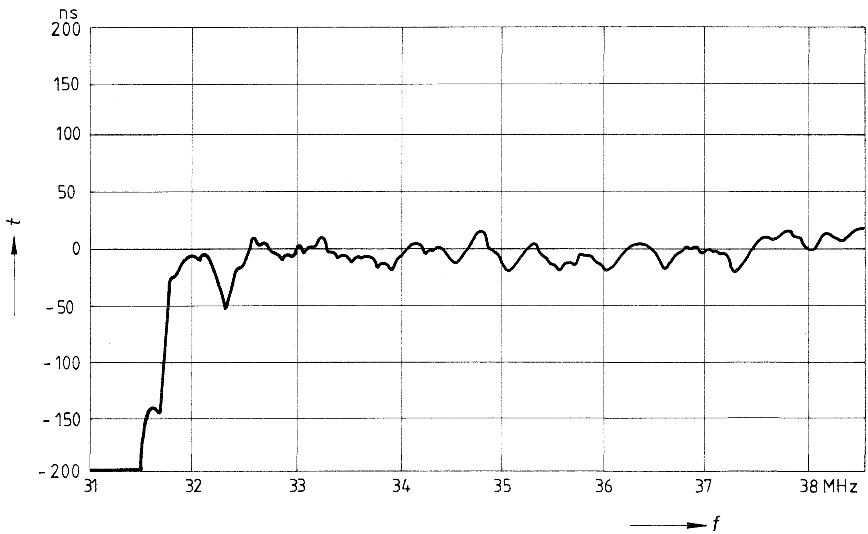
Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	34.20 MHz	–	22	25.5	
Attenuation values					
Vision carrier	32.70 MHz	4.8	6.2	7.6	
Color carrier	37.10 MHz	–1.3	0.1	1.5	
Sound carrier	39.15 MHz[1])	40	56	–	
Adjacent sound carrier	31.20 MHz[1])	44	60	–	
Lower sidelobe	25.00...31.20 MHz	35	39	–	
Upper sidelobe	39.20...45.00 MHz	36	43	–	dB
Attenuation of reflections					
1.1 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		40	48	–	
Attenuation of direct breakthrough					
1.2 µs...1.5 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		46	50	–	
Group delay Reference frequency 32.70 MHz					ns
Constant group delay up to 38.00 MHz		–	±0	–	
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 34.20 MHz		Input: 2.6 kΩ II 13 pF Output: 1.6 kΩ II 9 pF			

[1]) Maximum attenuation within the range ±100 kHz

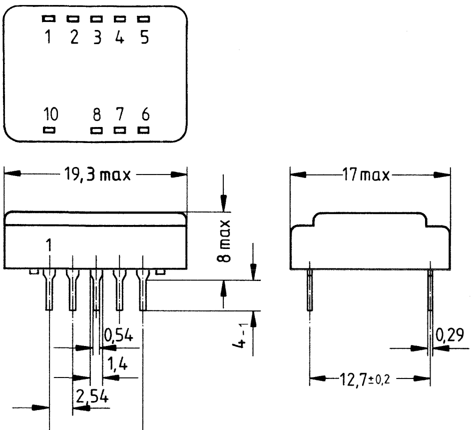
Amplitude response



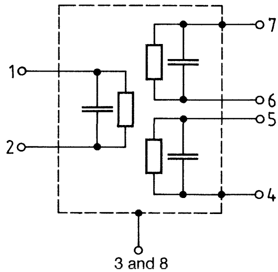
Group delay



Standard	L/E France
Application	TV IF filter including Nyquist slope and sound suppression.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package.



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Not connected
6, 7 Output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

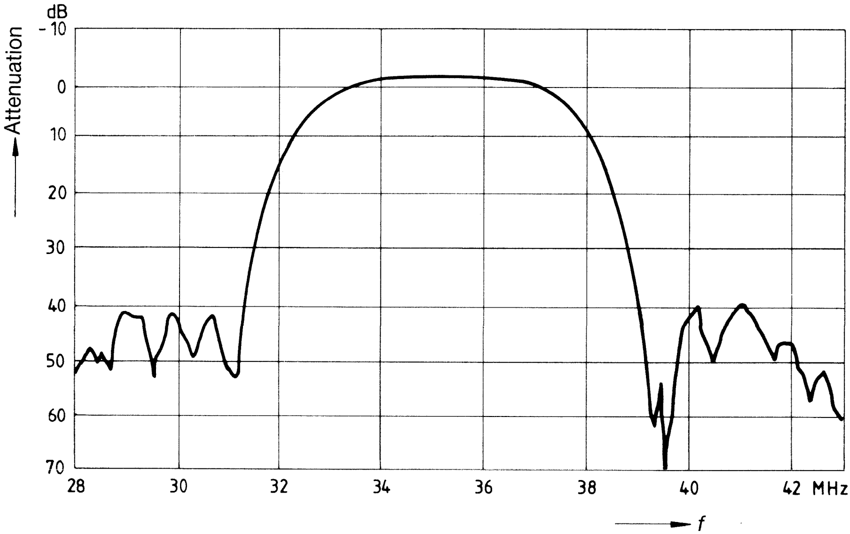
Type	Ordering code
OFW 664 B	B39966-A4-B

Measuring conditions

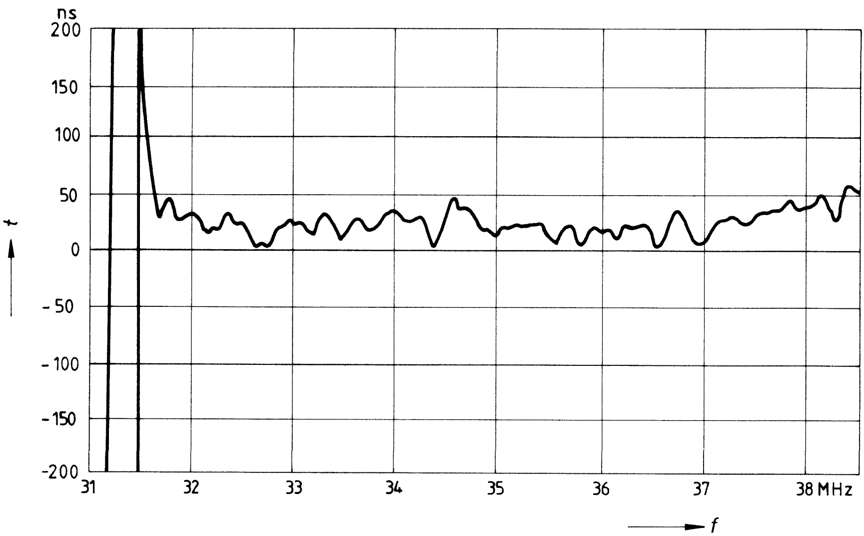
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	34.20 MHz	–	24	25.5	
Attenuation values					
Vision carrier	32.70 MHz	5.4	6.4	7.6	
Color carrier	37.10 MHz	0.1	1.2	2.5	
Sound carrier	39.20 MHz	44	54	–	
Adjacent vision carrier	40.70 MHz	39	48	–	
Adjacent sound carrier	31.20 MHz	46	53	–	
Lower sidelobe	25.00...31.20 MHz	34	40	–	dB
Upper sidelobe	40.70...45.00 MHz	36	45	–	
Attenuation of reflections					
1.2 μs...3.5 μs after main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		42	50	–	
Attenuation of direct breakthrough					
1.2 μs...1.5 μs prior to main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		50	63	–	
Group delay Reference frequency 32.70 MHz					ns
Constant group delay up to 37.50 MHz		–	±0	–	
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 34.20 MHz		Input: 3.0 kΩ ll 12 pF Output: 1.7 kΩ ll 9 pF			

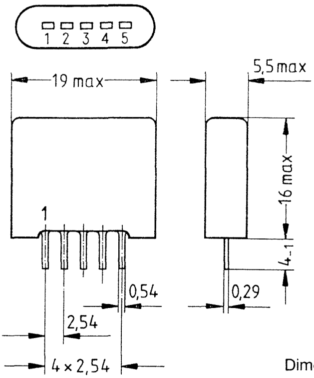
Amplitude response



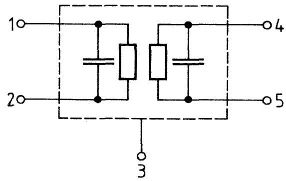
Group delay



Standard	L/E France
Application	TV IF filter including Nyquist slope and sound suppression. Reduced insertion loss
Version	Single in-line plastic package: SIP 5L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	*V*	(max)	18 V
AC voltage	*V*	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

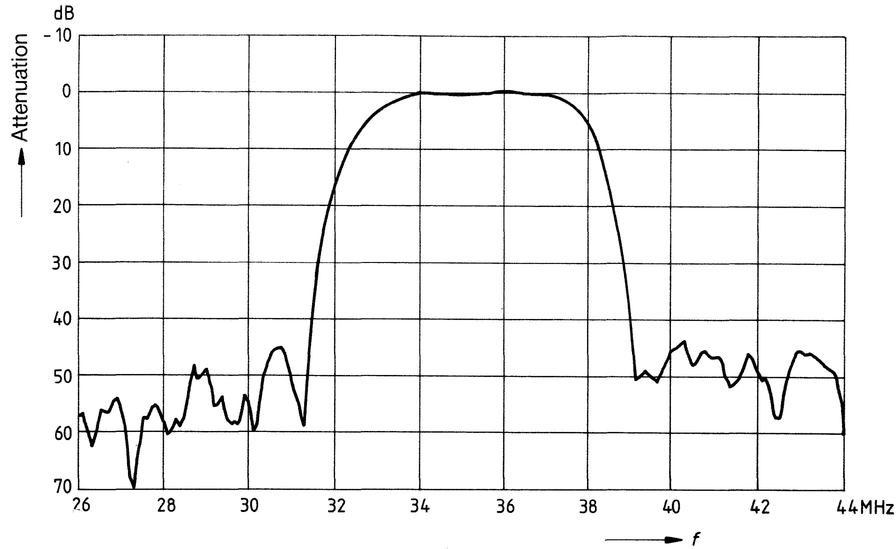
Type	Ordering code
OFW L 3952	B39327-L3952-N100

Measuring conditions

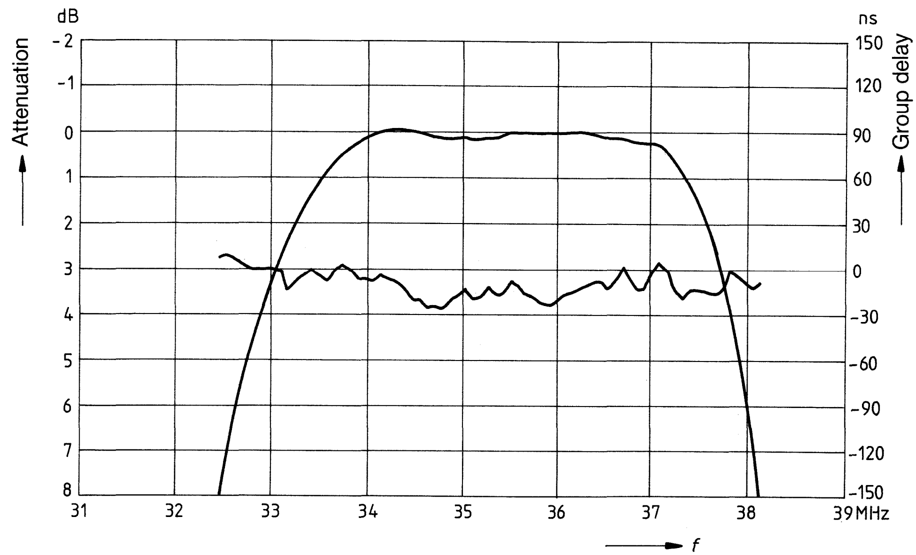
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	34.20 MHz	16.0	17.0	19.0	
Attenuation values					
Vision carrier	32.70 MHz	4.8	5.8	6.8	
Color carrier	37.40 MHz	−0.1	0.9	1.9	
Sound carrier	39.20 MHz	42.0	50.0	–	
Adjacent vision carrier	40.70 MHz	38.0	44.0	–	
Adjacent sound carrier	31.20 MHz	46.0	54.0	–	
Lower sidelobe	25.00...31.20 MHz	40.0	46.0	–	dB
Upper sidelobe	39.20...45.00 MHz	36.0	42.0	–	
Attenuation of reflections					
1.2 µs...3.0 µs after main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		40.0	48.0		
Attenuation of direct breakthrough					
1.2 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		50.0	56.0	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	−72	–	ppm/K
Small-signal impedances typical values at 34.20 MHz		Input: 2.9 kΩ II 1.0 pF Output: 1.1 kΩ II 8.8 pF			

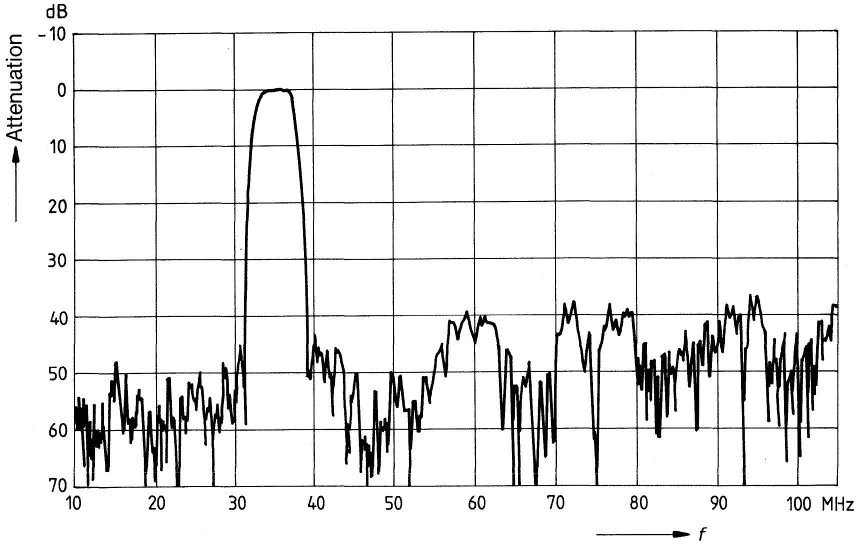
Amplitude response



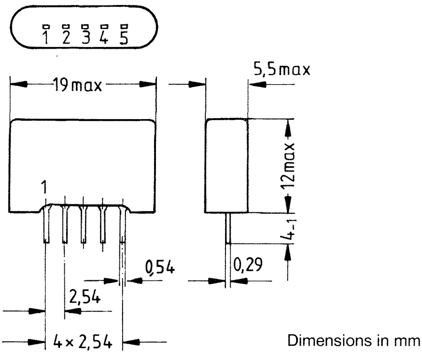
Amplitude response and group delay



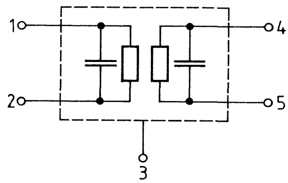
Far-off selectivity



Standard	L/E France
Application	TV IF filter including Nyquist slope and sound shelf. Constant group delay
Version	Single in-line plastic package: SIP 5L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

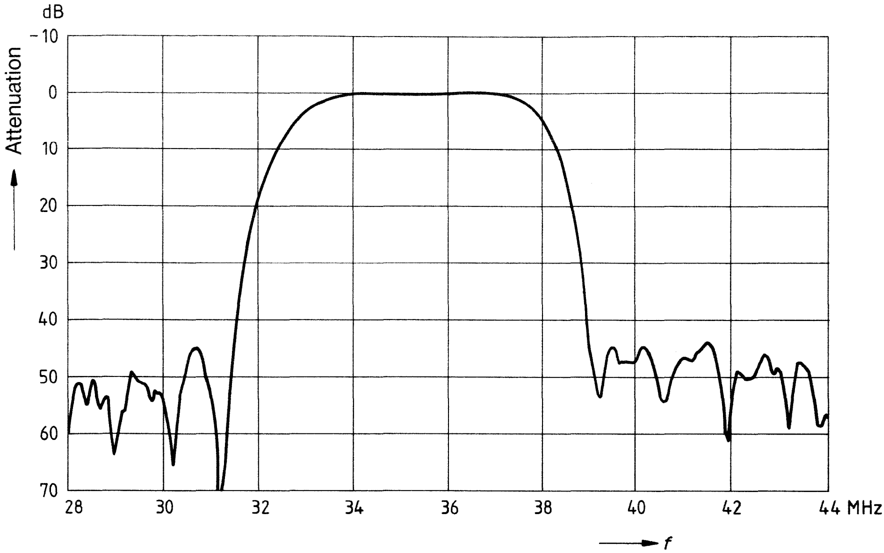
Type	Ordering code
OFW L 3953	B39327-L3953-N100

Measuring conditions

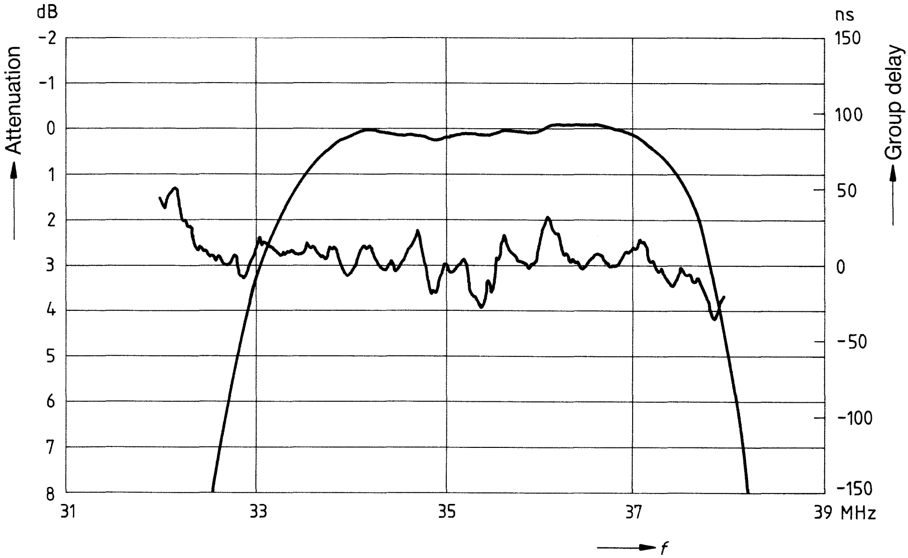
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	1500 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	34.20 MHz	16	17.6	19	dB
Attenuation values					
Vision carrier	32.70 MHz	4.7	5.7	6.7	dB
Color carrier	37.40 MHz	0.4	0.6	1.6	dB
Sound carrier	39.20 MHz	43	50	–	dB
Adjacent vision carrier	40.70 MHz	44	56	–	dB
Adjacent sound carrier	31.20 MHz	48	58	–	dB
Lower sidelobe	25.00...31.20 MHz	41	46	–	dB
Upper sidelobe	40.70...45.00 MHz	36	42	–	dB
Attenuation of reflections 1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		42	49	–	dB
Attenuation of direct breakthrough 1.2 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		50	>56	–	dB
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 34.20 MHz		Input: 3 kΩ II 11 pF Output: 1.1 kΩ II 8.5 pF			

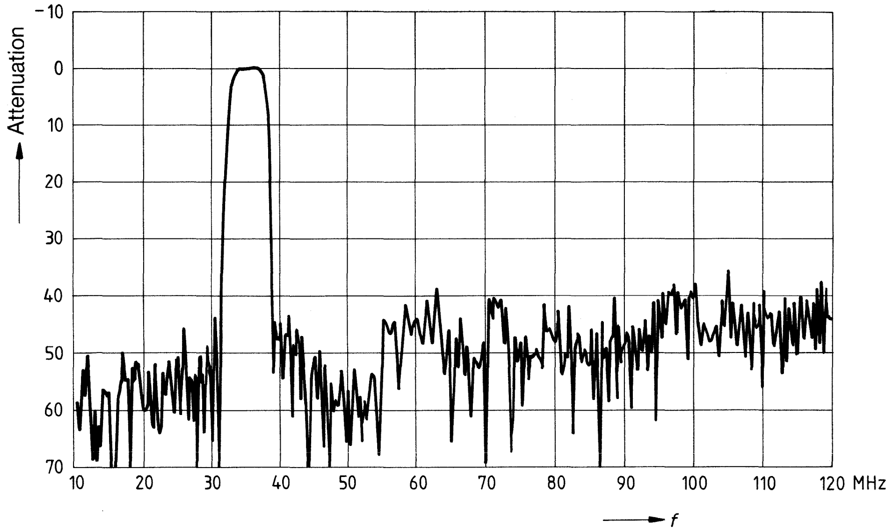
Amplitude response



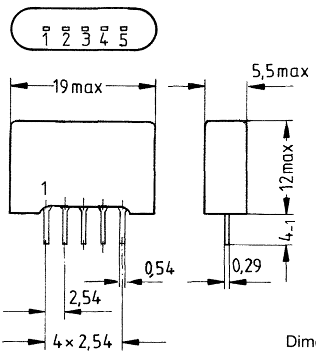
Amplitude response and group delay



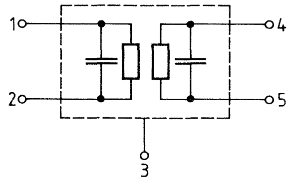
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz), L/E France
Application	TV IF filter including two Nyquist slopes. Vision carrier at 33.4 MHz and 38.9 MHz. Constant group delay. Reduced insertion loss
Version	Single in-line plastic package: SIP 5L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

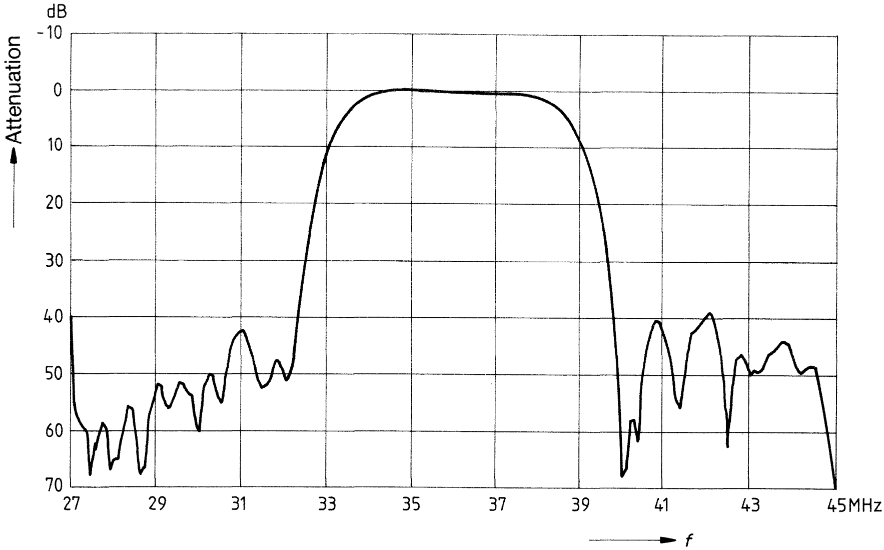
Type	Ordering code
OFW G 3950	B39389-G3950-N100

Measuring conditions

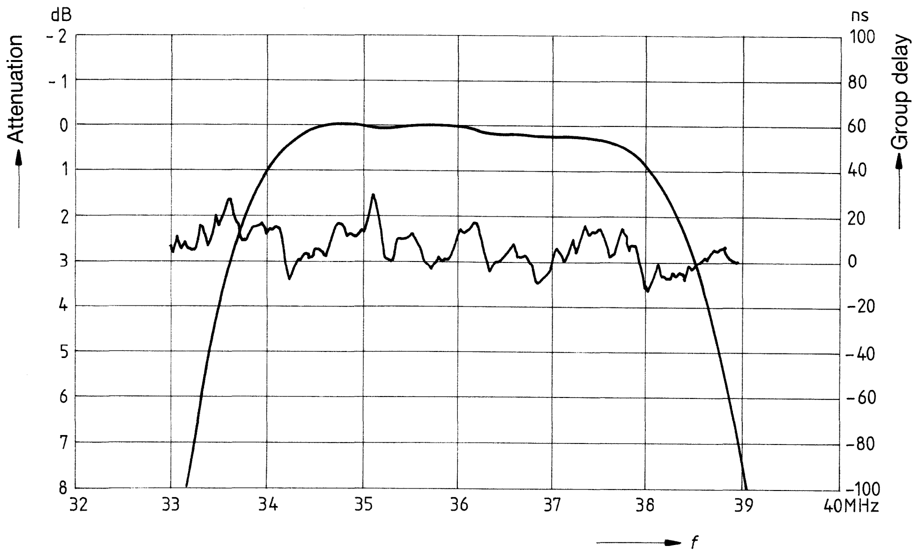
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 k Ω ǁ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.90 MHz	16	17.5	19.5	
Attenuation values					
Vision carrier	38.90 MHz	4.6	5.6	6.6	
Color carrier	32.40 MHz		52		
Sound carrier	33.40 MHz	4.2	5.2	6.2	
Adjacent vision carrier	31.90 MHz	41	46		
Adjacent sound carrier VHF	39.90 MHz	34	41		
UHF	40.40 MHz	40	46		
Lower sidelobe	25.00...31.90 MHz	38	44		
Upper sidelobe	40.40...45.00 MHz	34	38		dB
Attenuation of reflections					
1.2 μs...3.5 μs after main pulse Test pulse: 250 ns, Carrier frequency: 37.90 MHz		42	52		
Attenuation of direct breakthrough					
0.8 μs...0.9 μs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.90 MHz		50	56		
Group delay Ripple			40	80	ns
Temperature coefficient			−72		ppm/K
Small-signal impedances typical values at 37.90 MHz		Input: 2.5 kΩ ǁ 11 pF Output: 2.0 kΩ ǁ 5 pF			

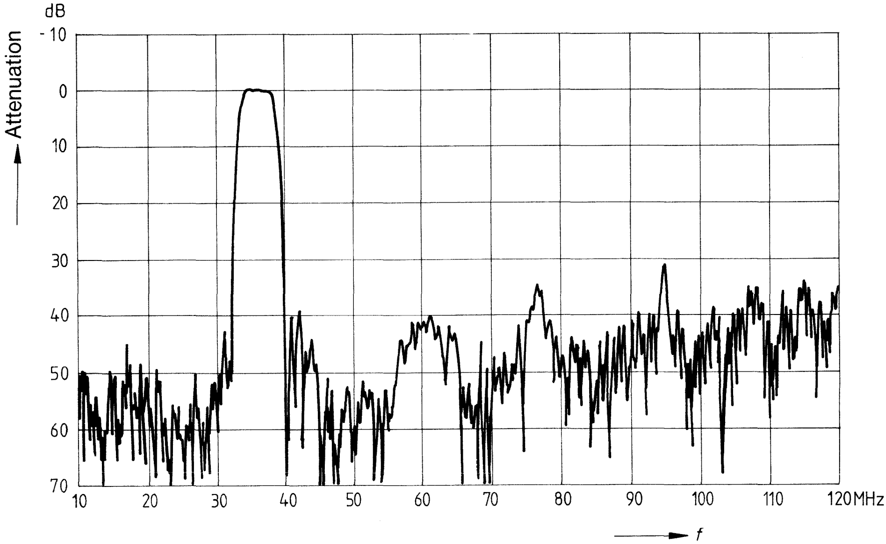
Amplitude response



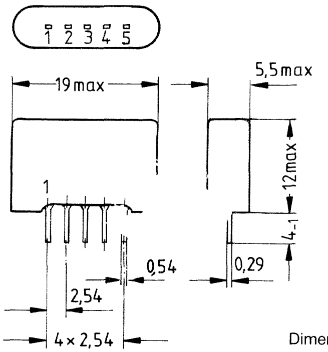
Amplitude response and group delay



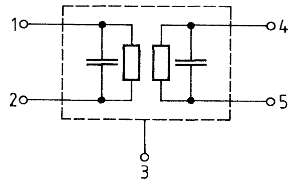
Far-off selectivity



Standard	B Australia
Application	TV IF filter including Nyquist slope and sound shelf. Standard group delay
Version	Single in-line plastic package: SIP 5L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	*V*	(max)	18 V
AC voltage	*V*	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

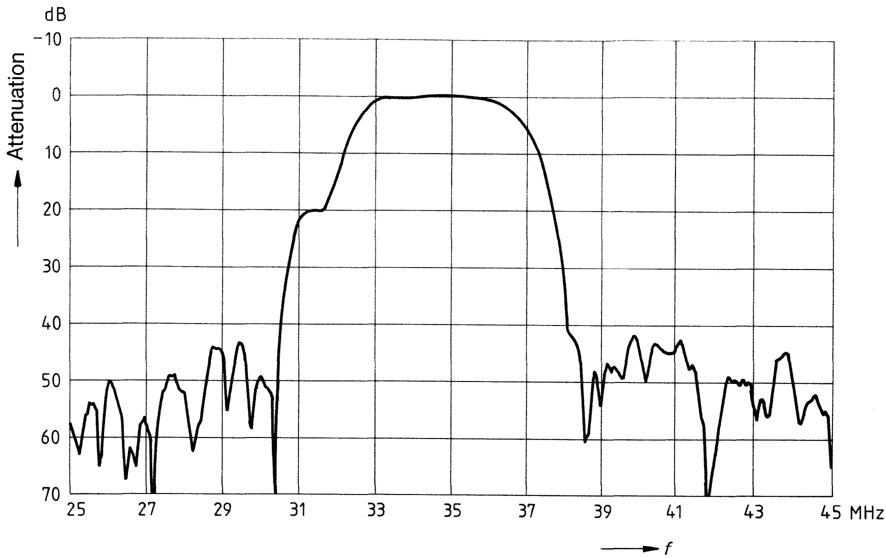
Type	Ordering code
OFW G 1950	B39369-B1950-N100

Measuring conditions

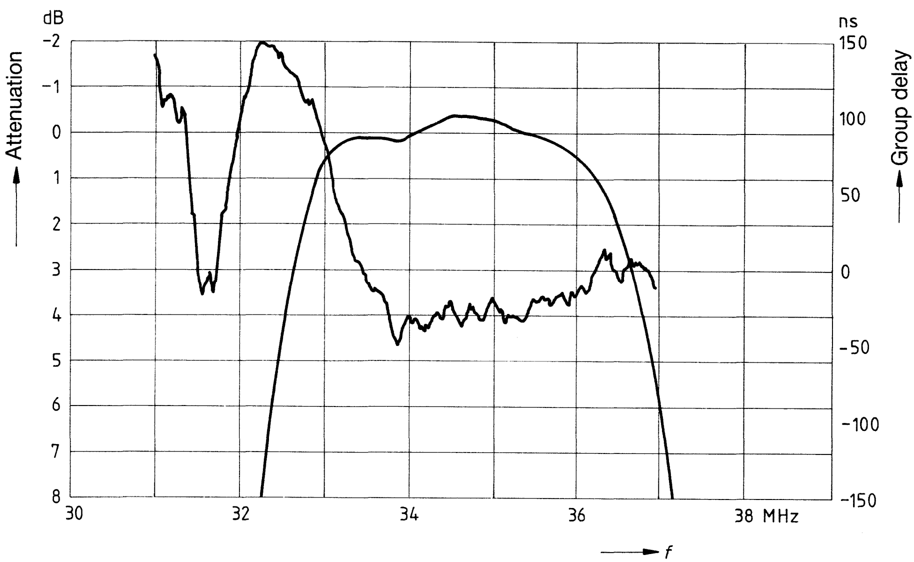
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ǁ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	35.38 MHz	14.5	15.8	17.5	
Attenuation values					
Vision carrier	36.88 MHz	4.3	5.3	6.3	
Color carrier	32.45 MHz	3.4	4.4	5.4	
Sound carrier	31.88 MHz	19.5	20.5	21.5	
Adjacent vision carrier	29.88 MHz	48	56	–	
Adjacent sound carrier	38.38 MHz	40	45	–	
Lower sidelobe	25.00…29.88 MHz	41	45	–	dB
Upper sidelobe	38.38…45.00 MHz	37	42	–	
Attenuation of reflections					
1.2 µs…3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 35.38 MHz		44	49	–	
Attenuation of direct breakthrough					
1.2 µs…1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 35.38 MHz		50	>56	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 35.38 MHz		Input: 1.9 kΩ ǁ 12.5 pF Output: 1.8 kΩ ǁ 5 pF			

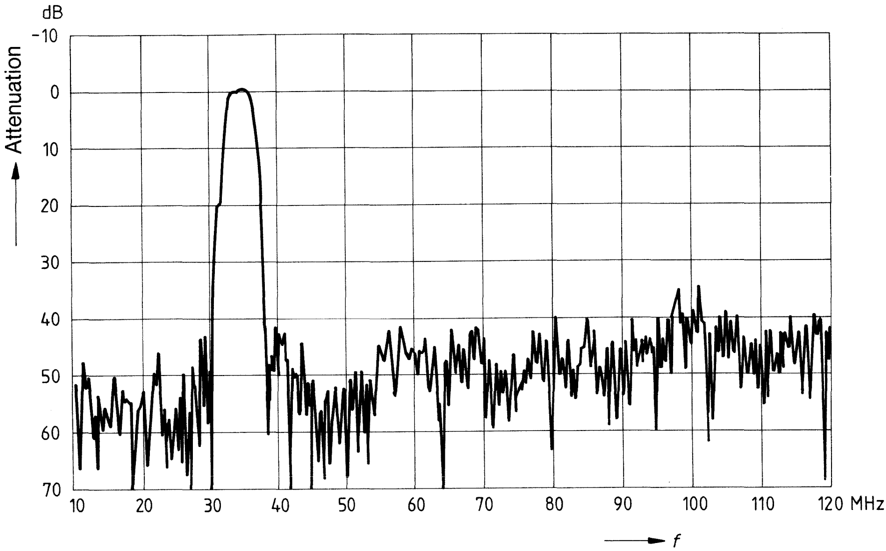
Amplitude response



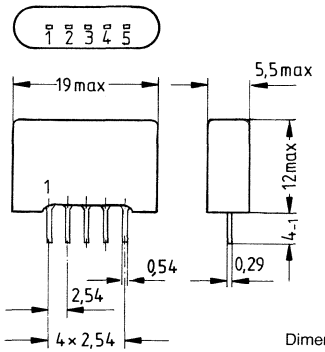
Amplitude response and group delay



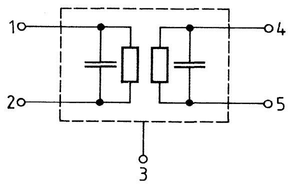
Far-off selectivity



Standard	D/K, OIRT, Eastern standard, China
Application	TV IF filter including Nyquist slope and group delay distortion (standard D/K, half, CCIR report 308). Reduced insertion loss, suitable for high-impedance driving. Vision carrier at 37.0 MHz
Version	Single in-line plastic package: SIP 5L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package.



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

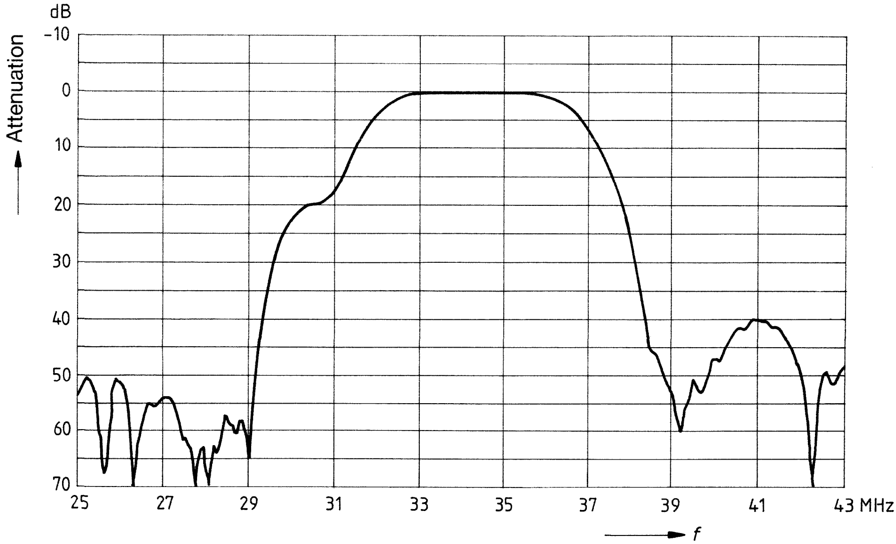
Type	Ordering code
OFW D 1951	B39370-D1951-N100

Measuring conditions

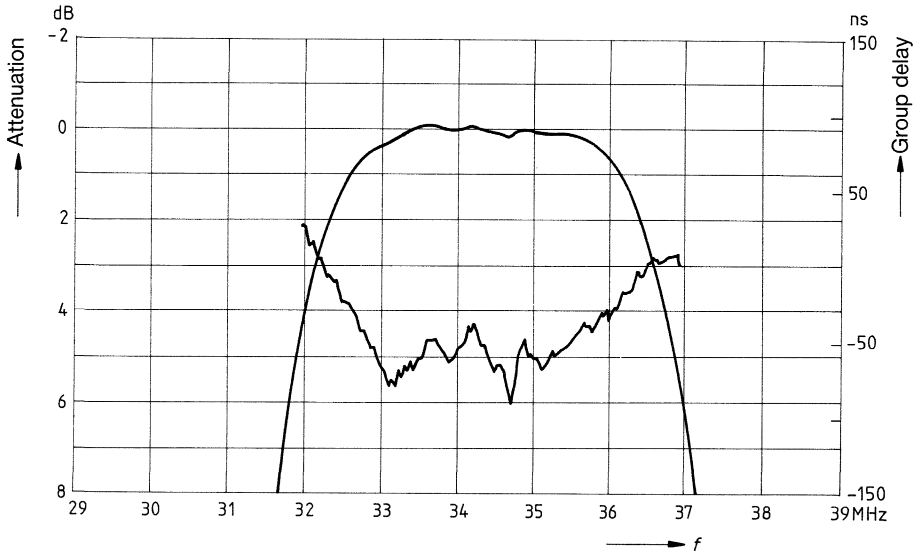
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	34.00 MHz	15.5	17.0	19.0	
Attenuation values					
Vision carrier	37.00 MHz	5.2	6.2	7.2	
Color carrier	32.57 MHz	0.2	1.2	2.2	
Sound carrier	30.50 MHz	19.4	20.4	21.4	
Adjacent vision carrier	29.00 MHz	46.0	60.0	–	
Adjacent sound carrier	38.50 MHz	38.0	46.0	–	
Lower sidelobe	25.00...29.00 MHz	40.0	46.0	–	dB
Upper sidelobe	38.50...45.00 MHz	36.0	42.0	–	
Attenuation of reflections 1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 34.00 MHz		40.0	50.0	–	
Attenuation of direct breakthrough 1.0 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 34.00 MHz		50.0	54.0	–	
Group delay Reference frequency 37.00 MHz Max. deviation at 35.00 MHz		–	–50	–	ns
Ripple		–	40	80	
Value at 32.57 MHz		–	–25	–	
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 34.00 MHz		Input: 2.8 kΩ ll 11 pF Output: 2.0 kΩ ll 5 pF			

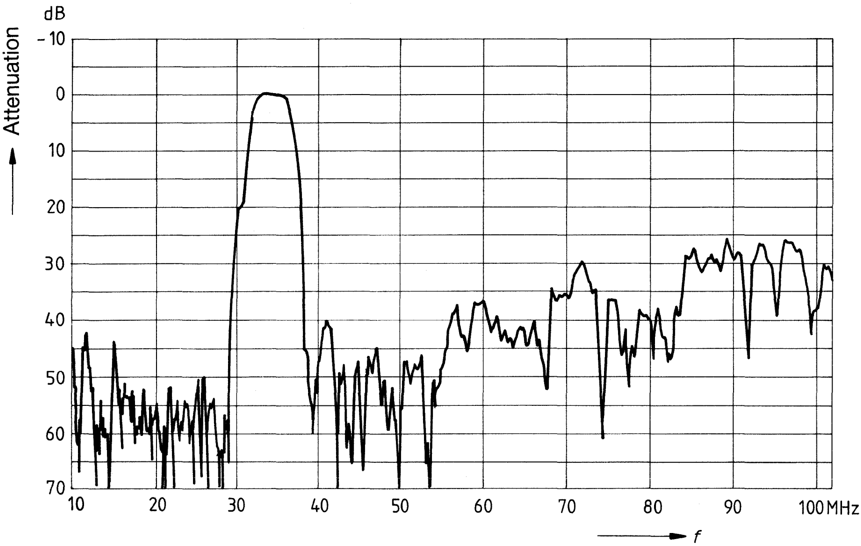
Amplitude response



Amplitude response and group delay

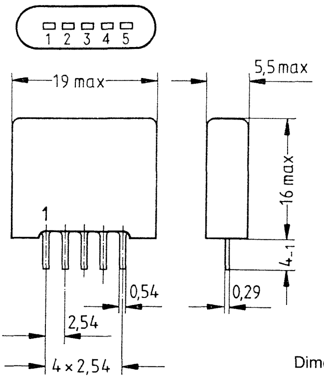


Far-off selectivity

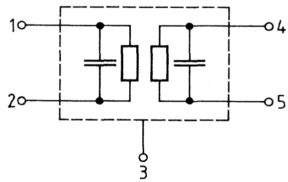


Not for new design

Standard	D/K, OIRT, Eastern standard, China; B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope. Vision carrier at 38.0 MHz. 5.5 and 6.5 MHz vision-to-sound interval.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

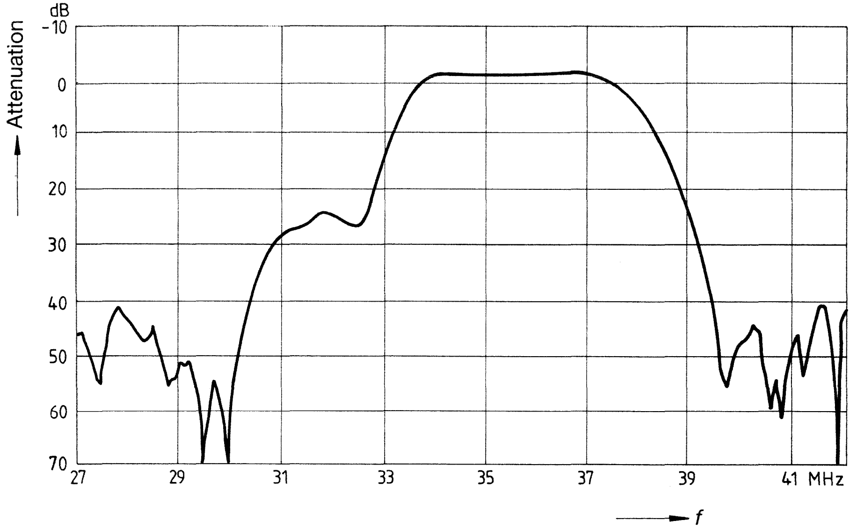
Type	**Ordering code**
OFW 368	B39936-A8

Measuring conditions

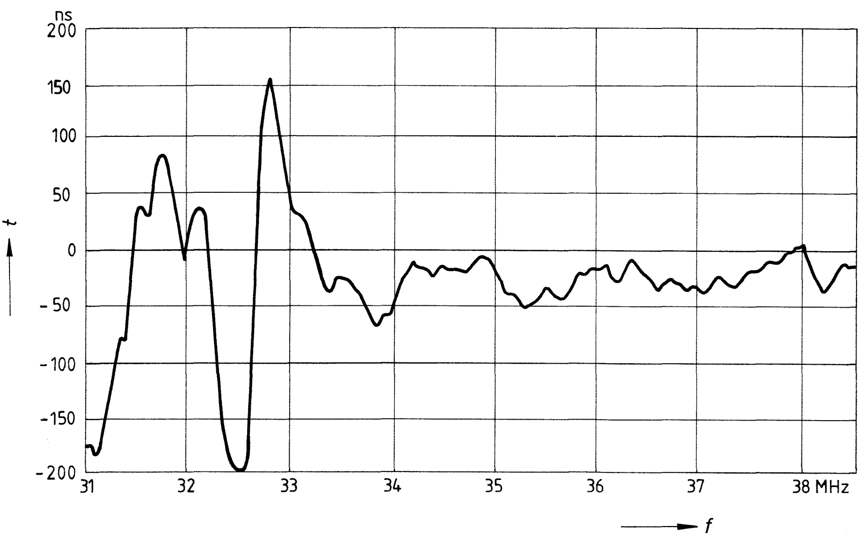
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	36.50 MHz	–	21	24.0	
Attenuation values					
Vision carrier	38.00 MHz	4.3	5.3	6.3	
Color carrier	33.57 MHz	2.4	3.6	4.4	
Sound carrier	32.50 MHz	24.6	27.0	29.4	
Adjacent vision carrier	30.00 MHz	44	56	–	
Adjacent sound carrier VHF	39.60 MHz	38	43	–	
UHF	40.60 MHz	38	50	–	
Lower sidelobe	25.00...30.00 MHz	36	42	–	dB
Upper sidelobe	39.60...45.00 MHz	36	42	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 36.50 MHz		40.0	49	–	
Attenuation of direct breakthrough					
1.3 µs...1.6 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 36.50 MHz		48	54	–	
Group delay Reference frequency 38.00 MHz					
Constant group delay up to 33.57 MHz		–	±0	–	ns
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 36.50 MHz		Input: 1.6 kΩ ll 15 pF Output: 3.0 kΩ ll 6 pF			

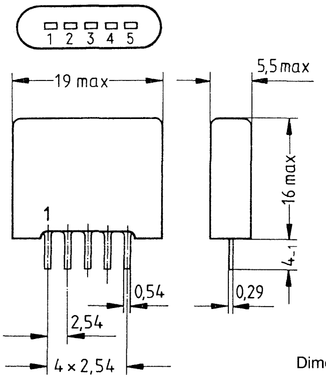
Amplitude response



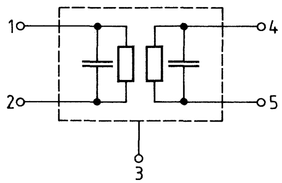
Group delay



Standard	D/K, OIRT, Eastern standard, China; B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope, vision carrier at 38.0 MHz. 5.5 and 6.5 MHz vision-to-sound interval. Reduced insertion loss.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	*V*	(max)	18 V
AC voltage	*V*	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

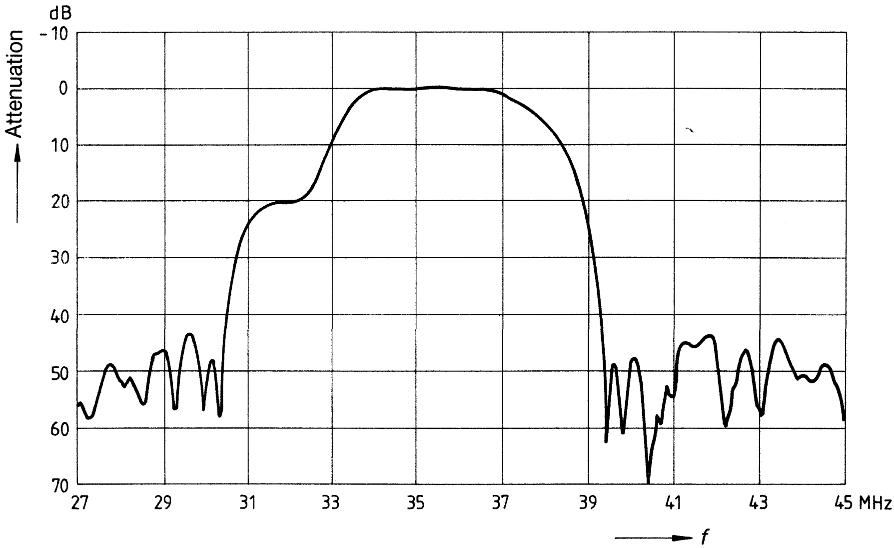
Type	Ordering code
OFW K 1950	B39380-K1950-N100

Measuring conditions

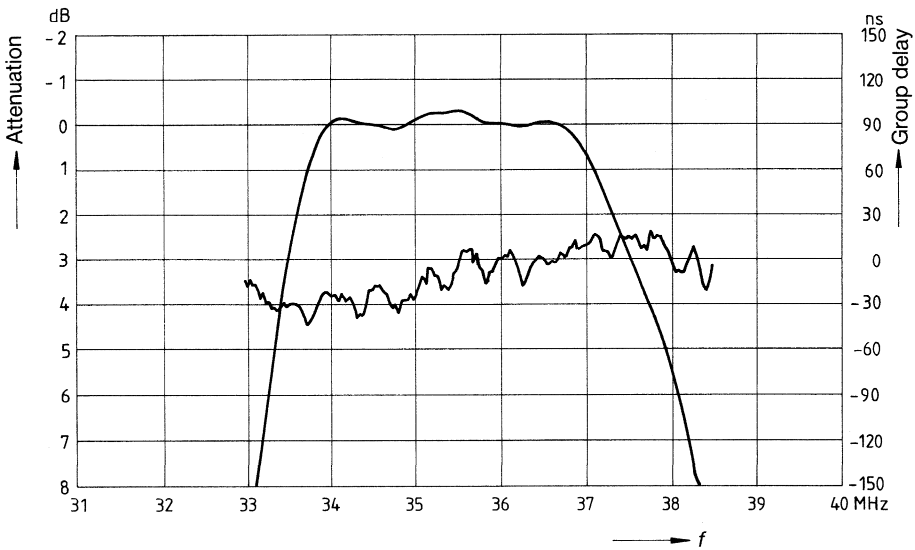
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	36.50 MHz	–	17	18.5	
Attenuation values					
Vision carrier	38.00 MHz	5.0	6.0	7.0	
Color carrier	33.57 MHz	1.2	2.2	3.2	
Sound carrier	31.50 MHz	19.6	20.6	21.6	
Adjacent vision carrier	30.00 MHz	43	51	–	
Adjacent sound carrier VHF	39.50 MHz	42	51	–	
Lower sidelobe	25.00...30.00 MHz	38	46	–	dB
Upper sidelobe	39.50...45.00 MHz	36	43	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 36.50 MHz		42	50	–	
Attenuation of direct breakthrough					
0.9 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 36.50 MHz		50	55	–	
Group delay Reference frequency 38.00 MHz					ns
Ripple		–	40	80	
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 36.50 MHz		Input: 2.1 kΩ II 12 pF Output: 1.7 kΩ II 7 pF			

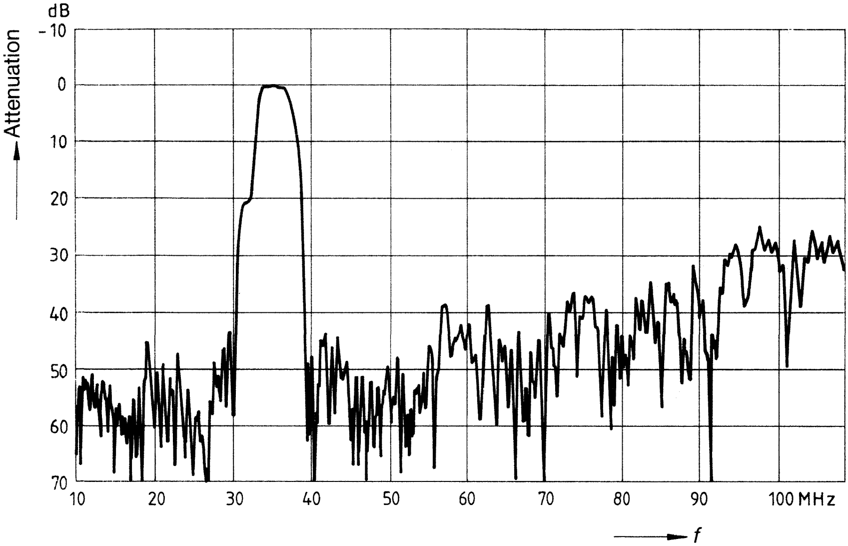
Amplitude response



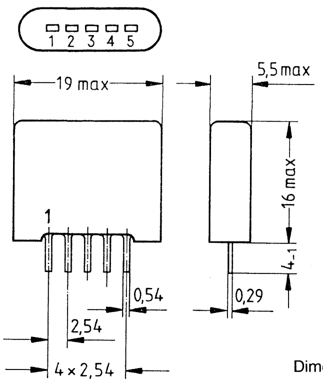
Amplitude response and group delay



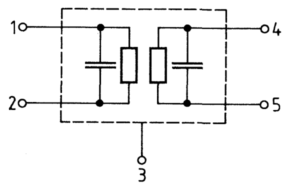
Far-off selectivity



Standard	D/K, OIRT, Eastern standard, China
Application	TV IF filter including Nyquist slope. Sound shelf at 27 dB. Vision carrier at 38.0 MHz
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	*V*	(max)	18 V
AC voltage	*V*	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

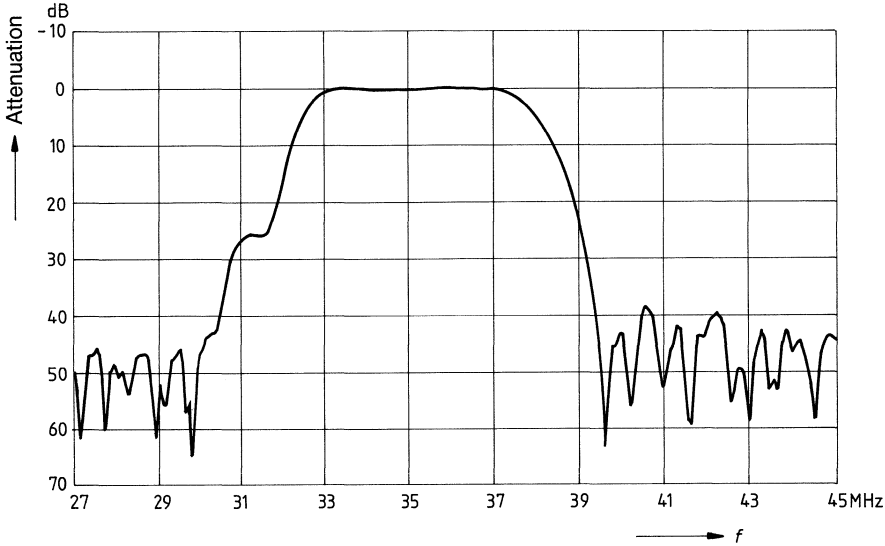
Type	Ordering code
OFW 367	B39936-A7

Measuring conditions

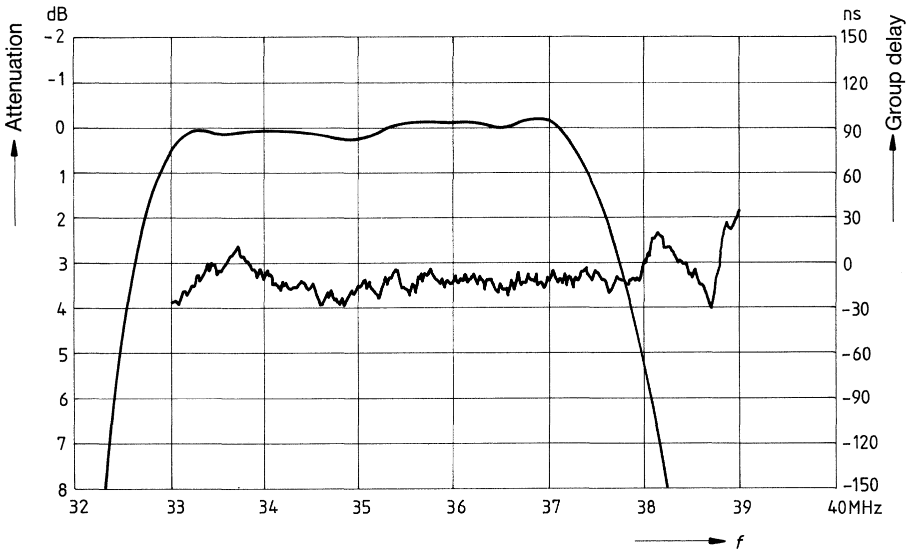
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	36.50 MHz	–	23	24.5	dB
Attenuation values					
Vision carrier	38.00 MHz	4.0	5.4	7.0	dB
Color carrier	32.60 MHz	1.6	3.3	4.2	dB
Sound carrier	31.50 MHz	24.6	26.8	29.0	dB
Adjacent vision carrier	30.00 MHz	44	51	–	dB
Adjacent sound carrier	39.70 MHz	45	54	–	dB
Lower sidelobe	25.00...30.00 MHz	38	46	–	dB
Upper sidelobe	39.70...40.00 MHz	36	41	–	dB
Attenuation of reflections					
1.1 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 36.50 MHz		40	49	–	dB
Attenuation of direct breakthrough					
1.2 µs...1.5 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 36.50 MHz		44	50	–	dB
Group delay Reference frequency 38.00 MHz					ns
Constant group delay up to 33.00 MHz		–	±0	–	ns
Ripple		–	40	80	ns
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 36.50 MHz		Input: 2.2 kΩ ll 14 pF Output: 3.3 kΩ ll 5.5 pF			

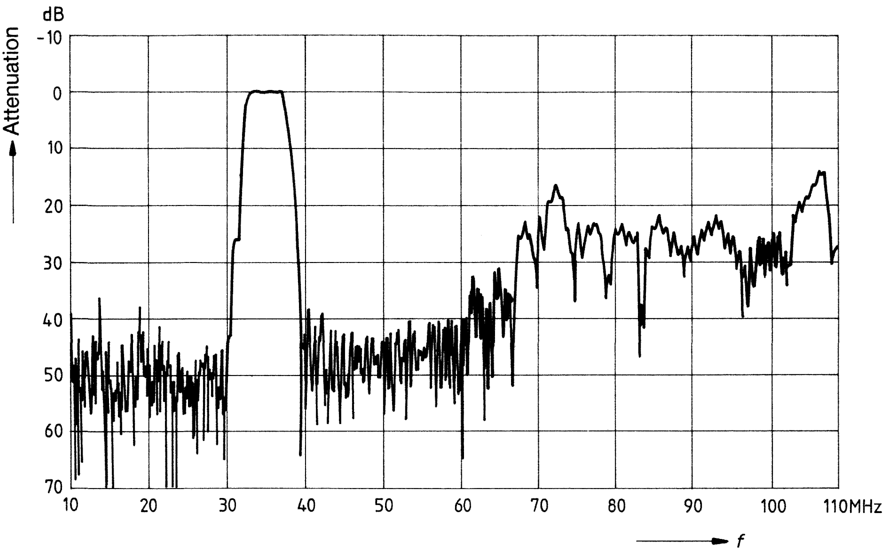
Amplitude response



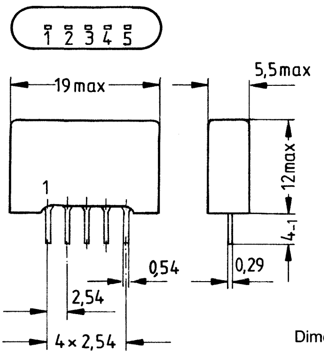
Amplitude response and group delay



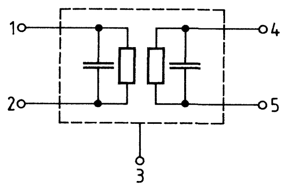
Far-off selectivity



Standard	D/K, OIRT, Eastern standard, China
Application	TV IF filter including Nyquist slope and group delay distortion (standard D/K, half, CCIR report 308). Reduced insertion loss, suitable for high impedance driving. Vision carrier at 38.0 MHz
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

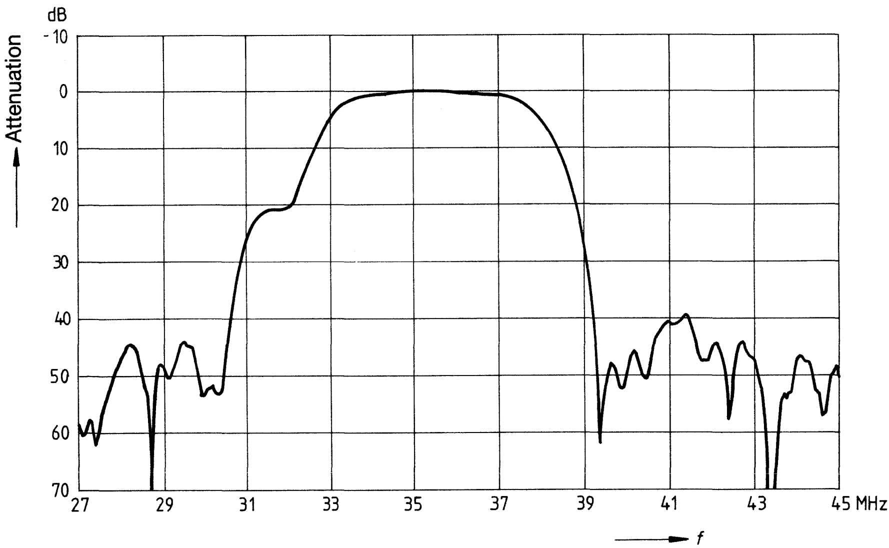
Type	Ordering code
OFW D 1952	B39380-D1952-N100

Measuring conditions

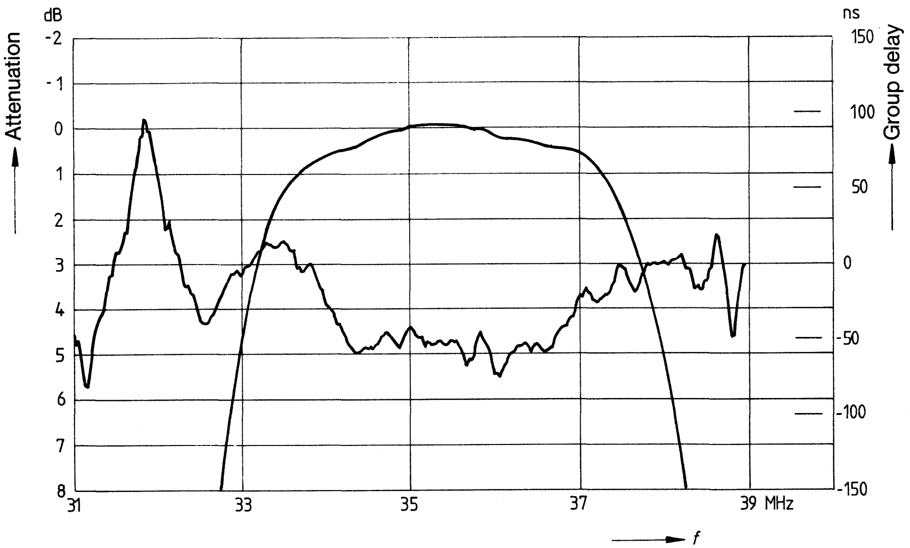
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	35.00 MHz	15.0	16.7	18.0	
Attenuation values					
Vision carrier	38.00 MHz	4.3	5.3	6.3	
Color carrier	33.57 MHz	0.3	1.3	2.3	
Sound carrier	31.50 MHz	19.7	20.7	21.7	
Adjacent vision carrier	30.00 MHz	46.0	51.0	–	
Adjacent sound carrier VHF	39.50 MHz	44.0	52.0	–	
Lower sidelobe	25.00...30.00 MHz	41.0	45.0	–	dB
Upper sidelobe	39.50...45.00 MHz	35.0	39.0	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 35.00 MHz		46.0	55.0	–	
Attenuation of direct breakthrough					
1.1 µs...0,9 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 35.00 MHz		50.0	>56.0	–	
Group delay Ripple Standard group delay		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 35.00 MHz		Input: 2.8 kΩ ll 12 pF Output: 1.5 kΩ ll 5.5 pF			

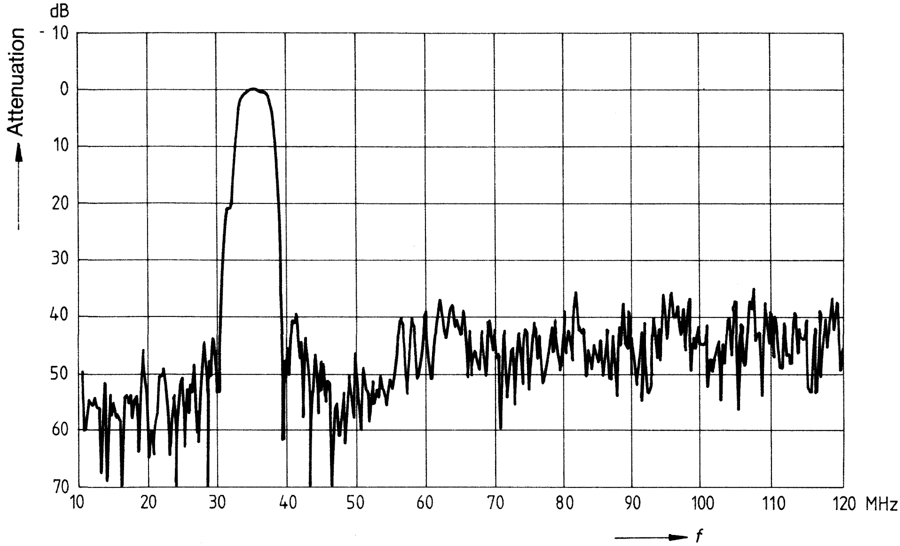
Amplitude response



Amplitude response and group delay

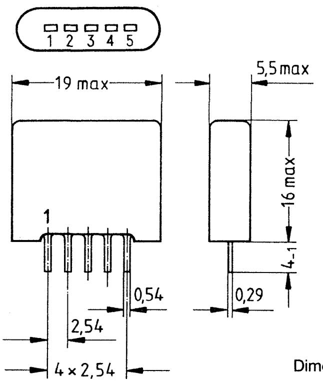


Far-off selectivity

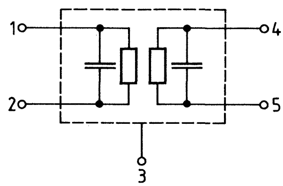


Not for new design

Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion, sound shelf at 20.5 dB
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

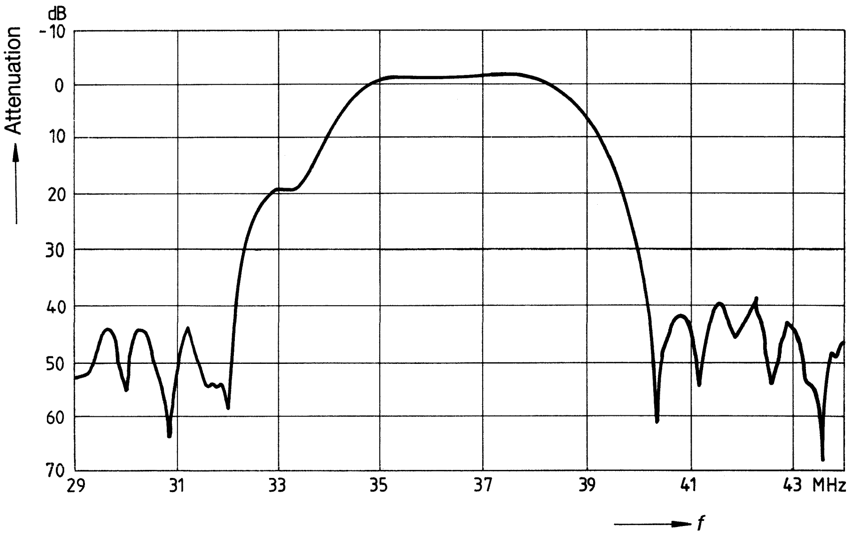
Type	Ordering code
OFW 361 D	B39936-A1-X21

Measuring conditions

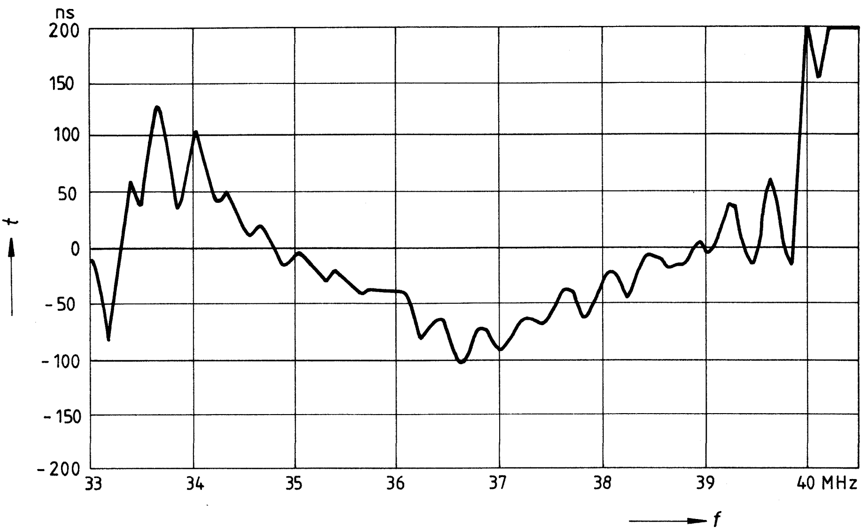
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

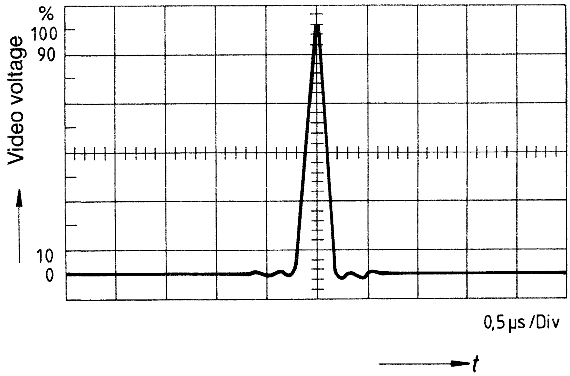
Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	20	22.5	
Attenuation values					
Vision carrier	38.90 MHz	4.5	5.5	6.5	
Color carrier	34.47 MHz	4	5	6	
Sound carrier	33.40 MHz	19	20.5	22	
Adjacent vision carrierr	31.90 MHz	48	52	–	
Adjacent sound carrier VHF	40.40 MHz	46	58	–	
UHF	41.40 MHz	40	46	–	
Lower sidelobe	25.00...31.90 MHz	38	44	–	dB
Upper sidelobe	40.40...45.00 MHz	36	42	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse		42	50	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse		48	52	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Group delay					
Reference frequency 38.90 MHz					
Max. deviation at 36.60 MHz		–	–90	–	ns
Ripple		–	40	80	
Rise at 34.47 MHz		–	30	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.3 kΩ ll 15 pF Output: 2.0 kΩ ll 6 pF			

Amplitude response



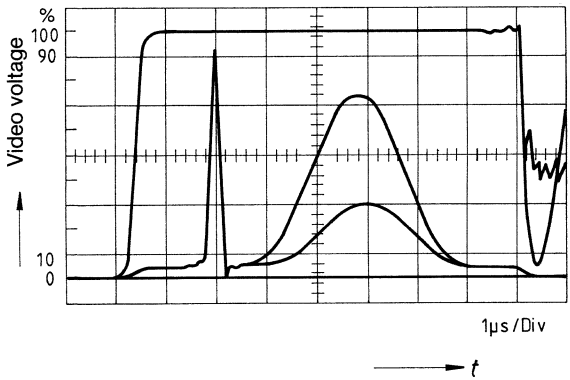
Group delay



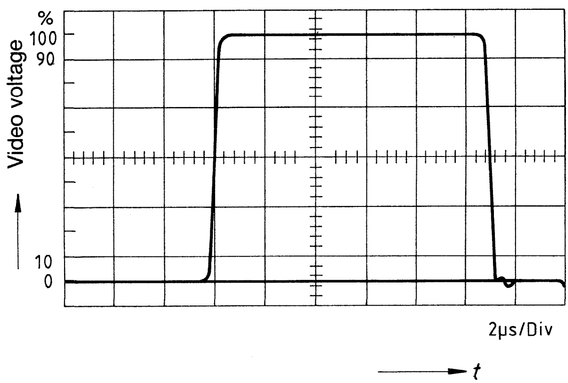


Pulse response in the IF board

2T-pulse



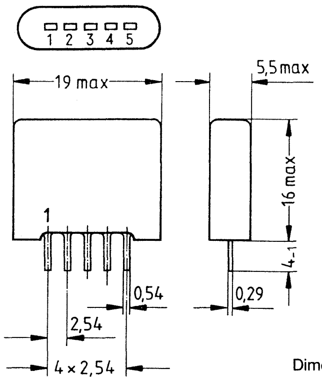
2T/20T-signal



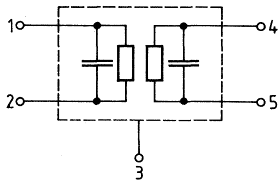
Step signal

Not for new design

Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion, sound shelf at 26 dB
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

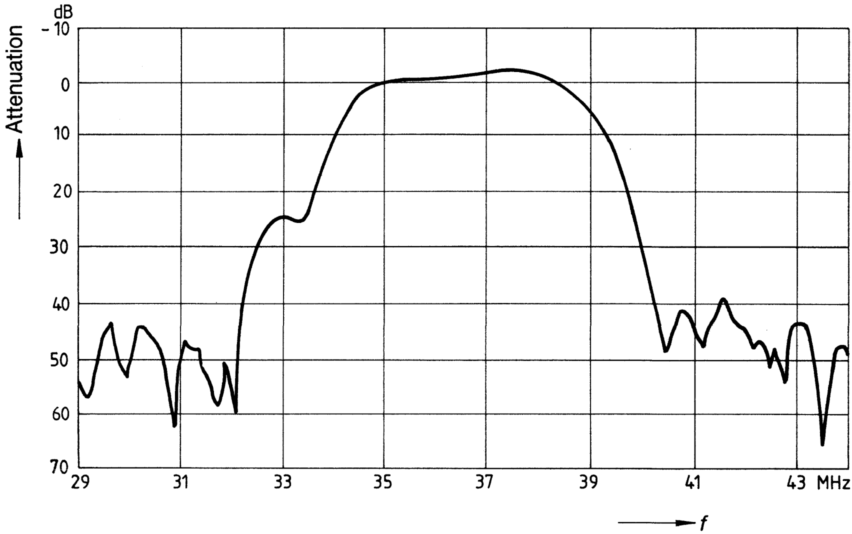
Type	Ordering code
OFW 361 S	B39936-A1-X18

Measuring conditions

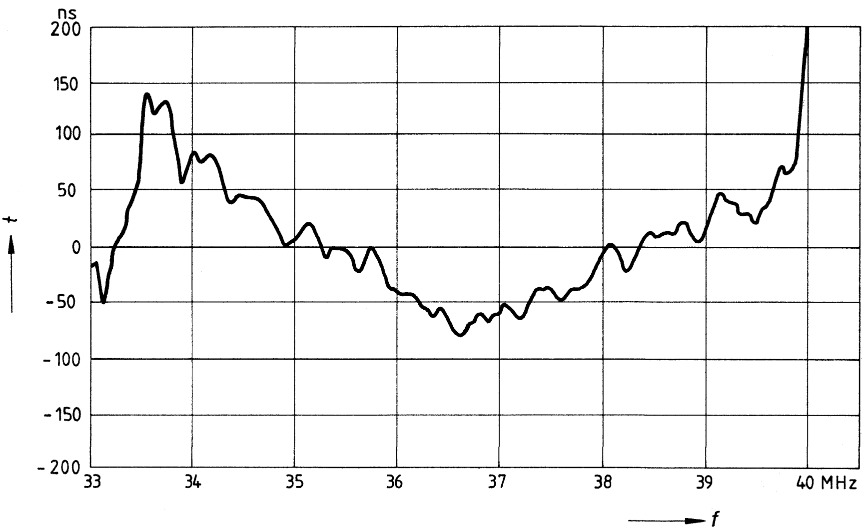
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	19	22,5	
Attenuation values					
Vision carrier	38.90 MHz	4.1	5.5	6.9	
Color carrier	34.47 MHz	3.6	5.0	6.5	
Sound carrier	33.40 MHz	23.7	26	28.5	
Adjacent vision carrier	31.90 MHz	42	52	–	
Adjacent sound carrier VHF	40.50 MHz	40	51	–	
UHF	41.40 MHz	36	44	–	
Lower sidelobe	25.00...31.90 MHz	36	43	–	dB
Upper sidelobe	40.40...45.00 MHz	34	42	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse		40	47	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse		48	52	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Group delay					
Reference frequency 38.90 MHz					
Max. deviation at 36.70 MHz		–	–90	–	ns
Ripple		–	40	80	
Rise at 34.47 MHz		–	30	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.5 kΩ II 15 pF Output: 2.0 kΩ II 6 pF			

Amplitude response

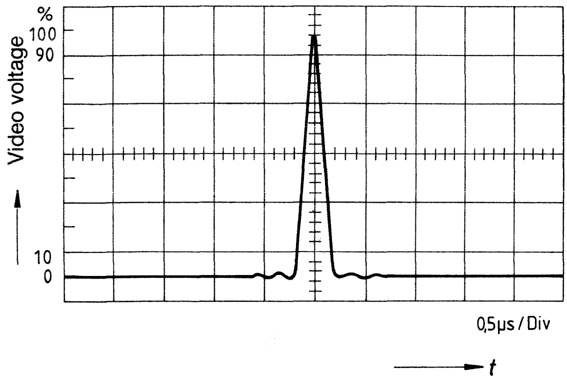


Group delay

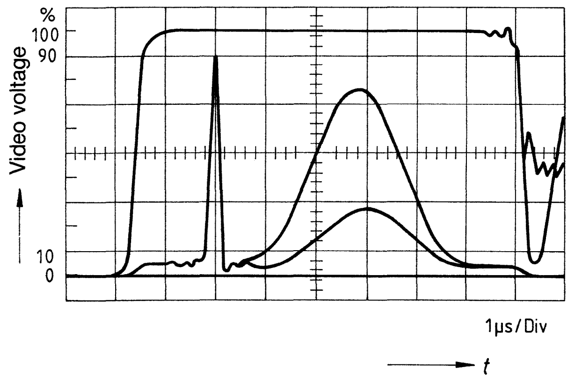


Pulse response in the IF board

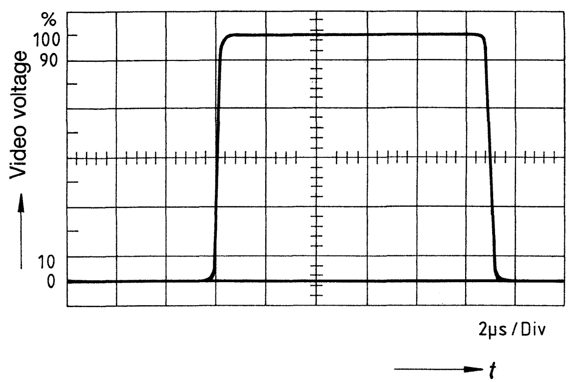
2T-pulse



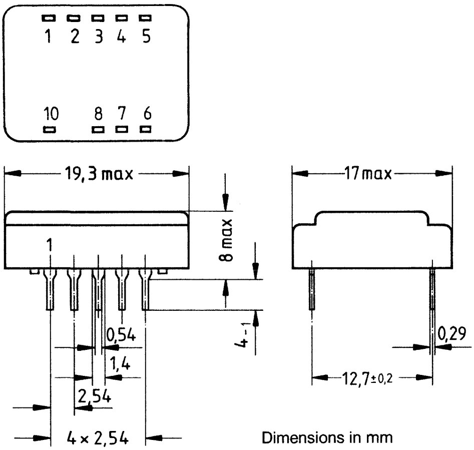
2T/20T-signal



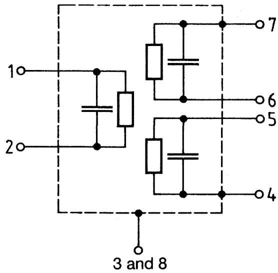
Step signal



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion, sound shelf at 20 dB.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Not connected
6, 7 Output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

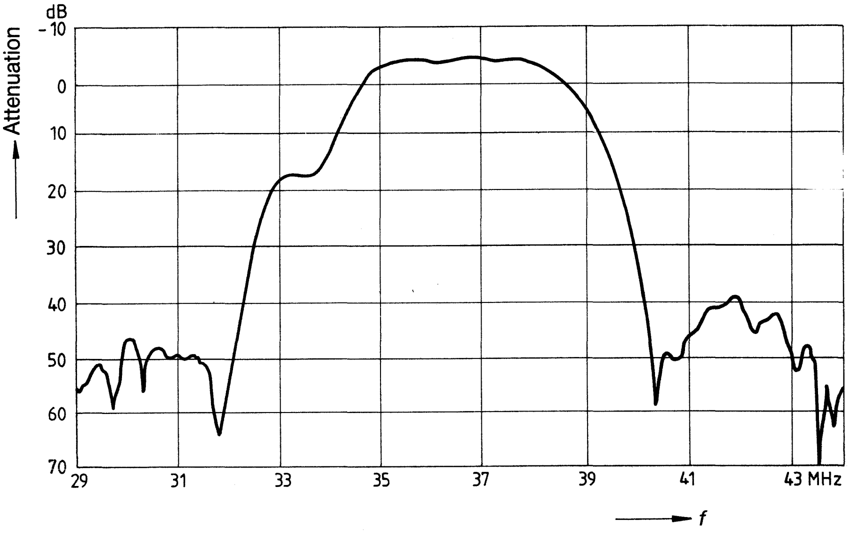
Type	**Ordering code**
OFW 661	B39966-A1

Measuring conditions

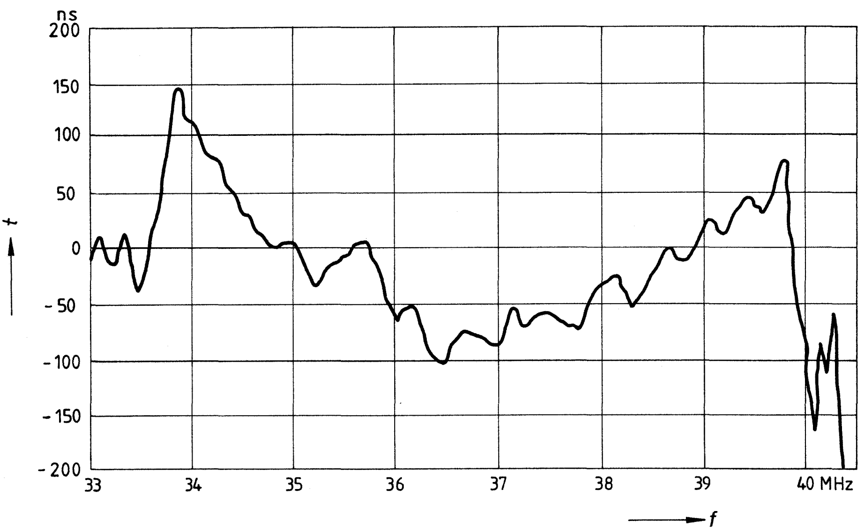
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	22	24.5	dB
Attenuation values					
Vision carrier	38.90 MHz	4.8	5.8	6.8	dB
Color carrier	34.47 MHz	3.2	4.3	5.4	dB
Sound carrier	33.40 MHz	18.2	20.0	21.4	dB
Adjacent vision carrier	31.90 MHz	49	60	–	dB
Adjacent sound carrier VHF	40.40 MHz	43	48	–	dB
UHF	41.40 MHz	37	47		dB
Lower sidelobe	25.00...31.90 MHz	39	47	–	dB
Upper sidelobe	40.40...45.00 MHz	37	43	–	dB
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		41	50	–	dB
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		54	60	–	dB
Group delay Reference frequency 38.90 MHz					
Max. deviation at 36.60 MHz		–	–90	–	ns
Ripple		–	40	80	ns
Rise at 34.47 MHz		–	30	–	ns
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.6 kΩ II 15 pF Output: 2.0 kΩ II 6 pF			

Amplitude response

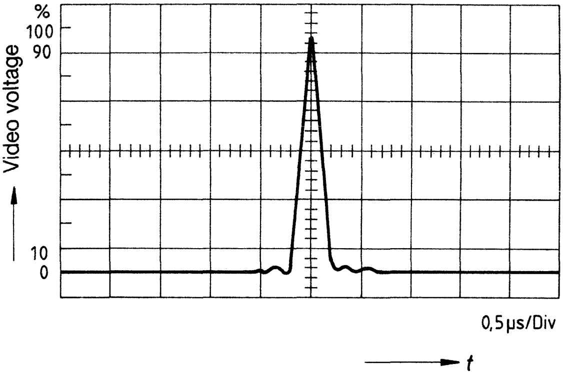


Group delay

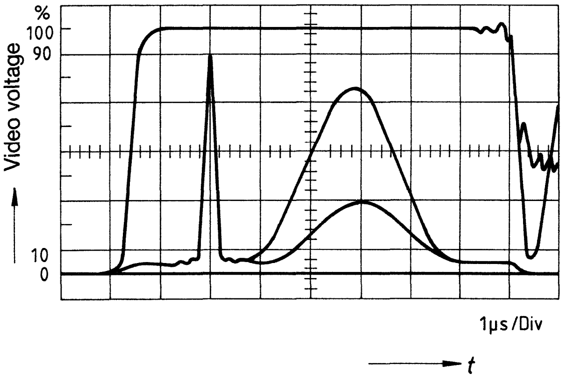


Pulse response in the IF board

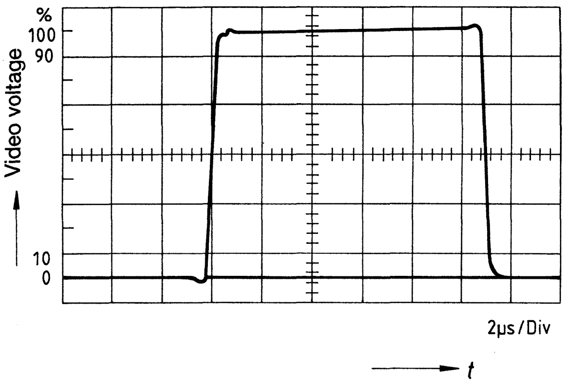
2T-pulse



2T/20T-signal

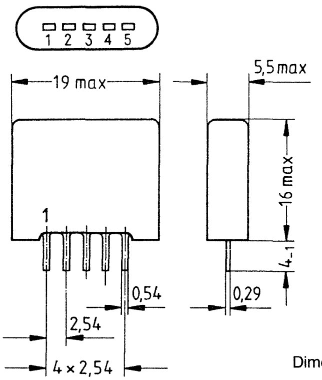


Step signal

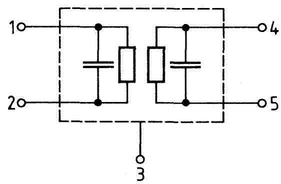


Not for new design

Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion (standard B/G, half). Reduced insertion loss
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

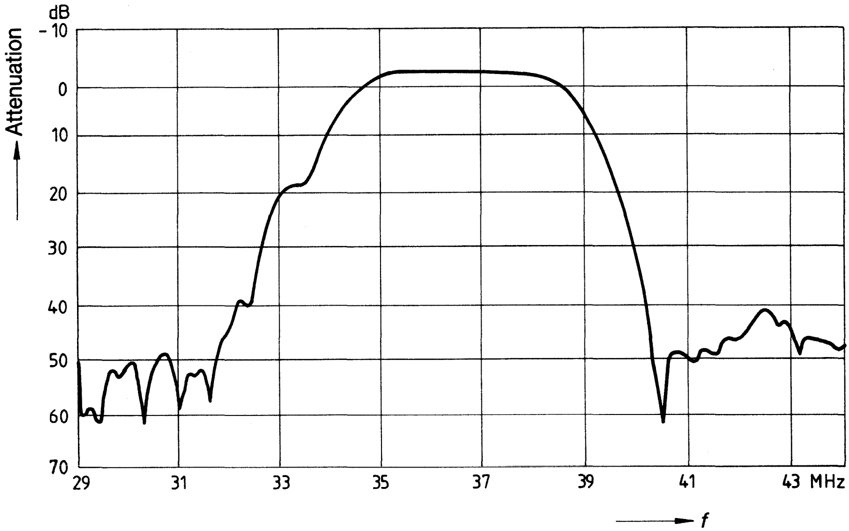
Type	**Ordering code**
OFW G 1954	B39389-G1954-N100

Measuring conditions

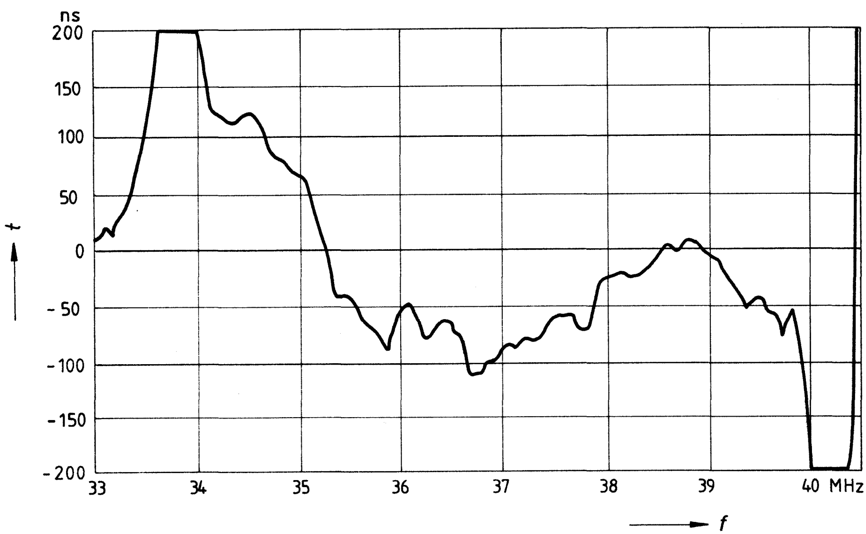
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ǁ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	15	16.5	
Attenuation values					
Vision carrier	38.90 MHz	4.4	5.6	6.4	
Color carrier	34.47 MHz	4.0	5.1	6.0	
Sound carrier	33.40 MHz	17.6	18.8	20.4	
Adjacent vision carrier	31.90 MHz	44	48	–	
Adjacent sound carrier VHF	40.40 MHz	44	51	–	
UHF	41.40 MHz	42	49	–	
Lower sidelobe	25.00...31.90 MHz	42	50	–	dB
Upper sidelobe	40.40...45.00 MHz	36	41	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		40	47	–	
Attenuation of direct breakthrough					
1.1 µs...1.2 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	56	–	
Group delay Reference frequency 38.90 MHz					
Max. deviation at 37.30 MHz		–	–90	–	ns
Ripple		–	40	80	
Rise at 34.47 MHz		–	120	–	
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 21 kΩ ǁ 13 pF Output: 1.0 kΩ ǁ 8 pF			

Amplitude response

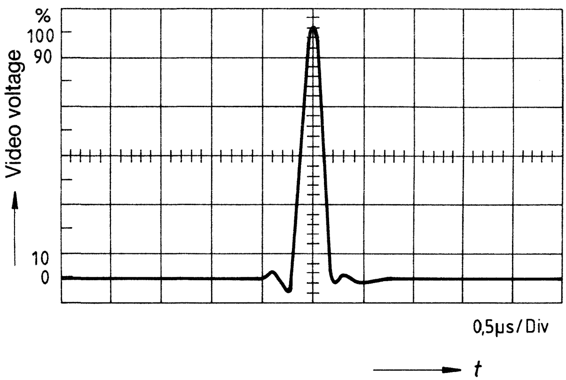


Group delay

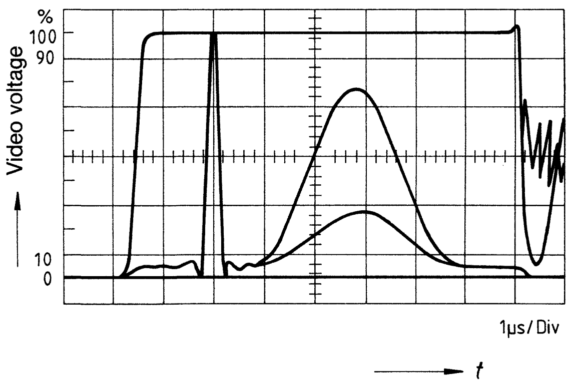


Pulse response in the IF board

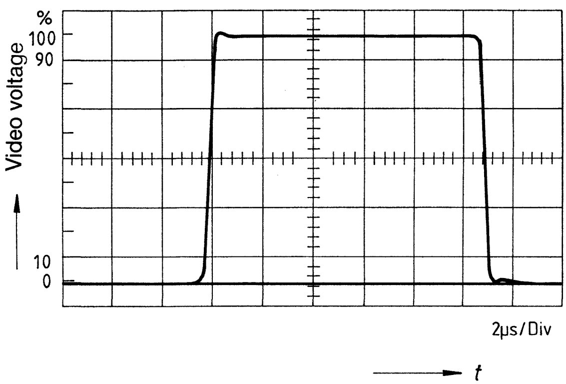
2T-pulse



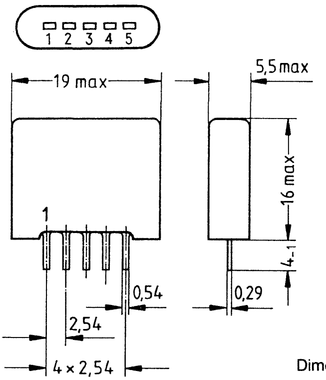
2T/20T-signal



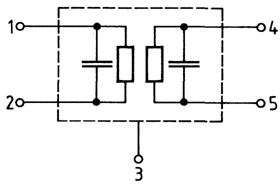
Step signal



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion (standard B/G, half). Reduced insertion loss, suitable for high-impedance driving.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

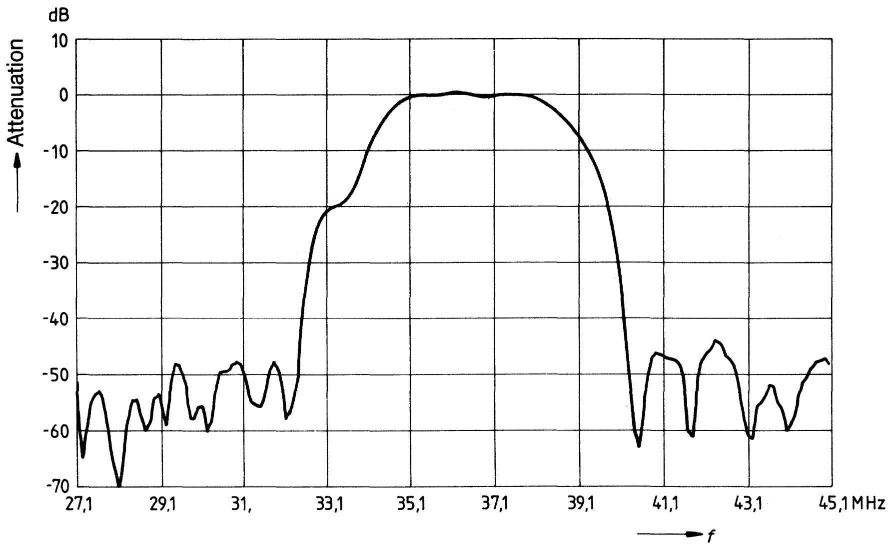
Type	Ordering code S
OFW G 1956	B39389-G1956-N100

Measuring conditions

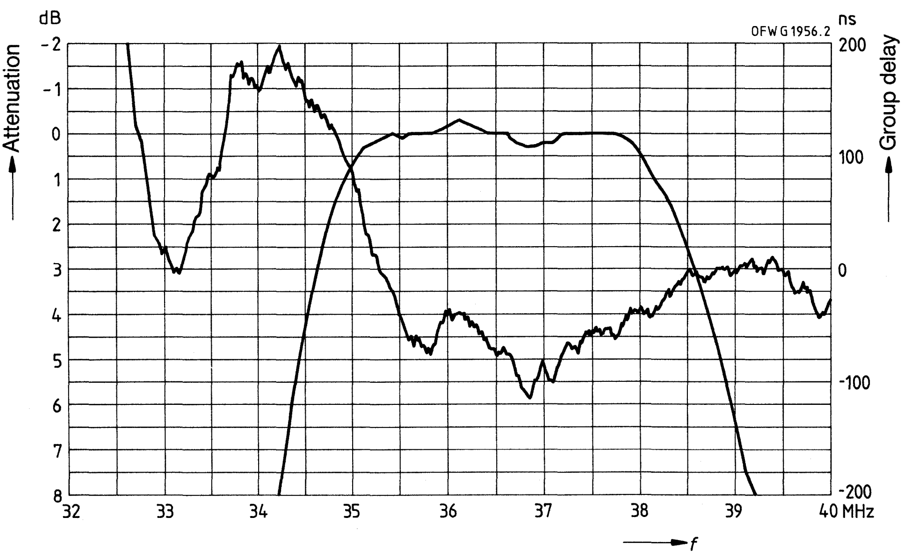
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	13.5	14,5	16,5	
Attenuation values					
Vision carrier	38.90 MHz	5.0	6.0	7.0	
Color carrier	34.47 MHz	3.4	4.4	5.4	
Sound carrier	33.40 MHz	18.7	19.7	20.7	
Adjacent vision carrier	31.60...32.40 MHz	44	48	–	
Adjacent sound carrier VHF	40.40 MHz	42	50	–	
UHF	41.40 MHz	38	42	–	
Lower sidelobe	25.00...31.60 MHz	40	46	–	dB
Upper sidelobe	40.40...45.00 MHz	36	40	–	
Attenuation of reflections					
1.3 µs...3,5 µs after main pulse		46	52	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Attenuation of direct breakthrough					
0.9 µs...1.1 µs prior to main pulse		50	66	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Group delay					
Reference frequency 38.90 MHz					
Max. deviation at 37.00 MHz		–	–100	–	ns
Ripple		–	40	80	
Rise at 34.47 MHz		–	160	–	
Temperature coefficient		–	– 70	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 2 kΩ II 12 pF Output: 1.5 kΩ II 5 pF			

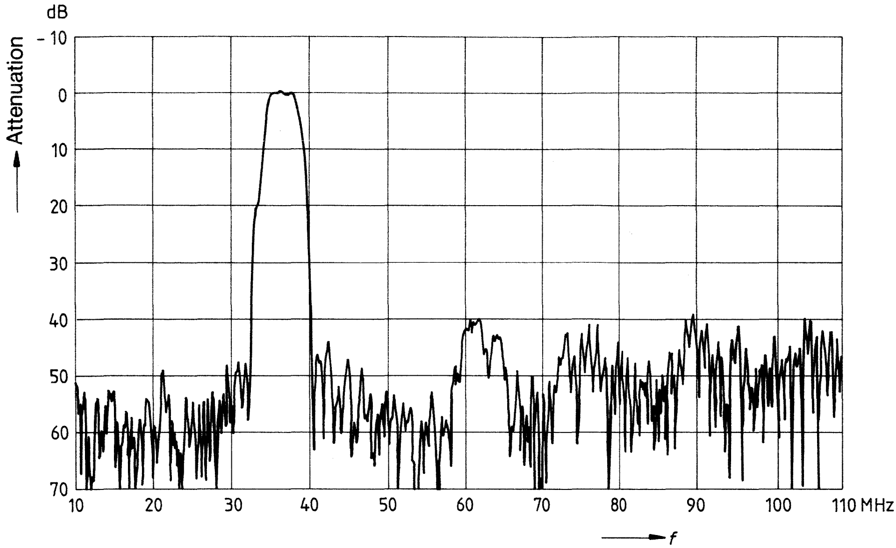
Amplitude response



Amplitude response and group delay

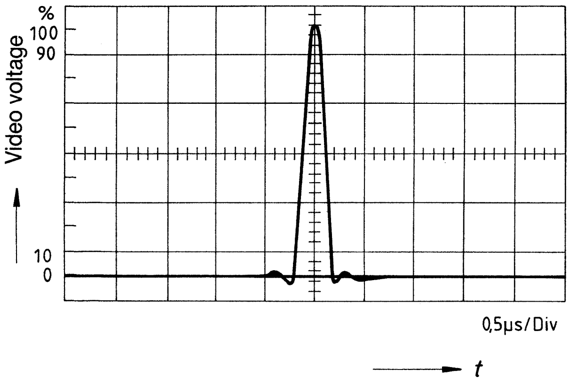


Far-off selectivity

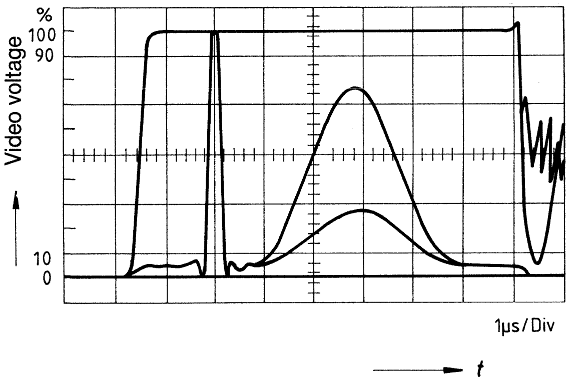


Pulse response in the IF board

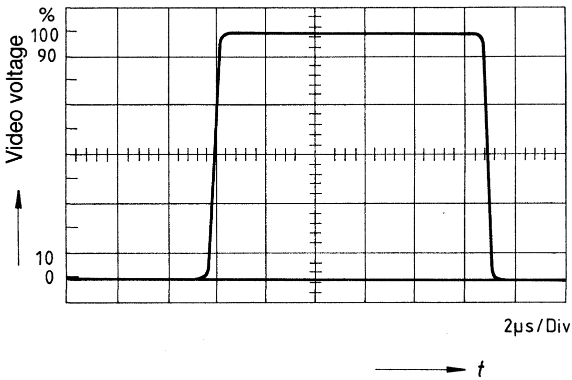
2T-pulse



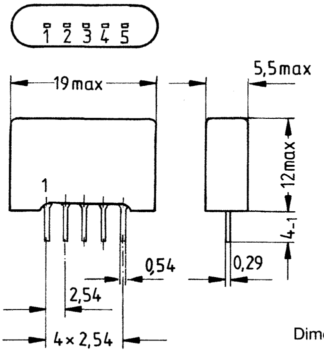
2T/20T-signal



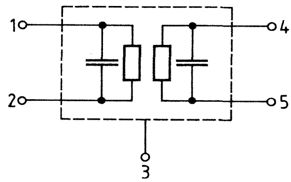
Step signal



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion (standard B/G, half). Reduced insertion loss, suitable for high-impedance driving. Post office trap and adjacent stereo sound suppression.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

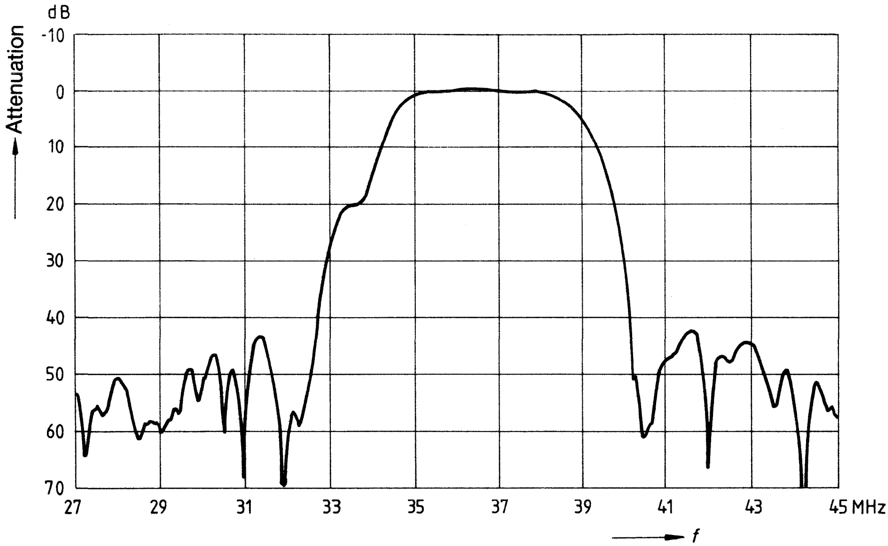
Type	Ordering code
OFW G 1958	B39389-G1958-N100

Measuring conditions

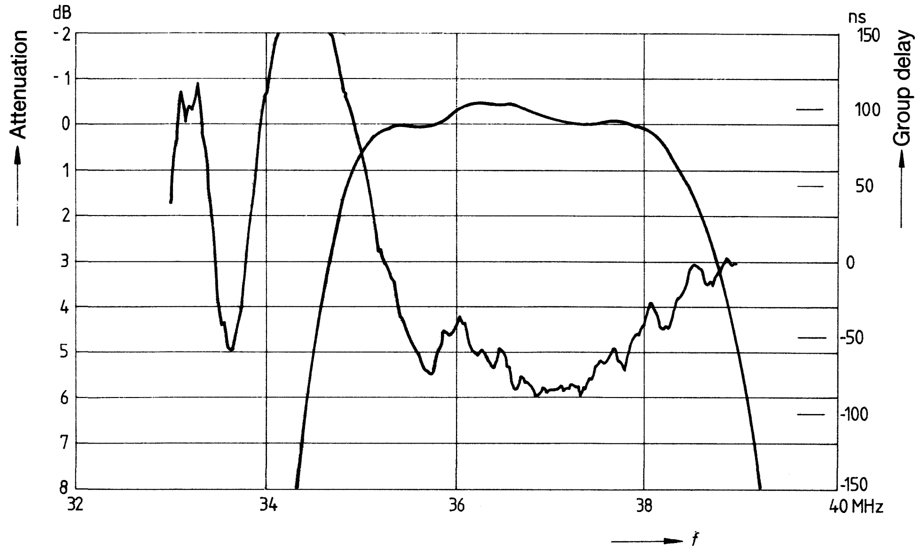
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	13.5	15.1	16.5	
Attenuation values					
Vision carrier	38.90 MHz	3.9	4.9	5.9	
Color carrier	34.47 MHz	3.0	4.0	5.0	
Sound carrier	33.40 MHz	18.8	19.8	20.8	
Adjacent vision carrier	31.90 MHz	50.0	62.0	–	
Adjacent sound carrier VHF	40.40 MHz	46.0	53.0	–	
Lower sidelobe	25.00...32.40 MHz	40.0	44.0	–	dB
Upper sidelobe	40.40...45.00 MHz	36.0	39.0	–	
Attenuation of reflections					
1.3 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		44.0	50.0	–	
Attenuation of direct breakthrough					
1.3 µs...1,1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50.0	>56.0	–	
Group delay Ripple			40	80	ns
Temperature coefficient			–72		ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.8 kΩ ll 13.8 pF Output: 1.5 kΩ ll 4.8 pF			

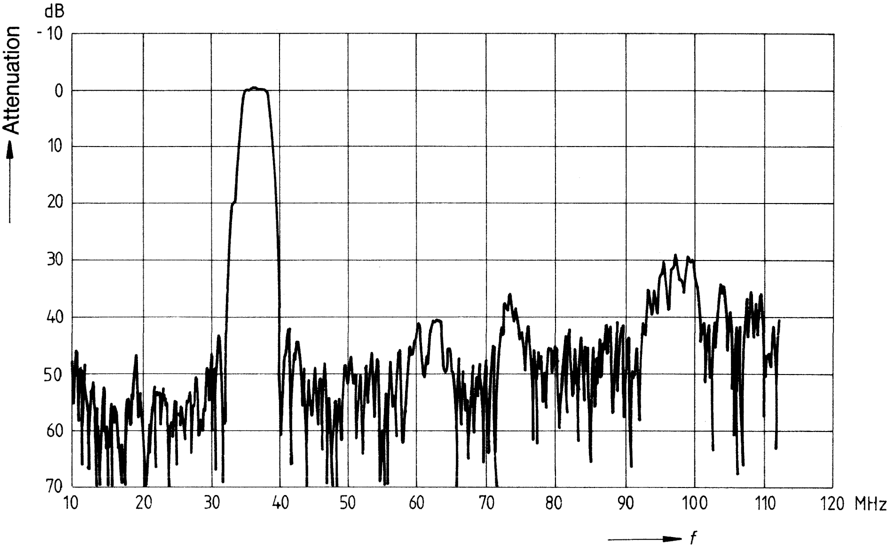
Amplitude response



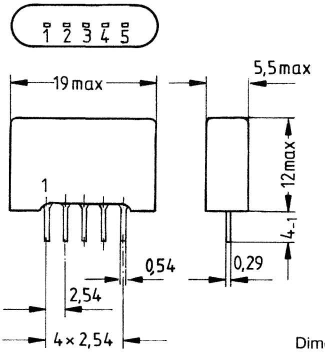
Amplitude response and group delay



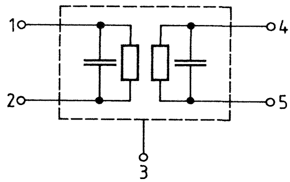
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion. Reduced insertion loss, suitable for high-impedance driving. Post office trap and adjacent stereo sound suppression. Highly reduced group delay distortion in comparison to standard B/G, half.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

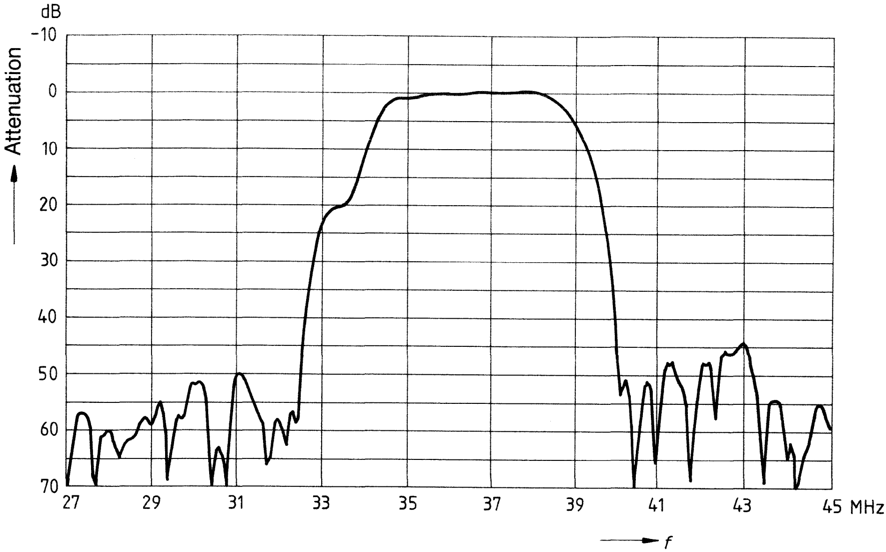
Type	Ordering code
OFW G 1959	B39389-G1959-N100

Measuring conditions

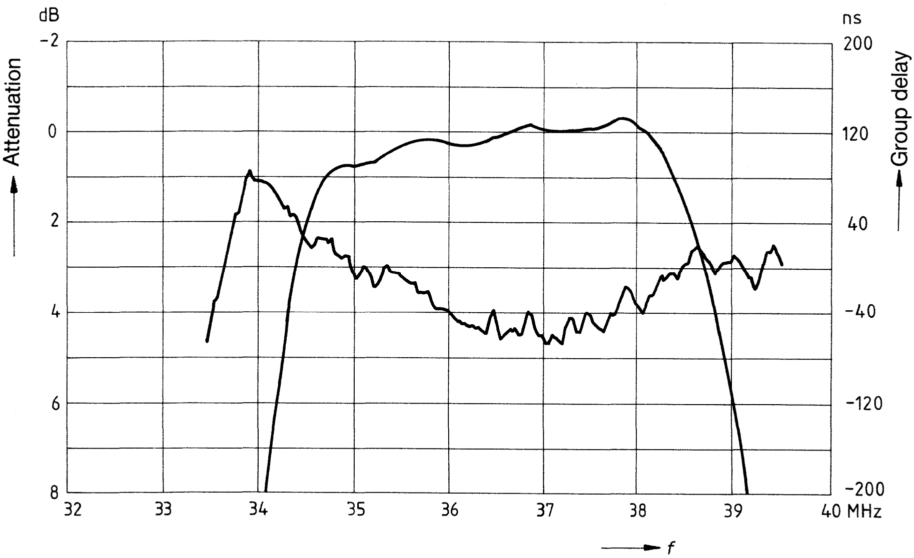
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	13.5	15.0	16.5	
Attenuation values					
Vision carrier	38.90 MHz	3.3	4.3	5.3	
Color carrier	34.47 MHz	1.5	2.5	3.5	
Sound carrier	33.40 MHz	19.0	20.0	21.0	
Adjacent vision carrier	31.90 MHz	48.0	60.0	–	
Adjacent sound carrier VHF	40.40 MHz	42.0	52.0	–	
UHF	41.40 MHz	40.0	48.0	–	
Lower sidelobe	25.00...32.40 MHz	42.0	50.0	–	dB
Upper sidelobe	40.40...45.00 MHz	38.0	45.0	–	
Attenuation of reflections					
1.3 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		42.0	49.0	–	
Attenuation of direct breakthrough					
1.3 µs...1.2 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50.0	>56.0	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 2.0 kΩ ll 12.5 pF Output: 1.6 kΩ ll 4.7 pF			

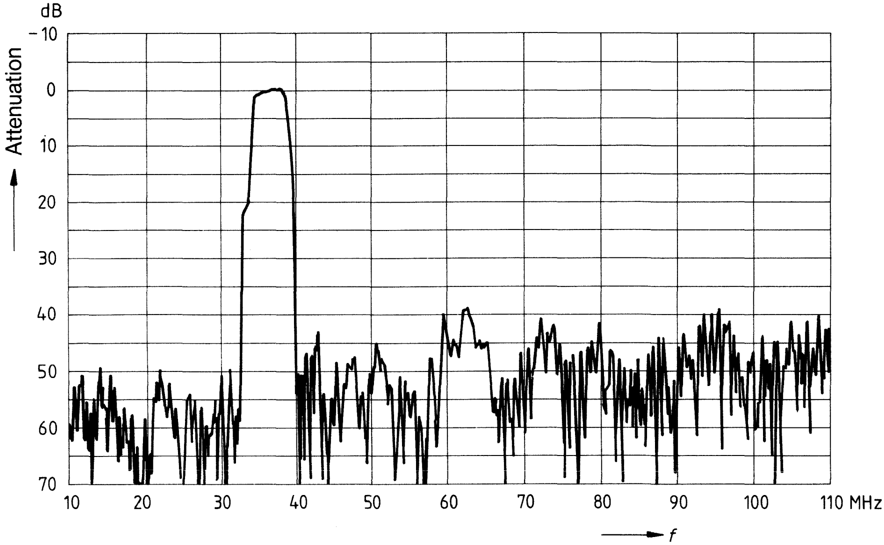
Amplitude response



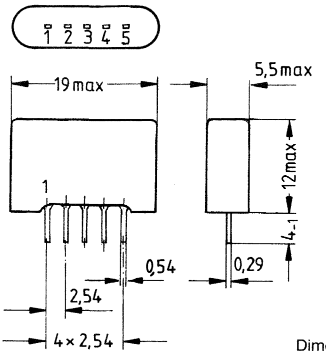
Amplitude response and group delay



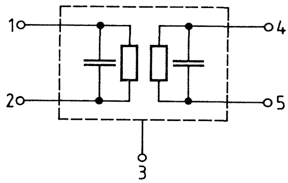
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and group delay distortion. Reduced insertion loss, suitable for high impedance driving. Post office trap and adjacent stereo sound suppression. Reduced group delay distortion in comparison to standard B/G, half.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

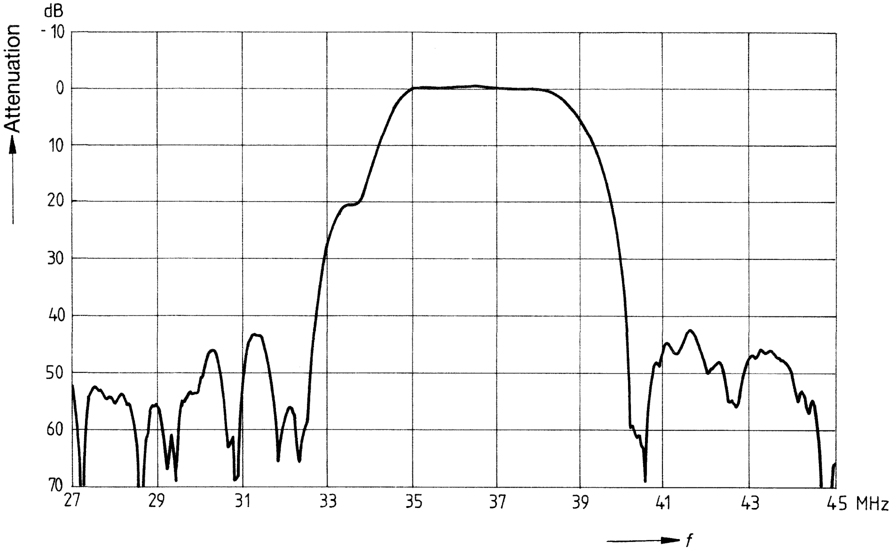
Type	Ordering code
OFW G 1961	B39389-G1961-N100

Measuring conditions

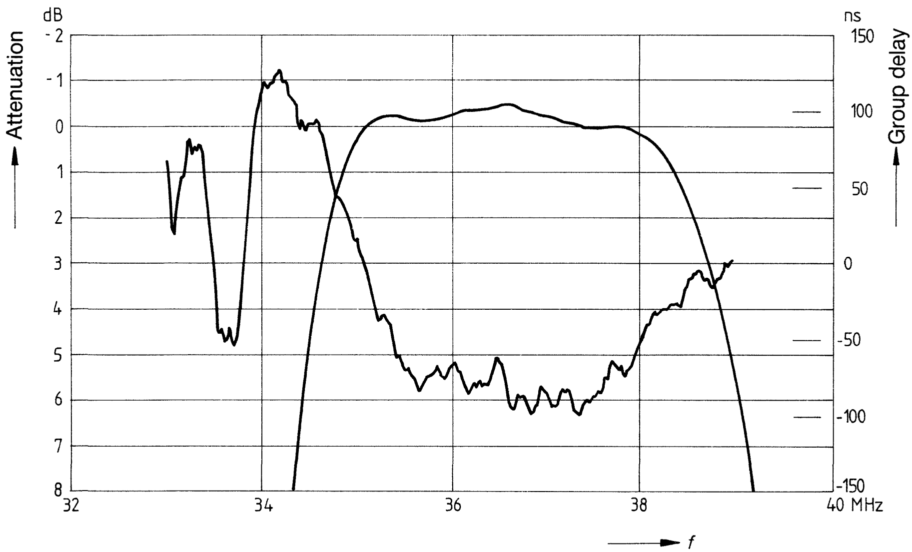
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	14.0	15.4	17.0	
Attenuation values					
Vision carrier	38.90 MHz	4.3	5.3	6.3	
Color carrier	34.47 MHz	2.6	3.6	4.6	
Sound carrier	33.40 MHz	19.4	20.4	21.4	
Post office trap	32.40 MHz	46.0	56.0	–	
Adjacent vision carrier	31.90 MHz	48.0	57.0	–	
Adjacent sound carrier VHF	40.40 MHz	44.0	50.0	–	
Lower sidelobe	25.00...32.40 MHz	37.0	41.0		dB
Upper sidelobe	40.40...45.00 MHz	36.0	41.0		
Attenuation of reflections 1.3 μs...3.5 μs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		44.0	49.0		
Attenuation of direct breakthrough 1.3 μs...1.1 μs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50.0	>56.0	–	
Group delay Ripple			40	80	ns
Temperature coefficient			–72		ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 2.1 kΩ ll 13 pF Output: 1.5 kΩ ll 4.8 pF			

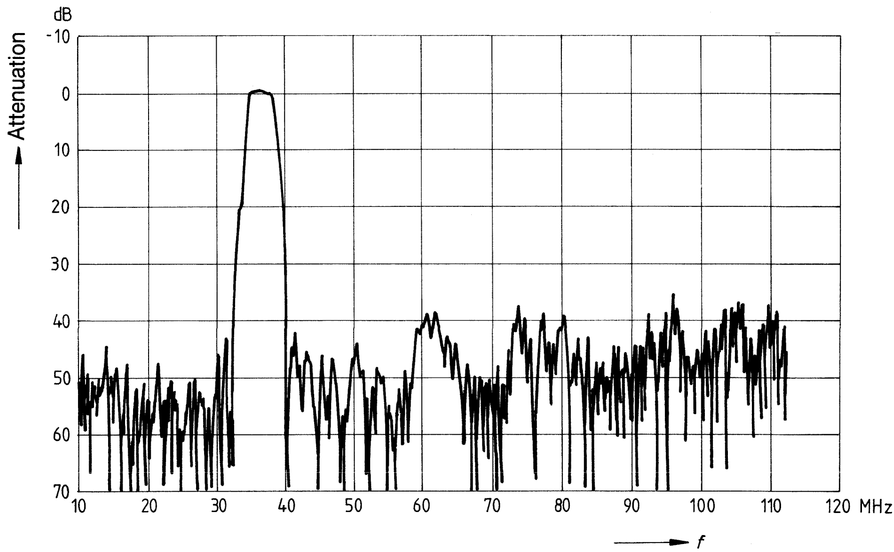
Amplitude response



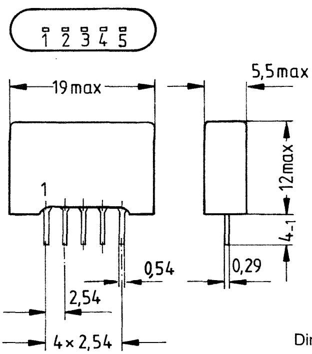
Amplitude response and group delay



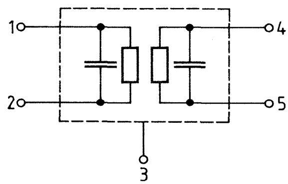
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter including Nyquist slope and sound shelf. Standard group delay.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

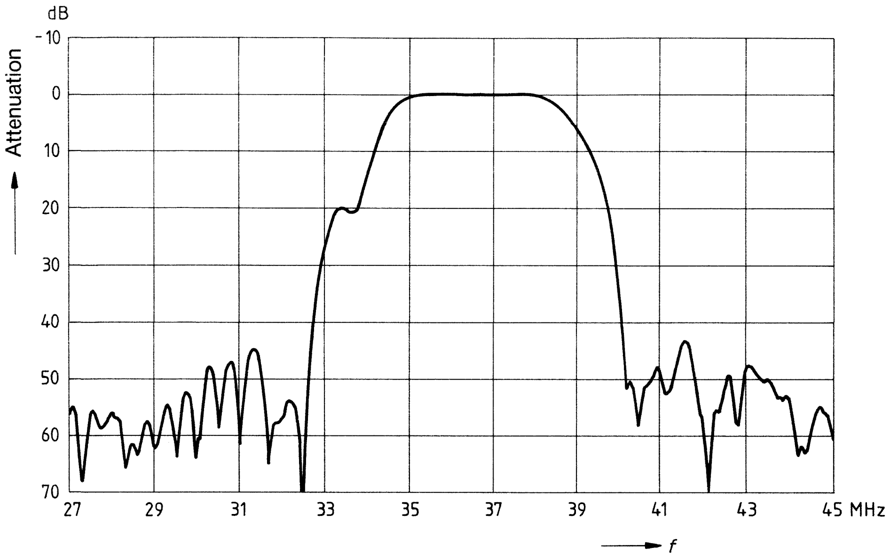
Type	**Ordering code**
OFW G 1962	B39389-G1962-N100

Measuring conditions

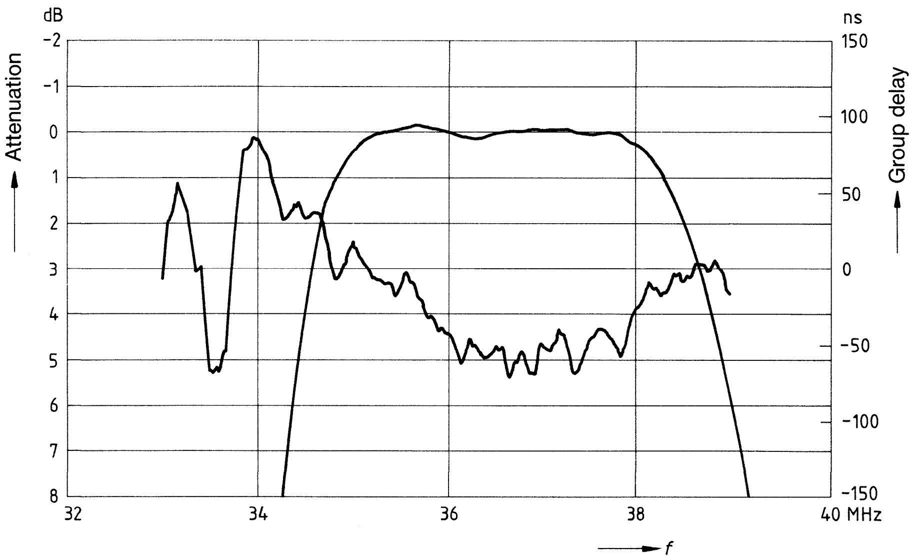
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	14.0	15.4	17.0	dB
Attenuation values					
Vision carrier	38.90 MHz	4.4	5.4	6.4	dB
Color carrier	34.47 MHz	1.9	2.9	3.9	dB
Sound carrier	33.40 MHz	18.9	19.9	20.9	dB
Post office trap	32.40 MHz	46	62	–	dB
Adjacent vision carrier	31.90 MHz	48	56	–	dB
Adjacent sound carrier VHF	40.40 MHz	45	52	–	dB
Lower sidelobe	25.00...32.40 MHz	38	47	–	dB
Upper sidelobe	40.40...45.00 MHz	36	41	–	dB
Attenuation of reflections 1.3 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		44	50	–	dB
Attenuation of direct breakthrough 1.3 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	>56	–	dB
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 2.2 kΩ II 13.3 pF Output: 1.5 kΩ II 4.9 pF			

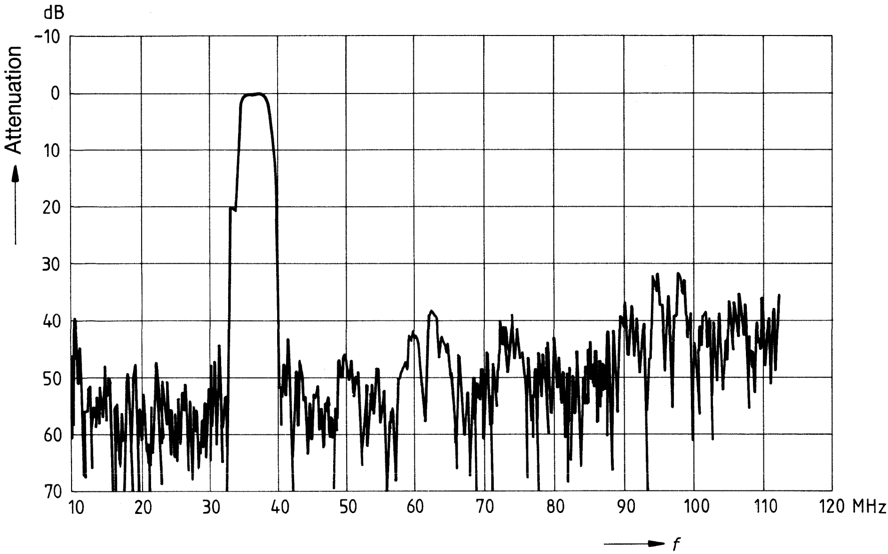
Amplitude response



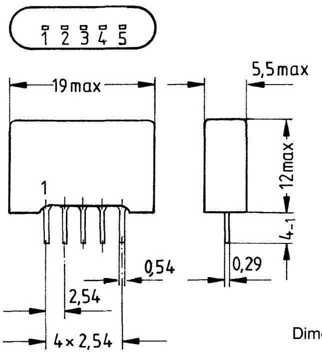
Amplitude response and group delay



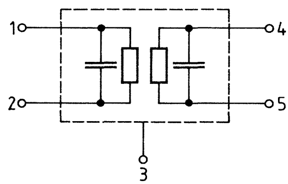
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz); L France
Application	TV IF filter including two Nyquist slopes. Vision carrier at 33.4 MHz and 38.9 MHz. Constant group delay. Low insertion loss.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

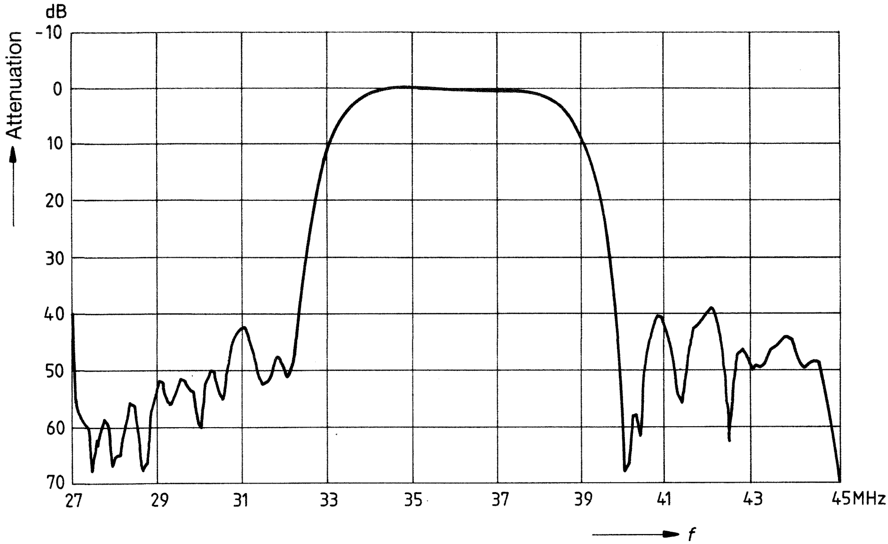
Type	**Ordering code**
OFW G 3950	B39389-G3950-N100

Measuring conditions

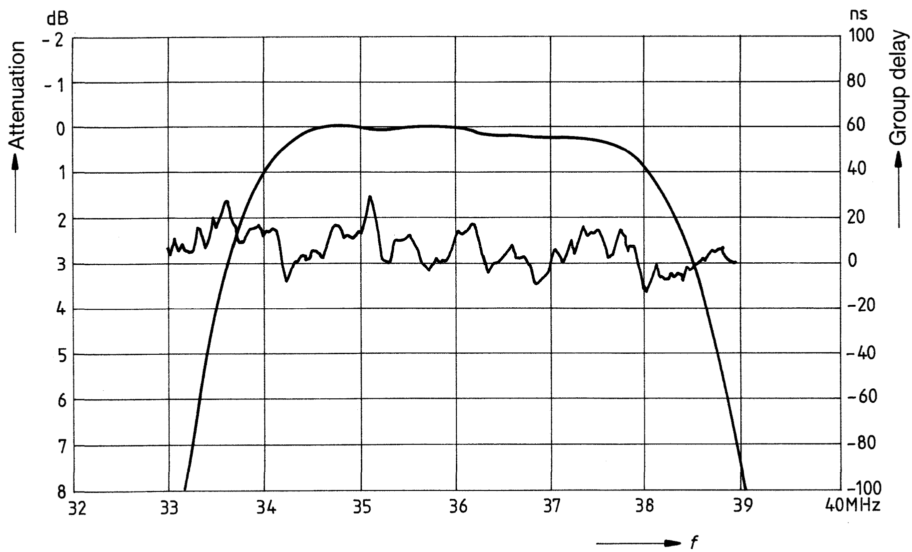
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.90 MHz	16	17.5	19.5	
Attenuation values					
Vision carrier	38.90 MHz	4.6	5.6	6.6	
Color carrier	32.40 MHz		52		
Sound carrier	33.40 MHz	4.2	5.2	6.2	
Adjacent vision carrier	31.90 MHz	41	46		
Adjacent sound carrier VHF	39.90 MHz	34	41		
UHF	40.40 MHz	40	46		
Lower sidelobe	25.00...31.90 MHz	38	44		dB
Upper sidelobe	40.40...45.00 MHz	34	38	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.90 MHz		42	52		
Attenuation of direct breakthrough					
0.8 µs...0.9 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.90 MHz		50	56		
Group delay Ripple			40	80	ns
Temperature coefficient			–72		ppm/K
Small-signal impedances typical values at 37.90 MHz		Input: 2.5 kΩ II 11 pF Output: 2.0 kΩ II 5 pF			

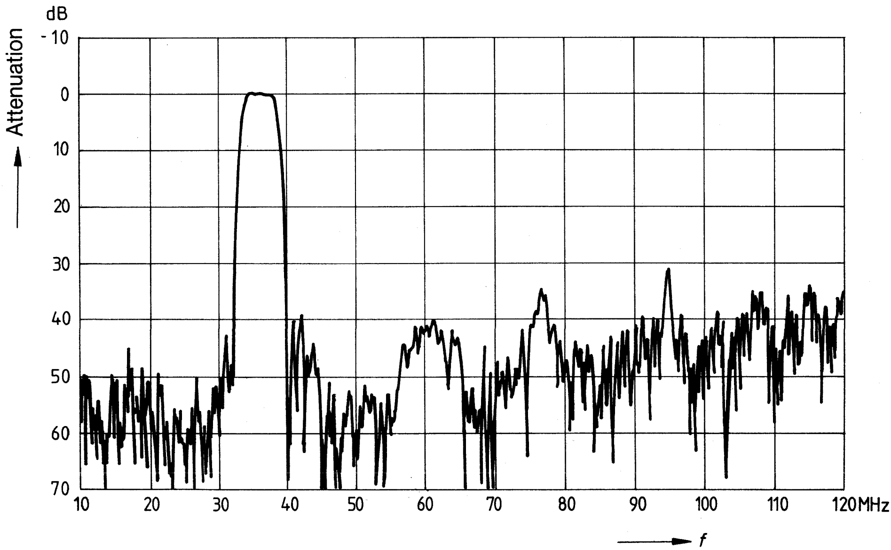
Amplitude response



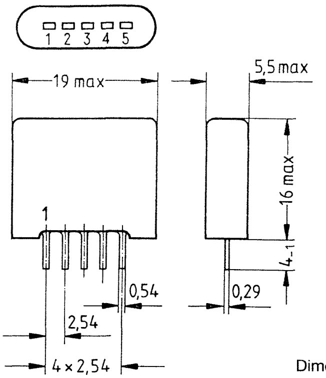
Amplitude response and group delay



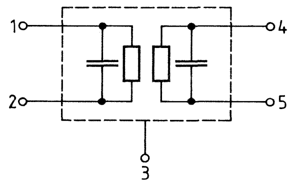
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz); L France; D/K OIRT, Eastern standard, China.
Application	TV IF filter including Nyquist slope and sound suppression (standard L). Vision carrier at 38.9 MHz. Reduced insertion loss.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package.



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 } Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

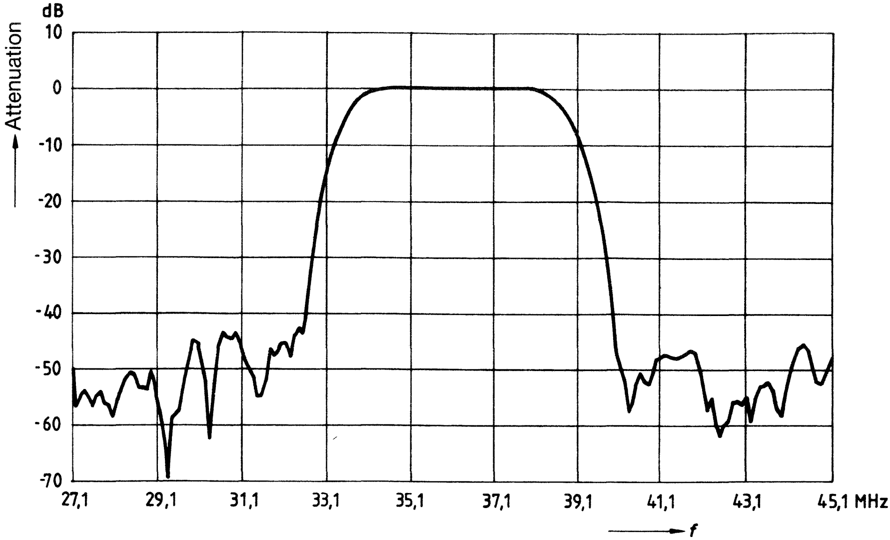
Type	**Ordering code**
OFW K 3950	B39389-K3950-N100

Measuring conditions

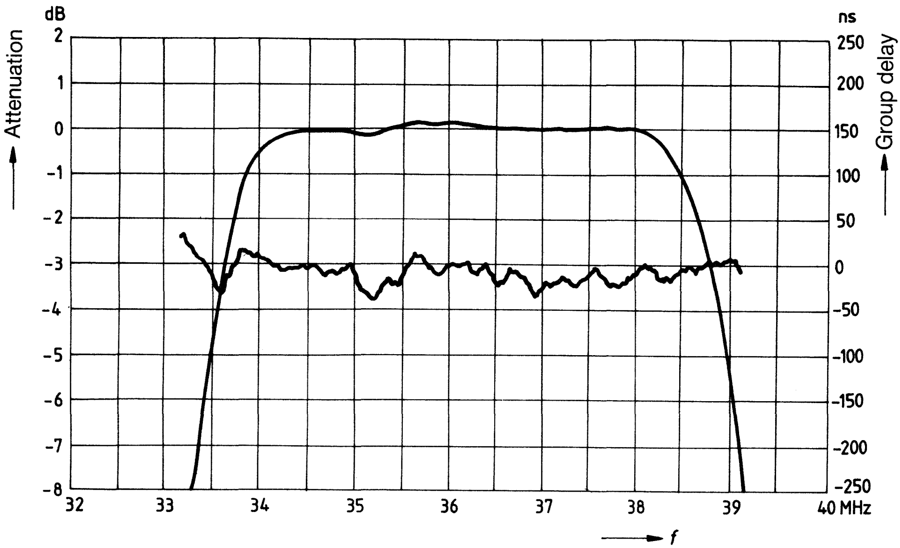
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	16.0	17.5	18.0	
Attenuation values					
Vision carrier	38.90 MHz	4.1	5.1	6.1	
Color carrier	34.47 MHz	–1	0	1	
Adjacent vision carrier	31.90 MHz	44	53	–	
Sound carrier: L standard	32.40 MHz	40	44		
Adjacent sound carrier VHF	40.40 MHz	44	53		
UHF	41.40 MHz	40	50	–	dB
Lower sidelobe	25.00...32.40 MHz	37	43	–	
Upper sidelobe	40.40...45.00 MHz	38	56	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		44	50		
Attenuation of direct breakthrough					
0.8 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	56	–	
Group delay					
Constant group delay from 33.90...38.90 MHz					ns
Ripple		–	40	80	
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 4.0 kΩ ‖ 11 pF Output: 1.6 kΩ ‖ 5 pF			

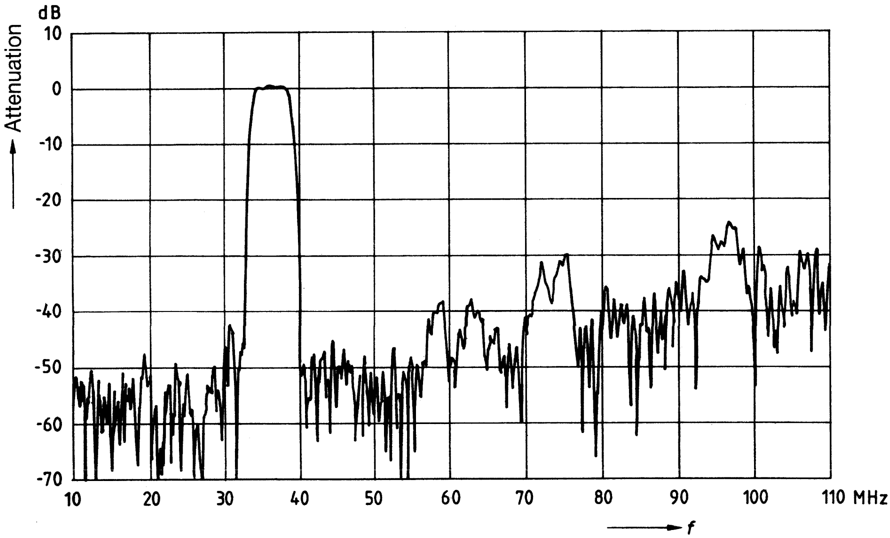
Amplitude response



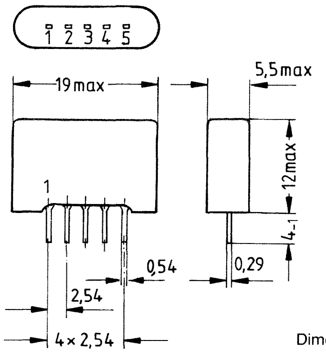
Amplitude response and group delay



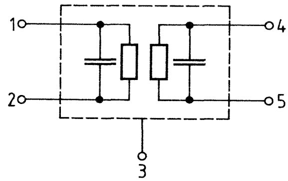
Far-off selectivity



Standard	D/K, OIRT, Eastern standard, China; B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF multi-standard filter including Nyquist slope and extended sound shelf
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

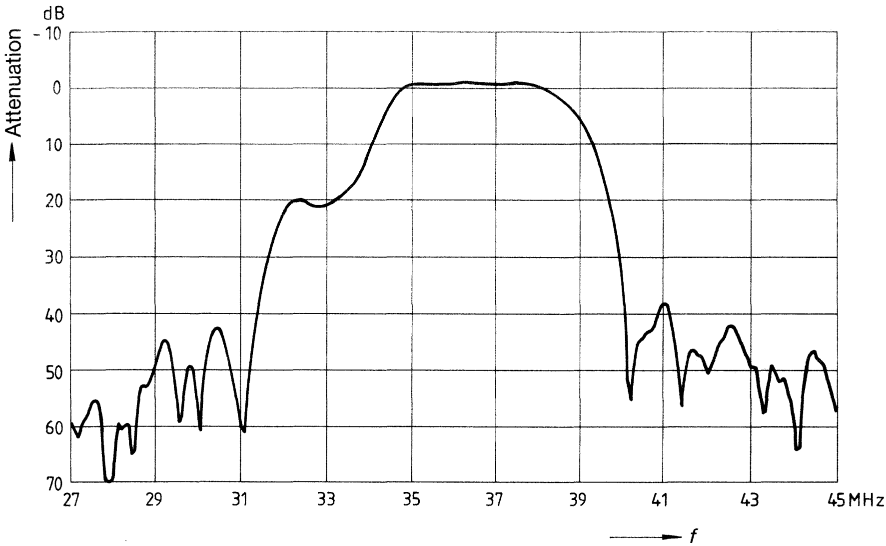
Type	Ordering code
OFW K 2950	B39389-K2950-N100

Measuring conditions

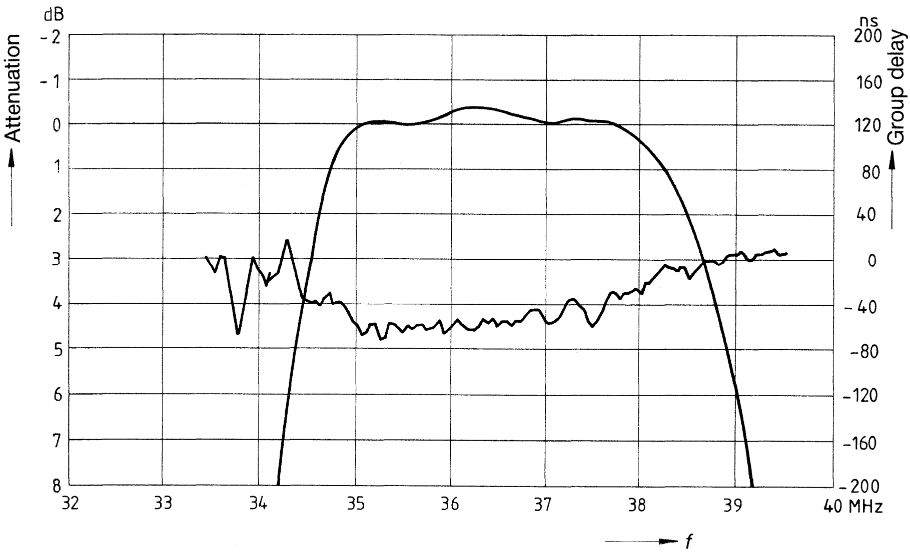
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ǁ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	14.5	16.0	17.5	
Attenuation values					
Vision carrier	38.90 MHz	4.2	+ 5.2	6.2	
Color carrier	34.47 MHz	2.6	+ 3.6	4.6	
Sound carrier	32.40 MHz	19.8	−20.8	21.8	
Adjacent vision carrier	30.90 MHz	46.0	−52.0	–	
Adjacent sound carrier VHF	40.40 MHz	40.0	−46.8	–	
Lower sidelobe	25.00...32.40 MHz	38.0	−43.0	–	dB
Upper sidelobe	40.40...45.00 MHz	36.0	−41.0	–	
Attenuation of reflections					
1.4 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		44	−51		
Attenuation of direct breakthrough					
1.3 µs...0.9 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	>56		
Group delay Ripple Standard group delay		–	40	80	ns
Temperature coefficient		–	−72	–	ppm/K

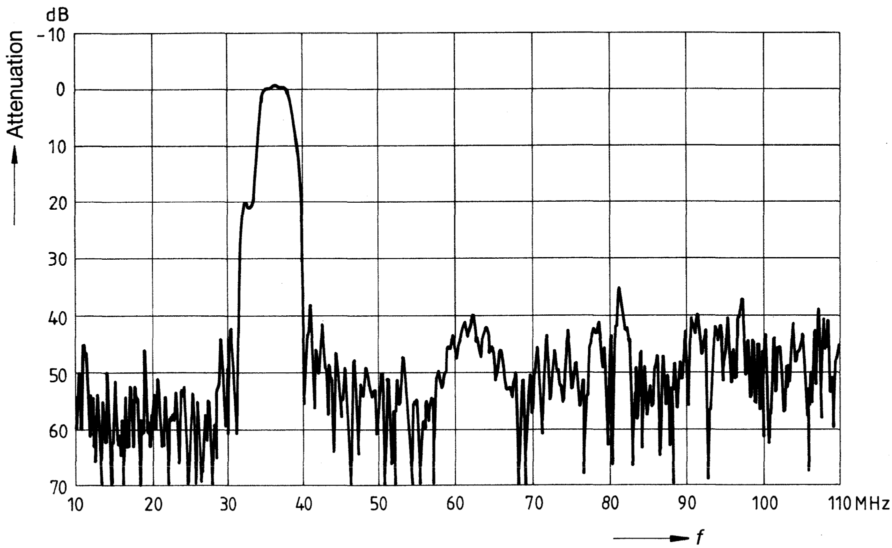
Amplitude response



Amplitude response and group delay

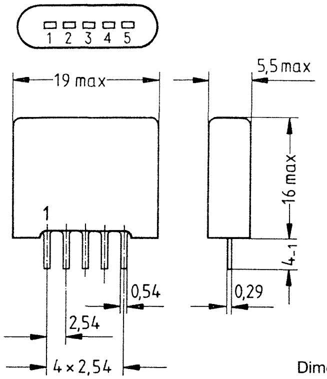


Far-off selectivity

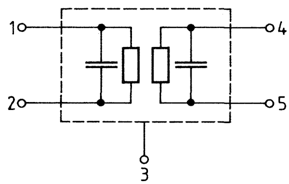


Not for new design

Standard	I Great Britain
Application	TV IF filter including Nyquist slope and sound shelf at 27 dB, vision carrier at 38.9 MHz
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 } Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

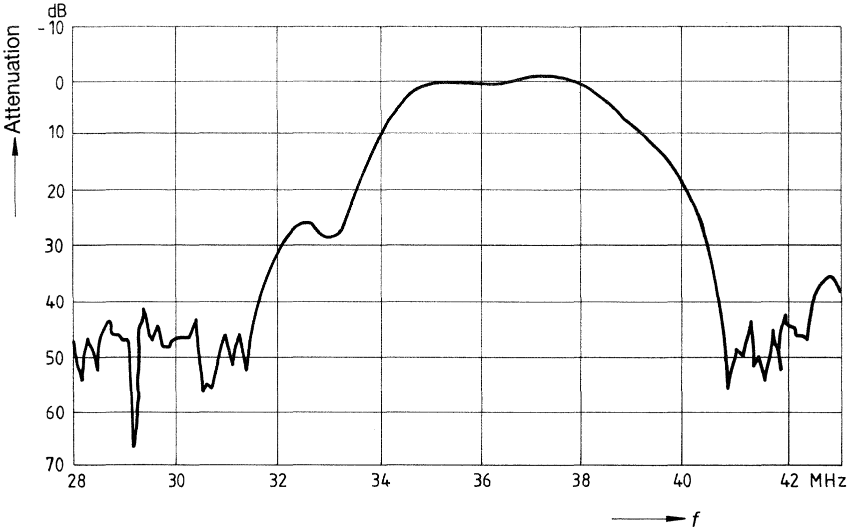
Type	Ordering code
OFW 362-G	B39936-A2-G

Measuring conditions

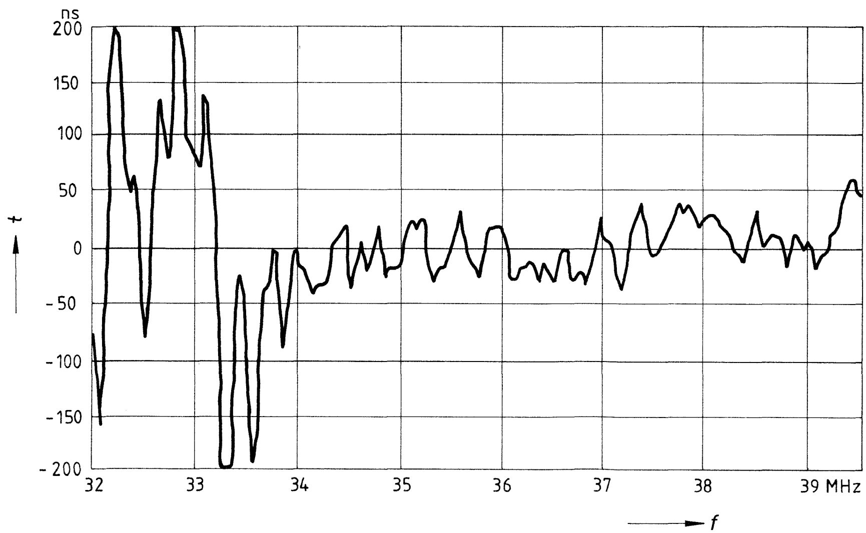
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	21	24.5	
Attenuation values					
Vision carrier	38.90 MHz	6.0	7.0	8.0	
Color carrier	34.47 MHz	2.7	3.7	4.7	
Sound carrier	32.90 MHz	24.6	27.3	29.6	
Adjacent vision carrier	30.90 MHz	44	60	–	
Adjacent sound carrier	40.90 MHz	40	54	–	
Lower sidelobe	25.00...30.90 MHz	36	45	–	
Upper sidelobe	40.90...45.00 MHz	34	40	–	dB
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		40	48	–	
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		48	53	–	
Group delay Reference frequency 38.90 MHz					ns
Constant group delay up to 33.50 MHz		–	± 0	–	
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 2.1 kΩ II 12 pF Output: 2.3 kΩ II 8 pF			

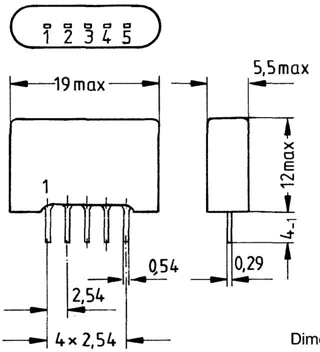
Amplitude response



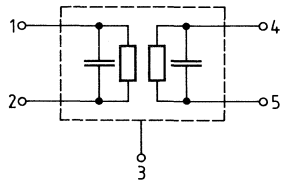
Group delay



Standard	I Great Britain
Application	TV IF filter including Nyquist slope. Vision carrier at 38.9 MHz. Reduced insertion loss, optimized teletext transmission characteristic, suitable for high-impedance driving.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg}	(min)	–25°C
Upper storage temperature	T_{stg}	(max)	+85°C

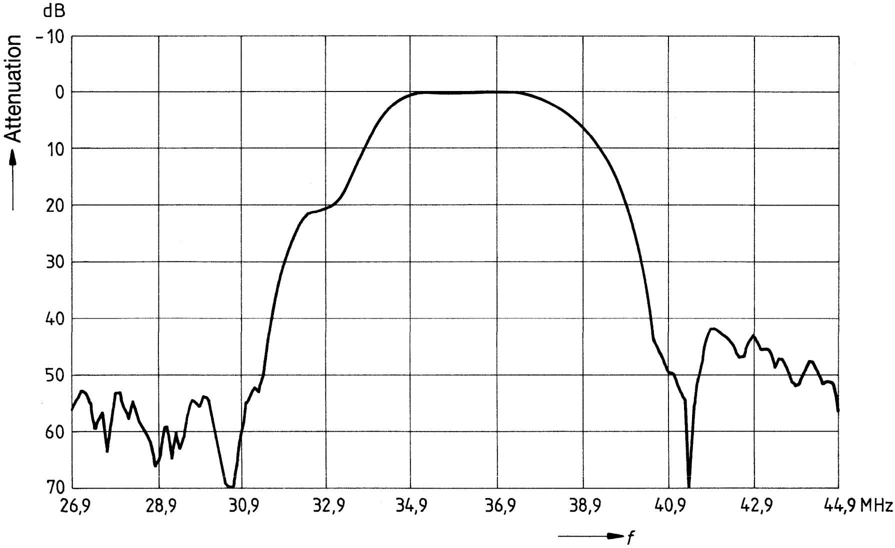
Type	Ordering code
OFW J 1952	B39389-J1952-N100

Measuring conditions

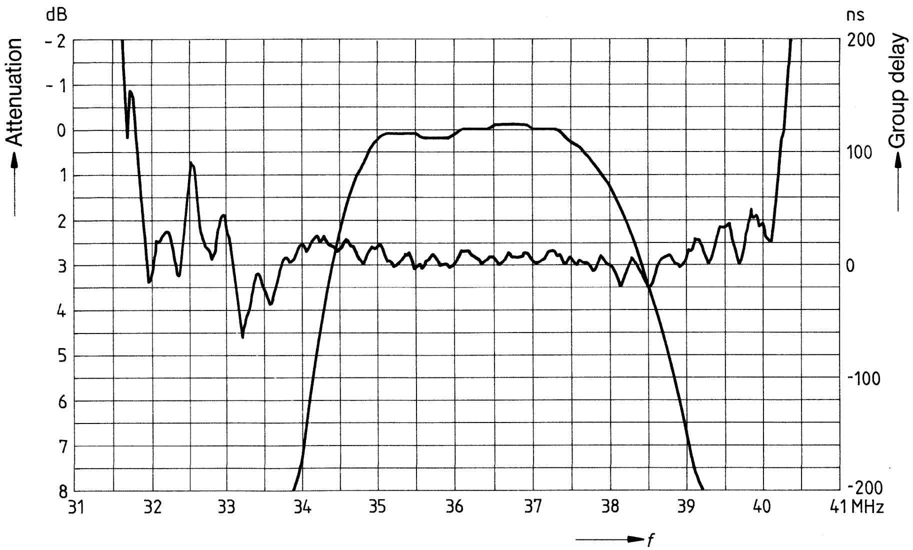
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.00 MHz	14.5	15.6	17.0	
Attenuation values					
Vision carrier	38.90 MHz	5.2	6.2	7.2	
Color carrier	34.47 MHz	1.6	2.6	3.6	
Sound carrier	32.90 MHz	19.6	20.6	21.6	
Adjacent vision carrier	30.90 MHz	46	54	–	
Adjacent sound carrier	40.90 MHz	44	52	–	
Lower sidelobe	25.00...30.90 MHz	42	50	–	dB
Upper sidelobe	40.90...45.00 MHz	38	44	–	
Attenuation of reflections					
1.3 µs...2.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.00 MHz		42	50	–	
Attenuation of direct breakthrough					
0.8 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.00 MHz		50	60		
Group delay Constant group delay from 33.50...39.50 MHz					ns
Ripple		–	40	80	
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 37.00 MHz		Input: 2.3 kΩ ll 10 pF Output: 1.9 kΩ ll 5.2 pF			

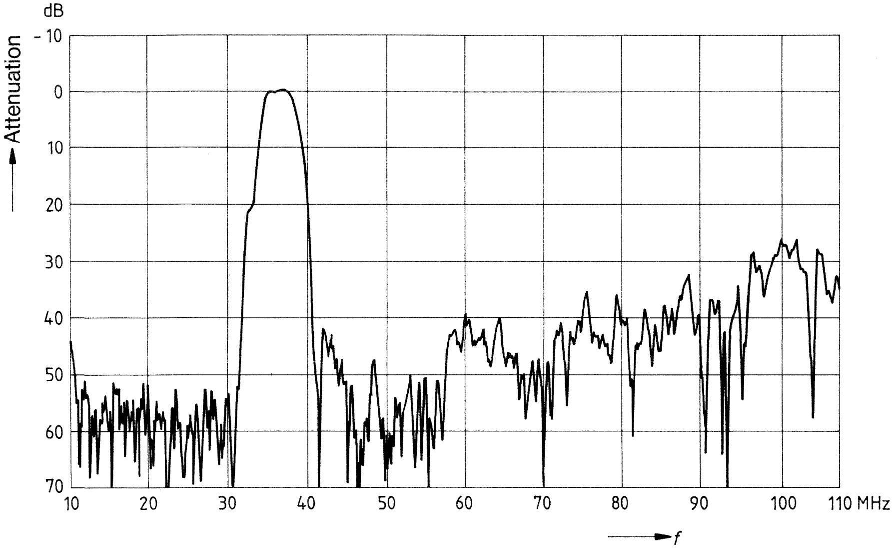
Amplitude response



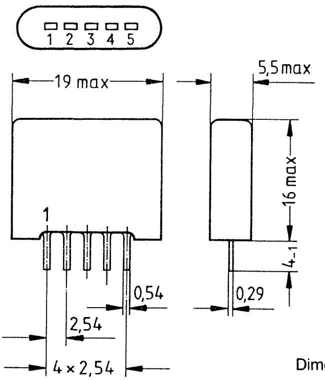
Amplitude response and group delay



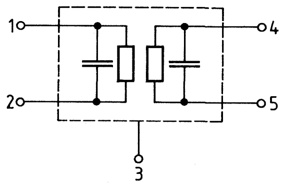
Far-off selectivity



Standard	D/K, OIRT, Eastern standard, China
Application	TV IF filter including Nyquist slope. Sound shelf at 27 dB, vision carrier at 38.9 MHz.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

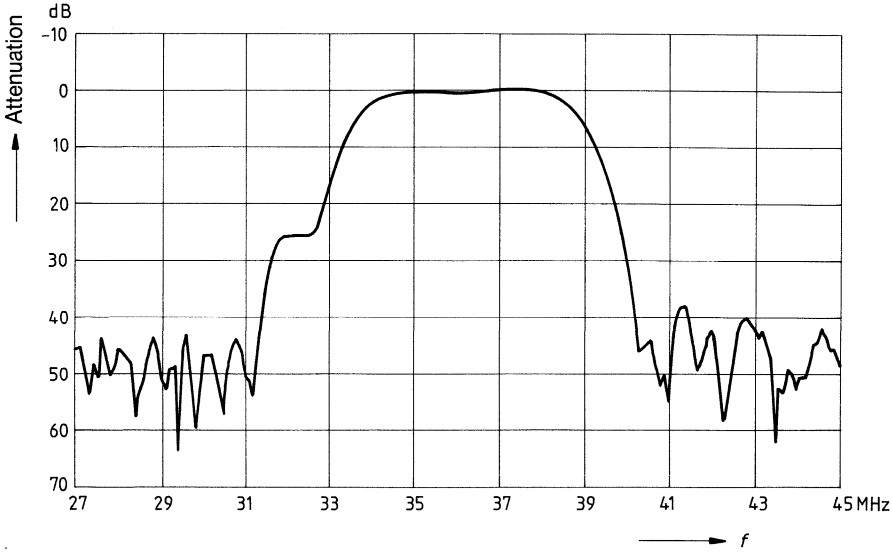
Type	**Ordering code**
OFW 366	B39936-A6

Measuring conditions

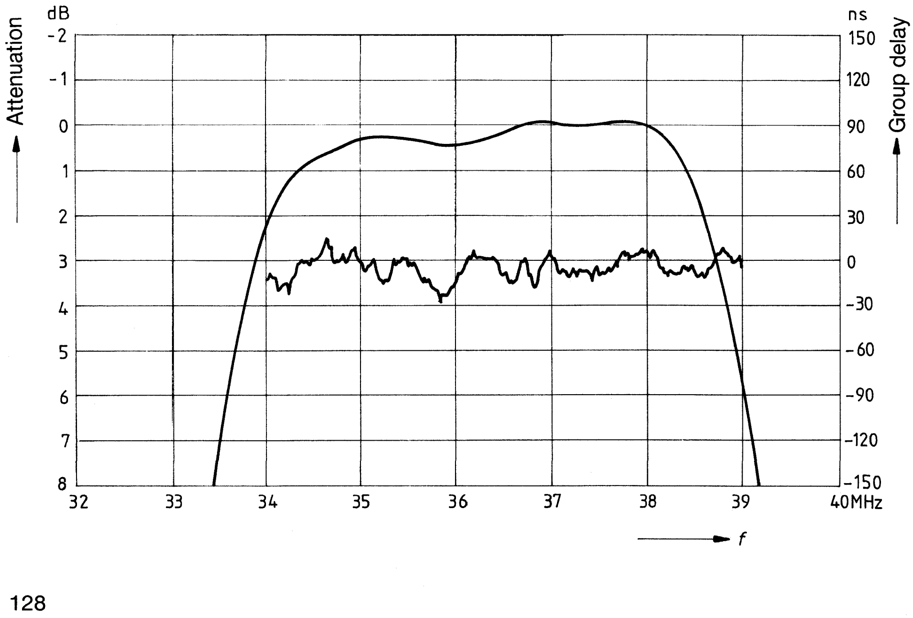
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	22	25	
Attenuation values					
Vision carrier	38.90 MHz	4.0	5.0	6.0	
Color carrier	34.47 MHz	±0	0.8	2.0	
Sound carrier	32.40 MHz	24.9	26.5	28.1	
Adjacent vision carrier	30.90 MHz	42	49	–	
Adjacent sound carrier	40.40 MHz	40	49	–	
Lower sidelobe	25.00...30.90 MHz	36	44	–	
Upper sidelobe	40.90...45.00 MHz	34	39	–	dB
Attenuation of reflections					
1.3 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		40	50	–	
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		44	49	–	
Group delay Reference frequency 38.90 MHz					ns
Constant group delay up to 34.00 MHz		–	± 0	–	
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.9 kΩ II 14 pF Output: 3.0 kΩ II 6 pF			

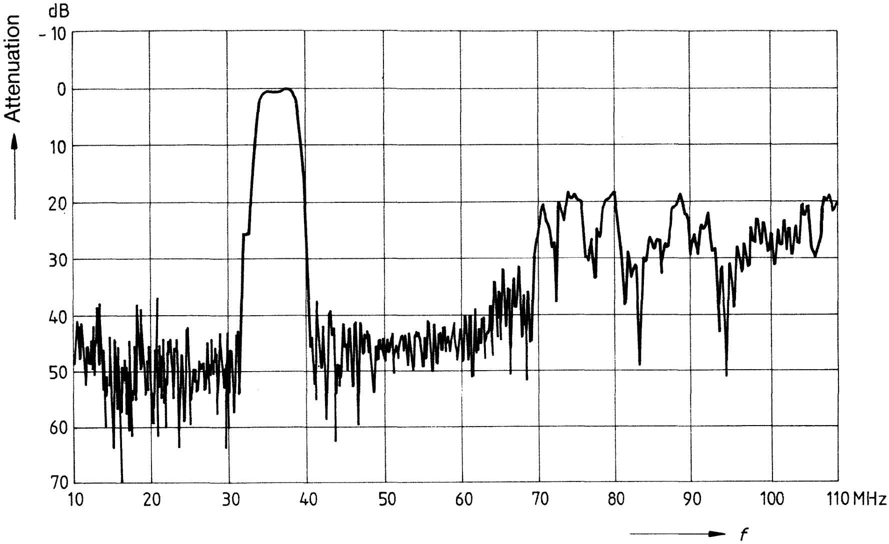
Amplitude response



Amplitude response and group delay

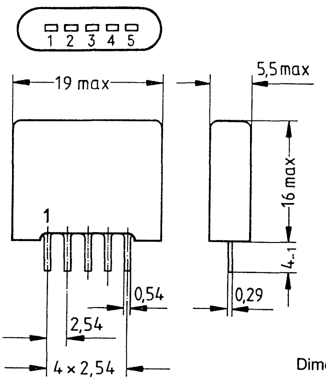


Far-off selectivity

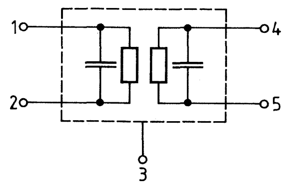


Not for new design

Standard	I Great Britain
Application	TV IF filter including Nyquist slope, sound shelf at 25 dB, vision carrier at 39.5 MHz
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW 363	B39936-A3

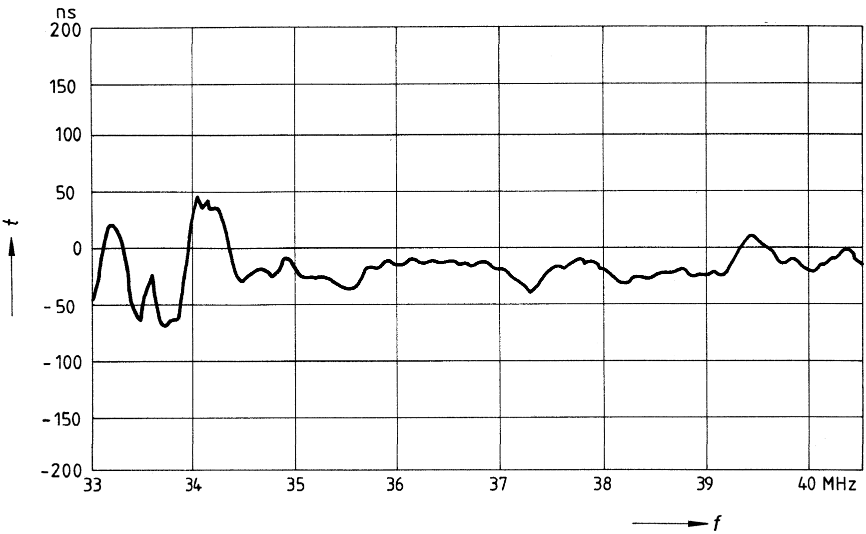
Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.00 MHz	–	20	23.5	dB
Attenuation values					
Vision carrier	39.50 MHz	4.4	5.4	6.4	dB
Color carrier	35.07 MHz	3.4	4.4	5.4	dB
Sound carrier	33.50 MHz	23.6	25.3	26.8	dB
Adjacent vision carrier	31.50 MHz	44	60	–	dB
Adjacent sound carrier	41.60 MHz	42	54	–	dB
Lower sidelobe	25.00...31.50 MHz	38	47	–	dB
Upper sidelobe	41.60...45.00 MHz	36	45	–	dB
Attenuation of reflections					
1.2 μs...3.5 μs after main pulse Test pulse: 250 ns, Carrier frequency: 28.00 MHz		40	48	–	dB
Attenuation of direct breakthrough					
1.0 μs...1.3 μs prior to main pulse Test pulse: 250 ns, Carrier frequency: 38.00 MHz		48	55	–	dB
Group delay Reference frequency 39.50 MHz					ns
Constant group delay up to 34.50 MHz		–	± 0	–	ns
Ripple		–	40	80	ns
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 38.00 MHz		Input: 1.5 kΩ II 13 pF Output: 2.7 kΩ II 6 pF			

Amplitude response

Group delay



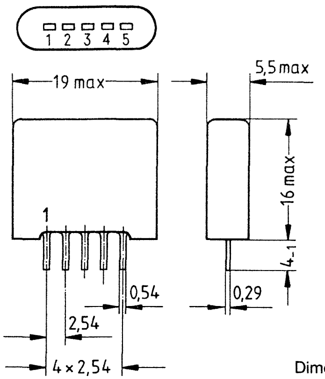
Standard I Great Britain

Application TV IF filter including Nyquist slope. Sound shelf at 20 dB, vision carrier at 39.5 MHz. Reduced insertion loss, high color carrier.

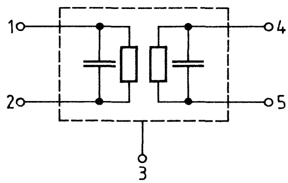
Version Single in-line plastic package: SIP 5, approx. weight 1.8 g

Terminals Tinned copper

Marking Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

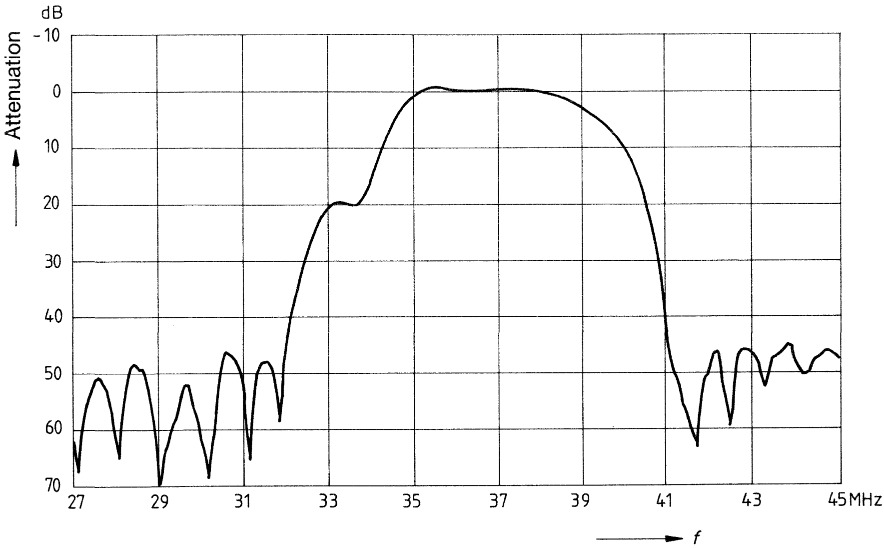
Type	Ordering code
OFW J 1950	B39395-J1950-N100

Measuring conditions

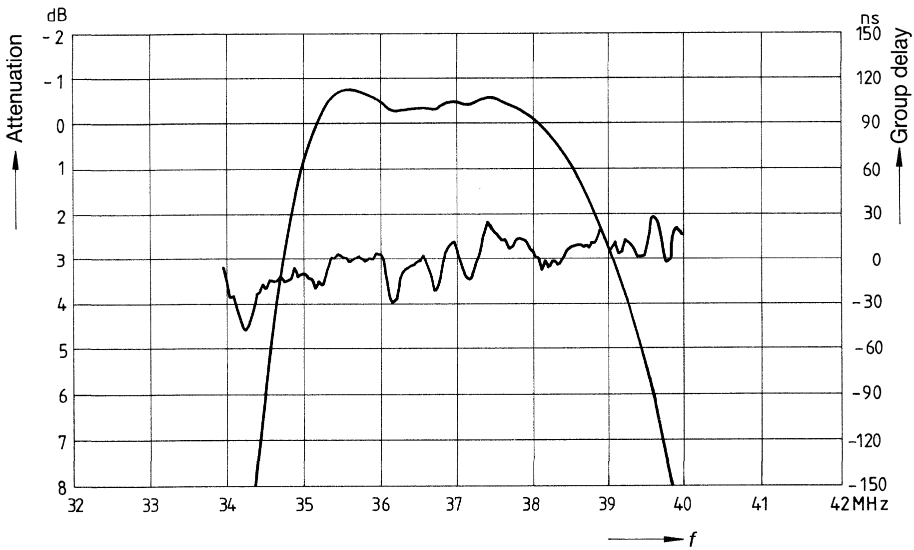
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.00 MHz	–	17	18.5	dB
Attenuation values					
Vision carrier	39.50 MHz	4.5	5.5	6.5	
Color carrier	35.07 MHz	–0.1	0.9	1.9	
Sound carrier	33.50 MHz	19.0	20.0	21.0	
Adjacent vision carrier	31.50 MHz	43	49	–	
Adjacent sound carrier VHF	41.50 MHz	44	53	–	
Lower sidelobe	25.00...31.50 MHz	40	49	–	
Upper sidelobe	41.50...45.00 MHz	38	45	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 38.00 MHz		42	49	–	
Attenuation of direct breakthrough					
0.8 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 38.00 MHz		50	54	–	
Group delay Reference frequency 39.50 MHz					ns
Ripple		–	40	80	
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 38.00 MHz		Input: 2.6 kΩ II 8 pF Output: 2.0 kΩ II 8 pF			

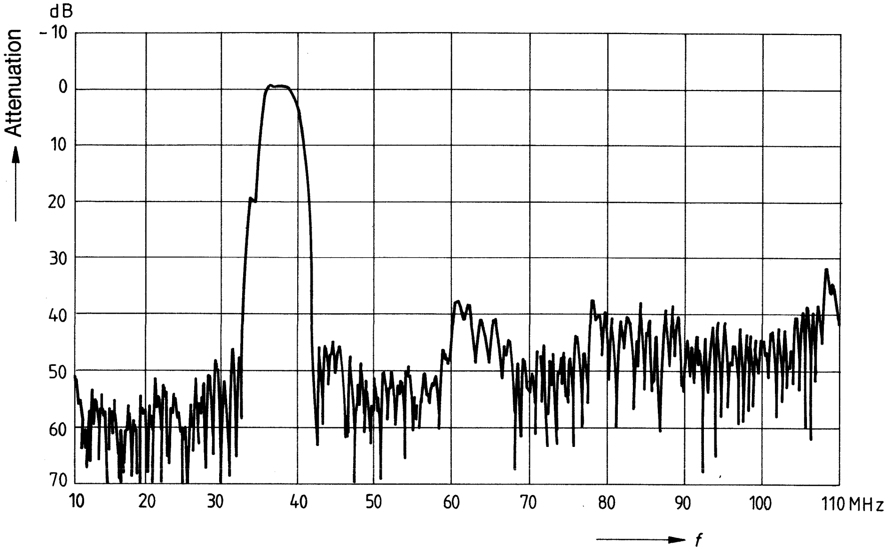
Amplitude response



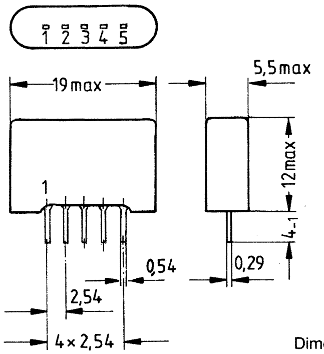
Amplitude response and group delay



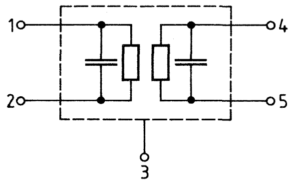
Far-off selectivity



Standard	I Great Britain
Application	TV IF filter including Nyquist slope. Vision carrier at 39.5 MHz. Reduced insertion loss, optimized teletext transmission characteristic, suitable for high-impedance driving.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

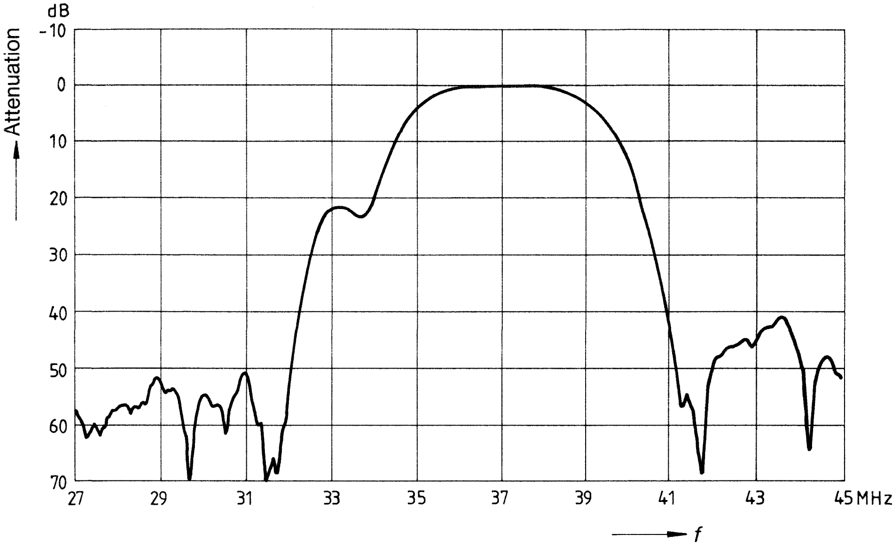
Type	Ordering code **S**
OFW J 1951	B39395-J1951-N100

Measuring conditions

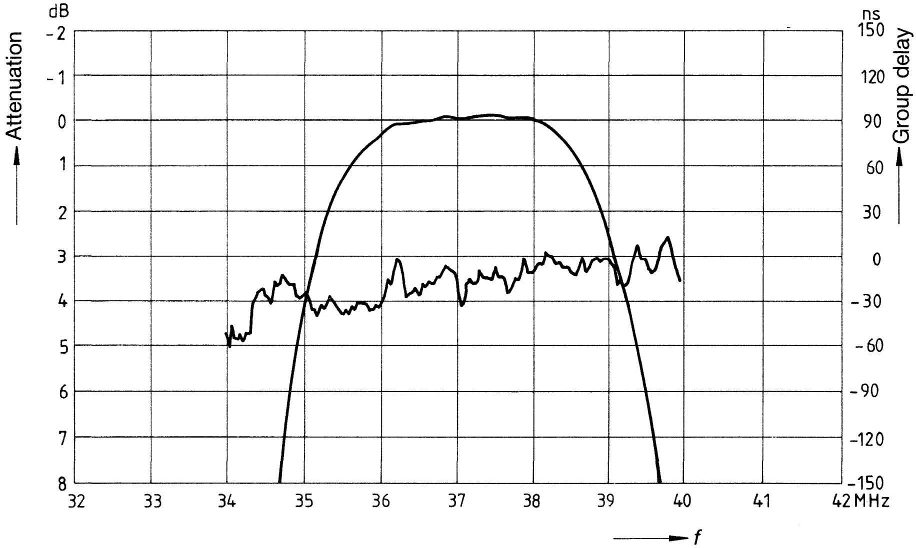
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.00 MHz	14	15.3	17	dB
Attenuation values					
Vision carrier	39.50 MHz	4.8	5.8	6.8	
Color carrier	35.07 MHz	2.8	3.8	4.8	
Sound carrier	33.50 MHz	21.1	22.1	23.1	
Adjacent vision carrier	31.50 MHz	48	60		
Adjacent sound carrier VHF	41.50 MHz	44	54		
Lower sidelobe	25.00...31.50 MHz	44	50		
Upper sidelobe	41.50...45.00 MHz	36	40		
Attenuation of reflections					
1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 38.00 MHz		44	52		
Attenuation of direct breakthrough					
0.8 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 38.00 MHz		50	54		
Group delay Ripple			40	80	ns
Temperature coefficient			–72		ppm/K
Small-signal impedances typical values at 38.00 MHz		Input: 2.0 kΩ II 10 pF Output: 2.5 kΩ II 5 pF			

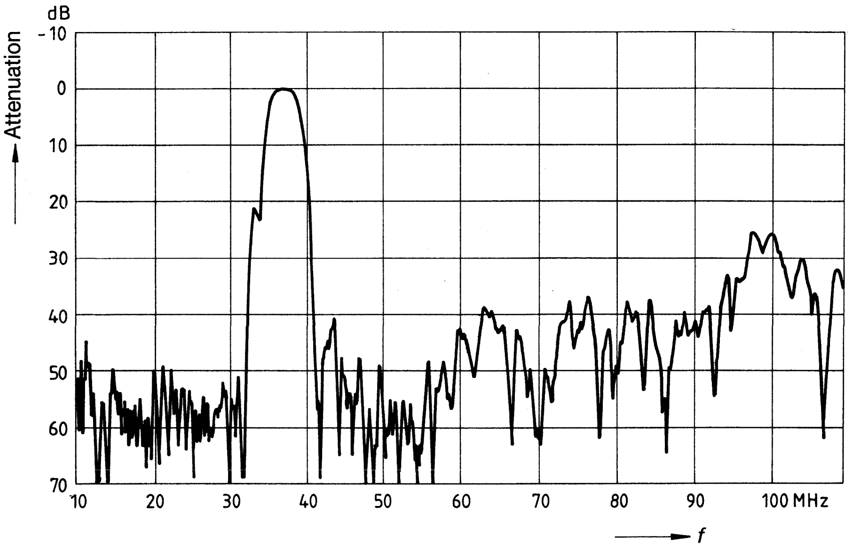
Amplitude response



Amplitude response and group delay

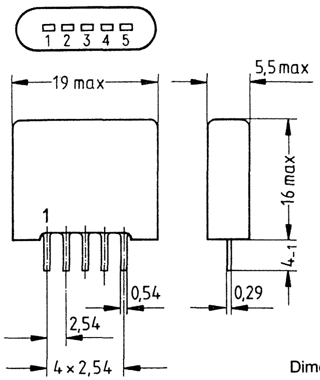


Far-off selectivity

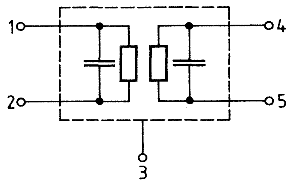


Not for new design

Standard	M/N, FCC, USA
Application	TV IF filter including Nyquist slope and sound shelf
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

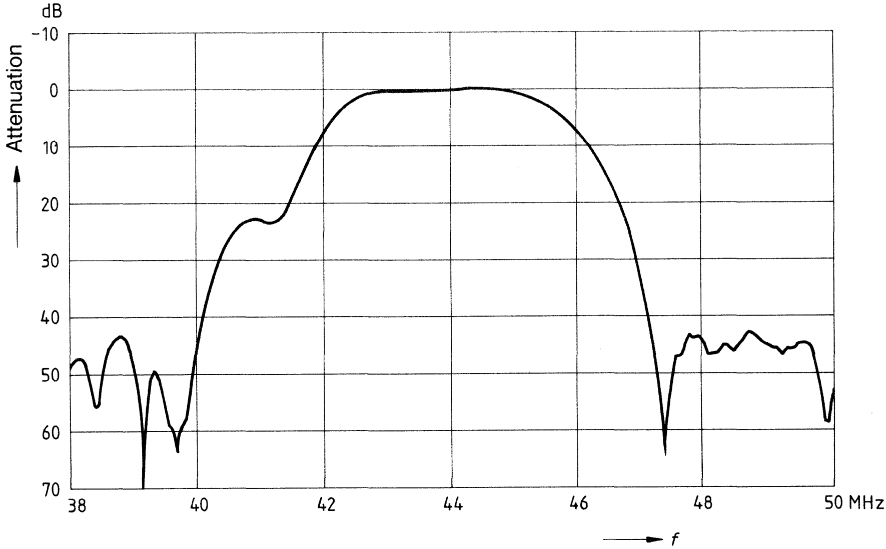
Type	**Ordering code**
OFW 431	B39943-A1

Measuring conditions

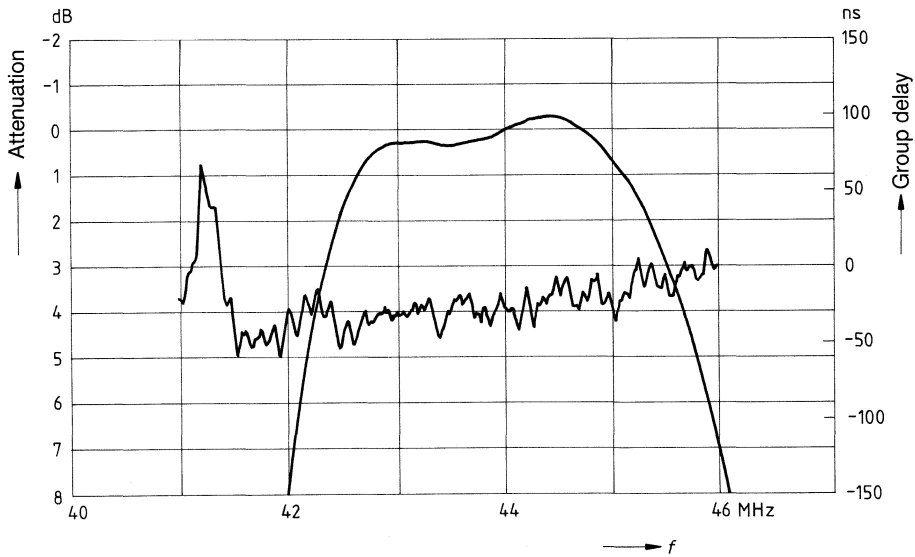
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	–	16	20	
Attenuation values					
Vision carrier	45.75 MHz	3.2	4.3	5.2	
Color carrier	42.17 MHz	3.7	4.6	5.7	
Sound carrier	41.25 MHz	21.2	22.7	24.5	
Adjacent vision carrier	39.75 MHz	44	54	–	
Adjacent sound carrier	47.40 MHz	44	55	–	
Lower sidelobe	35.50...39.75 MHz	36	43	–	
Upper sidelobe	47.40...51.00 MHz	34	42	–	dB
Attenuation of reflections					
1.1 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		40	47	–	
Attenuation of direct breakthrough					
1.0 µs...1.3 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		46	50	–	
Group delay Reference frequency 45.75 MHz					ns
Constant group delay up to 42.17 MHz		–	± 0	–	
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 0.9 kΩ II 15 pF Output: 0.9 kΩ II 8.0 pF			

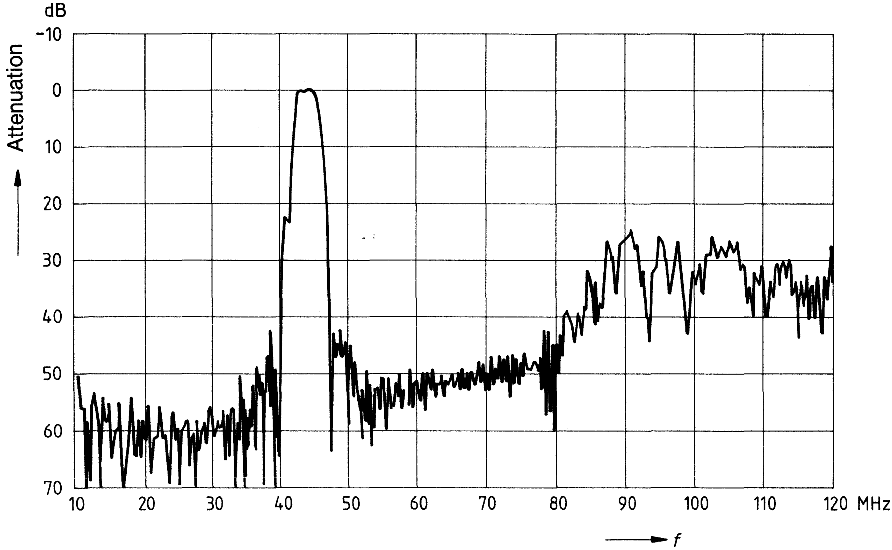
Amplitude response



Amplitude response and group delay

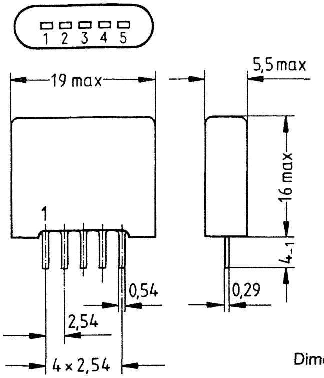


Far-off selectivity

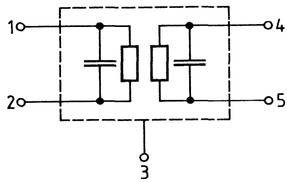


Not for new design

Standard	M/N, FCC, USA
Application	TV IF filter including Nyquist slope and sound shelf at 20 dB, reduced insertion loss.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	*V*	(max)	18 V
AC voltage	*V*	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

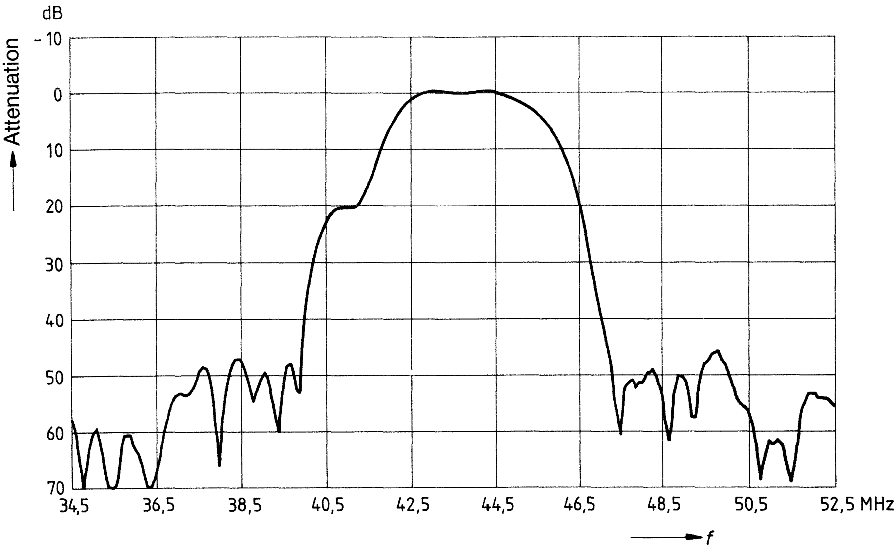
Type	Ordering code
OFW M1950	B39458-M1950-N100

Measuring conditions

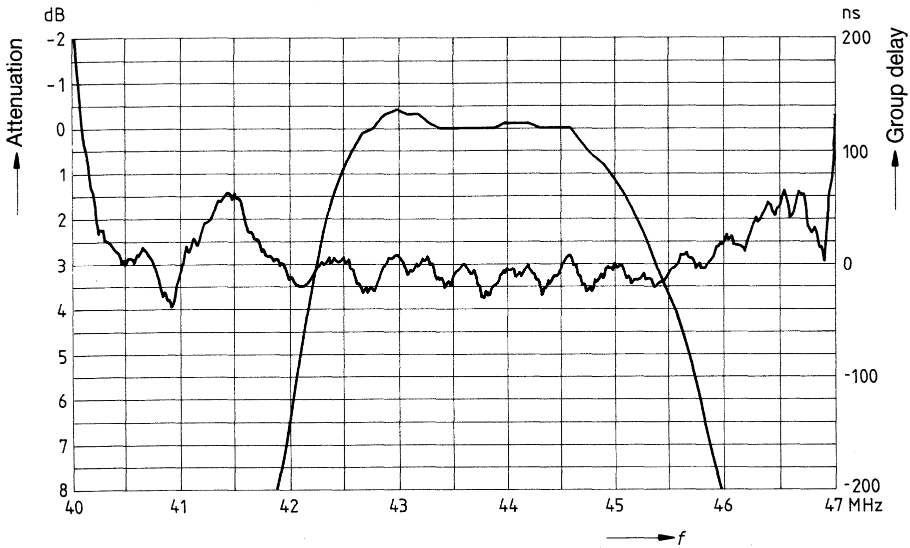
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	44.00 MHz	10.0	11.0	13.0	dB
Attenuation values					
Vision carrier	45.75 MHz	4.5	5.8	7.0	dB
Color carrier	42.17 MHz	3.0	4.1	5.5	dB
Sound carrier	41.25 MHz	19.0	20.0	21.5	dB
Adjacent vision carrier	39.75 MHz	44	49	–	dB
Adjacent sound carrier	47.25 MHz	42	47	–	dB
Lower sidelobe	35.00...39.70 MHz	42	47	–	dB
Upper sidelobe	47.50...51.00 MHz	40	45	–	dB
Attenuation of reflections 1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 44.00 MHz		42	50	–	dB
Attenuation of direct breakthrough 1.1 µs...0.9 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 44.00 MHz		46	66	–	dB
Group delay Constant group delay from 42.00...46.00 MHz Ripple		–	50	–	ns
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 44.00 MHz		Input: 1 kΩ ll 11 pF Output: 0.5 kΩ ll 7 pF			

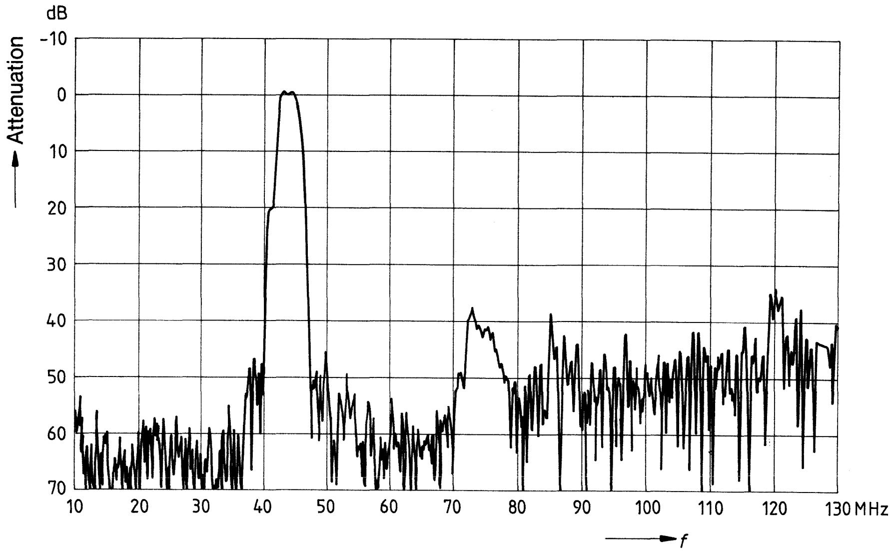
Amplitude response



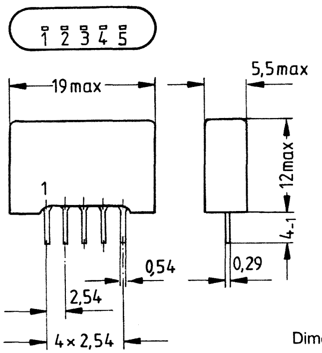
Amplitude response and group delay



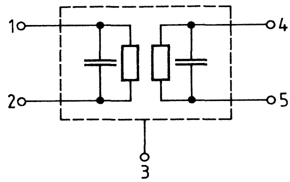
Far-off selectivity



Standard	M/N, FCC, USA
Application	TV IF filter including Nyquist slope and sound shelf at 19 dB, reduced insertion loss, used in the case of reduced requirements in the stopband range.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

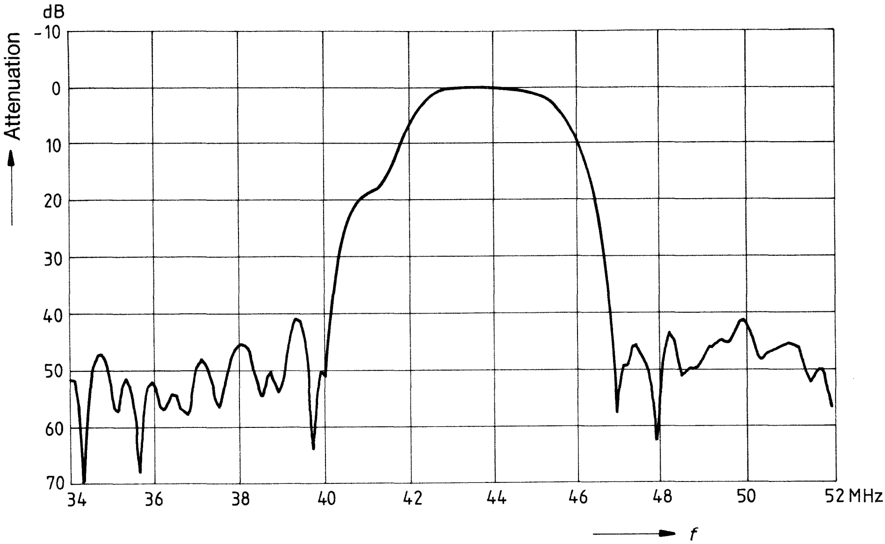
Type	Ordering code
OFW M1952	B39458-M1952-N100

Measuring conditions

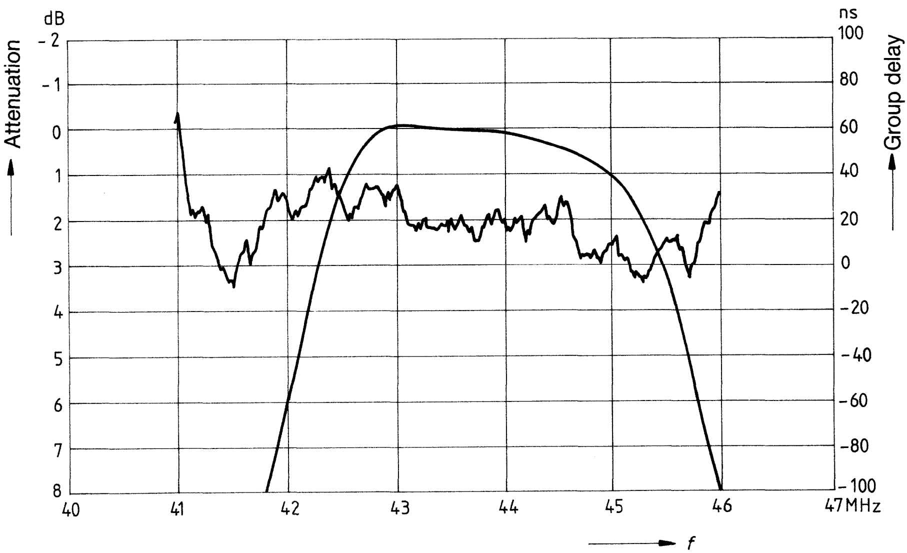
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	12.5	14	15.5	
Attenuation values					
Vision carrier	45.75 MHz	4.0	5.5	7.0	
Color carrier	42.17 MHz	3.0	4.5	6.0	
Sound carrier	41.25 MHz	17.0	18.5	20	
Adjacent vision carrier	39.75 MHz	40	56	–	
Adjacent sound carrier	47.25 MHz	36	45	–	
Lower sidelobe	35.00...39.75 MHz	35	46	–	dB
Upper sidelobe	47.25...55.00 MHz	35	41	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		40	48		
Attenuation of direct breakthrough					
0.9 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		50	54	–	
Group delay Ripple		–	50	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 2.2 kΩ II 9 pF Output: 0.9 kΩ II 5 pF			

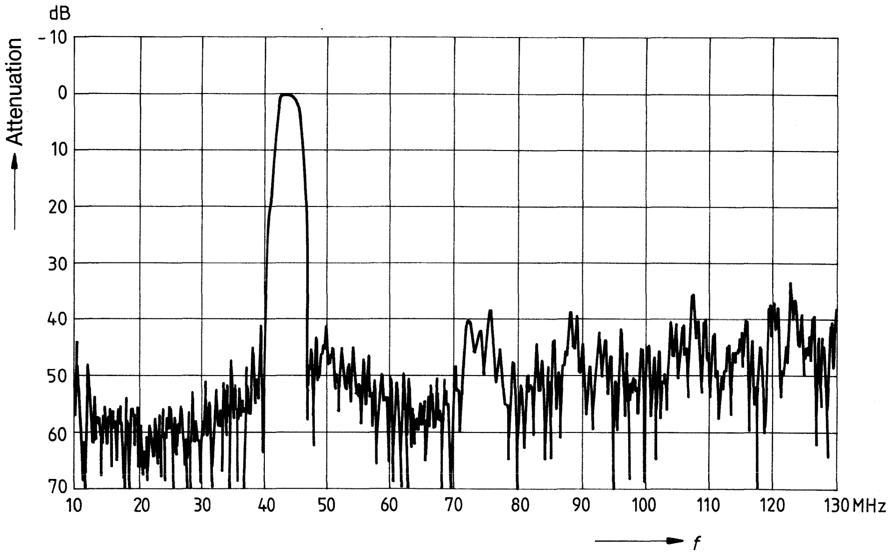
Amplitude response



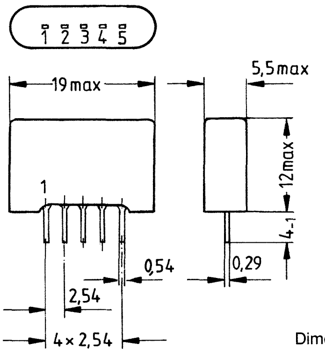
Amplitude response and group delay



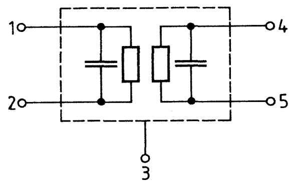
Far-off selectivity



Standard	M/N, FCC, USA
Application	TV IF filter including Nyquist slope and sound shelf, constant group delay.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

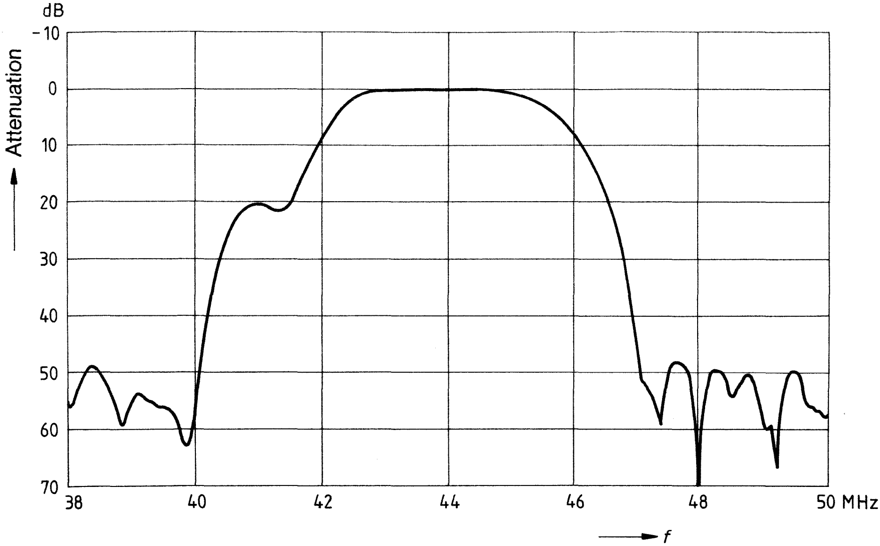
Type	Ordering code
OFW M1953	B39458-M1953-N100

Measuring conditions

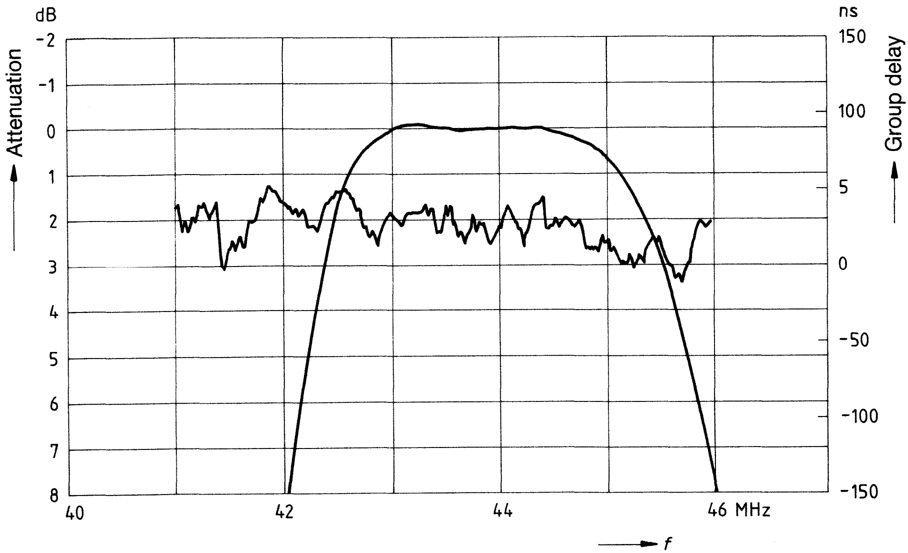
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	44.00 MHz	9.5	10.9	12.5	dB
Attenuation values					
Vision carrier	45.75 MHz	4.4	5.4	6.4	
Color carrier	42.17 MHz	4.3	5.3	6.3	
Sound carrier	41.25 MHz	20.8	21.8	22.8	
Adjacent vision carrier	39.75 MHz	50	60	–	
Adjacent sound carrier	47.25 MHz	46	51	–	
Lower sidelobe	35.00...39.75 MHz	45	48	–	
Upper sidelobe	47.25...55.00 MHz	41	45	–	
Attenuation of reflections					
1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 44.00 MHz		44	50	–	
Attenuation of direct breakthrough					
1.2 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 44.00 MHz		50	>56	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 44.00 MHz		Input: 1.0 kΩ ‖ 13 pF Output: 0.7 kΩ ‖ 5 pF			

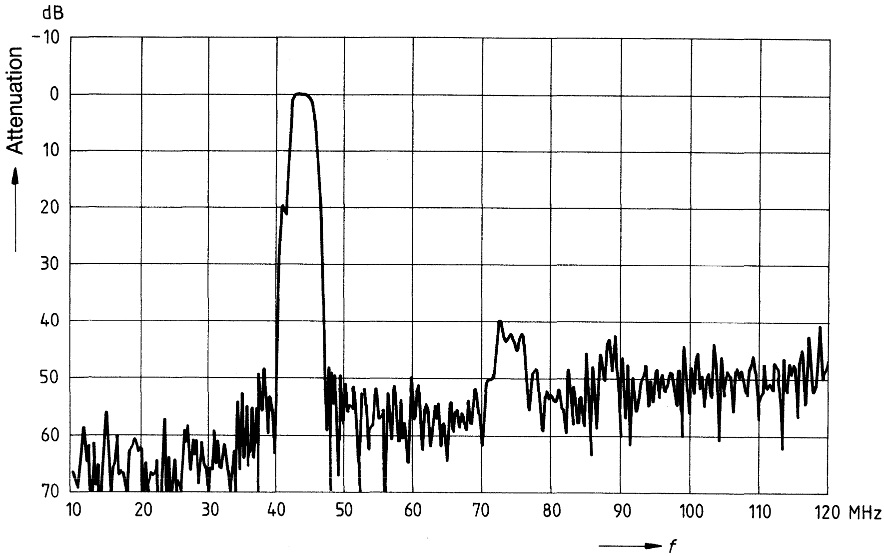
Amplitude response



Amplitude response and group delay



Far-off selectivity



Preliminary data

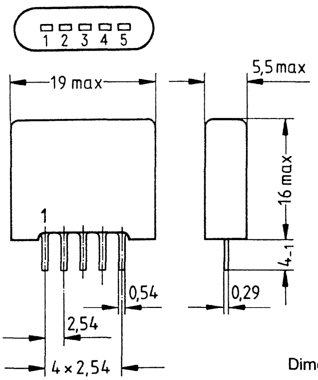
Standard M/N, FCC, USA

Application TV IF filter including Nyquist slope and sound shelf at 16 dB. Reduced load impedance possible.

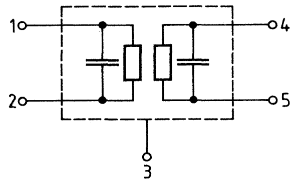
Version Single in-line plastic package: SIP 5, approx. weight 1.8 g

Terminals Tinned copper

Marking Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 } Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

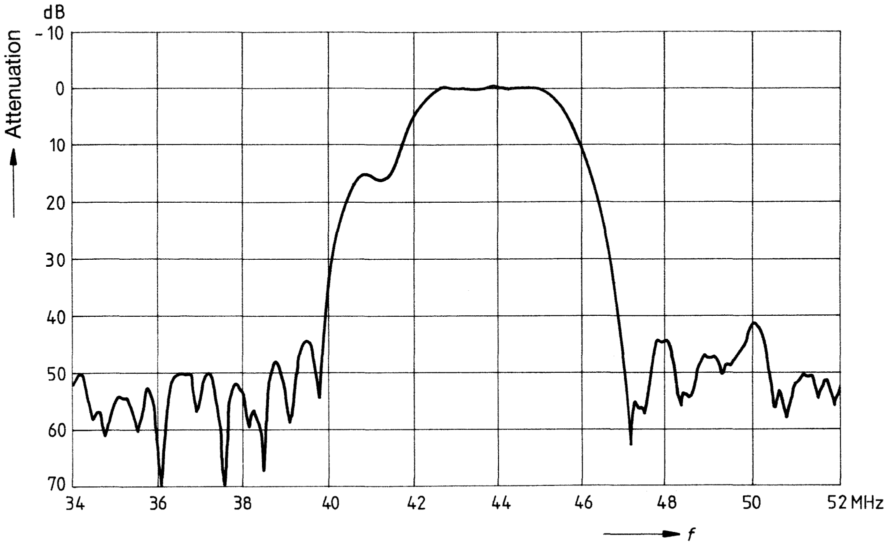
Type	Ordering code
OFW M1954	B39458-M1954-N100

Measuring conditions

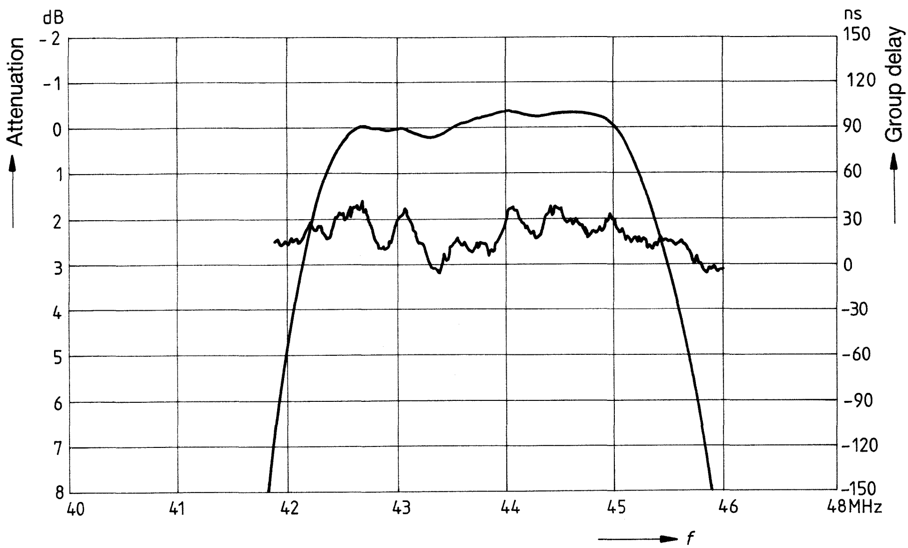
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	13.5	15.0	16.5	
Attenuation values					
Vision carrier	45.75 MHz	5.0	6.1	7.4	
Color carrier	42.17 MHz	2.0	3.1	4.4	
Sound carrier	41.25 MHz	15.6	16.8	18.0	
Adjacent vision carrier	39.75 MHz	40.0	50.0	–	
Adjacent sound carrier	47.25 MHz	40.0	52.0	–	
Lower sidelobe	35.00...39.75 MHz	36.0	48.0	–	dB
Upper sidelobe	47.25...55.00 MHz	34.0	42.0	–	
Attenuation of reflections					
1.4 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		40.0	46.0	–	
Attenuation of direct breakthrough					
0.8 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		40.0	50.0	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 1.0 kΩ ‖ 13 pF Output: 0.5 kΩ ‖ 10 pF			

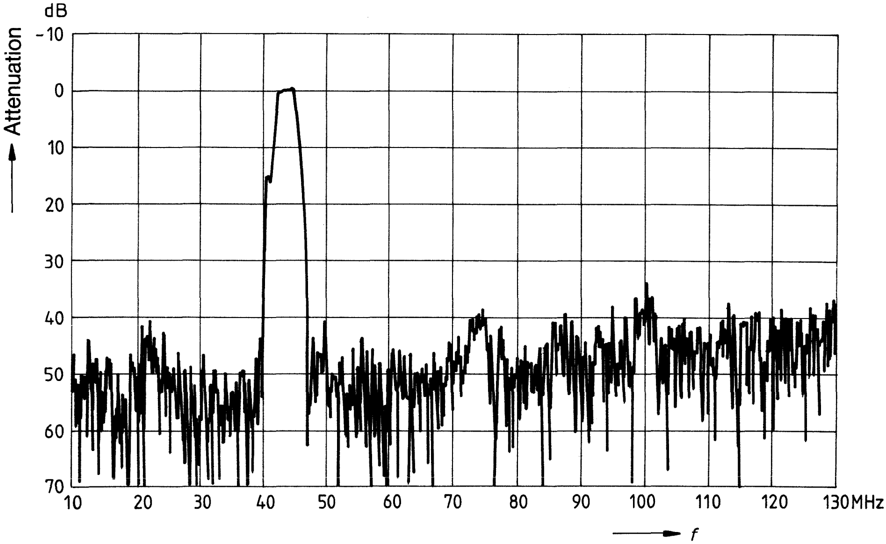
Amplitude response



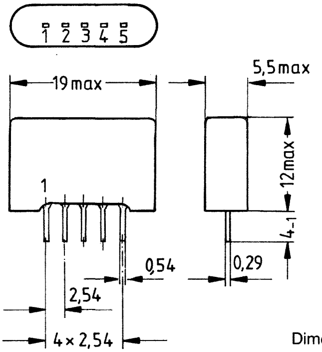
Amplitude response and group delay



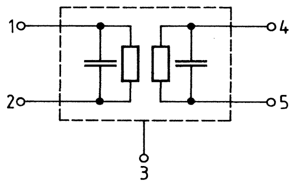
Far-off selectivity



Standard	M/N, FCC, USA
Application	TV IF filter including Nyquist slope and sound shelf at 23 dB. Reduced insertion loss.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

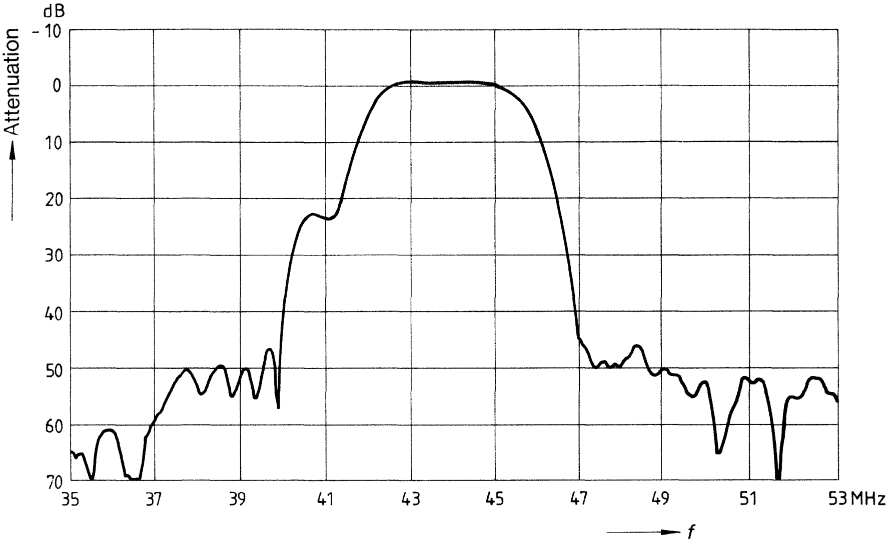
Type	**Ordering code**
OFW M1955	B39458-M1955-N100

Measuring conditions

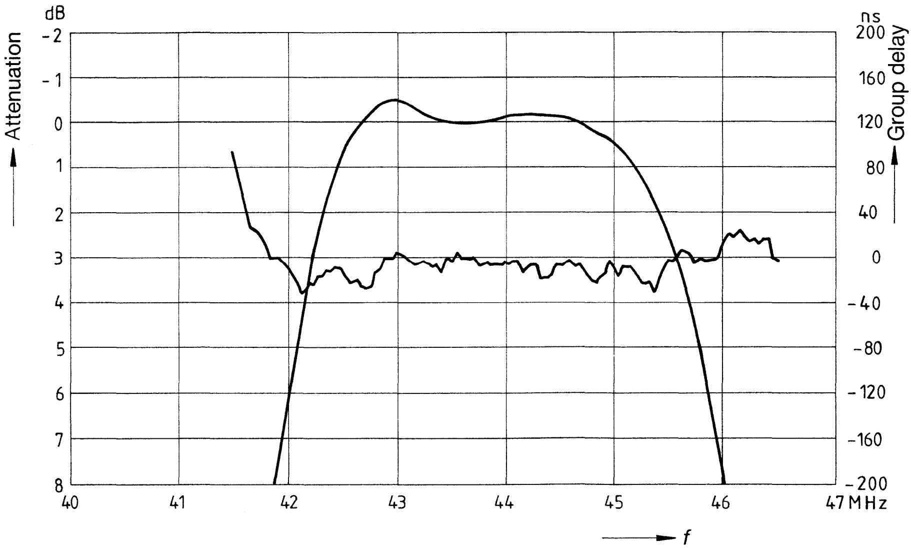
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ǁ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	44.00 MHz	–	11.0	–	dB
Attenuation values					
Vision carrier	45.75 MHz		4.5		dB
Color carrier	42.17 MHz		4.5		dB
Sound carrier	41.25 MHz		23.5		dB
Adjacent vision carrier	39.75 MHz		44.0		dB
Adjacent sound carrier	47.25 MHz		48.0		dB
Lower sidelobe	35.00...39.75 MHz		44.0		dB
Upper sidelobe	47.25...55.00 MHz		44.0		dB
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 44.00 MHz			48		dB
Attenuation of direct breakthrough					
0.9 µs...1.2 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 44.00 MHz			55		dB
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–70	–	ppm/K

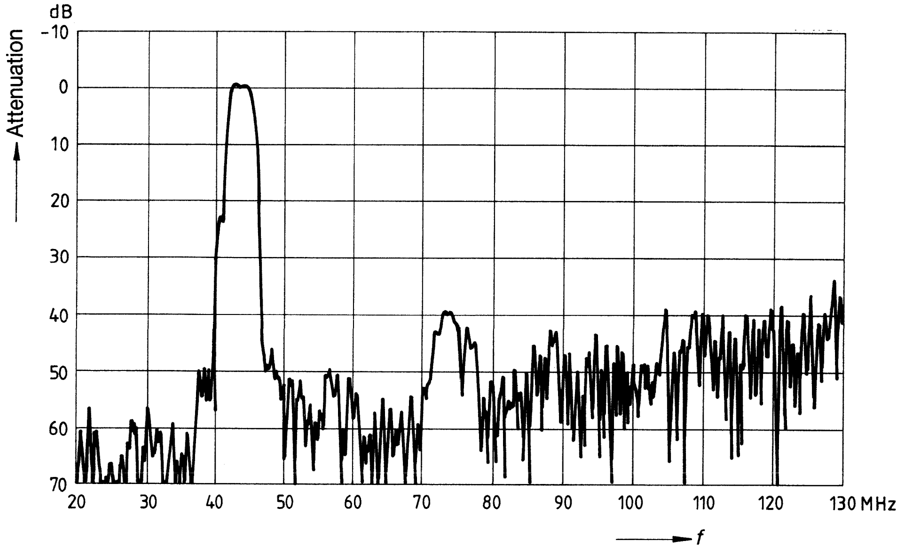
Amplitude response



Amplitude response and group delay

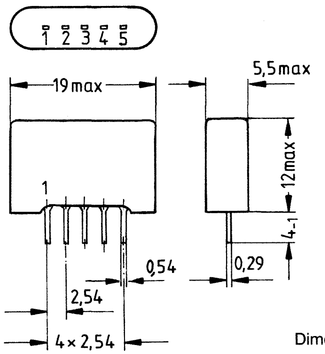


Far-off selectivity

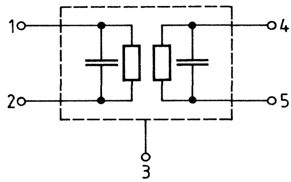


OFW M 3950 — IF 45.75 MHz

Standard	M/N, FCC, USA
Application	TV IF filter including Nyquist slope, constant group delay, sound suppression 36 dB.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

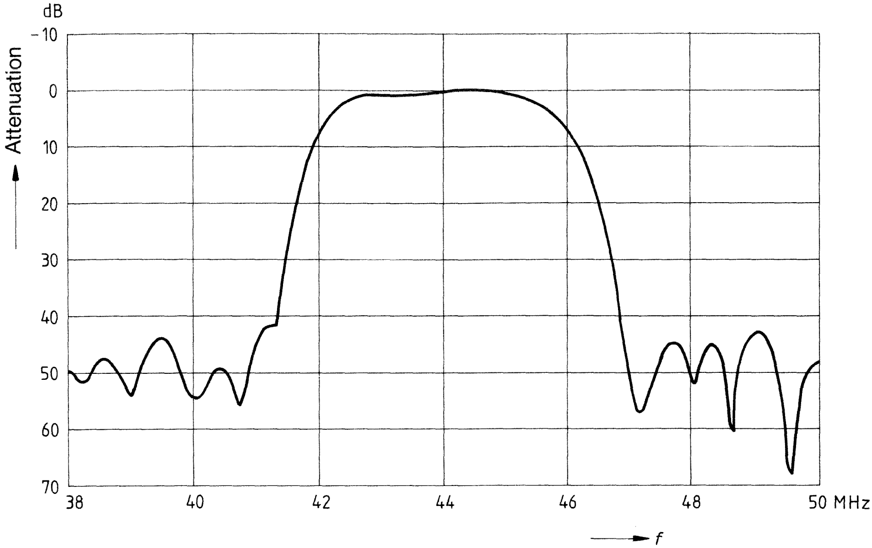
Type	Ordering code
OFW M3950	B39458-M3950-N100

Measuring conditions

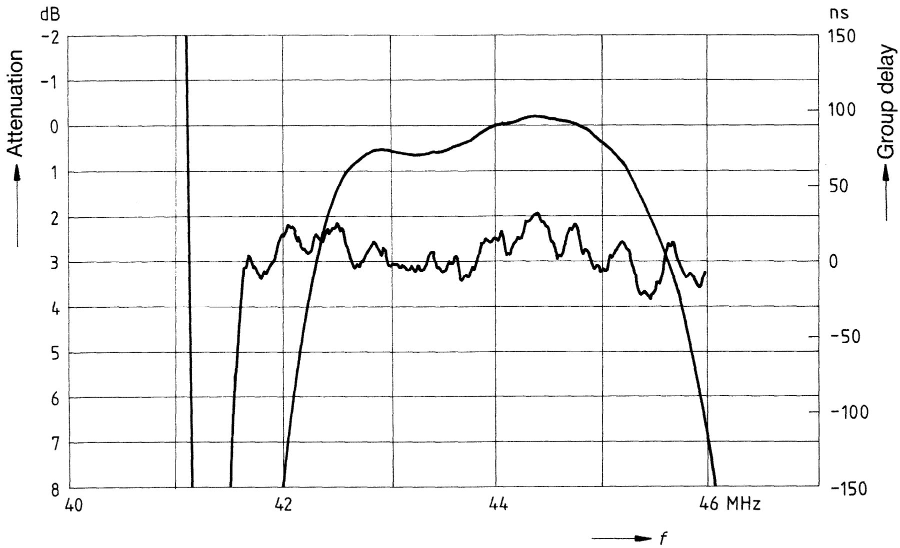
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	1500 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	9.5	11	12.5	dB
Attenuation values					
Vision carrier	45.75 MHz	2.4	3.4	3.4	dB
Color carrier	42.17 MHz	3.4	4.4	5.4	dB
Sound carrier	41.25 MHz	36	41	–	dB
Adjacent vision carrier	39.75 MHz	45	49	–	dB
Adjacent sound carrier	47.25 MHz	46	54	–	dB
Lower sidelobe	35.00...39.75 MHz	39	43	–	dB
Upper sidelobe	47.25...55.00 MHz	39	43	–	dB
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		40	47	–	dB
Attenuation of direct breakthrough					
1.2 µs...1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		50	>56	–	dB
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 1.0 kΩ II 13 pF Output: 0.55 kΩ II 5 pF			

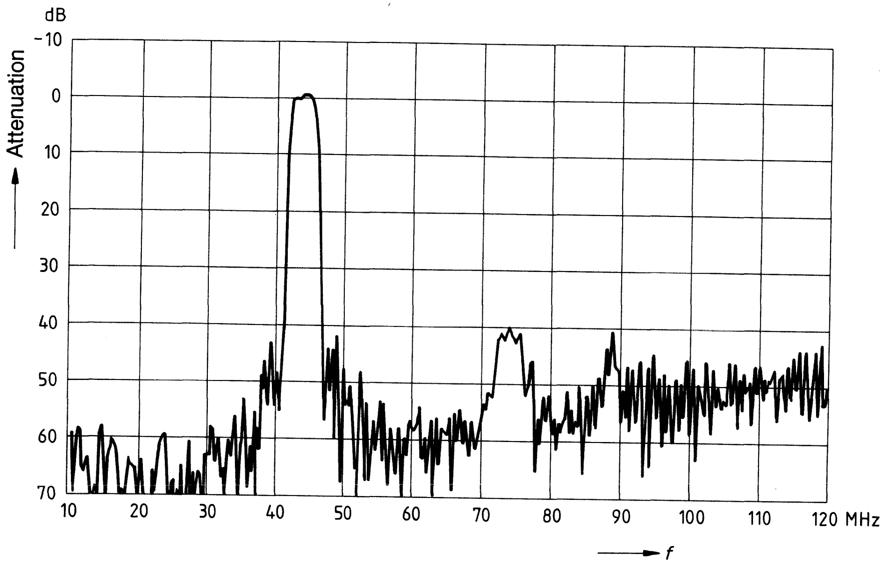
Amplitude response



Amplitude response and group delay



Far-off selectivity



TV IF Filters

Quasiparallel/Parallel Sound Applications

Survey of IF Filters for Quasiparallel/Parallel Sound Applications

Vision carrier MHz	Vision-to-sound interval MHz	Group delay[1]/ Sound carrier trap[2] (video channel) dB	Standard[3]	Package	Type OFW...	Page	
32.70	–6.5	F/46	L/E	DIP10	734	171	
	–6.5	F/45	L/E	DIP10	L 3250[4]	–	
38.90	5.5	N/46	B/G	DIP10	731	176	■
	5.5	N/45	B/G	DIP10	G 3201	181	
	5.5	N/40	B/G	DIP10	G 3203	187	S
	5.5	F, C/45	B/G	DIP10	G 3204	193	
	5.5	N, C/39	B/G	DIP10	G 3205	198	
	5.5*)	N, C/40	B/G	DIP10	G 3206	203	
	5.5	N, C/42	B/G	DIP10	G 3250[4]	–	
	6.0	F/44	I	DIP10	J 3201	208	S
	6.0	F/20	I	DIP10	J 3205	213	
	6.5	F/45	L	DIP10	K 3252[4]	–	
39.50	6.0	F/40	I	DIP10	J 3203	218	
45.75	4.5	F/20	M/N	DIP10	M 3201	223	
	4.5	F/30	M/N	DIP10	M 3250	227	S
	4.5	F/42	M/N	DIP10	M 3251	232	

[1]) N : comparable standard
C : customer-oriented
F : flat

[2]) Typ., referred to filter roof

[3]) B : Australia
B/G : CCIR, Germany, Europe (7/8 MHz)
D/K : OIRT, Eastern standard, China
L/E : France
L : France
I : Great Britain, Republic of Ireland
M/N : FCC, USA

[4]) In preparation

*) Sound channel is limited to sound transmission

■ Not for new design

S Preferred product (refer to page 4)

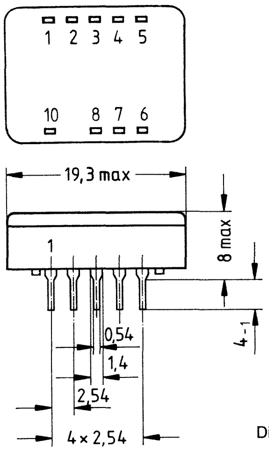
Standard L/E France

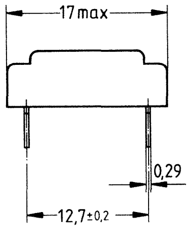
Application TV IF filter for quasiparallel sound (separate vision and sound channel), including Nyquist slope, sound suppression, constant group delay. Vision carrier at 32.7 MHz. Sound channel with small passband exclusively for sound carrier.

Version Dual in-line plastic package: DIP 10, approx. weight 2.5 g

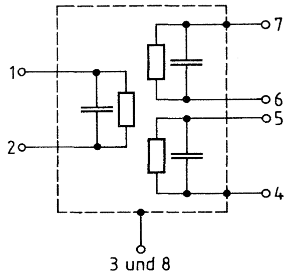
Terminals Tinned copper

Marking Type designation and marking for pin 1 are stamped on the package





Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW 734	B39973-A4

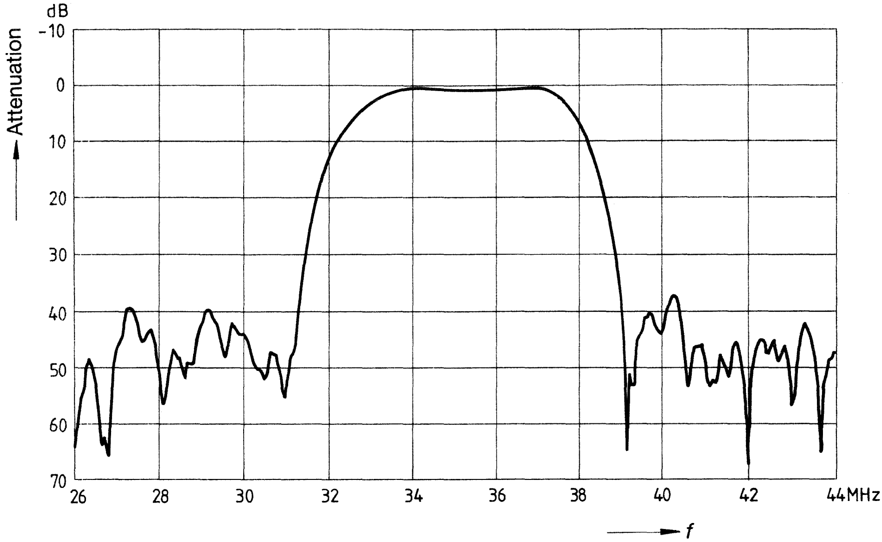
Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 3 pF

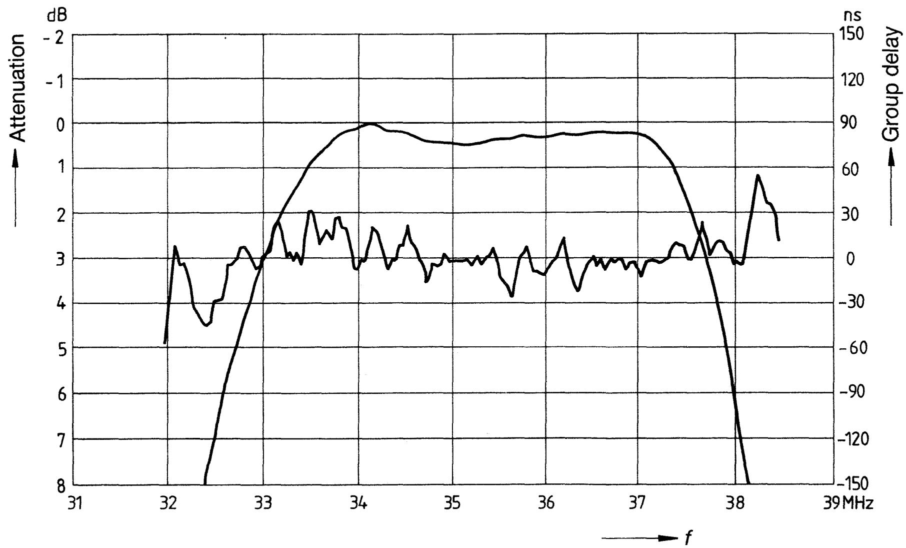
Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	34.20 MHz	–	27	30.0	dB
Attenuation values					
Vision carrier	32.70 MHz	4.2	5.2	6.2	
Color carrier	37.10 MHz	–0.6	0.4	1.5	
Sound carrier	39.20*) MHz	32	46	–	
Adjacent vision carrier	40.70*) MHz	44	54	–	
Adjacent sound carrier VHF	31.20*) MHz	44	54	–	
Lower sidelobe	25.00...31.20 MHz	34	40	–	
Upper sidelobe	40.70...45.00 MHz	38	49	–	
Attenuation of reflections 1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		41	49	–	
Attenuation of direct breakthrough 1.1 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 34.20 MHz		50	62	–	
Group delay Reference frequency 32.70 MHz Ripple		–	40	80	ns
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 34.20 MHz		Input: 3.0 kΩ ‖ 10 pF Output: 2.4 kΩ ‖ 12 pF			

*) Maximum attenuation within the range of ±100 kHz

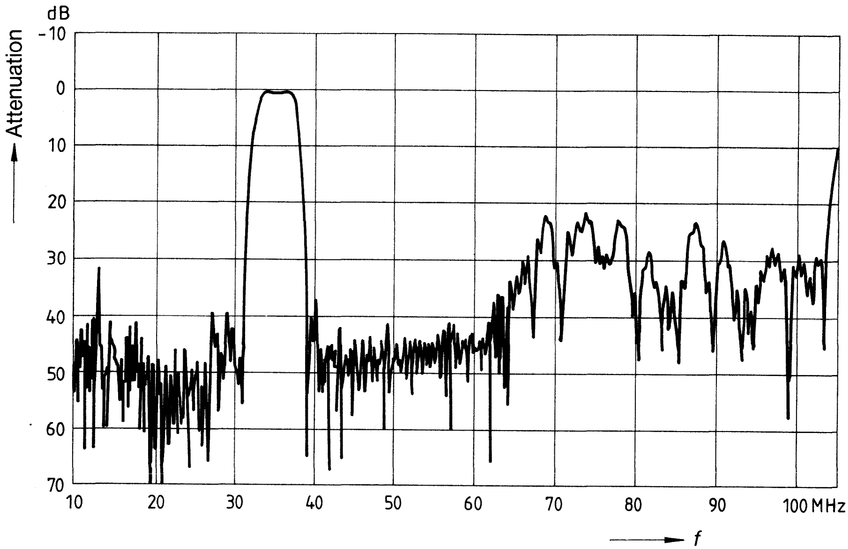
Amplitude response



Amplitude response and group delay



Far-off selectivity



Sound channel

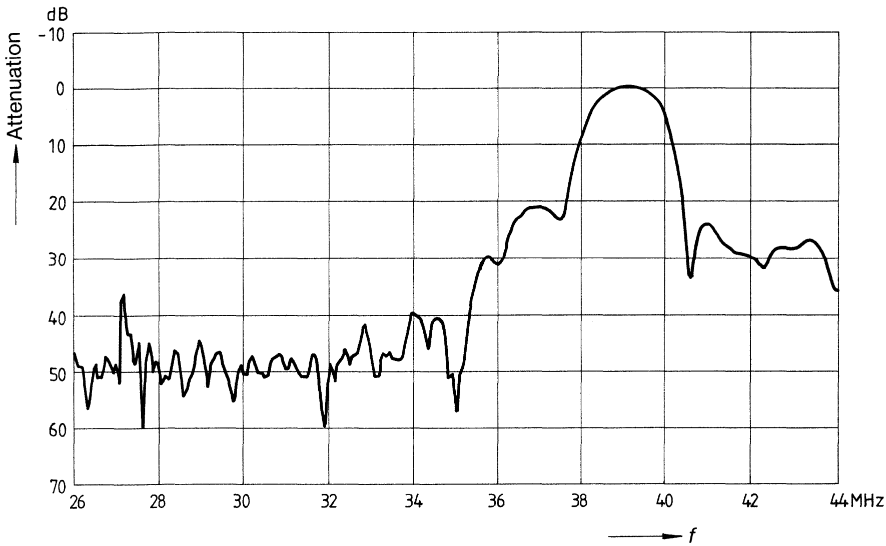
Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	39.20 MHz	–	28	30.5	
Attenuation values					
Vision carrier	32.70 MHz	29	43	–	
In-band trap	35.20 MHz	17	49	–	
Adjacent vision carrier	40.70*) MHz	23	37	–	dB
Adjacent sound carrier VHF	31.20*) MHz	35	53	–	
Lower sidelobe	25.00...31.20 MHz	31	47	–	
Upper sidelobe	40.70...45.00 MHz	19	28	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical value at 39.20 MHz		Output: 0.28 kΩ II 23 pF			

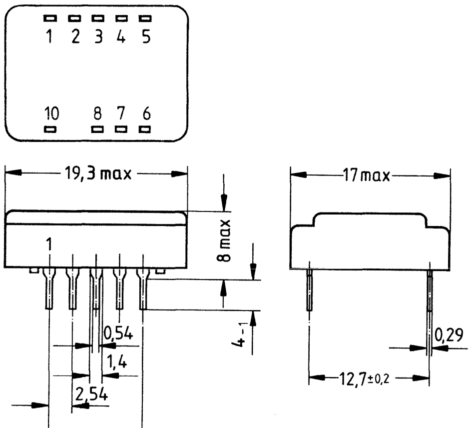
*) Maximum attenuation within the range of ±100 kHz

Amplitude response

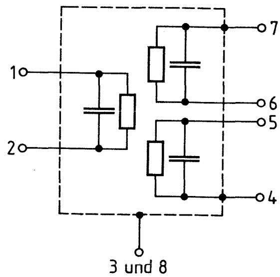


Not for new design

Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter for parallel sound (separate vision and sound channel), vision channel including Nyquist slope and sound suppression, e.g. for stereo TV sets.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW 731	B39973-A1

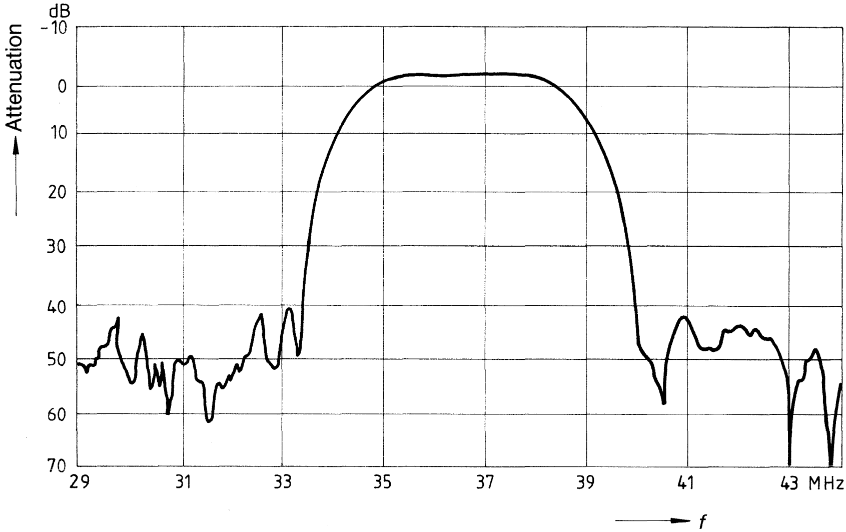
Vision channel

Measuring conditions

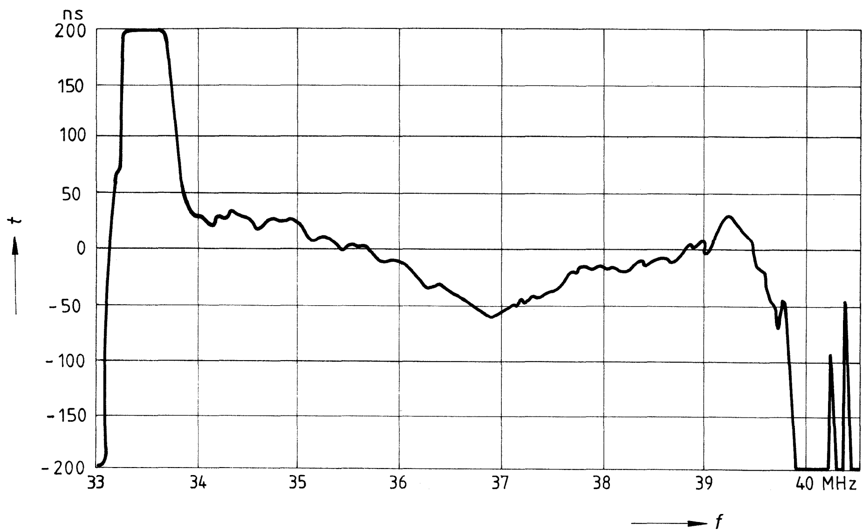
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	23.0	25.5	
Attenuation values					
Vision carrier	38.90 MHz	4.6	5.6	6.6	
Color carrier	34.47 MHz	4.6	6.0	6.6	
Sound carrier	33.40 MHz	34	46	–	
Adjacent vision carrier	31.90 MHz	46	54	–	
Adjacent sound carrier VHF	40.40 MHz	44	53		
Lower sidelobe	25.00...31.90 MHz	40	47	–	dB
Upper sidelobe	40.40...45.00 MHz	36	42	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		42	50	–	
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	55	–	
Group delay					
Reference frequency 38.90 MHz					
Max. deviation at 36.90 MHz		–	–60	–	ns
Ripple		–	40	80	
Rise at 34.47 MHz		–	20	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.9 kΩ ll 8 pF Output: 2.5 kΩ ll 12 pF			

Amplitude response

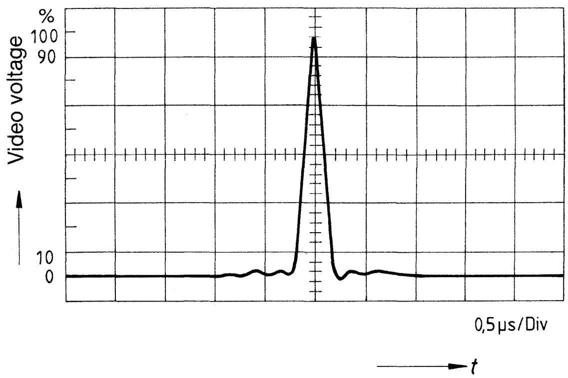


Group delay

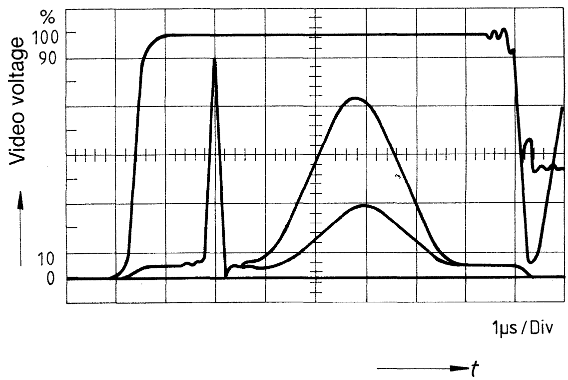


Pulse response in the IF board

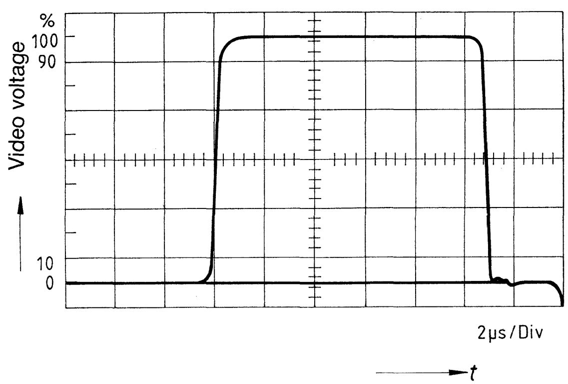
2T-pulse



2T/20T-signal



Step signal



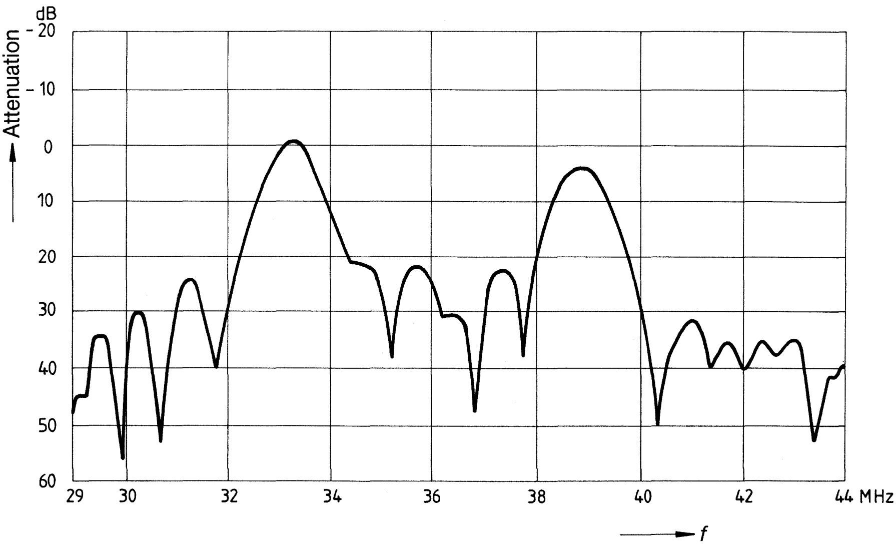
Sound channel

Measuring conditions

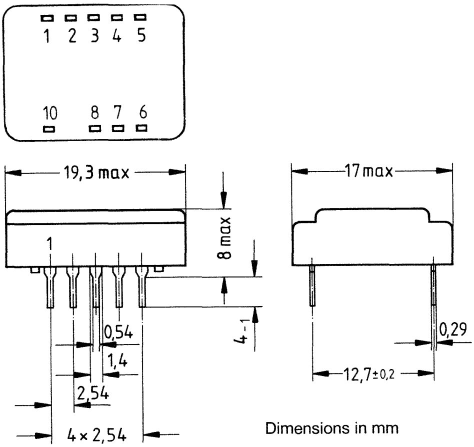
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	33.40 MHz	–	27.0	28.5	
Attenuation values					
Vision carrier	38.90 MHz	5.2	6.4	7.6	
In-band trap	36.15 MHz	20	30	–	
Adjacent vision carrier	31.90 MHz	26	36	–	dB
Adjacent sound carrier VHF	40.40 MHz	23	40	–	
Lower sidelobe	25.00…31.90 MHz	20	27	–	
Upper sidelobe	40.40…45.00 MHz	24	33	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 33.40 MHz		Output: 1,4 kΩ II 11 pF			

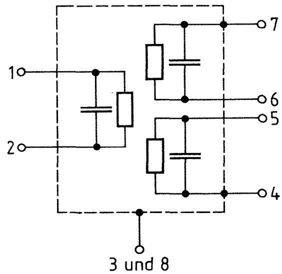
Amplitude response



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter for quasiparallel sound (separate vision and sound channel), including Nyquist slope, sound suppression and reduced group delay distortion. Sound channel with small passband exclusively for vision and sound carrier improves the sound quaility, e.g. in stereo TV sets
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code	S
OFW G 3201	B39389-G3201-P100	

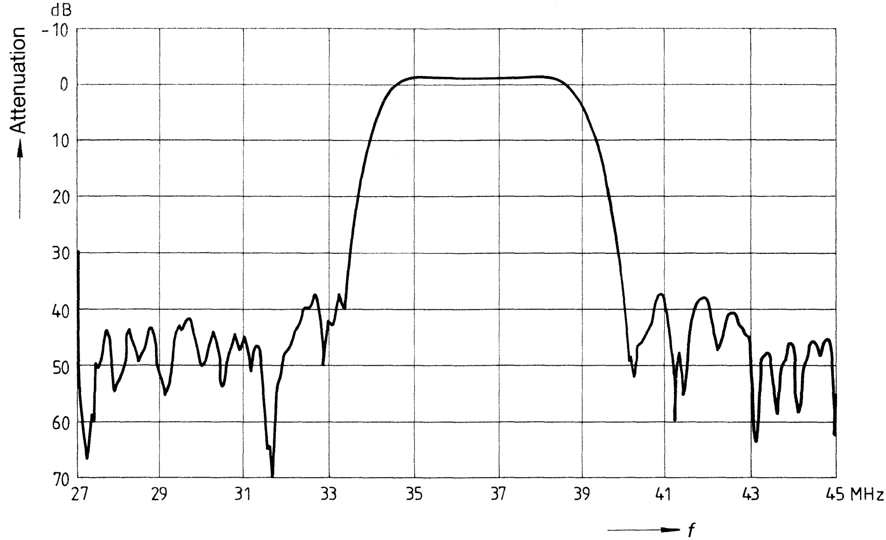
Vision channel

Measuring conditions

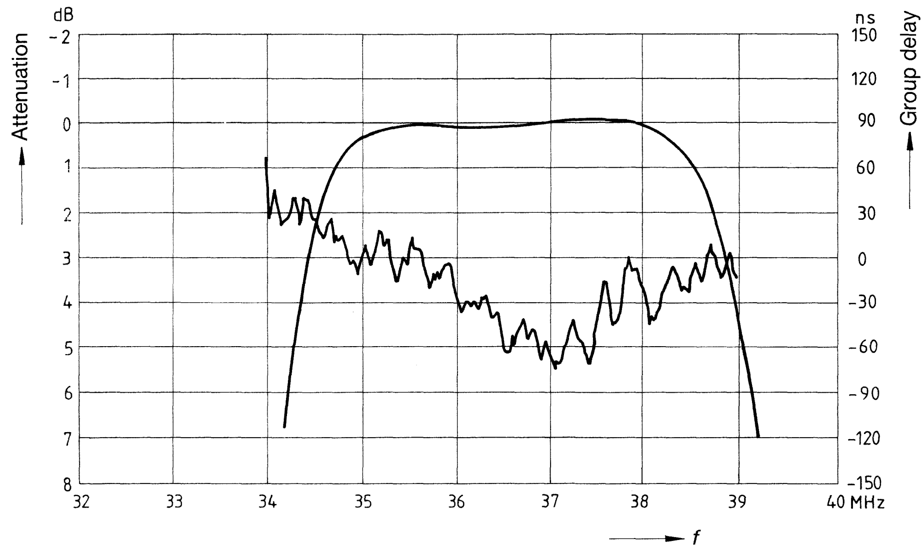
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	24	25.5	dB
Attenuation values					
Vision carrier	38.90 MHz	4.4	5.7	6.6	dB
Color carrier	34.47 MHz	4.4	5.6	6.9	dB
Sound carrier	33.40 MHz	34	45	–	dB
Adjacent vision carrier	31.90 MHz	46	53	–	dB
Adjacent sound carrier VHF	40.40 MHz	44	57	–	dB
Lower sidelobe	31.90 MHz	38	48	–	dB
Upper sidelobe	45.00 MHz	36	42	–	dB
Attenuation of reflections					
1.3 µs…3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		42	50	–	dB
Attenuation of direct breakthrough					
1.1 µs…1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	64	–	dB
Group delay Reference frequency 38.90 MHz					
Max. deviation at 36.90 MHz		–	–50	–	ns
Ripple		–	40	80	ns
Rise at 34.47 MHz		–	30	–	ns
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.8 kΩ ‖ 8 pF Output: 2.2 kΩ ‖ 13 pF			

Amplitude response

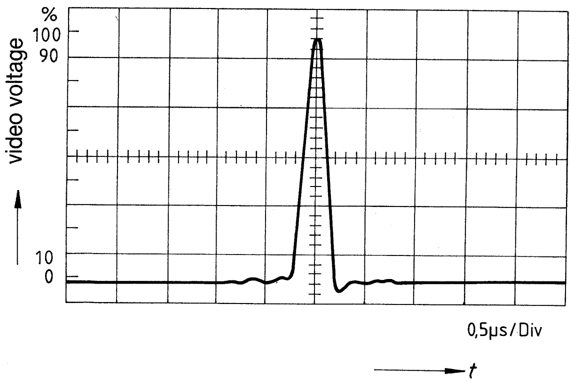


Amplitude response and group delay

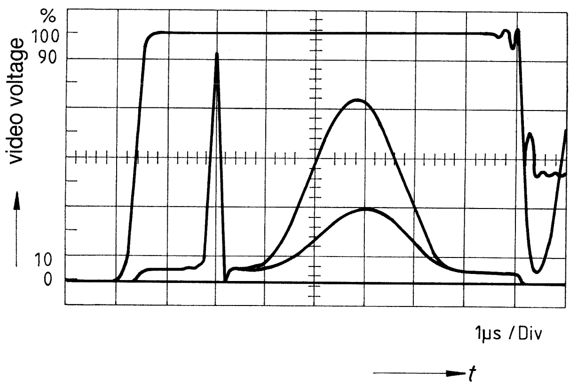


Pulse response in the IF board

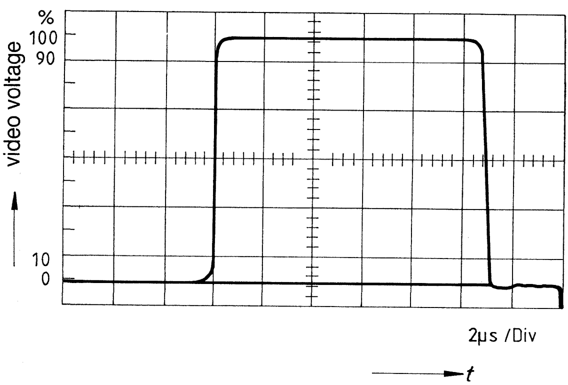
2T-pulse



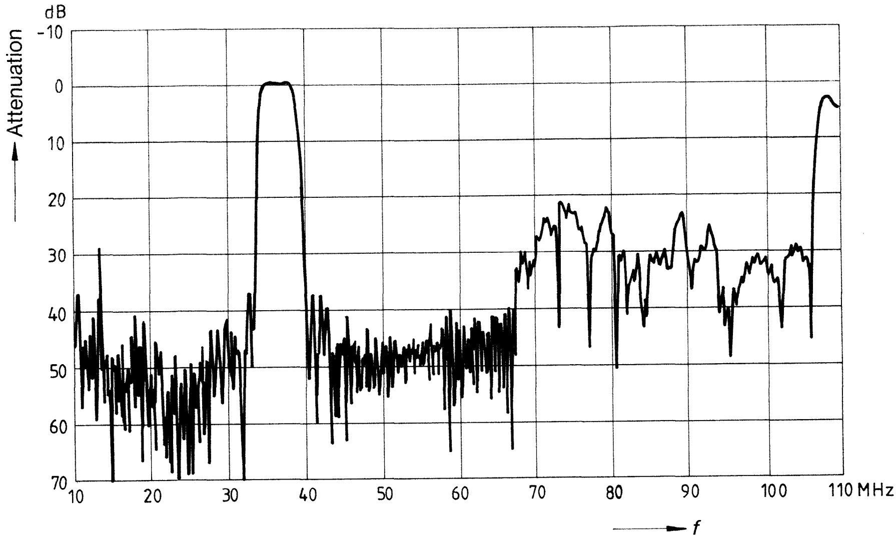
2T/20T-signal



Step signal



Far-off selectivity



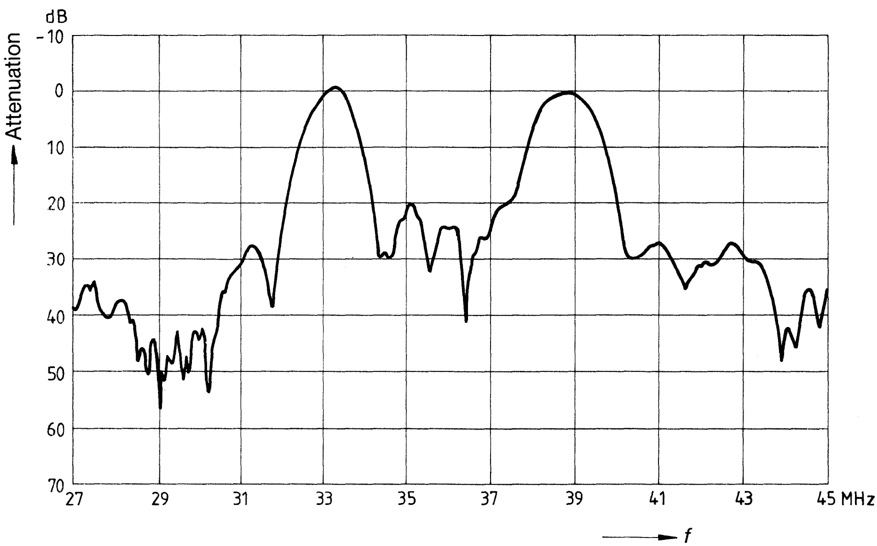
Sound channel

Measuring conditions

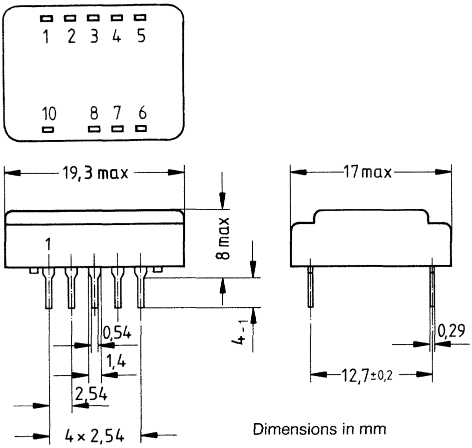
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	33.40 MHz	–	30	32.5	
Attenuation values					
Vision carrier	38.90 MHz	−1.2	±0	1.2	
In-band trap	36.15 MHz	13	24	–	
Adjacent vision carrier	31.90 MHz	26	34	–	dB
Adjacent sound carrier VHF	40.40 MHz	23	30	–	
Lower sidelobe	25.00…31.90 MHz	20	29	–	
Upper sidelobe	40.40…45.00 MHz	20	27	–	
Temperature coefficient		–	−94	–	ppm/K
Small-signal impedances typical values at 33.40 MHz		Output: 1,3 kΩ ll 13 pF			

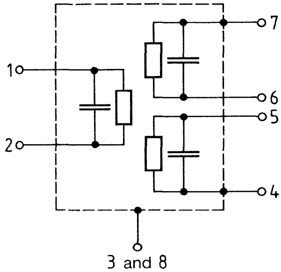
Amplitude response



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter for quasiparallel sound (separate vision and sound channel). Vision channel including Nyquist slope, sound suppression and group delay distortion. Sound channel with passband exclusively for vision and sound carriers improves the sound quality, e.g. in stereo TV sets; optimum 2T pulse response.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW G 3203	B39389-G3203-P100

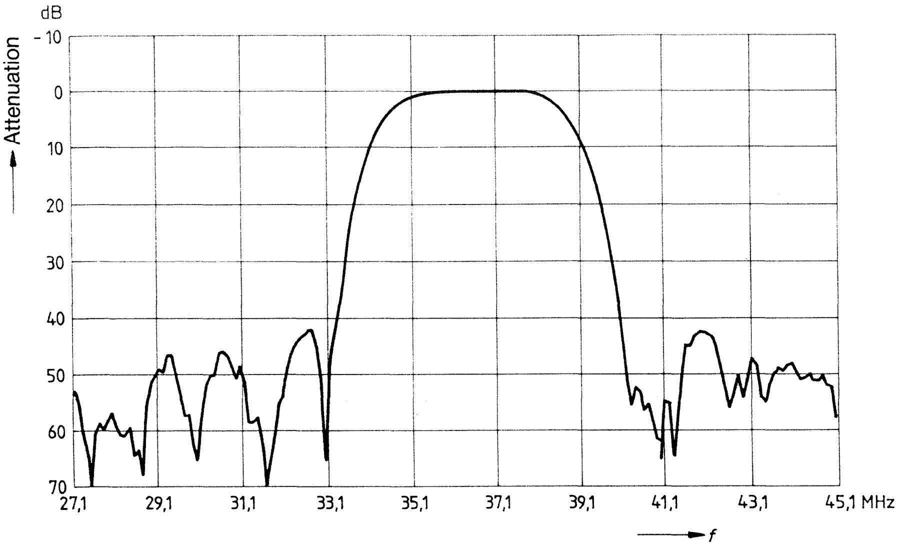
Vision channel

Measuring conditions

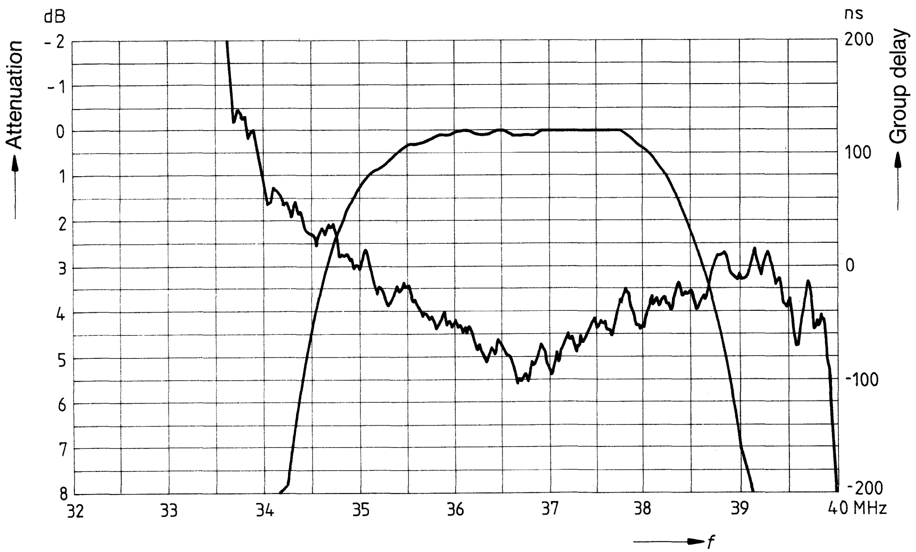
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	23.5	25.5	
Attenuation values					
Vision carrier	38.90 MHz	4.7	5.6	6.7	
Color carrier	34.47 MHz	4.1	5.1	6.1	
Sound carrier	33.40 MHz	34	40	–	
Adjacent vision carrier	31.90 MHz	48	60	–	
Adjacent sound carrier VHF	40.40 MHz	44	52	–	
Lower sidelobe	25.00...31.90 MHz	40	46	–	dB
Upper sidelobe	40.40...45.00 MHz	36	43	–	
Attenuation of reflections					
1.3 µs...3.5 µs after main pulse		42	49	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse		50	64	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Group delay					
Reference frequency 38.90 MHz					
Max. deviation at 36.40 MHz		–	–90	–	ns
Ripple		–	40	80	
Rise at 34.47 MHz		–	40	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.8 kΩ ‖ 8 pF Output: 2.3 kΩ ‖ 12 pF			

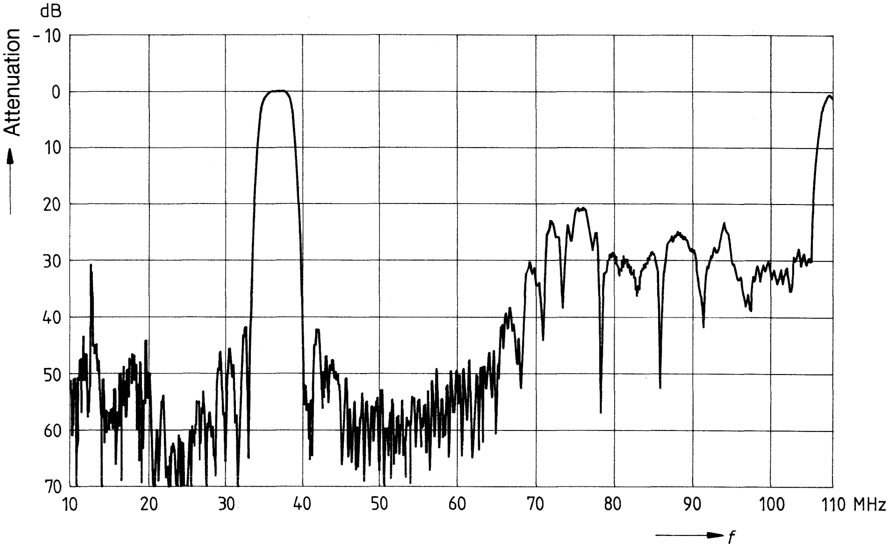
Amplitude response



Amplitude response and group delay

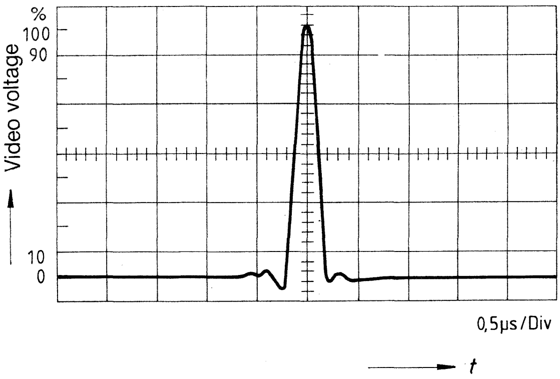


Far-off selectivity

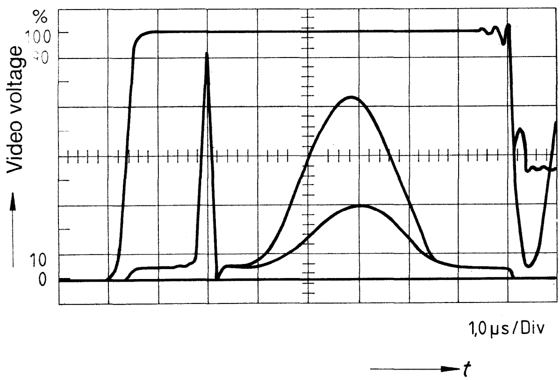


Pulse response in the IF board

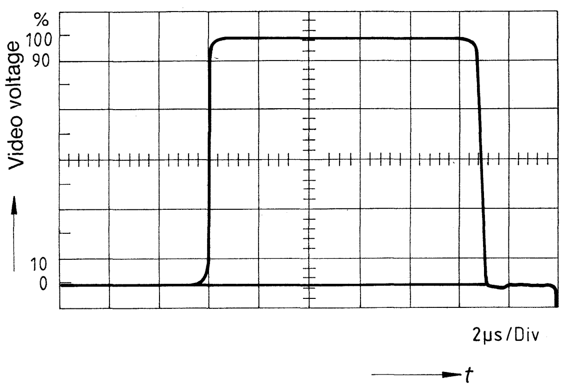
2T-pulse



2T/20T-signal



Step signal



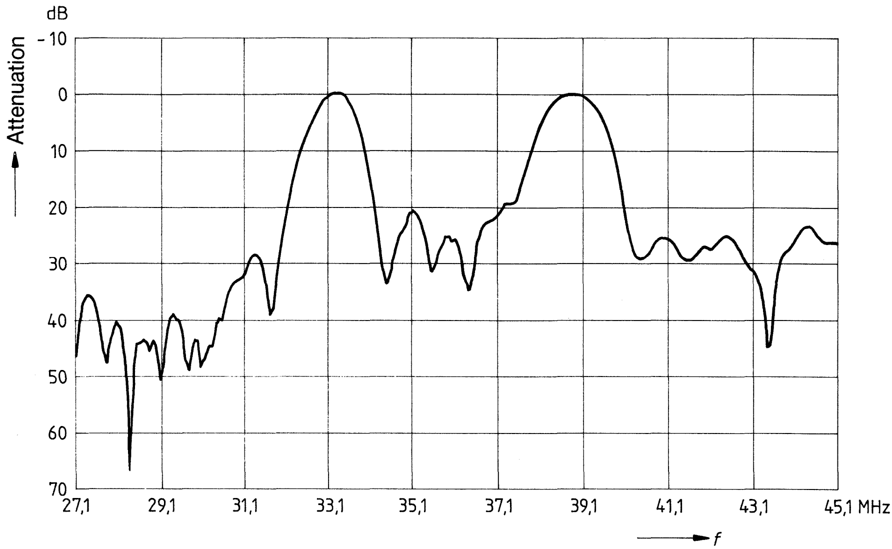
Sound channel

Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	33.40 MHz	–	29.0	31.0	
Attenuation values					
Vision carrier	38.90 MHz	–0.7	0.3	1.7	
In-band trap	36.10 MHz	20.0	27.0	–	
Adjacent vision carrier	31.90 MHz	26.0	34.0	–	dB
Adjacent sound carrier	40.40 MHz	24.0	31.0	–	
Lower sidelobe	25.00...31.90 MHz	24.0	29.0	–	
Upper sidelobe	40.40...45.00 MHz	20.0	27.0	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedance typical values at 33.40 MHz		Output: 1.2 kΩ ll 12 pF			

Amplitude response



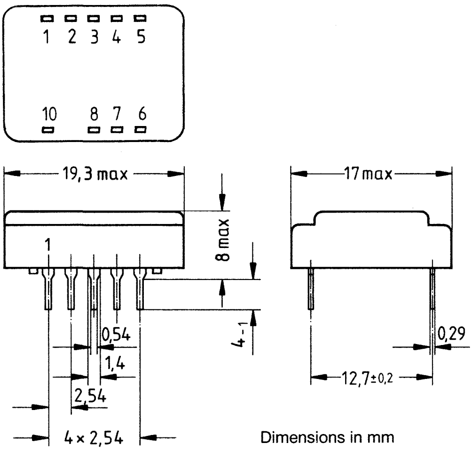
Standard B/G, CCIR, Germany, Europe (7/8 MHz)

Application TV IF filter for quasiparallel sound (separate vision and sound channel). Vision channel including Nyquist slope, sound suppression and constant group delay.

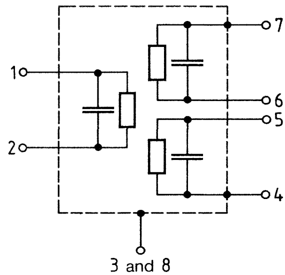
Version Dual in-line plastic package: DIP 10, approx. weight 2.5 g

Terminals Tinned copper

Marking Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW G 3204	B39389-G3204-P100

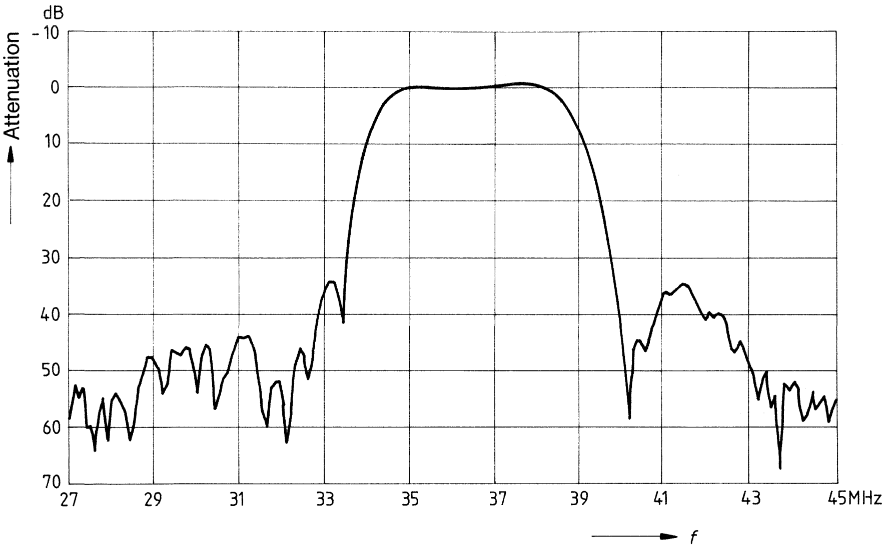
Vision channel

Measuring conditions

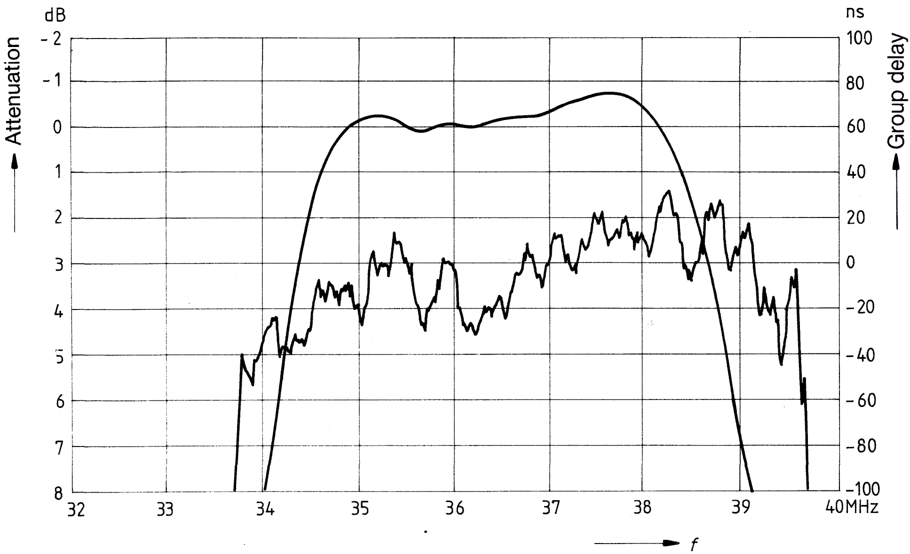
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	24.5	26	27.5	
Attenuation values					
Vision carrier	38.90 MHz	5.4	6.4	7.4	
Color carrier	34.70 MHz	2.1	3.1	4.1	
Sound carrier	33.40 MHz	36	45		
Adjacent vision carrier	31.90 MHz	49	55		
Adjacent sound carrier VHF	40.40 MHz	40	49		
Lower sidelobe	25.00...31.90 MHz	40	45		
Upper sidelobe	40.40...45.00 MHz	31	35		dB
Attenuation of reflections					
1.2 μs...3.5 μs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		42	50		
Attenuation of direct breakthrough					
0.9 μs...1.1 μs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	59	–	
Group delay Ripple			40	80	ns
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.6 kΩ II 7 pF Output: 1.8 kΩ II 12 pF			

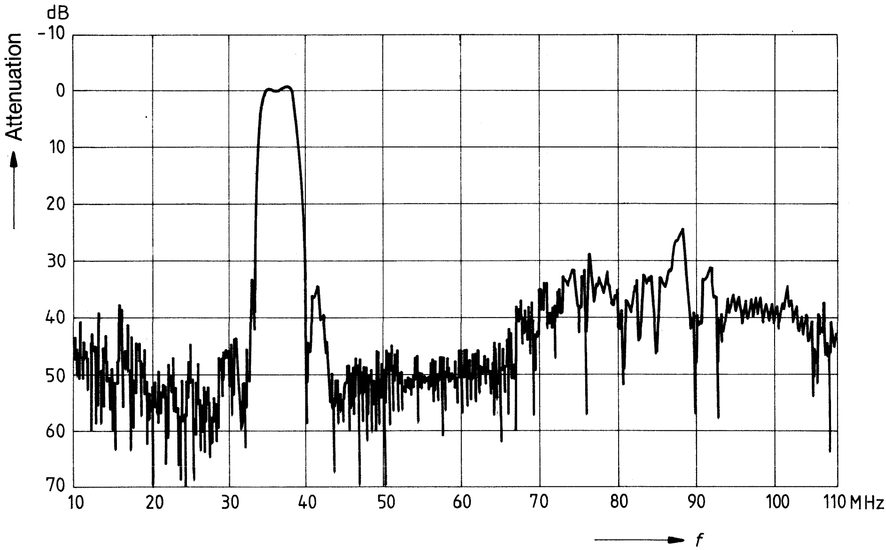
Amplitude response



Amplitude response and group delay



Far-off selectivity



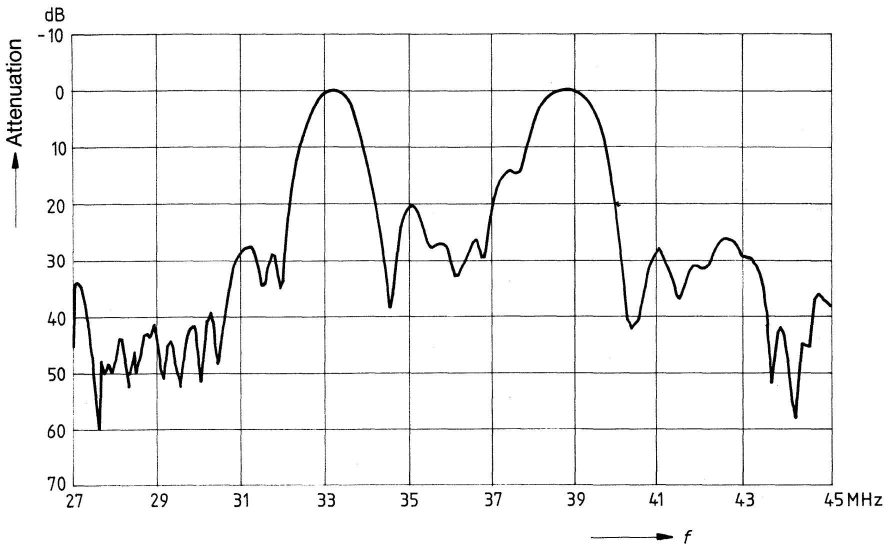
Sound channel

Measuring conditions

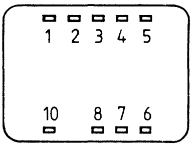
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 5 pF

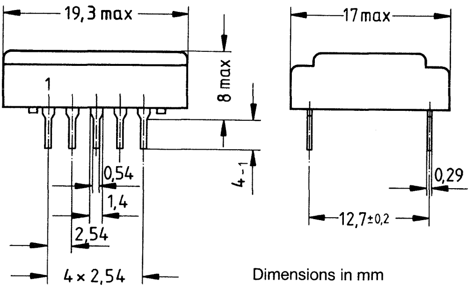
Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	33.40 MHz	28	29	31	
Attenuation values					
Vision carrier	38.90 MHz	−0.9	0.1	1.1	dB
In-band trap	36.15 MHz	23	30		
Adjacent vision carrier	31.90 MHz	29	34		
Adjacent sound carrier VHF	40.40 MHz	31	38		
Lower sidelobe	25.00...31.90 MHz	27	31		
Upper sidelobe	40.40...45.00 MHz	22	27		
Temperature coefficient			−94		ppm/K
Small-signal impedances typical value at 33.4 MHz		Output: 1.6 kΩ II 12 pF			

Amplitude response

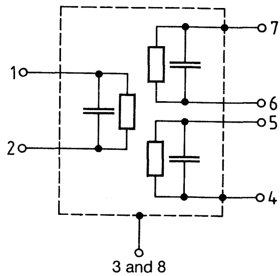


Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	TV IF filter for quasiparallel sound (separate vision and sound channel), including Nyquist slope, sound suppression and group delay distortion. Sound channel with small passband exclusively for vision and sound carriers improves the sound quality, e.g. in stereo TV sets.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package





Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW G 3205	B39389-G3205-P100

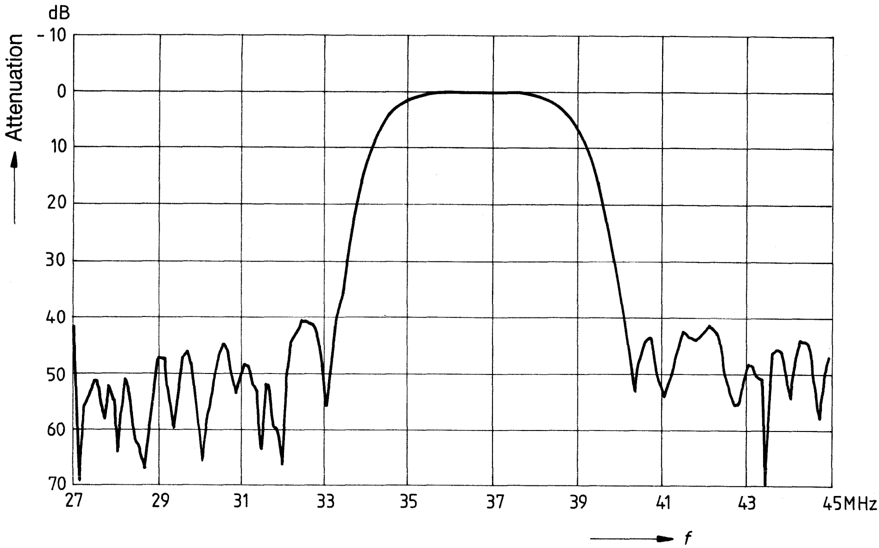
Vision channel

Measuring conditions

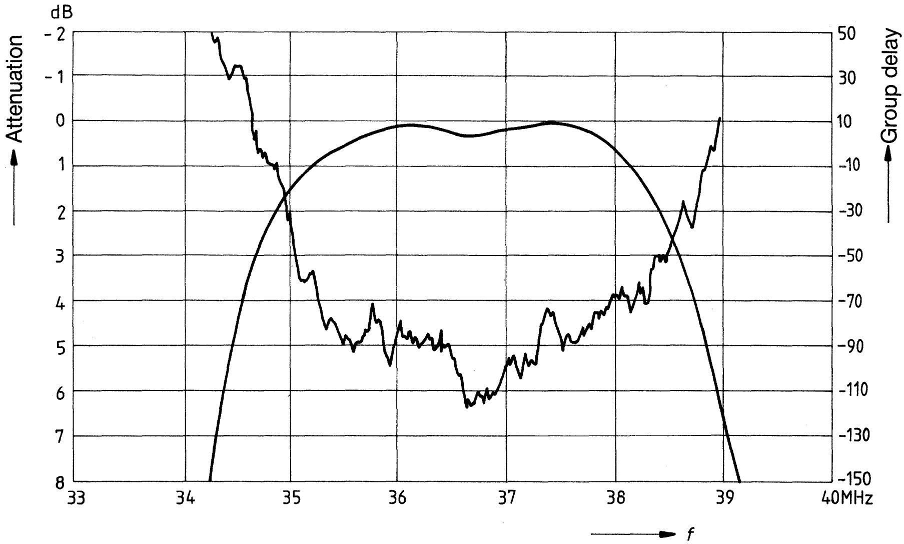
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	23	24	26	
Attenuation values					
Vision carrier	38.90 MHz	4.6	5.6	6.6	
Color carrier	34.47 MHz	4.2	5.2	6.2	
Sound carrier	33.40 MHz	30	39		
Adjacent vision carrier	31.90 MHz	50	60		
Adjacent sound carrier VHF	40.40 MHz	42	50		
Lower sidelobe	25.00...31.90 MHz	40	47		
Upper sidelobe	40.40...45.00 MHz	38	42		dB
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		42	50		
Attenuation of direct breakthrough					
1.1 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	60		
Group delay					
Reference frequency 38.90 MHz					
Max. deviation at 36.90 MHz			–85		ns
Ripple			40	80	
Rise at 34.47 MHz			40		
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.8 kΩ ll 8 pF Output: 2.0 kΩ ll 12 pF			

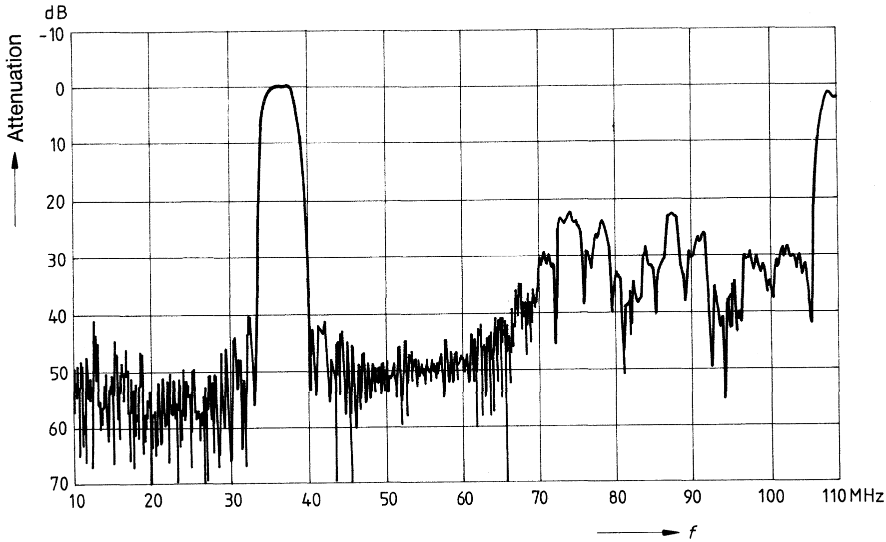
Amplitude response



Amplitude response and group delay



Far-off selectivity



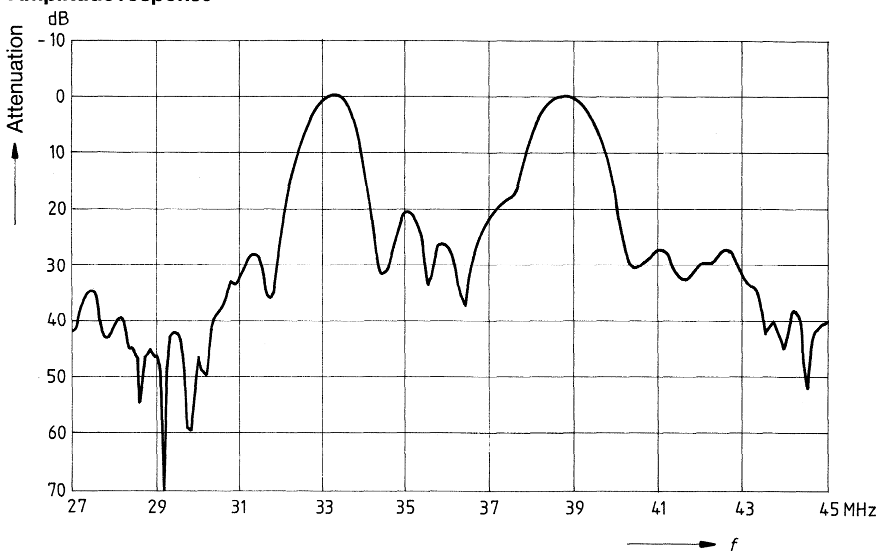
Sound channel

Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	33.40 MHz	28	29	31	
Attenuation values					
Vision carrier	38.90 MHz	−0.8	0.2	1.2	dB
In-band trap	36.10 MHz	18	28		
Adjacent vision carrier	31.90 MHz	28	34		
Adjacent sound carrier VHF	40.40 MHz	26	31		
Lower sidelobe	25.00...31.90 MHz	24	30		
Upper sidelobe	40.40...45.00 MHz	20	27		
Temperature coefficient			−94		ppm/K
Small-signal impedances typical values at 33.40 MHz		Output: 2.2 kΩ II 12 pF			

Amplitude response



Preliminary data

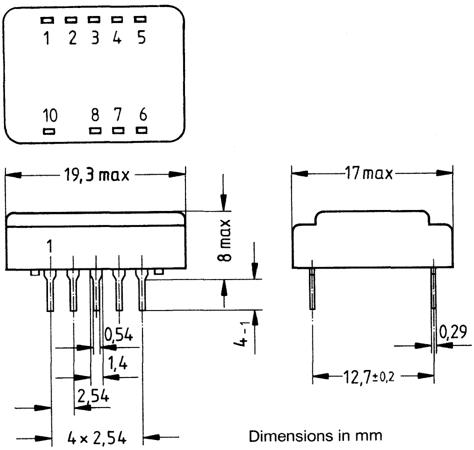
Standard B/G, CCIR, Germany, Europe (7/8 MHz)

Application TV IF filter for quasiparallel sound (separate vision and sound channel), including Nyquist slope, sound suppression and group delay distortion. Sound transmission only in sound channel.

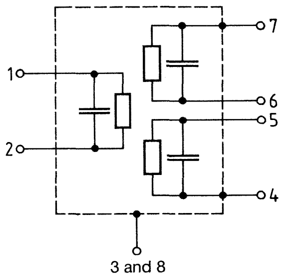
Version Dual in-line plastic package: DIP 10, approx. weight 2.5 g

Terminals Tinned copper

Marking Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW G 3206	being prepared

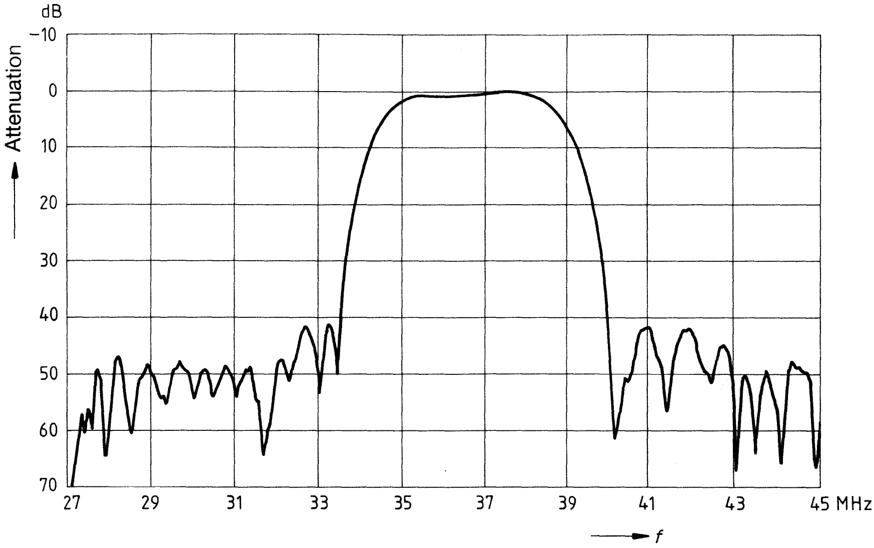
Vision channel

Measuring conditions

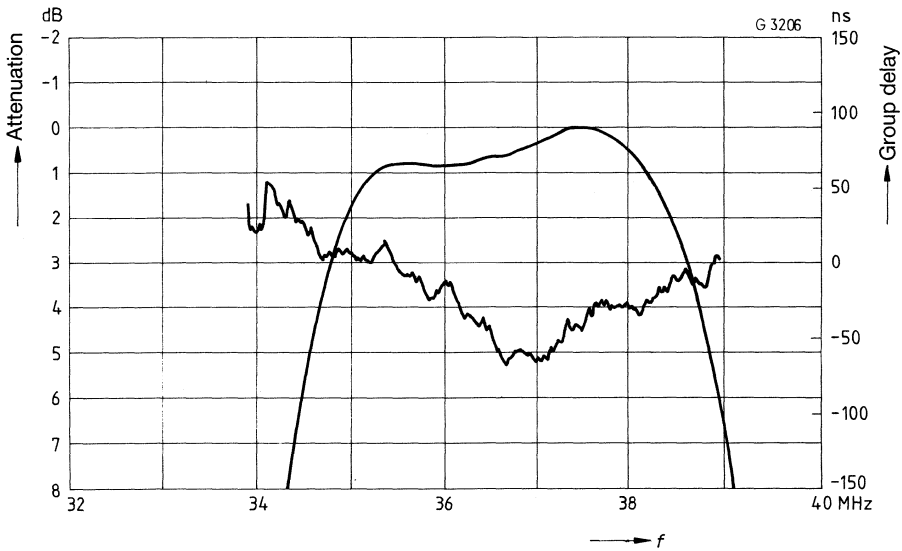
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz		23.5		dB
Attenuation values					
Vision carrier	38.90 MHz		5.5		
Color carrier	34.47 MHz		5.5		
Sound carrier	33.40 MHz		40.0		
Adjacent vision carrier	32.40 MHz		45.0		
Adjacent sound carrier	40.40 MHz		52.0		
Lower sidelobe	25.00...32.40 MHz		42.0		
Upper sidelobe	40.40...45.00 MHz		42.0		
Attenuation of reflections 1.4 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz			44.0		
Attenuation of direct breakthrough 1.1 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz			52.0		
Group delay Ripple		–	40	80	ns
Temperature coefficient			–94		ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 1.6 kΩ II 7,7 pF Output: 5.2 kΩ II 16 pF			

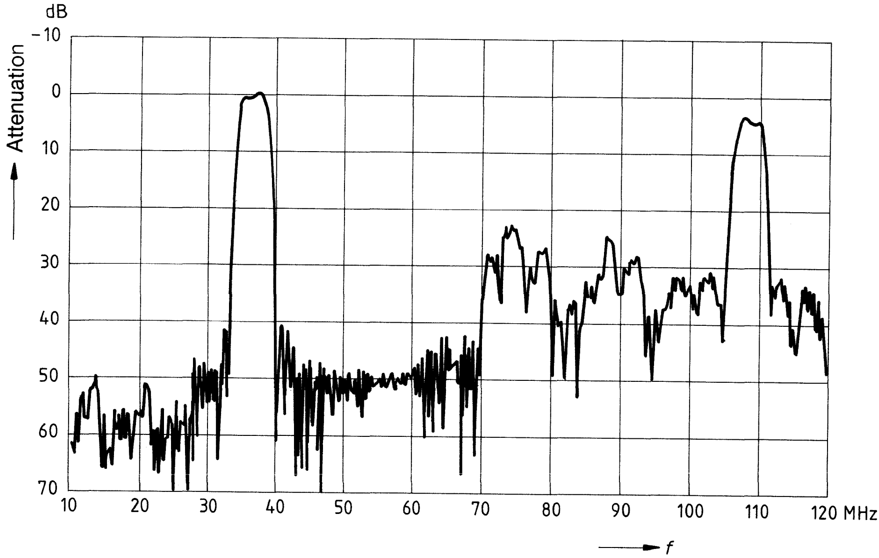
Amplitude response



Amplitude response and group delay



Far-off selectivity



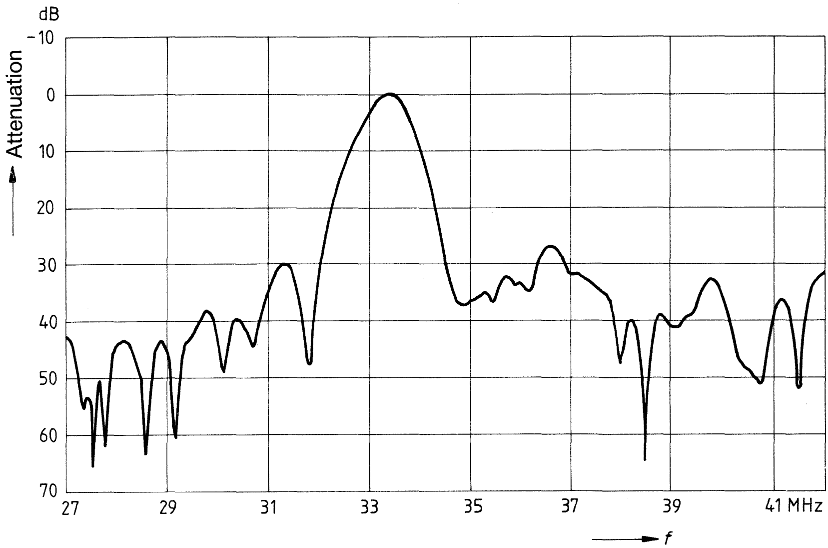
Sound channel

Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	33.40 MHz		26.0		
Attenuation values					
Vision carrier	38.90 MHz		45.0		dB
Color carrier	34.47 MHz		25.0		
Adjacent vision carrier	31.90 MHz		35.0		
Adjacent sound carrier VHF	40.40 MHz		52.0		
Lower sidelobe	25.00...31.90 MHz		30.0		
Upper sidelobe	40.40...45.00 MHz		26.0		
Temperature coefficient			−94		ppm/K
Small-signal impedance typical value at 33.40 MHz		Output: 5.2 kΩ ll 16 pF			

Amplitude response



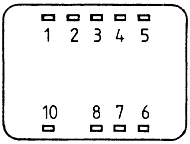
Standard I, Great Britain

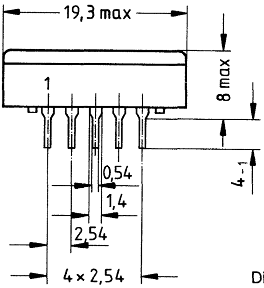
Application TV IF filter for quasiparallel sound (separate vision and sound channel), including Nyquist slope, sound suppression and constant group delay. Vision carrier at 38.90 MHz. Sound channel with passband exclusively for vision and sound carriers improves the sound quality, e.g. in stereo TV sets.

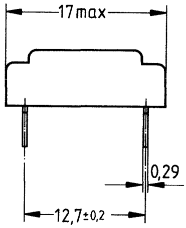
Version Dual in-line plastic package: DIP 10, approx. weight 2.5 g

Terminals Tinned copper

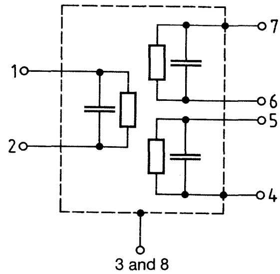
Marking Type designation and marking for pin 1 are stamped on the package







Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW J 3201	B39389-J3201-P100

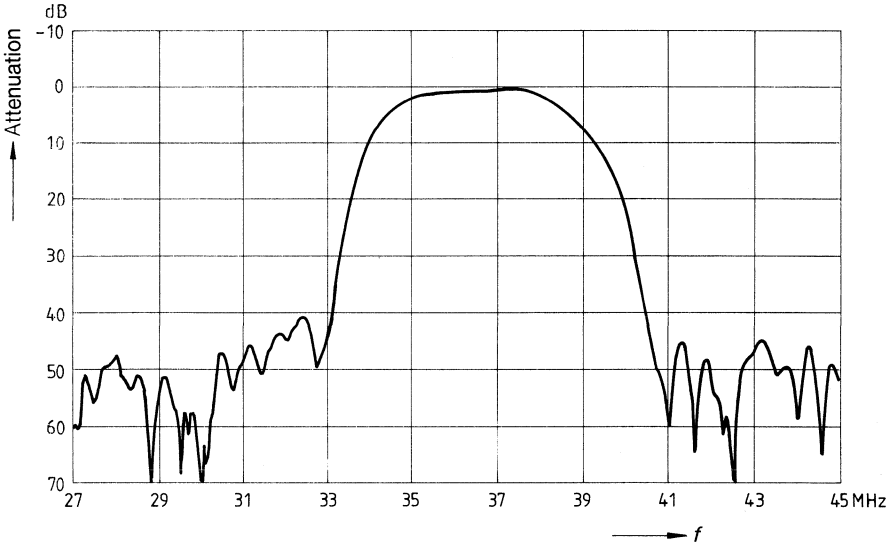
Vision channel

Measuring conditions

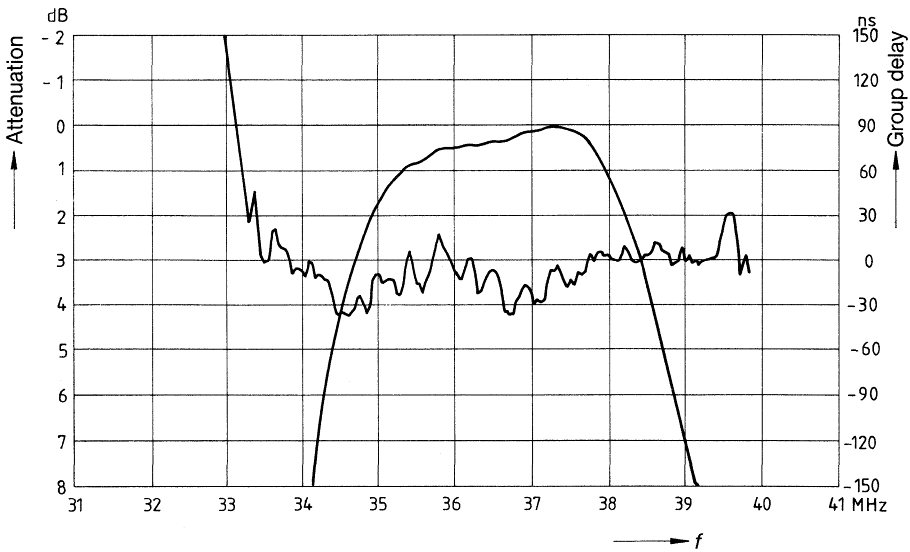
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	23	25.5	dB
Attenuation values					
Vision carrier	38.90 MHz	4.4	6.1	7.2	dB
Color carrier	34.47 MHz	3.4	4.5	6.2	dB
Sound carrier	32.90 MHz	34	44	–	dB
Adjacent vision carrier	30.90 MHz	44	49	–	dB
Adjacent sound carrier VHF	40.90 MHz	42	53	–	dB
Lower sidelobe	25.00...30.90 MHz	38	47	–	dB
Upper sidelobe	40.90...45.00 MHz	38	45	–	dB
Attenuation of reflections					
1.3 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		42	50	–	dB
Attenuation of direct breakthrough					
1.2 µs...1.5 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		50	60		dB
Group delay Reference frequency 38.90 MHz					ns
Ripple		–	40	80	ns
Temperature coefficient			–94		ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 2.2 kΩ ‖ 8 pF Output: 1.3 kΩ ‖ 13 pF			

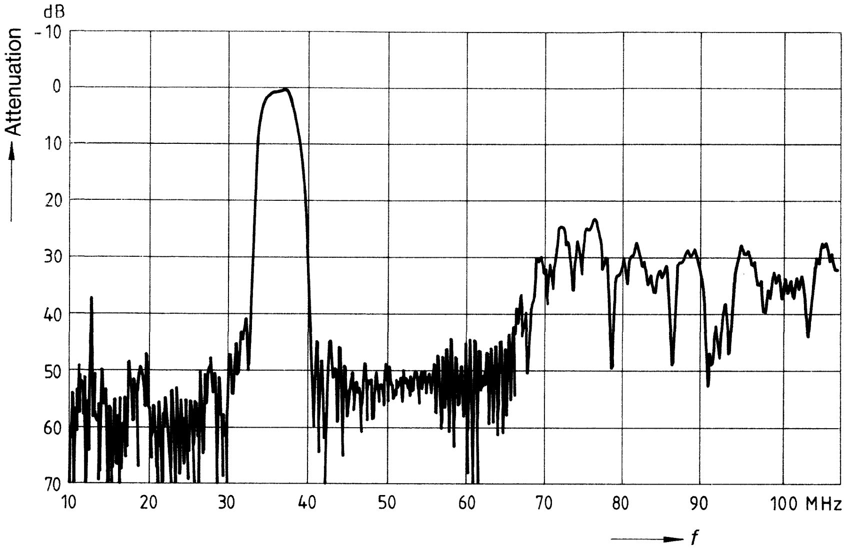
Amplitude response



Amplitude response and group delay



Far-off selectivity



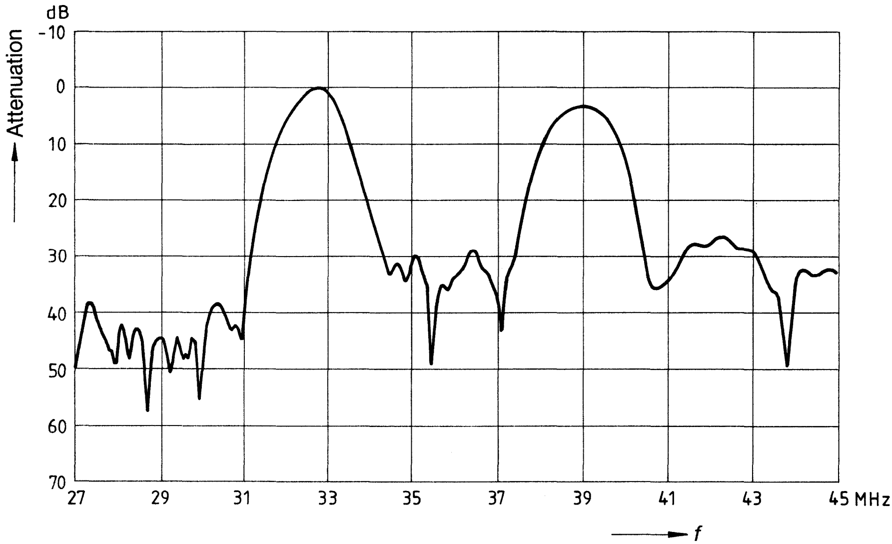
Sound channel

Measuring conditions

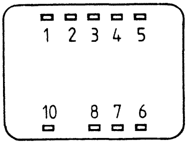
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

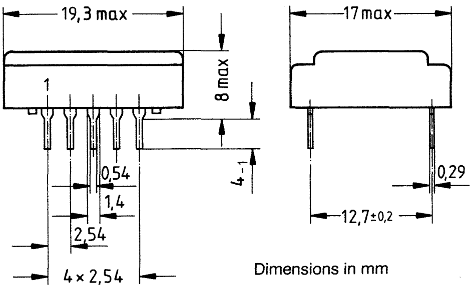
Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	32.90 MHz	–	28	30.5	
Attenuation values					
Vision carrier	38.90 MHz	0.9	2.8	4.7	dB
In-band trap	36.10 MHz	20	34	–	
Adjacent vision carrier	30.90 MHz	26	43	–	
Adjacent sound carrier VHF	40.90 MHz	23	30	–	
Lower sidelobe	25.00...30.90 MHz	20	24	–	
Upper sidelobe	40.90...45.00 MHz	20	27	–	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 32.90 MHz		Output: 1.5 kΩ II 9 pF			

Amplitude response

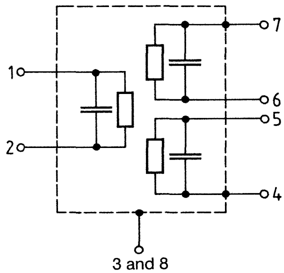


Standard	I, Great Britain
Application	TV IF filter for quasiparallel sound (separate vision and sound channel), including Nyquist slope and large bandwidth in vision channel. Reduced in-band trap of color and sound carrier. Vision carrier 38.90 MHz. Sound channel with small passband exclusively for vision and sound carriers improves the sound quality, e.g. in stereo TV sets.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package





Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Not connected
6, 7 Output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW J 3205	B39389-J3205-P100

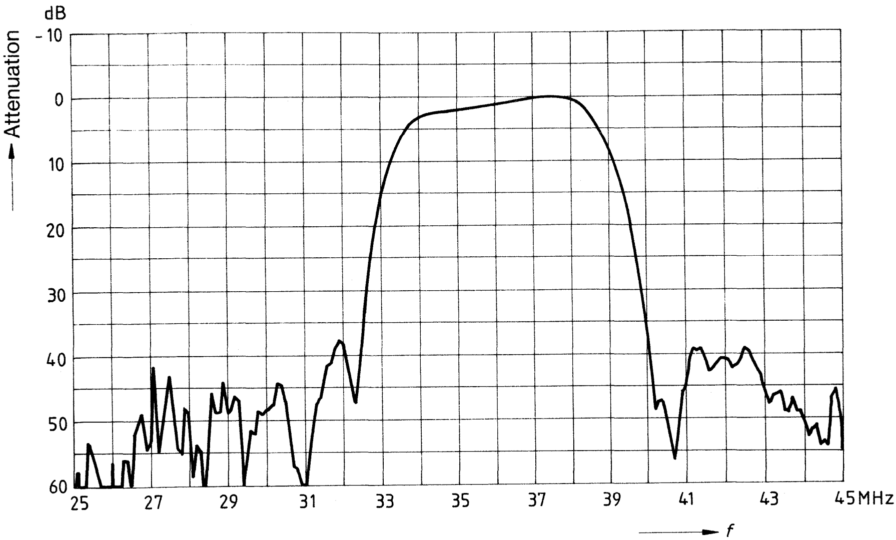
Vision channel

Measuring conditions

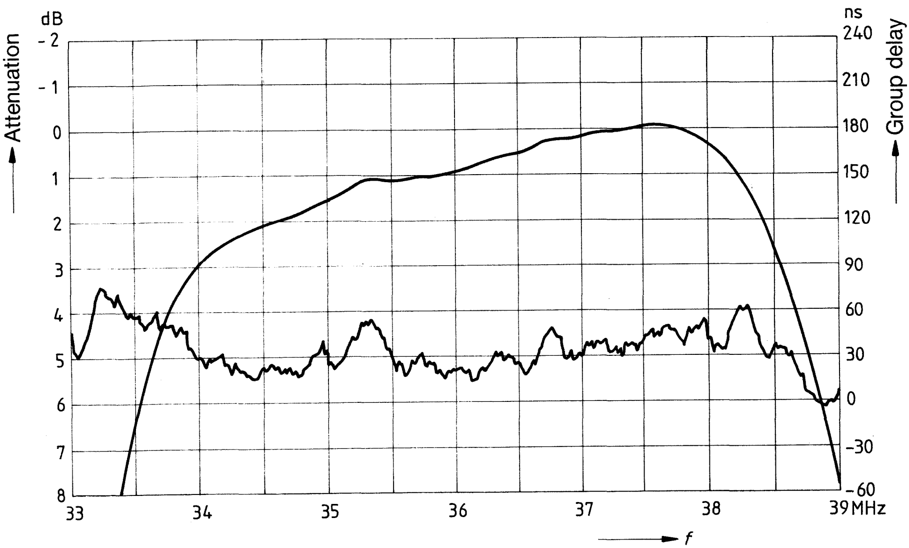
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.65 MHz	28	29	30.5	dB
Attenuation values					
Vision carrier	38.90 MHz	5.5	6.5	7.5	dB
Color carrier	34.47 MHz	1.2	2.2	3.2	dB
Sound carrier	32.90 MHz	15	20	–	dB
Adjacent vision carrier	30.90 MHz	44	56	–	dB
Adjacent sound carrier VHF	40.90 MHz	40	46	–	dB
Lower sidelobe	25.00…30.90 MHz	36	43	–	dB
Upper sidelobe	40.40…45.00 MHz	32	37	–	dB
Attenuation of reflections 1.3 µs…3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.65 MHz		42	49	–	dB
Attenuation of direct breakthrough 1.2 µs…1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.65 MHz		50	60	–	dB
Group delay Constant group delay from 33.40…39.20 MHz Ripple		–	70	100	ns
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 37.65 MHz		Input: 3.0 kΩ ‖ 6.0 pF Output: 2.2 kΩ ‖ 11.5 pF			

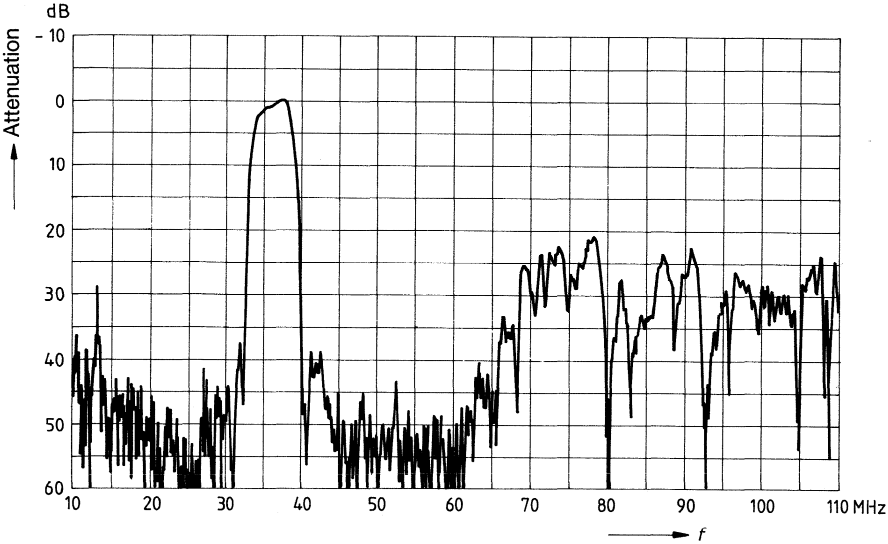
Amplitude response



Amplitude response and group delay



Far-off selectivity



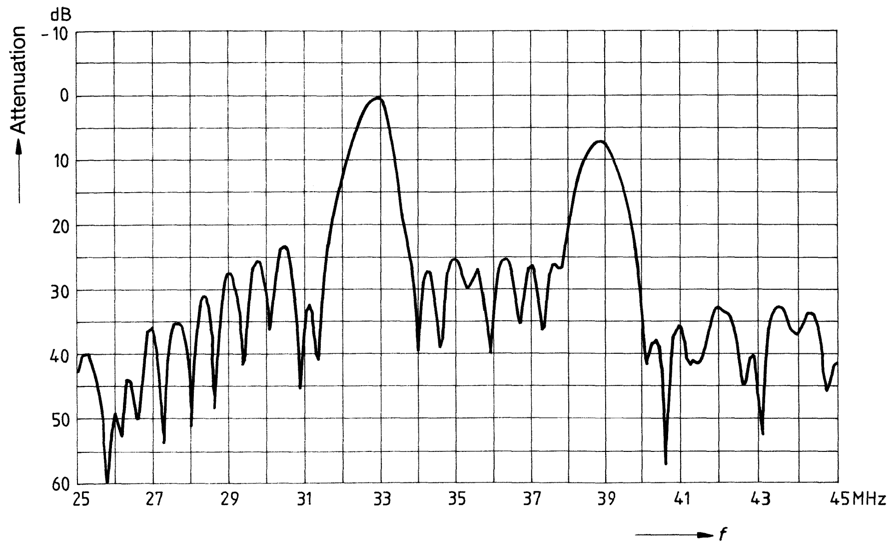
Sound channel

Measuring conditions

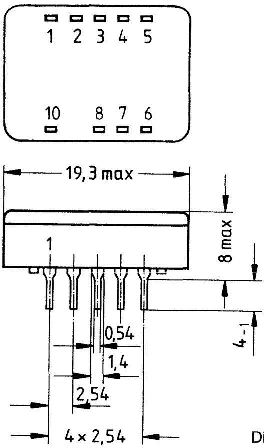
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	1.2 kΩ II 5 pF

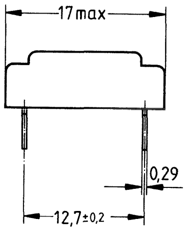
Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	32.90 MHz	24	25	26.5	
Attenuation values					
Vision carrier	38.90 MHz	6.6	7.6	8.6	dB
In-band trap	36.10 MHz	23	28	–	
Adjacent vision carrier	30.90 MHz	38	48	–	
Adjacent sound carrier VHF	40.90 MHz	32	38	–	
Lower sidelobe	25.00...30.90 MHz	18	22	–	
Upper sidelobe	40.90...45.00 MHz	28	33	–	
Temperature coefficient		–	–94		ppm/K
Small-signal impedance typical values at 32.90 MHz		Output: 0.5 kΩ II 13 pF			

Amplitude response

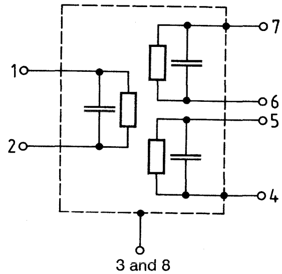


Standard	I Great Britain
Application	TV IF filter for quasiparallel sound (separate vision and sound channel) including Nyquist slope, sound suppression and constant group delay. Vision carrier at 39.50 MHz. No suppression of video signal in sound channel.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package





Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Not connected
6, 7 Output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW J 3203	B39395-J3203-P100

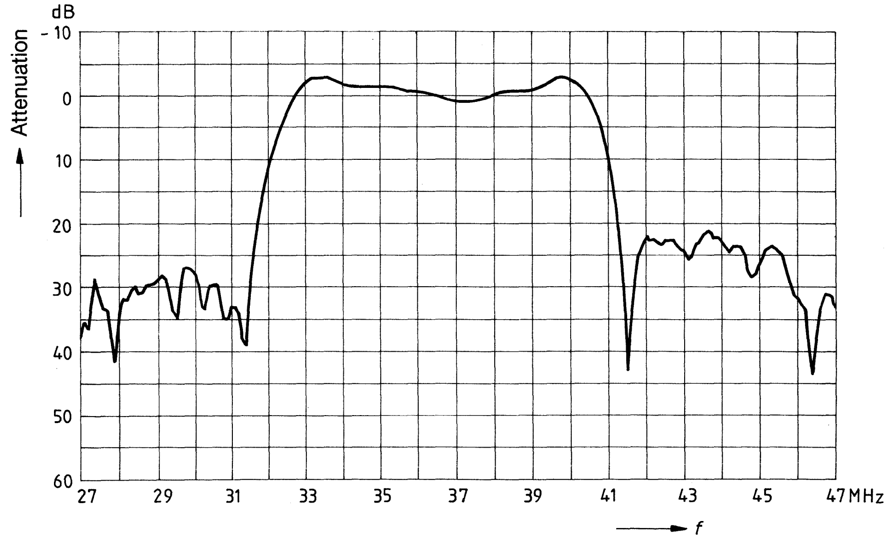
Vision channel

Measuring conditions

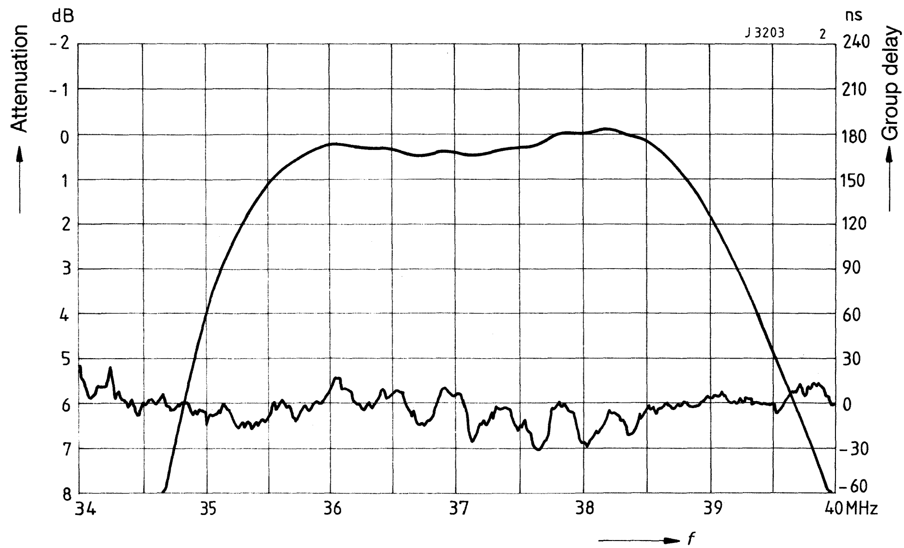
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ll 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.00 MHz	25	26	27.5	
Attenuation values					
Vision carrier	39.50 MHz	4.0	5.0	6.0	
Color carrier	35.07 MHz	2.5	3.5	4.5	
Sound carrier	33.50 MHz	38	48	–	
Adjacent vision carrier	31.50 MHz	46	56	–	
Adjacent sound carrier	41.50 MHz	44	54	–	
Lower sidelobe	25.00...31.50 MHz	36	43	–	dB
Upper sidelobe	41.50...45.00 MHz	36	42	–	
Attenuation of reflections					
1.3 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 38.00 MHz		40	46	–	
Attenuation of direct breakthrough					
1.0 µs...1.3 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 38.00 MHz		50	60		
Group delay Constant group delay from 34.50...39.50 MHz					ns
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 38.00 MHz		Input: 2.9 kΩ ll 6 pF Output: 1.7 kΩ ll 13 pF			

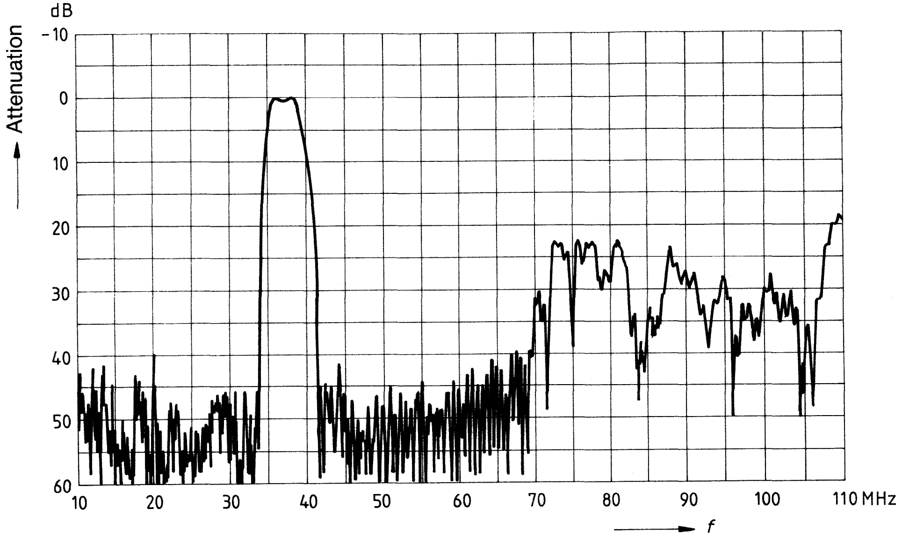
Amplitude response



Amplitude response and group delay



Far-off selectivity



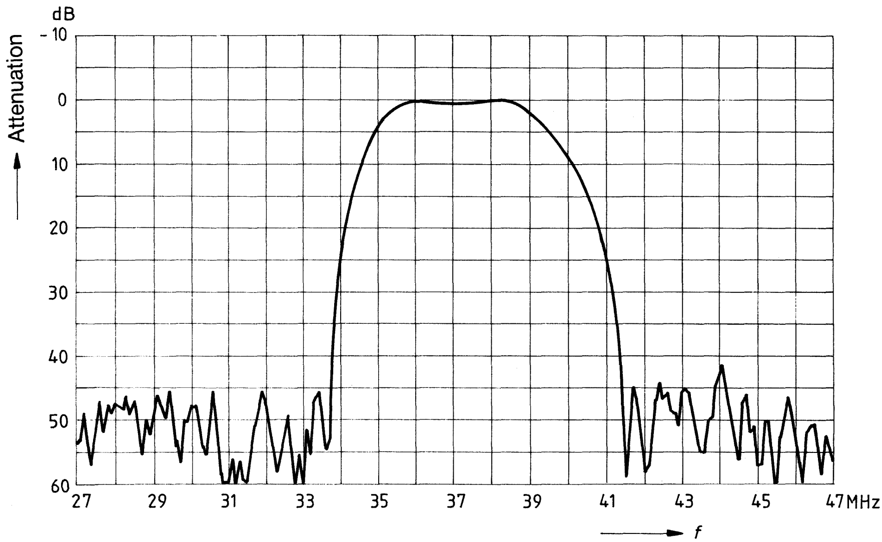
Sound channel

Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	1.2 kΩ ‖ 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	33.50 MHz	30.5	31.5	33.0	
Attenuation values					
Vision carrier	39.50 MHz	−0.2	0.8	1.8	dB
In-band trap	36.50 MHz	1.6	2.6	3.6	
Adjacent vision carrier	31.50 MHz	26	35	–	
Adjacent sound carrier	41.50 MHz	22	34	–	
Lower sidelobe	25.00...31.50 MHz	22	29	–	
Upper sidelobe	41.50...45.00 MHz	17	26	–	
Temperature coefficient		–	−94		ppm/K
Small-signal impedances typical values at 35.50 MHz		Output: 3.1 kΩ ‖ 9 pF			

Amplitude response



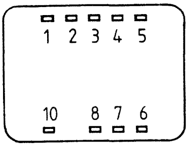
Standard M/N, FCC, USA

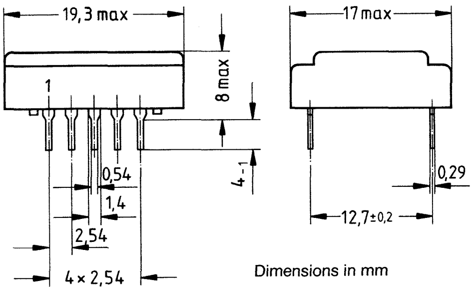
Application TV IF filter for quasiparallel sound (separate vision and sound channel) including Nyquist slope, sound suppression and constant group delay. Vision carrier at 45.75 MHz. Reduced in-band trap of color and sound carrier. Sound channel with small passband exclusively for vision and sound carriers improves the sound quality e.g. in stereo TV sets.

Version Dual in-line plastic package: DIP 10, approx. weight 2.5 g

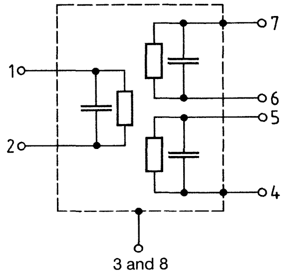
Terminals Tinned copper

Marking Type designation and marking for pin 1 are stamped on the package





Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	**Ordering code**
OFW M 3201	B39458-M3201-P100

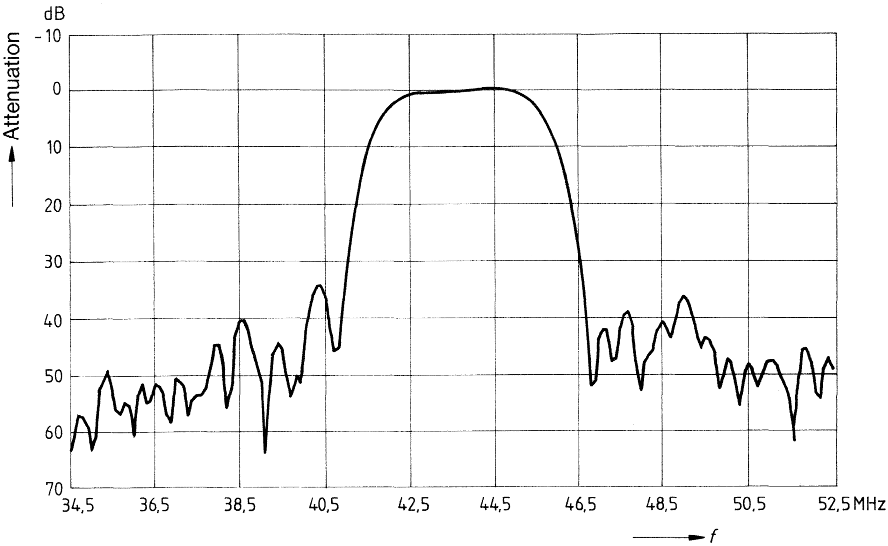
Vision channel

Measuring conditions

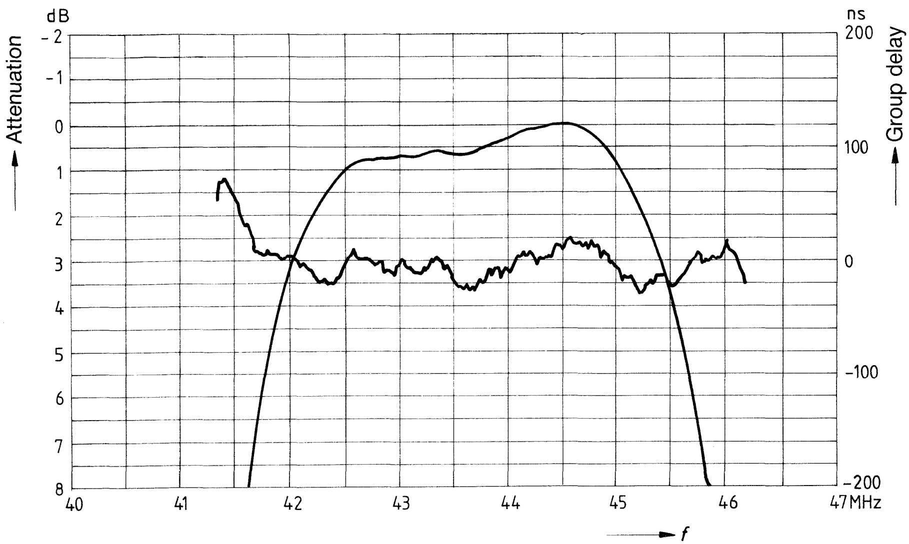
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 5 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	22.0	23.4	24.5	
Attenuation values					
Vision carrier	45.75 MHz	4.7	5.7	6.7	
Color carrier	42.17 MHz	0.8	1.7	2.8	
Sound carrier	41.25 MHz	15	20	–	
Adjacent vision carrier	39.75 MHz	48	58	–	
Adjacent sound carrier	47.25 MHz	40	46	–	
Lower sidelobe	35.00...39.75 MHz	36	41	–	dB
Upper sidelobe	47.25...53.00 MHz	32	37	–	
Attenuation of reflections					
1.1 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		40	46		
Attenuation of direct breakthrough					
1.2 µs...1.4 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		50	59		
Group delay					
Constant group delay from 45.75...42.00 MHz					ns
Ripple		–	40	80	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 0.7 kΩ II 11 pF Output: 1.4 kΩ II 15 pF			

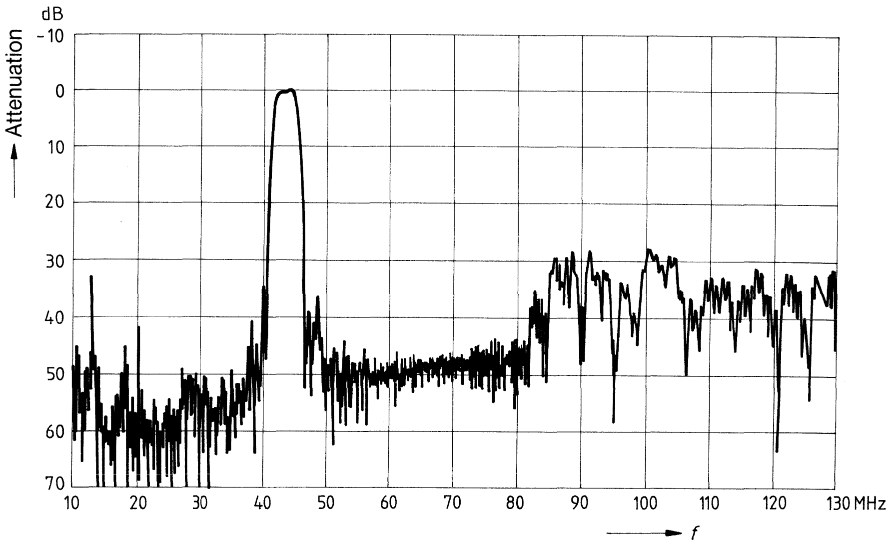
Amplitude response



Amplitude response and group delay



Far-off selectivity



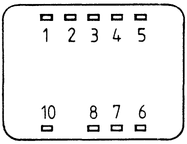
Standard M/N, FCC, USA

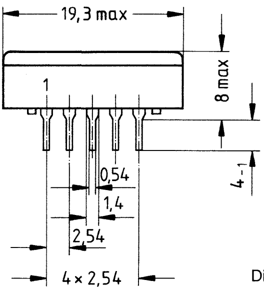
Application TV IF filter for quasiparallel sound (separate vision and sound channel) including Nyquist slope, sound suppression and constant group delay. Vision carrier at 45.75 MHz. Sound channel with small passband exclusively for vision and sound carriers improves the sound quality, e.g. in stereo TV sets. Reduced insertion loss.

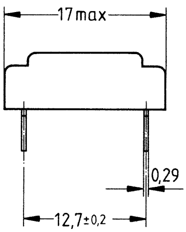
Version Dual in-line plastic package: DIP 10, approx. weight 2.5 g

Terminals Tinned copper

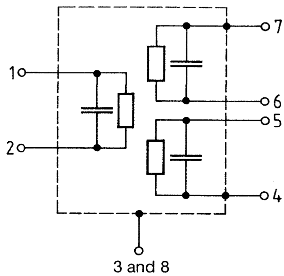
Marking Type designation and marking for pin 1 are stamped on the package







Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW M 3250	B39458-M3250-P100

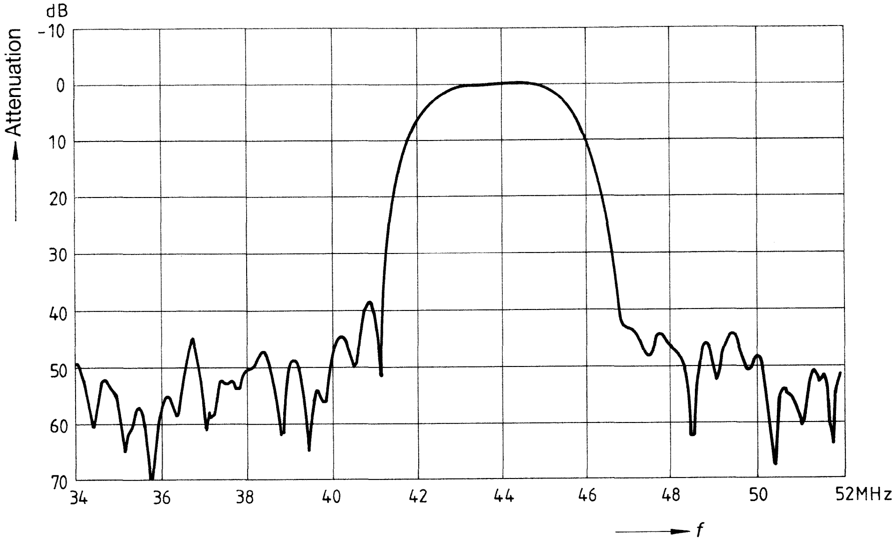
Vision channel

Measuring conditions

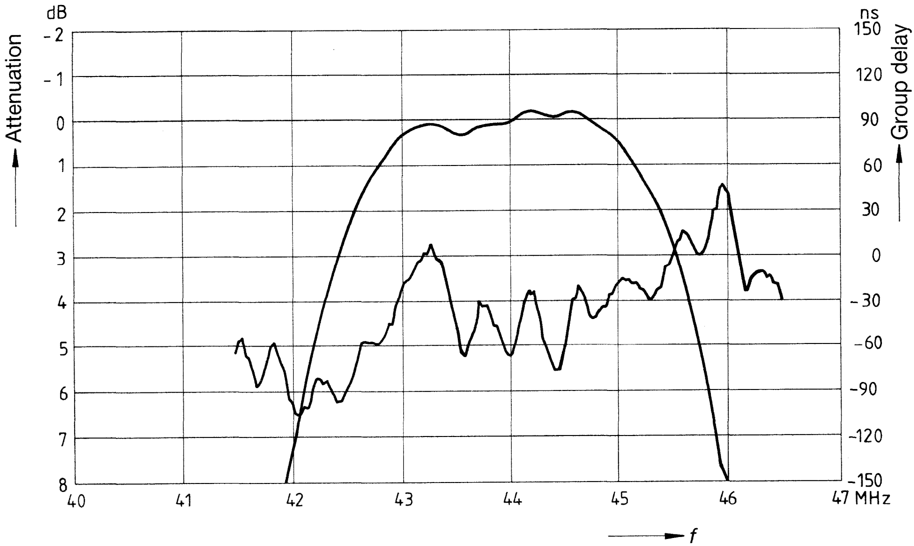
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	–	16	19	
Attenuation values					
Vision carrier	45.75 MHz	4.1	5.3	6.1	
Color carrier	42.17 MHz	4.0	5.2	6.4	
Sound carrier	41.25 MHz	32	45	–	
Adjacent vision carrier	39.75 MHz	46	58	–	
Adjacent sound carrier VHF	47.25 MHz	40	46	–	
Lower sidelobe	35.00...39.75 MHz	37	43	–	dB
Upper sidelobe	47.25...51.00 MHz	37	43	–	
Attenuation of reflections					
1.2 μs...3.5 μs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		38	43		
Attenuation of direct breakthrough					
1.0 μs...1.3 μs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		50	66	–	
Group delay					
Reference frequency 45.75					
Max. deviation at 44.30 MHz		–	–30	–	ns
Ripple		–	40	80	
Rise at 43.20 MHz			± 0		
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 0.45 kΩ II 13 pF Output: 0.6 kΩ II 19 pF			

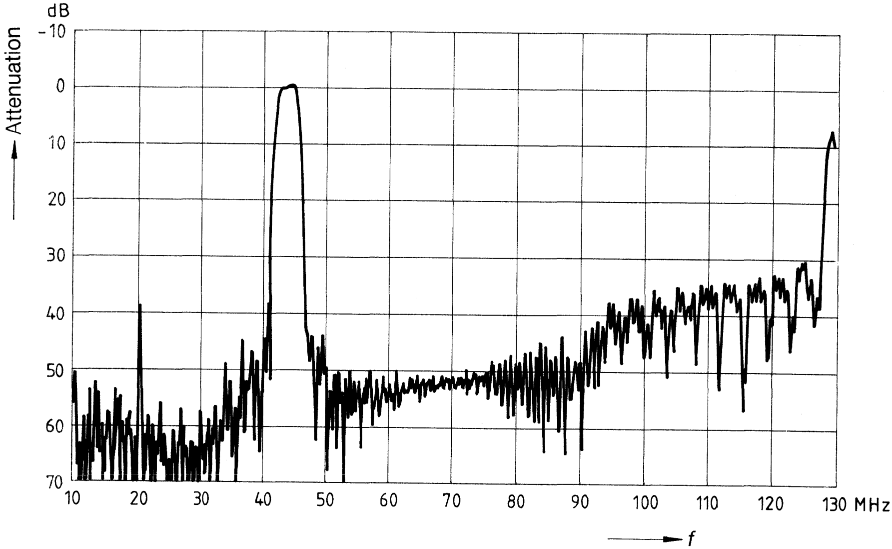
Amplitude response



Amplitude response and group delay



Far-off selectivity



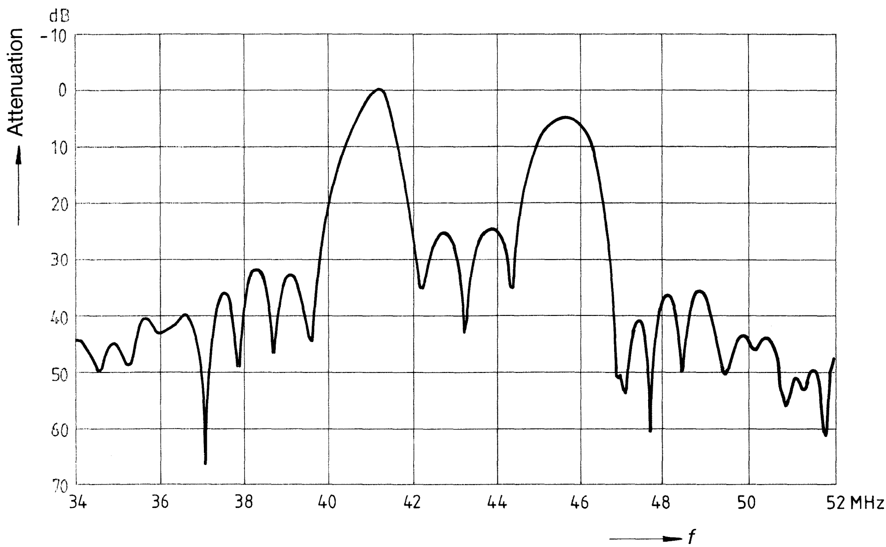
Sound channel

Measuring conditions

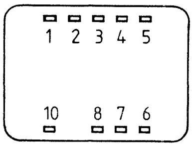
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ II 3 pF

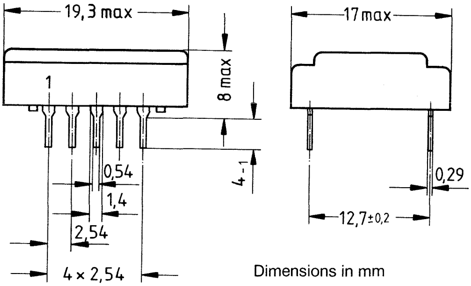
Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	41.10 MHz	–	17	19.5	
Attenuation values					
Vision carrier	45.75 MHz	3.6	4.5	5.8	dB
In-band trap	43.50 MHz	20	33	–	
Adjacent vision carrier	39.75 MHz	28	37	–	
Adjacent sound carrier VHF	47.25 MHz	33	48	–	
Lower sidelobe	35.00...39.75 MHz	24	31	–	
Upper sidelobe	47.25...51.00 MHz	24	34	–	
Temperature coefficient		–	–70		ppm/K
Small-signal impedances typical value at 43.50 MHz		Output: 0.6 kΩ II 9.0 pF			

Amplitude response

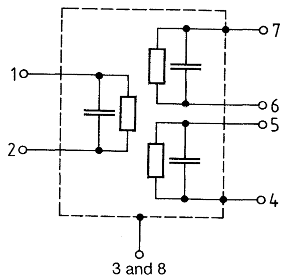


Standard	M/N, FCC, USA
Application	TV IF filter for parallel sound (separate vision and sound channel) and sound suppression; sound channel and passband exclusively for vision and sound carriers.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package





Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Sound output
6, 7 Vision output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	*V*	(max)	18 V
AC voltage	*V*	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

Type	Ordering code
OFW M 3251	B39458-M3251-P100

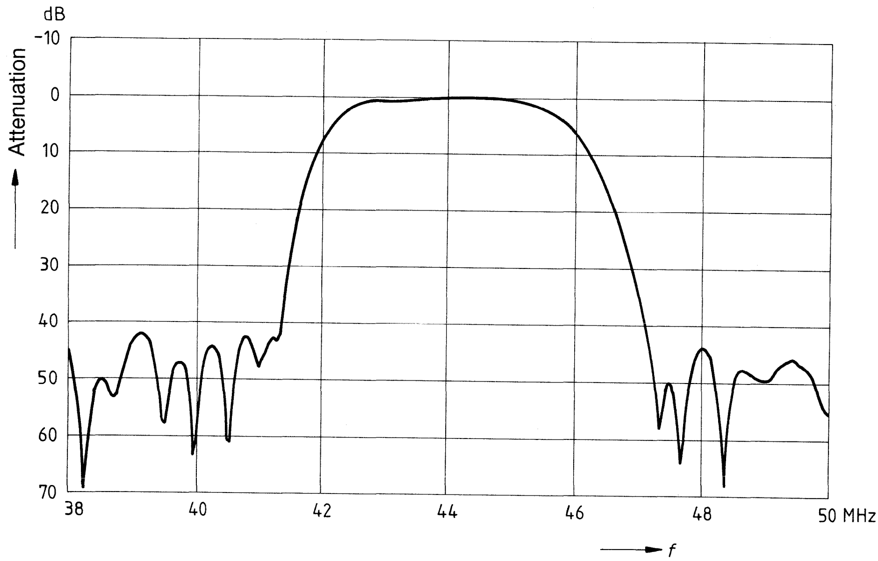
Vision channel

Measuring conditions

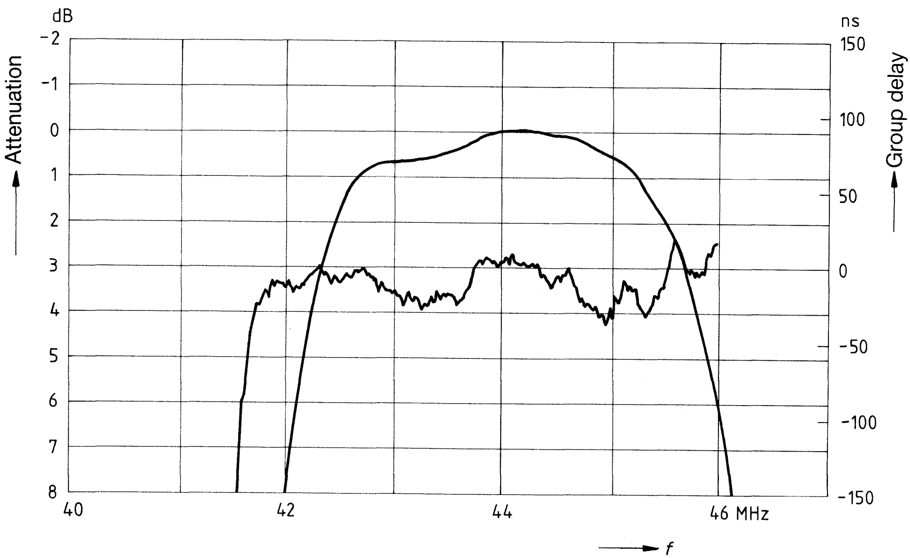
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	1500 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	11.5	13	14.5	dB
Attenuation values					
Vision carrier	45.75 MHz	3.6	4.6	5.6	
Color carrier	42.17 MHz	3.5	4.5	5.5	
Sound carrier	41.25 MHz	38	43	–	
Adjacent vision carrier	39.75 MHz	45	49	–	
Adjacent sound carrier	47.25 MHz	46	52	–	
Lower sidelobe	35.00…39.75 MHz	40	42	–	
Upper sidelobe	47.25…55.00 MHz	40	42	–	
Attenuation of reflections					
1.2 µs…3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		46	52	–	
Attenuation of direct breakthrough					
1.3 µs…1.1 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		>50	>56	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 1.0 kΩ ‖ 22 pF Output: 0.6 kΩ ‖ 6 pF			

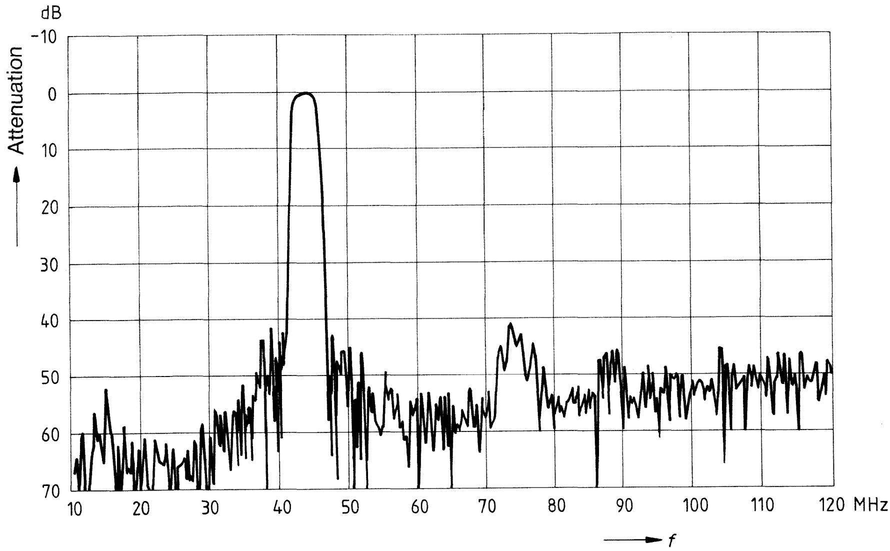
Amplitude response



Amplitude response and group delay



Far-off selectivity



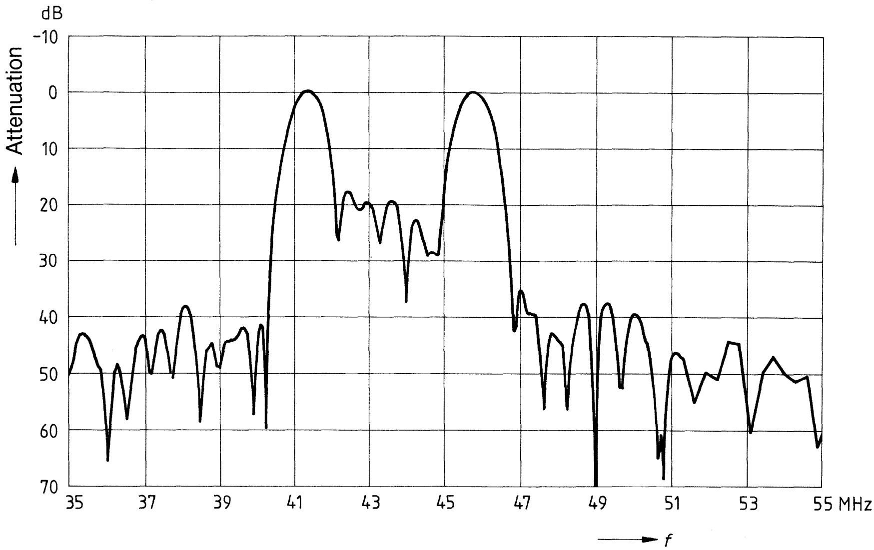
Sound channel

Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	1500 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	41.25 MHz	16.5	18.1	19.5	
Attenuation values					
Vision carrier	45.75 MHz	–0.6	0.4	1.4	dB
In-band trap	43.50 MHz	15	19.5	–	
Adjacent vision carrier	39.75 MHz	40	47	–	
Adjacent sound carrier	47.25 MHz	32	38	–	
Lower sidelobe	35.00...39.75 MHz	36	38		
Upper sidelobe	47.25...55.00 MHz	32	37		
Temperature coefficient			–72		ppm/K
Small-signal impedances typical value at 41.25 MHz		Output: 5 kΩ ll 6.4 pF			

Amplitude response



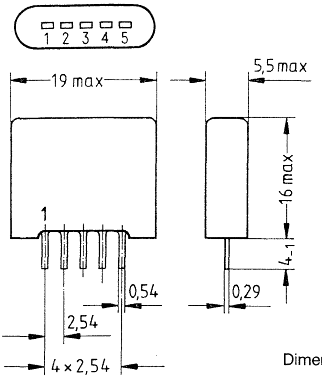
Vestigial Sideband Filters

Survey of vestigial Sideband Filters

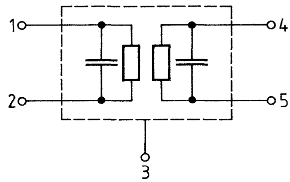
Vision carrier MHz	Bandwidth[1] (3 dB) MHz	Bandwidth[1] (35 dB) MHz	Standard[3]	Package OFW...	Type	Page
38.90	6.8	8.5	B/G	SIP5	369	239 S
	7.7	9.7	B/G	SIP5	G 4952	243 S
	7.7	8.2	B/G	DIP16[2]	G 4950	247 S
	6.1	7.1	B/G	DIP16[2]	B 4501	250
	7.1	7.9	B/G	DIP24[2]	B 522	253
	5.8	6.6	B/G	DIP24[2]	B 523	256
	8.6	10.0	I	SIP5L	B 513	259
45.75	5.9	7.4	M/N	SIP5L	M 4950	262

[1]) typ., referred to maximum amplitude range
[2]) Metal case
[3]) B/G : CCIR, Germany, Europe (7/8 MHz)
I : Great Britain
M/N : FFC, USA
S Preferred type (refer to page 4)

Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	IF filter for antenna converters, full transmission of vestigial sideband and both sound carriers. Channel spacing 7 MHz.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

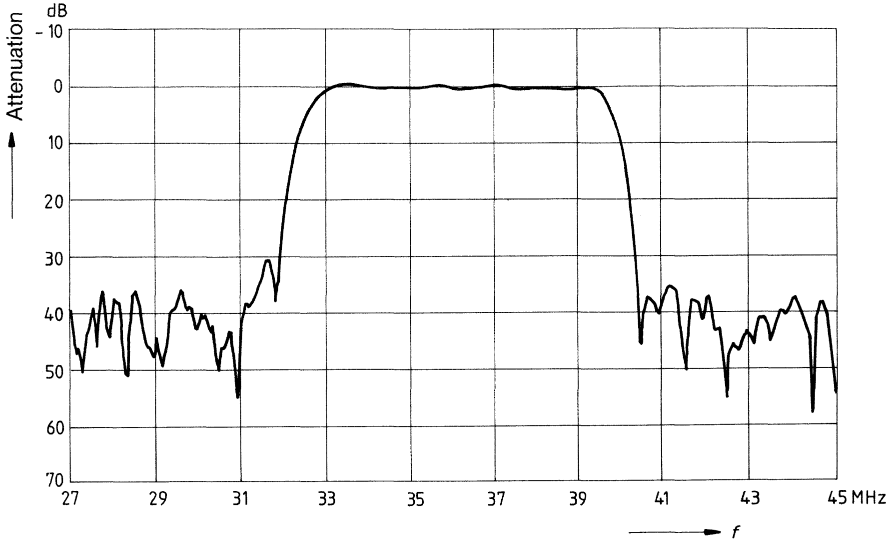
Type	**Ordering code**
OFW 369	B39936-A9

Measuring conditions

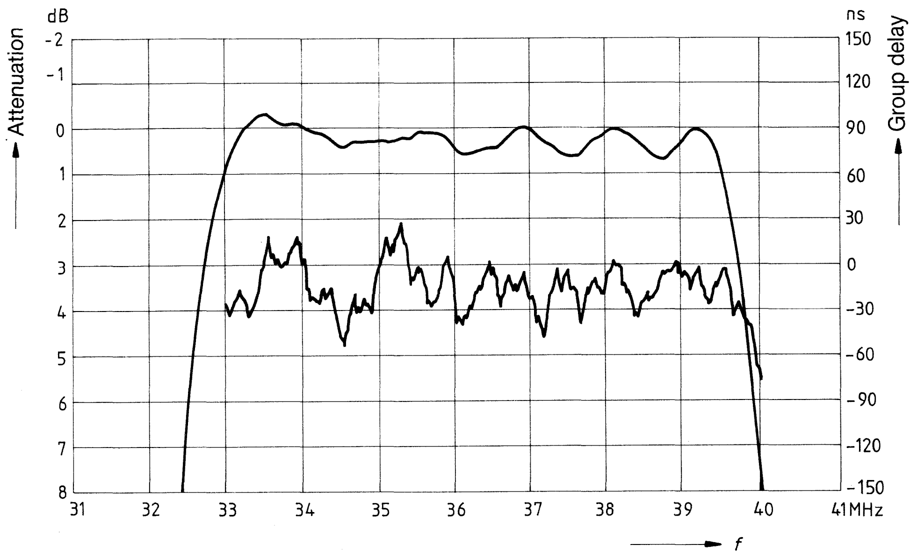
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	2 kΩ ‖ 3 pF

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	–	25	28.5	
Attenuation values					
Vision carrier	38.90 MHz	−1.1	±0	0.9	
Vestigial sideband	39.65 MHz	0.5	1.5	2.5	
2nd sound carrier	33.15 MHz	−1.2	− 0.4	0.8	
Adjacent vision carrier	31.90 MHz	28	31	–	
Adjacent sound carrier VHF	40.50 MHz	30	42	–	
UHF	41.40 MHz	30	37	–	
Lower sidelobe	25.00...31.90 MHz	32	38	–	dB
Upper sidelobe	40.50...45.00 MHz	28	35	–	
Attenuation of reflections					
1.2 μs...3.5 μs after main pulse		42	49	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Attenuation of direct breakthrough					
1.2 μs...1.5 μs prior to main pulse		44	49	–	
Test pulse: 250 ns,					
Carrier frequency: 37.40 MHz					
Group delay					
Reference frequency 38.40 MHz					ns
Constant group delay up to 33.00 MHz		–	±0	–	
Ripple		–	50	100	
Temperature coefficient		–	−94	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 3.0 kΩ ‖ 15 pF Output: 3.3 kΩ ‖ 6 pF			

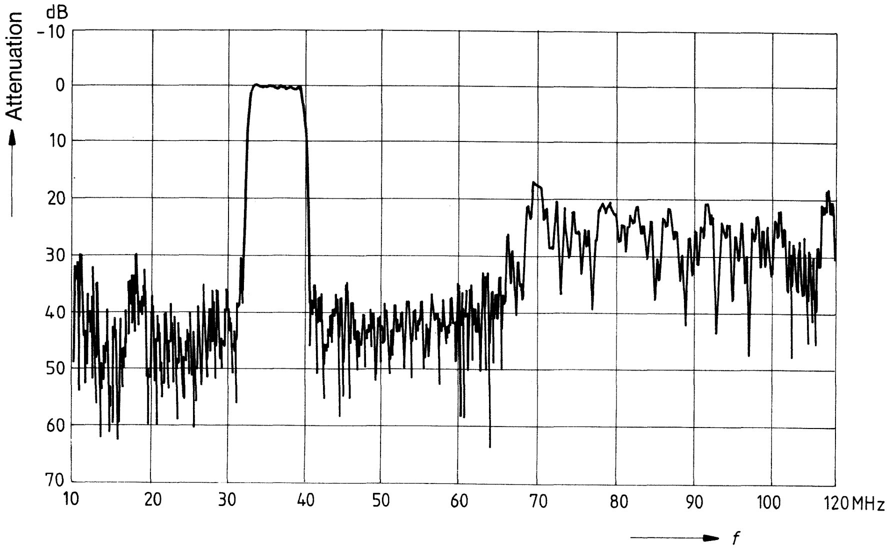
Amplitude response



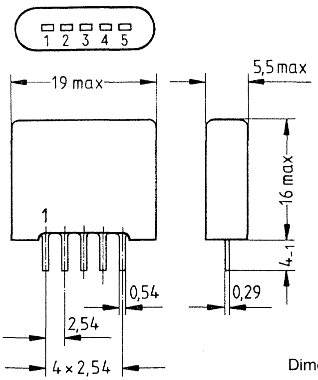
Amplitude response and group delay



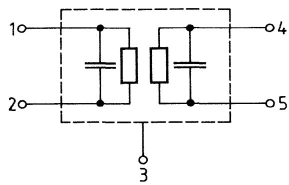
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	IF filter for antenna converters, full transmission of vestigial sideband and both sound carriers. Channel spacing 8 MHz. Restricted group delay fluctuations in comparison to OFW 369.
Version	Single in-line plastic package: SIP 5, approx. weight 1.8 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

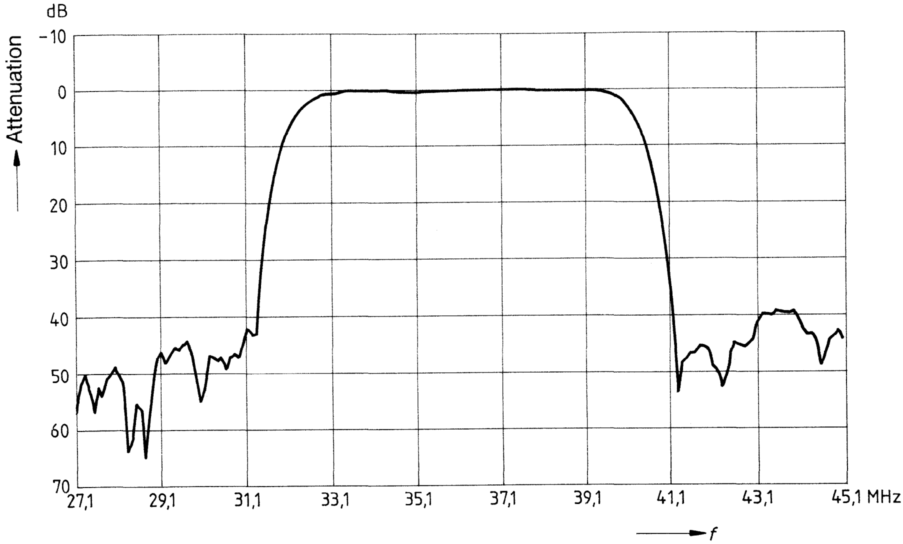
Type	**Ordering code**
OFW G 4952	B39389-G4952-N100

Measuring conditions

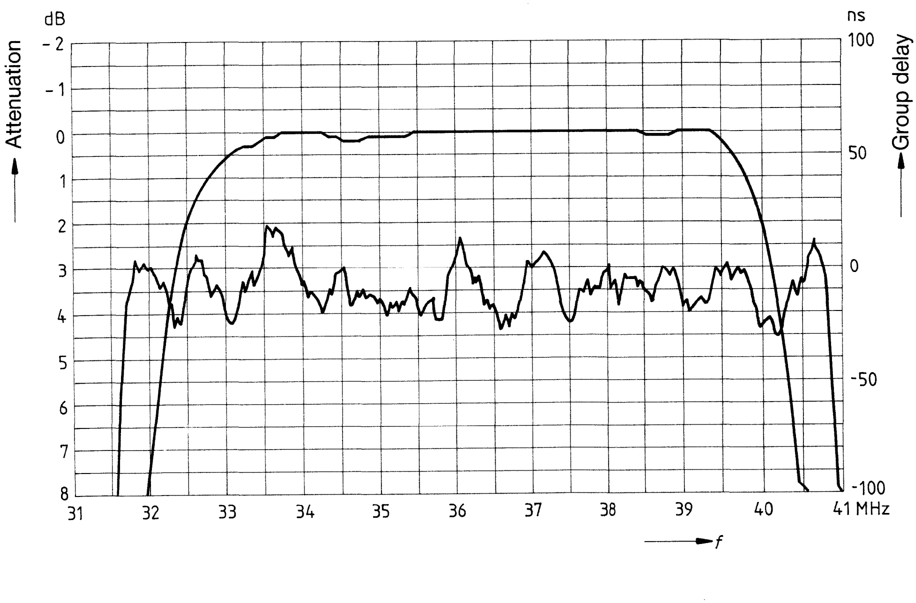
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	37.40 MHz	31.5	32.5	34.0	dB
Attenuation values					
Vision carrier	38.90 MHz	−1.0	0.2	1.5	dB
Vestigial sideband	39.65 MHz	−0.5	0.6	1.5	dB
2nd sound carrier	33.15 MHz	−0.5	0.6	1.5	dB
Adjacent vision carrier	30.90 MHz	36	52	–	dB
Adjacent sound carrier UHF	41.40 MHz	36	40	–	dB
Lower sidelobe	25.00...30.90 MHz	34	41	–	dB
Upper sidelobe	41.50...45.00 MHz	30	36	–	dB
Attenuation of reflections 1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		46	52	–	dB
Attenuation of direct breakthrough 1.1 µs...1.3 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 37.40 MHz		40	46	–	dB
Group delay Constant group delay up to 34.00...39.60 MHz Ripple		–	40	70	ns
Temperature coefficient		–	−70	–	ppm/K
Small-signal impedances typical values at 37.40 MHz		Input: 5.9 kΩ ll 12 pF Output: 1.9 kΩ ll 7 pF			

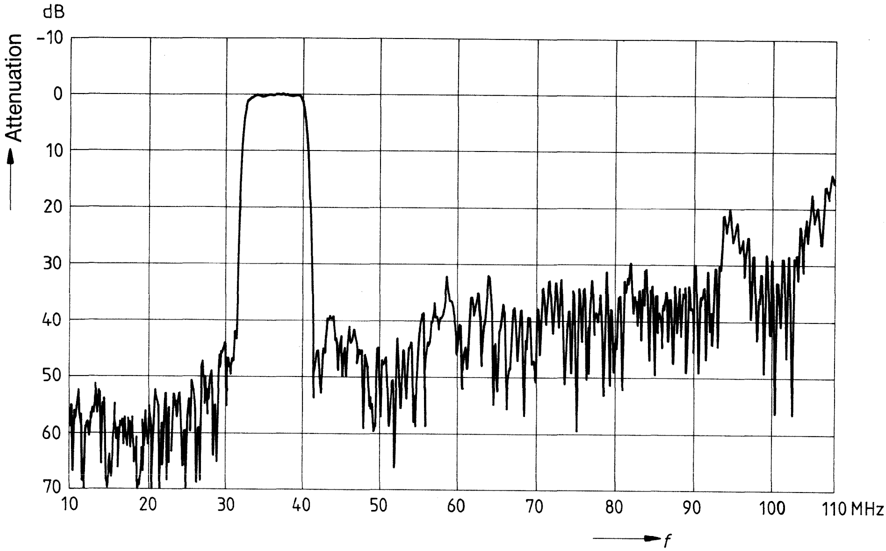
Amplitude response



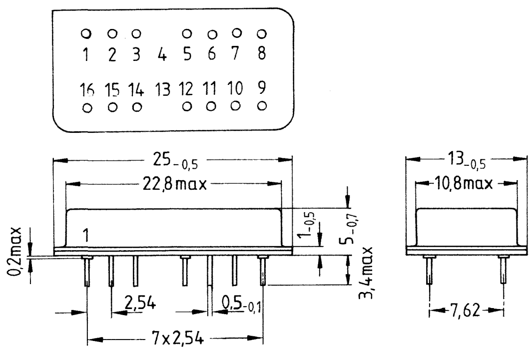
Amplitude response and group delay



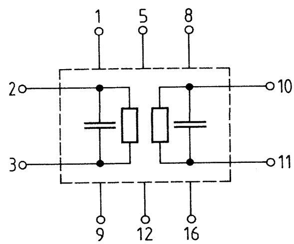
Far-off selectivity



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	IF filter for professional converters, modulators and CATV head stations, with stereo sound transmission.
Version	Dual in-line metal package: DIP 16, approx. weight 4 g
Terminals	Ferrous-nickel cobalt alloy, gold-plated
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1	GND	9	GND
2	Input	10	Output
3	Input-GND	11	Output-GND
4	Free	12	GND
5	GND	13	Free
6	Not connected	14	Not connected
7	Not connected	15	Not connected
8	GND	16	GND

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**	
Lower category temperature	**H**	−25 °C
Upper category temperature	**P**	+85 °C
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted

DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg}	(min)	−25°C
Upper storage temperature	T_{stg}	(max)	+85°C

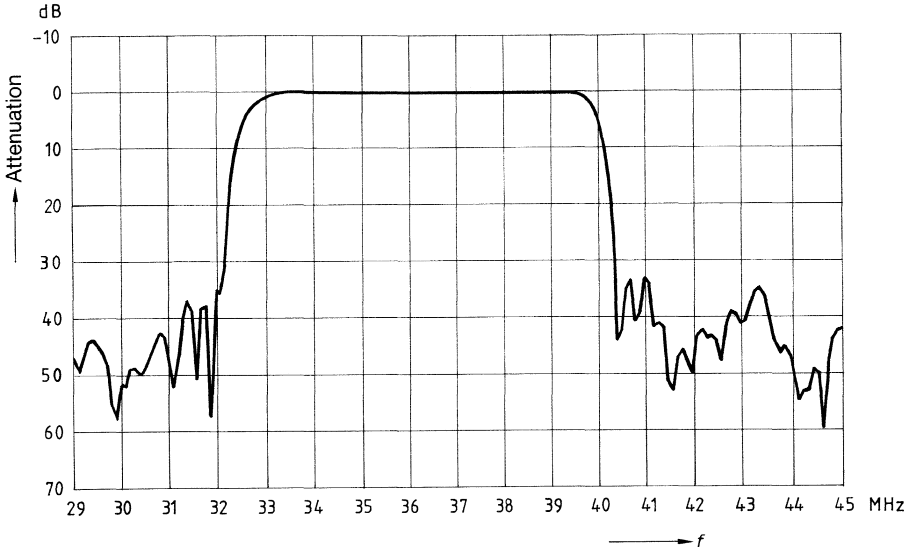
Type	Ordering code S
OFW G 4950	B39380-G4950-E110

Measuring conditions

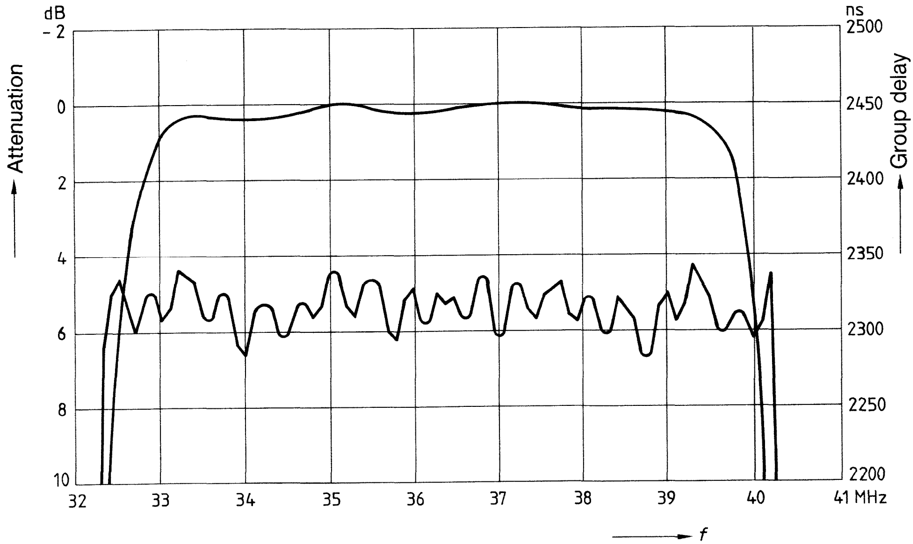
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.90 MHz	–	30	32	
Attenuation values					
Vision carrier	38.90 MHz	–	0	–	
Vestigial sideband	39.65 MHz	0	0.6	1.0	
2nd sound carrier	33.15 MHz	−0.3	0.2	0.7	
Adjacent vision carrier	31.90 MHz	35	40	–	
Adjacent sound carrier VHF	40.40 MHz	35	40	–	
UHF	41.40 MHz	40	45	–	dB
Lower sidelobe	25.00...31.90 MHz	32	38	–	
Upper sidelobe	40.50...45.00 MHz	32	38	–	
Attenuation of reflections					
2 µs...7 µs after main pulse Test pulse: 250 ns, Carrier frequency: 36.30 MHz		45	50	–	
Attenuation of direct breakthrough					
2.1 µs...2.5 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 36.30 MHz		50	55	–	
Group delay Ripple		–	30	40	ns
Temperature coefficient		–	−72	–	ppm/K
Small-signal impedances typical values at 38.90 MHz		Input: 0.8 kΩ ‖ 31 pF Output: 1.8 kΩ ‖ 7.5 pF			

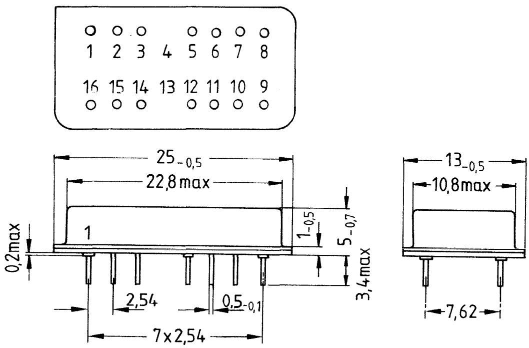
Amplitude response



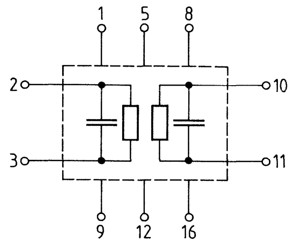
Amplitude response and group delay



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	IF filter without sound transmission for professional converters, modulators and CATV head stations.
Version	Dual in-line metal package: DIP 16, approx. weight 4 g
Terminals	Ferrous-nickel cobalt alloy, gold-plated
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 GND
2 Input
3 Input-GND
4 Free
5 GND
6 Not connected
7 Not connected
8 GND
9 GND
10 Output
11 Output-GND
12 GND
13 Free
14 Not connected
15 Not connected
16 GND

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

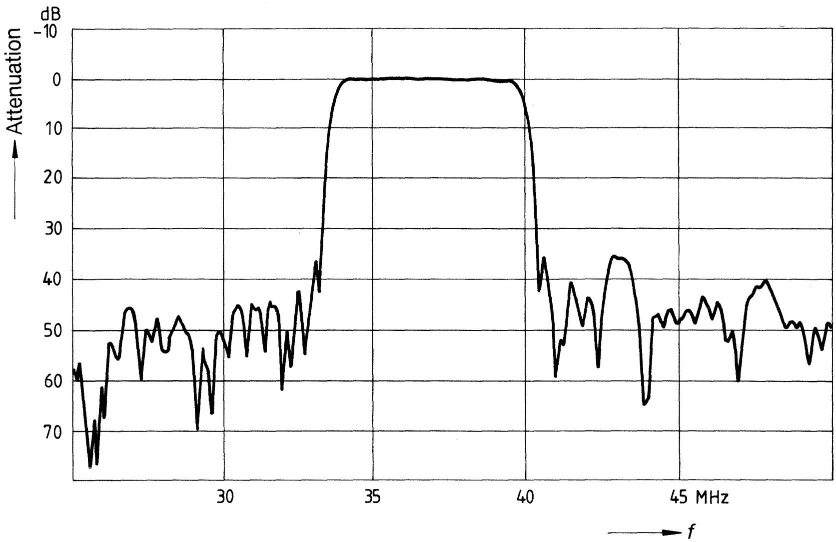
Type	**Ordering code**
OFW B 4501	B39389-B4501-E110

Measuring conditions

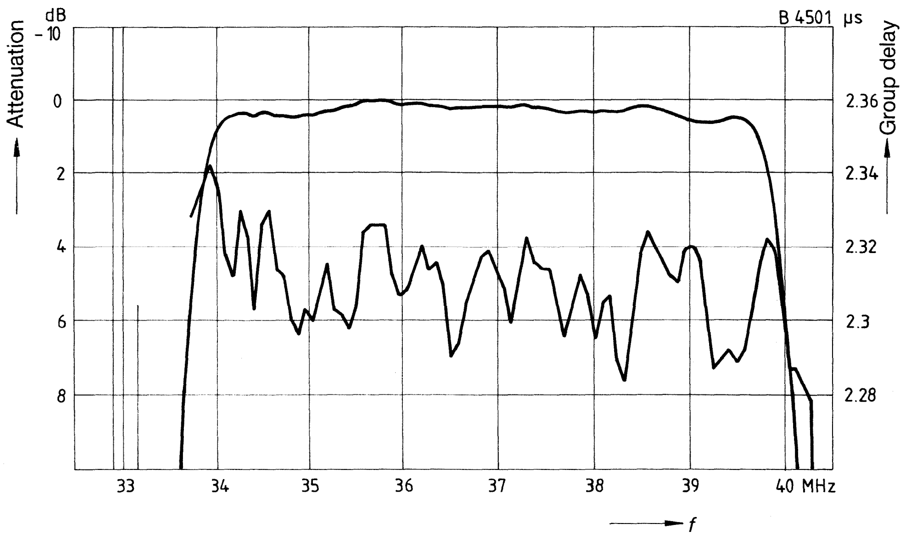
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.90 MHz	–	28.5	30	dB
Attenuation values					
Vision carrier	38.90 MHz	–	0	–	
Vestigial sideband	39.65 MHz	0	0.4	0.8	
1st sound carrier	33.40 MHz	18	20	–	
Adjacent vision carrier	31.90 MHz	44	50	–	
Adjacent sound carrier VHF	40.40 MHz	30	35	–	
UHF	41.40 MHz	40	45	–	
Lower sidelobe	25.00...33.15 MHz	38	40	–	
Upper sidelobe	40.50...45.00 MHz	32	35	–	
Attenuation of reflections					
2 µs...7 µs after main pulse Test pulse: 250 ns, Carrier frequency: 36.30 MHz		50	55	–	
Attenuation of direct breakthrough					
2.1 µs...2.5 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 36.30 MHz		54	60	–	
Group delay Ripple		–	30	40	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 38.90 MHz		Input: 0.4 kΩ ll 41 pF Output: 0.9 kΩ ll 13 pF			

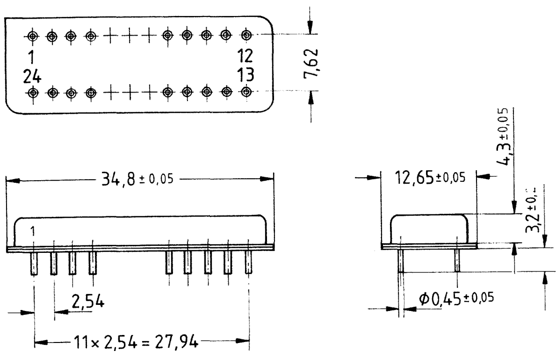
Amplitude response



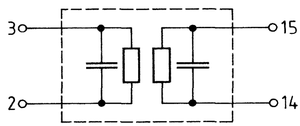
Amplitude response and group delay



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	IF filter with stereo sound transmission for professional converters, modulators and CATV head stations. Reduced group delay fluctuations and particularly smooth frequency response in the amplitude range.
Version	Dual in-line metal package: DIP 24, hermetically sealed, approx. weight 6 g
Terminals	Ferrous-nickel cobalt alloy, gold-plated
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



2 GND
3 Input
14 GND
15 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, rare and short dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

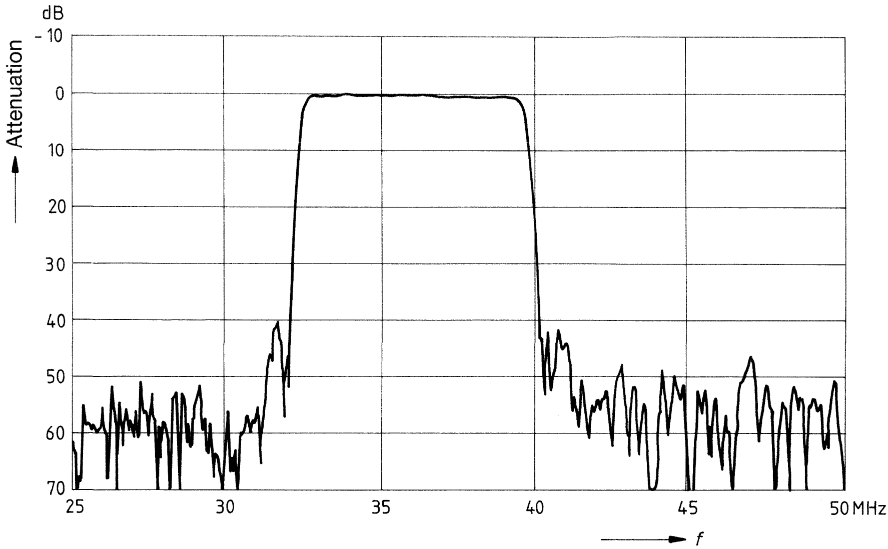
Type	Ordering code
OFW B 522	B39380-B522-G410

Measuring conditions

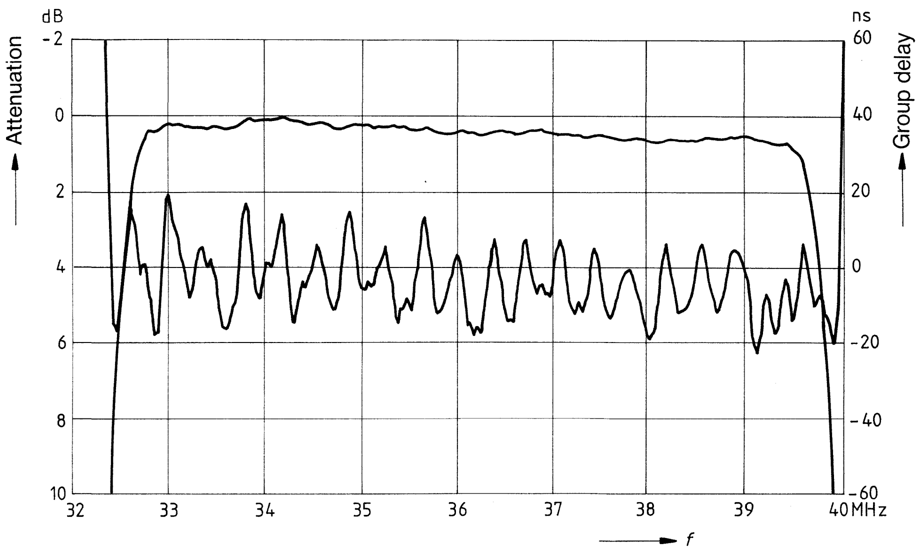
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.90 MHz	31.0	32.5	33.5	
Attenuation values					
Vision carrier	38.90 MHz	–	0	–	
Vestigial sideband	39.65 MHz	1.0	1.6	2.0	
2nd sound carrier	33.15 MHz	0.4	0	–0.3	
Adjacent vision carrier	31.90 MHz	38.0	42.0	–	
Adjacent sound carrier	40.15 MHz	37.0	41.0	–	dB
	40.40 MHz	37.0	41.0	–	
Lower sidelobe	25.00...31.30 MHz	42.0	50.0	–	
Upper sidelobe	41.20...45.00 MHz	42.0	50.0	–	
Attenuation of reflections					
2.5 µs...12 µs after main pulse		50.0	55.0	–	
Attenuation of direct breakthrough					
2.5 µs...3.5 µs prior to main pulse		50.0	55.0	–	
Group delay (Test aperture 120 kHz)					ns
Ripple (peak-to-peak)		–	40.0	50.0	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 38.90 MHz		Input: 0.7 kΩ II 45 pF Output: 3.3 kΩ II 13 pF			

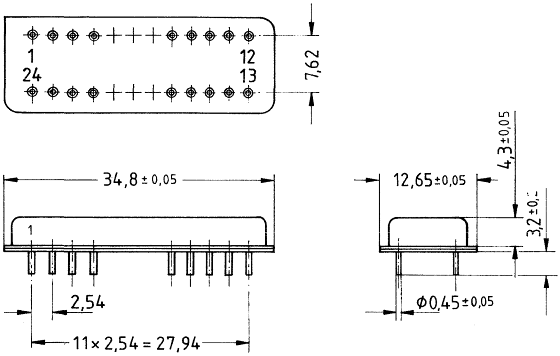
Amplitude response

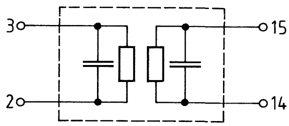


Amplitude response and group delay



Standard	B/G, CCIR, Germany, Europe (7/8 MHz)
Application	IF filter without sound transmission for professional converters, modulators and CATV stations. Reduced group delay fluctuations and particularly smooth frequency response in the amplitude range.
Version	Dual in-line metal package: DIP 24, hermetically sealed, weight 6 g
Terminals	Ferrous-nickel cobalt alloy, gold-plated
Marking	Type designation and marking for pin 1 are stamped on the package





2 GND
3 Input
14 GND
15 Output

Dimensions in mm

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, rare and brief dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

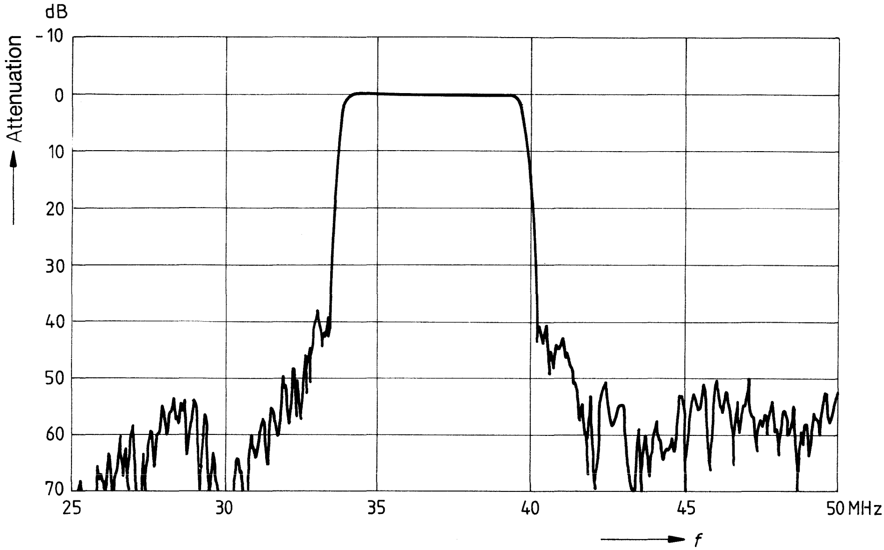
Type	Ordering code
OFW B 523	B39380-B523-G410

Measuring conditions

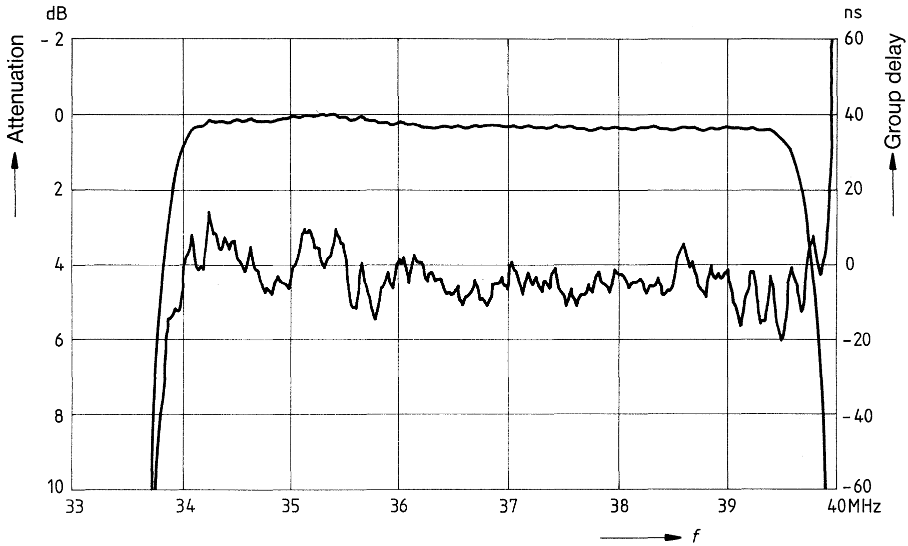
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.90 MHz	28.0	30.0	–32.0	
Attenuation values					
Vision carrier	38.90 MHz	–	0	–	
Vestigial sideband	39.65 MHz	1.0	1.5	2.0	
1st sound carrier	33.40 MHz	38.0	43.0	–	
Adjacent vision carrier	31.90 MHz	45.0	50.0	–	
Adjacent sound carrier	40.15 MHz	38.0	41.0	–	dB
	40.40 MHz	38.0	43.0	–	
Lower sidelobe	25.00...32.00 MHz	45.0	50.0	–	
Upper sidelobe	41.20...45.00 MHz	44.0	48.0	–	
Attenuation of reflections					
2.5 µs...12 µs after main pulse		50.0	55.0	–	
Attenuation of direct breakthrough					
2.5 µs...3.5 µs prior to main pulse		50.0	55.0	–	
Group delay (Test aperture 120 kHz)					ns
Ripple (peak-to-peak)		–	40.0	50.0	
Temperature coefficient		–	–94	–	ppm/K
Small-signal impedances typical values at 38.90 MHz		Input: 0.7 kΩ II 46 pF Output: 2.4 kΩ II 13 pF			

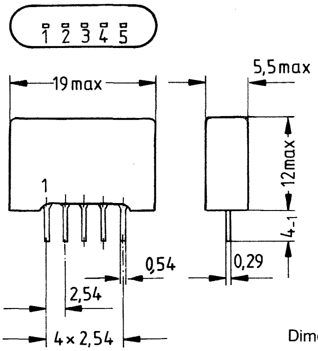
Amplitude response



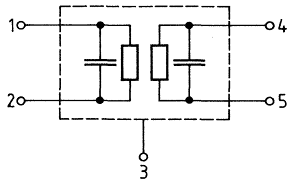
Amplitude response and group delay



Standard	I, Great Britain
Application	IF filter for vestigial sideband applications, vision carrier frequency at 38.9 MHz, with sound transmission, restricted group delay fluctuations and amplitude ripple in the amplitude range.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation, date code and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

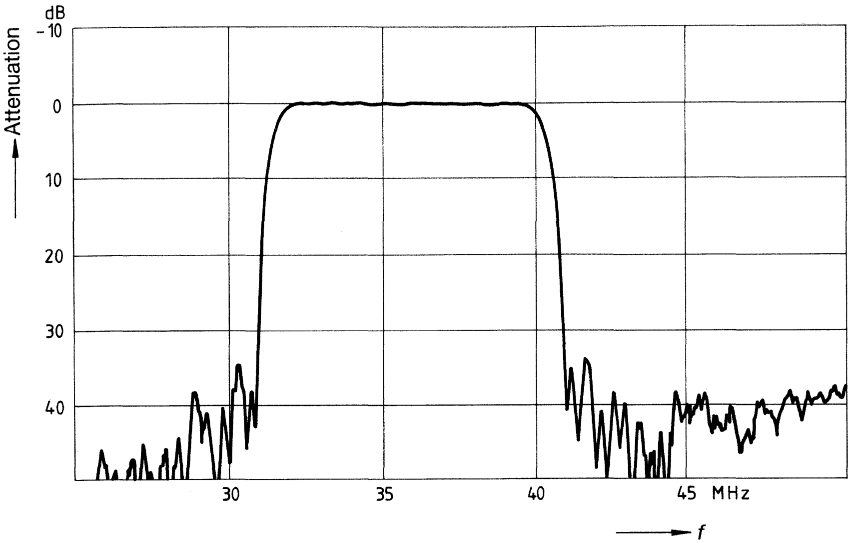
Type	**Ordering code**
OFW B 513	B39380-B513-N100

Measuring conditions

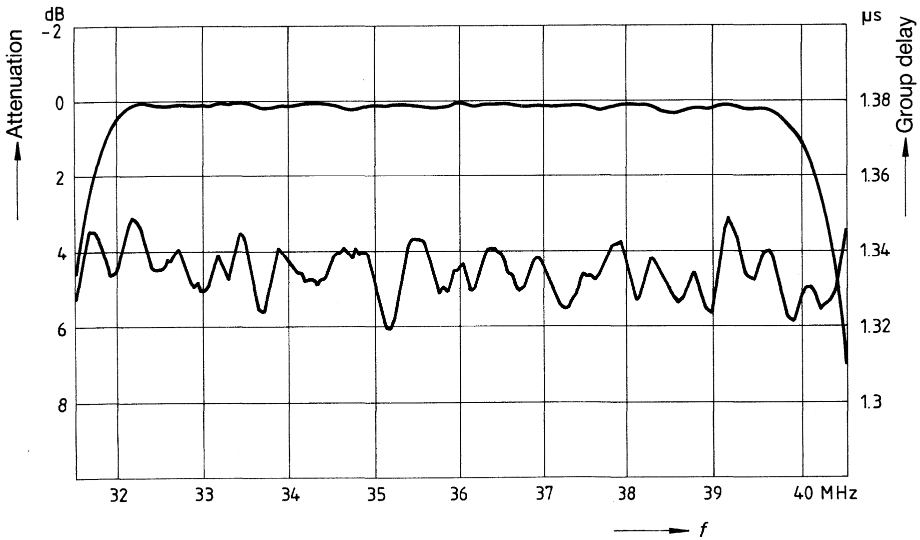
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	38.90 MHz	31.0	32.5	34	
Attenuation values					
Vision carrier	38.90 MHz	–	0	–	
Vestigial sideband	40.15 MHz	1.0	1.7	2.5	
Sound carrier	32.90 MHz	–0.3	0	0.3	
Adjacent vision carrier	30.90 MHz	30.0	35.0	–	
Adjacent sound carrier	40.90 MHz	–	20.0	–	dB
	41.40 MHz	30.0	35.0	–	
Lower sidelobe Upper sidelobe	25.00...30.30 MHz 41.20...50.00 MHz	45.0	50.0	–	dB
Attenuation of reflections					
1.4 µs...4 µs after main pulse		50	55	–	
Attenuation of direct breakthrough					
1.2 µs...1.5 µs prior to main pulse		35	40	–	
Group delay Ripple (peak-to-peak)		–	30	50	ns
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 38.90 MHz		Input: 2.0 kΩ ‖ 20.3 pF Output: 2.8 kΩ ‖ 9.9 pF			

Amplitude response

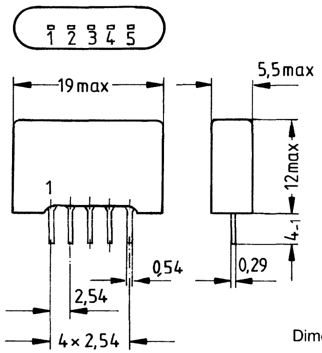


Amplitude response and group delay

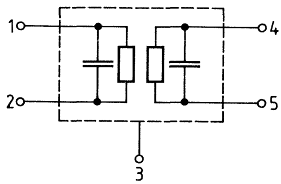


Preliminary data

Standard	M/N, FCC, USA
Application	IF filter for vestigial sideband applications, vision carrier frequency at 45.75 MHz, with sound transmission.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

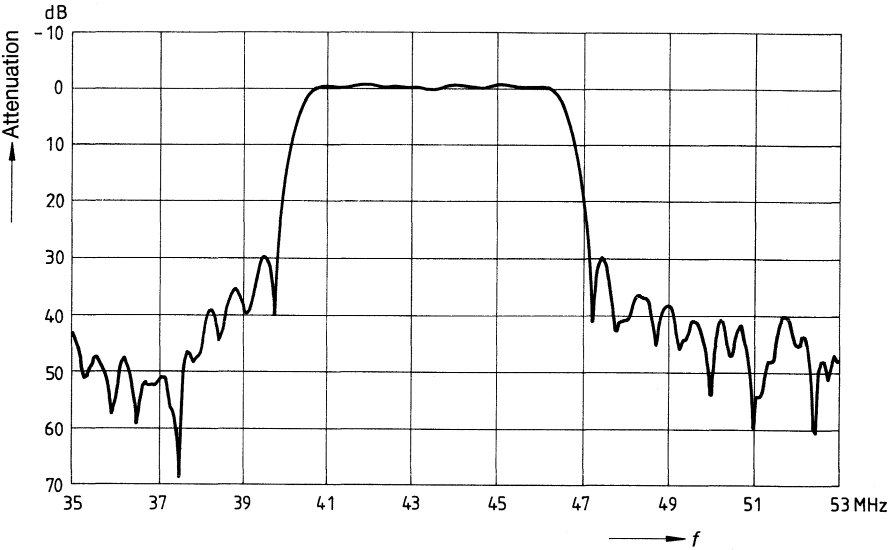
Type	Ordering code
OFW M 4950	B39458-M4950-N100

Measuring conditions

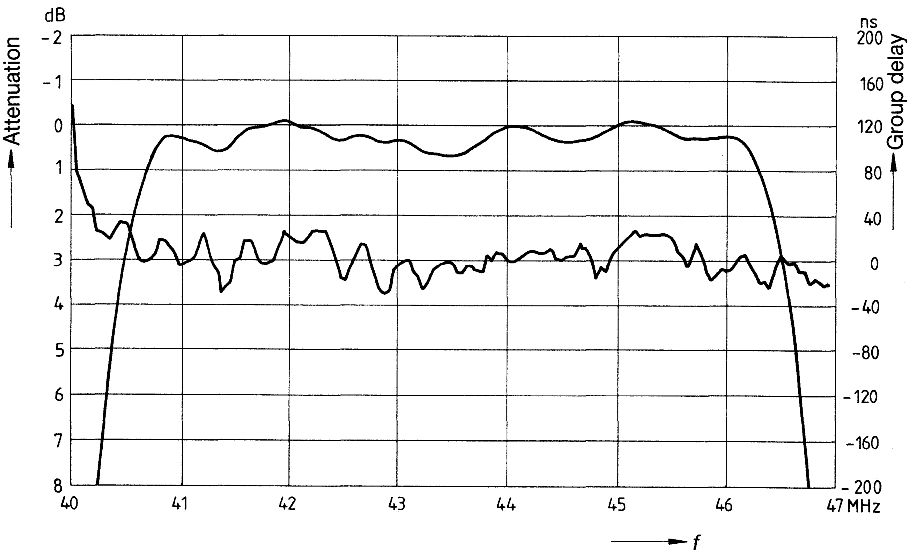
Ambient temperature	25°C
Drive impedance	75 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	43.50 MHz	–	20	–	
Attenuation values					
Vision carrier	45.75 MHz	–	– 0.4	–	
Vestigial sideband	46.50 MHz	–	1.8	–	
Sound carrier	41.25 MHz	–	– 0.3	–	
Adjacent vision carrier	39.75 MHz	–	36.0	–	
Adjacent sound carrier VHF	47.25 MHz	–	35.0	–	
Lower sidelobe	35.00...39.75 MHz	–	30.0	–	dB
Upper sidelobe	47.25...55.00 MHz	–	30.0	–	
Attenuation of reflections 1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		–	48	–	
Attenuation of direct breakthrough 0.8 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 43.50 MHz		–	45	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 43.50 MHz		Input: 2.5 kΩ II 11 pF Output: 0.5 kΩ II 10 pF			

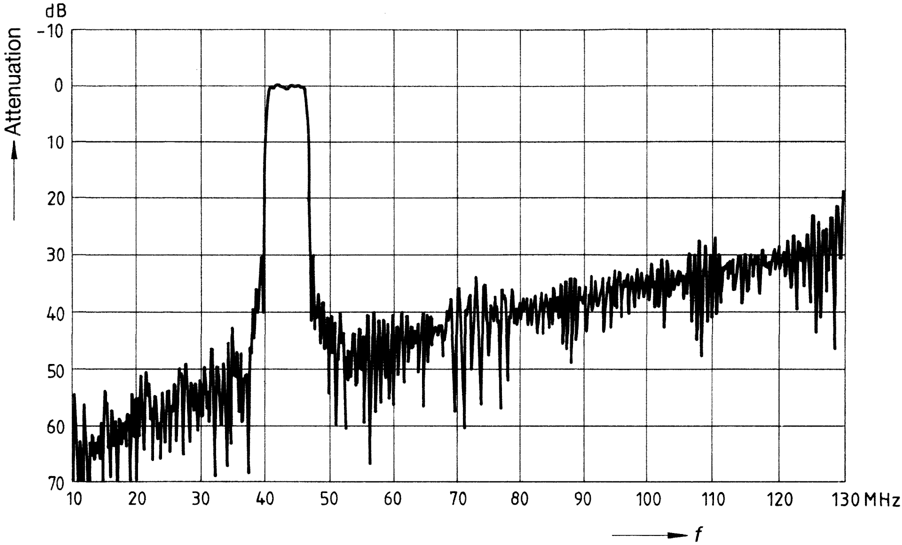
Amplitude response



Amplitude response and group delay



Far-off selectivity



Filters for TV Channels

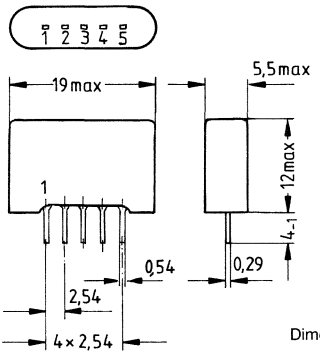
Survey of Filters for TV Channels

Vision carrier MHz	Channel	Bandwidth[1]		Standard[2]	Package	Type OFW...	Page
		(3 dB) MHz	(35 dB) MHz				
48.25	E2	6.5	8.8	B/C	SIP5L	E 250	269
55.25	E3	6.6	8.8	B/C	SIP5L	E 351	273
62.25	E4	6.6	8.8	B/C	SIP5L	E 450	277
55.25	A02	4.8	6.9	M/N	SIP5L	X 250	281
61.25	A03	5.0	7.3	M/N	SIP5L	X 350	285
61.25	A03	5.8	7.3	M/N	SIP5L	X 351[3]	–
67.25	A04	4.9	7.3	M/N	SIP5L	X 450	289
61.25/67.25	A03/A04	6.4/8.1	12.1/14.2	M/N	DIP10	W 150	293
83.25	A06	5.0	7.2	M/N	SIP5L	X 650	300

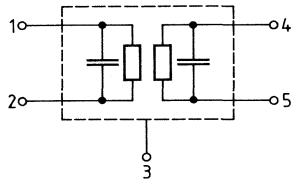
1) typ., referred to maximum amplitude range
2) B/C : Europe (7 MHz)
M/N : FCC, USA
3) In preparation

Preliminary data

Standard	B/C, Europe (7 MHz)
Application	Standard vestigial sideband filter for channel E2. Vision carrier at 48.25 MHz.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

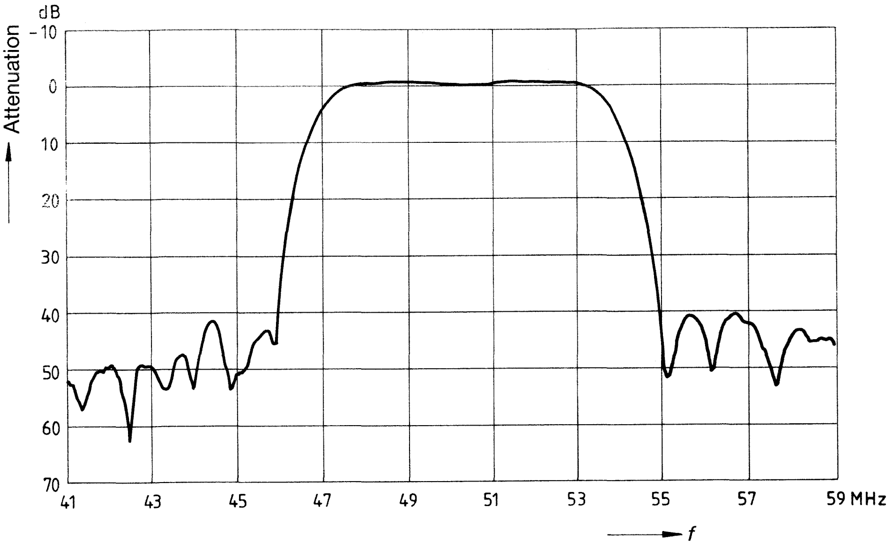
Type	**Ordering code**
OFW E 250	B39483-E250-N100

Measuring conditions

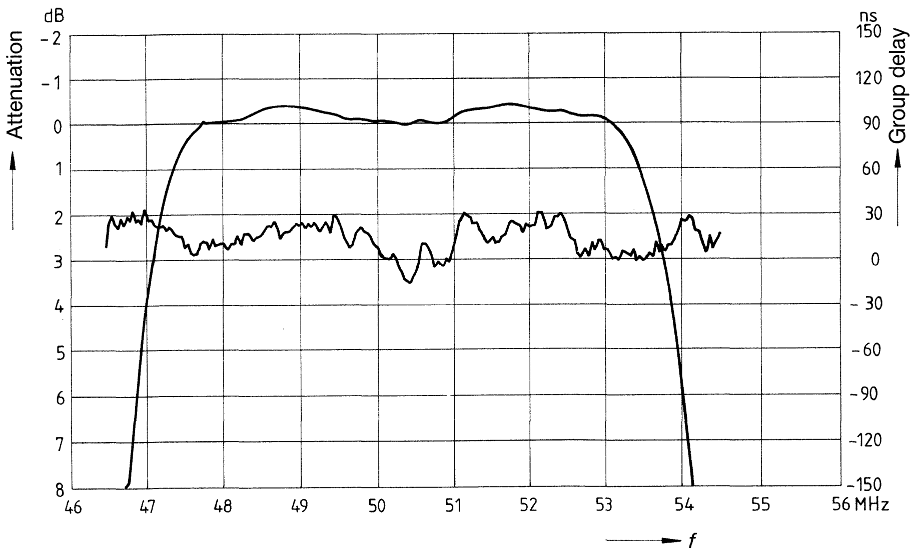
Ambient temperature	25°C
Drive impedance	75 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	50.50 MHz	–	26	–	
Attenuation values					
Vision carrier	48.25 MHz	–	0.0	–	
Vestigial sideband	47.50 MHz	–	1.2	–	
Sound carrier	53.75 MHz	–	2	–	
Adjacent vision carrier	55.25 MHz	–	44	–	
Adjacent sound carrier	46.75 MHz	–	9	–	
Lower sidelobe	0.50 ... 45.75 MHz	–	38	–	dB
Upper sidelobe	55.25 ... 120.00 MHz	–	38	–	
Attenuation of reflections					
1.0 μs ... 3.5 μs after main pulse Test pulse: 250 ns, Carrier frequency: 50.50 MHz		–	48	–	
Attenuation of direct breakthrough					
0.8 μs ... 1.0 μs prior to main pulse Test pulse: 250 ns, Carrier frequency: 50.50 MHz		–	45	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K

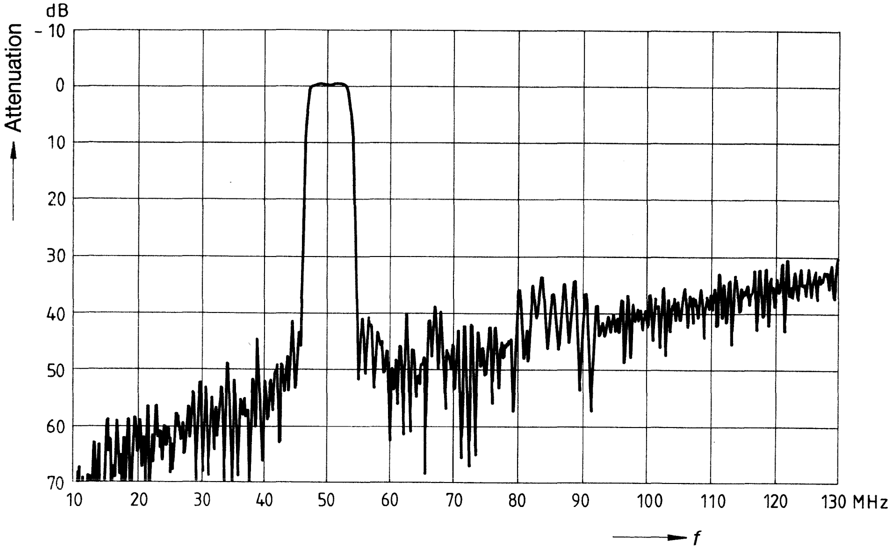
Amplitude response



Amplitude response and group delay

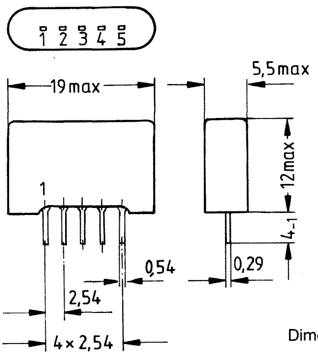


Far-off selectivity

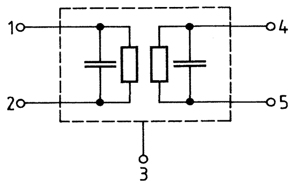


Preliminary data

Standard	B/C, Europe (7 MHz)
Application	Standard vestigial sideband filter for channel E3. Vision carrier at 55.25 MHz.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

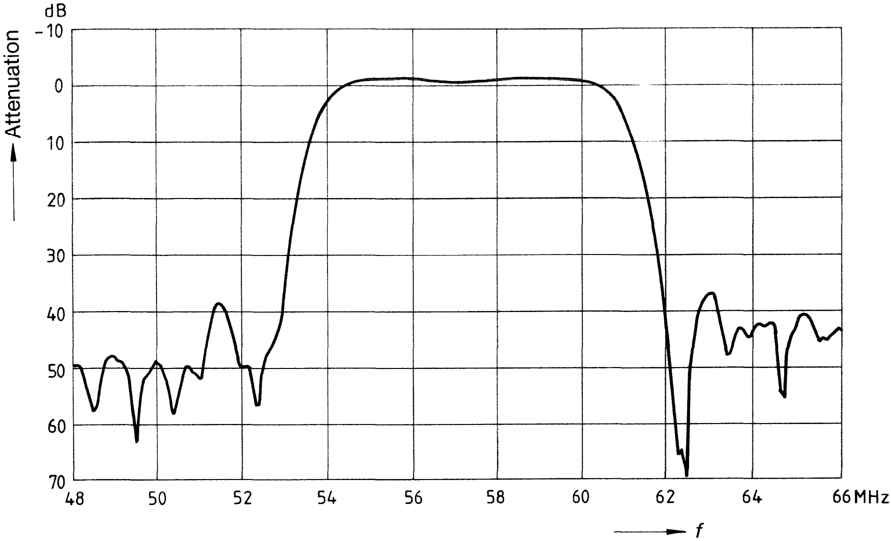
Type	Ordering code
OFW E 351	B39553-E351-N100

Measuring conditions

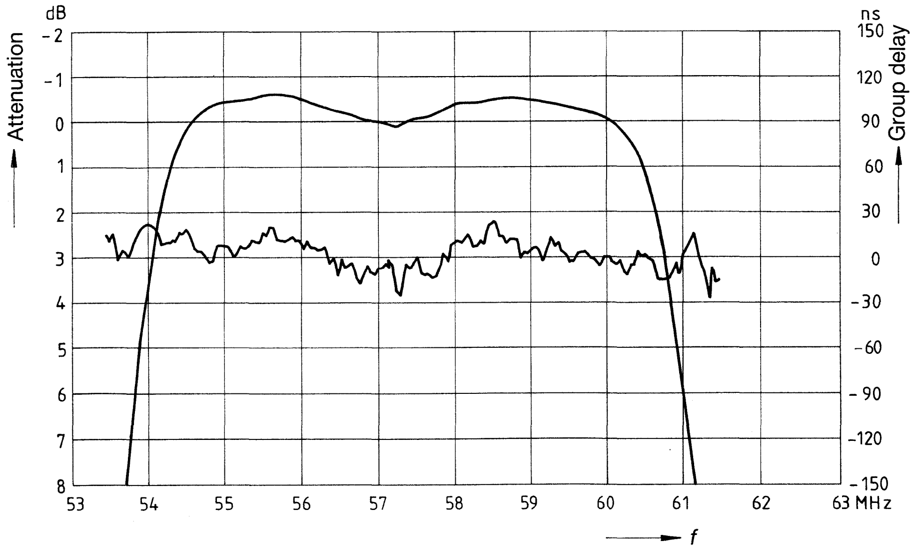
Ambient temperature 25°C
Drive impedance 75 Ω
Load impedance 75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	57.50 MHz	–	24	–	dB
Attenuation values					
Vision carrier	52.75 MHz	–	0	–	
Vestigial sideband	54.50 MHz	–	0.9	–	
Sound carrier	60.75 MHz	–	2.5	–	
Adjacent vision carrier	62.25 MHz	–	45	–	
Adjacent sound carrier	53.75 MHz	–	9.5	–	
Lower sidelobe	45.00...52.75 MHz	–	35	–	
Upper sidelobe	62.25...65.00 MHz	–	35	–	
Attenuation of reflections					
1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 57.50 MHz		–	48	–	
Attenuation of direct breakthrough					
0.8 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 57.50 MHz		–	40	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K

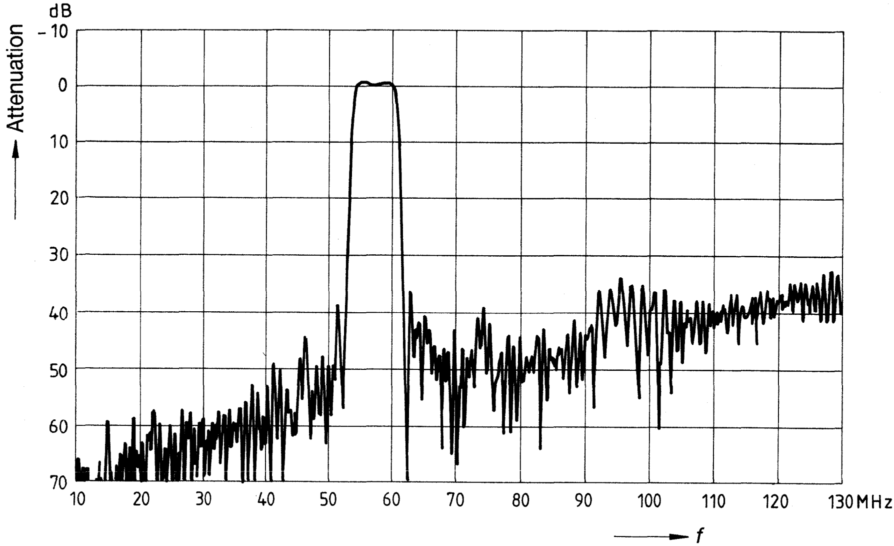
Amplitude response



Amplitude response and group delay

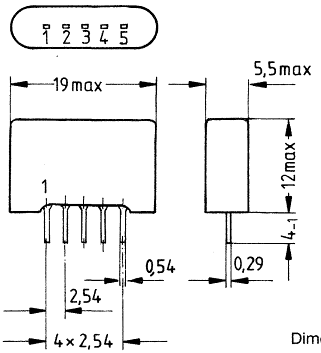


Far-off selectivity

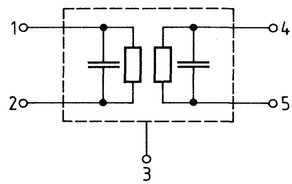


Preliminary data

Standard	B/C, Europe (7 MHz)
Application	Standard vestigial sideband filter for channel E4. Vision carrier at 62.25 MHz.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

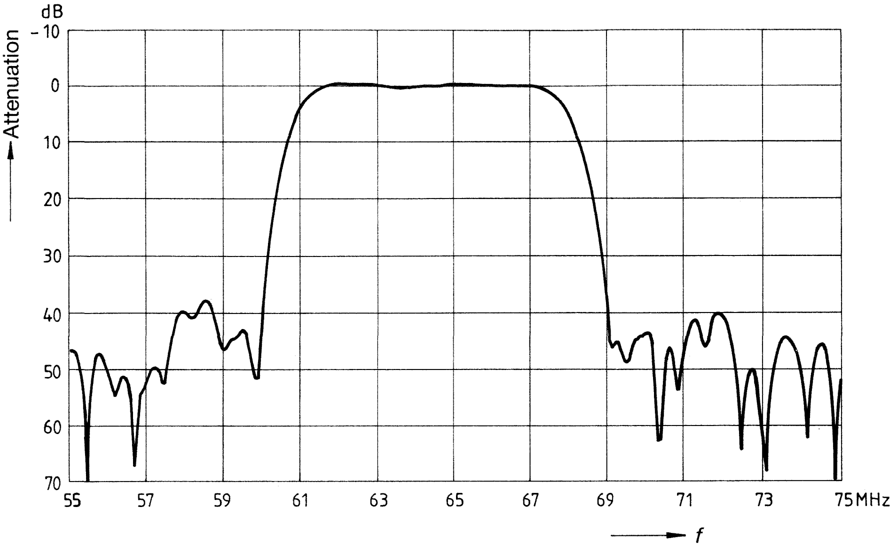
Type	Ordering code
OFW E 450	B39623-E450-N100

Measuring conditions

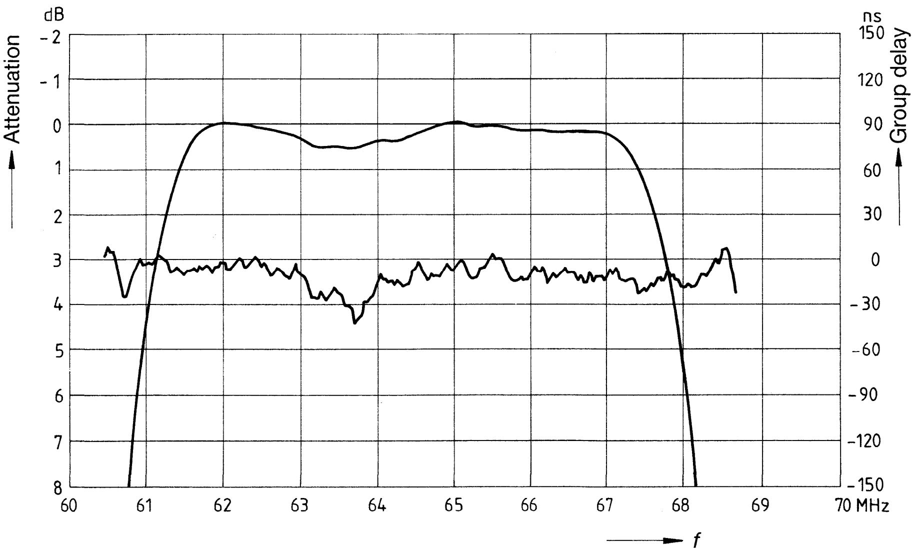
Ambient temperature	25°C
Drive impedance	75 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	64.50 MHz	–	19	–	dB
Attenuation values					
Vision carrier	62.25 MHz	–	0.3	–	dB
Vestigial sideband	61.50 MHz	–	1.2	–	dB
Sound carrier	67.75 MHz	–	2.5	–	dB
Adjacent vision carrier	69.25 MHz	–	51	–	dB
Adjacent sound carrier	60.75 MHz	–	9	–	dB
Lower sidelobe	50.00...59.75 MHz	–	38	–	dB
Upper sidelobe	69.25...75.00 MHz	–	38	–	dB
Attenuation of reflections					
1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 64.50 MHz		–	48	–	dB
Attenuation of direct breakthrough					
0.8 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 64.50 MHz		–	40	–	dB
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–72	–	ppm/K

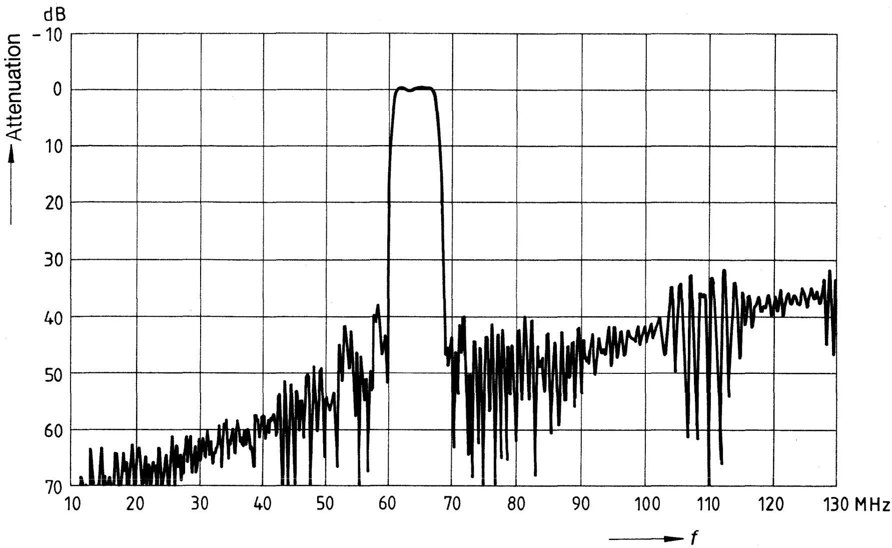
Amplitude response



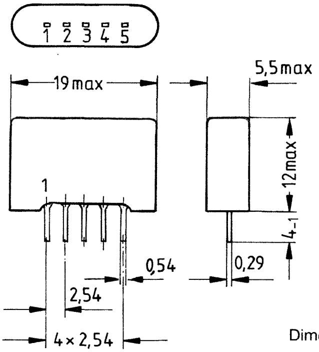
Amplitude response and group delay



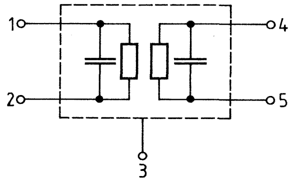
Far-off selectivity



Standard	M/N, FCC, USA
Application	Standard vestigial sideband filter for channel A 02. Vision carrier at 55.25 MHz.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

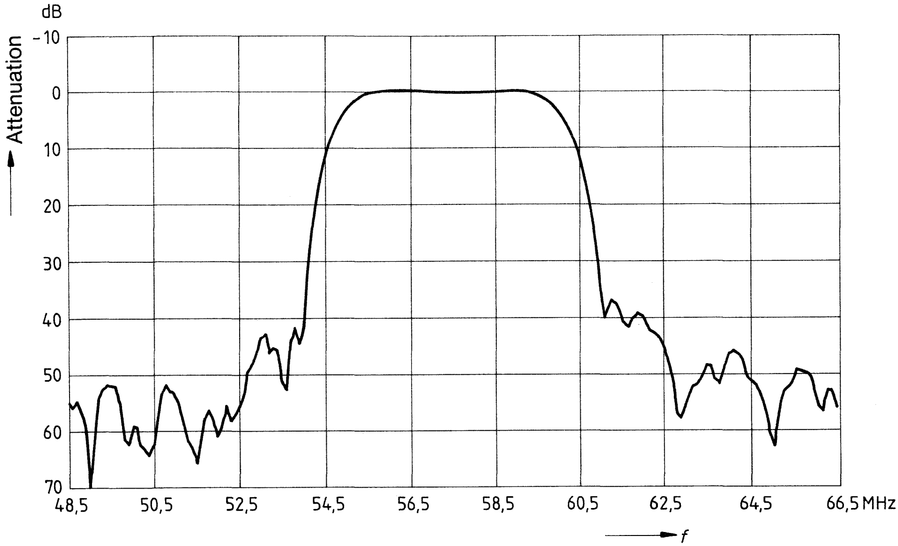
Type	**Ordering code**
OFW X 250	B39553-X250-N100

Measuring conditions

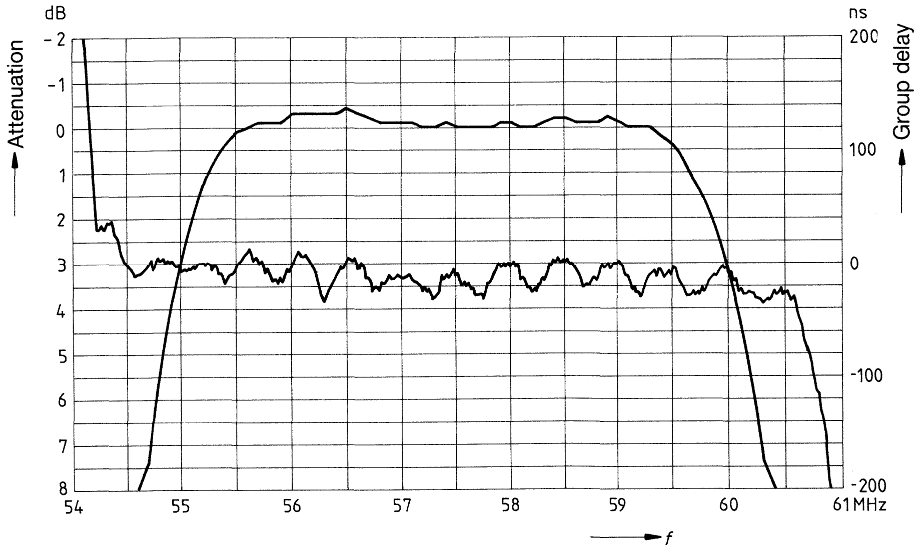
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	57.50 MHz	18.3	19.4	20.5	
Attenuation values					
Vision carrier	55.25 MHz	0.1	1.1	2.1	
Vestigial sideband	54.50 MHz	9.0	12.0	16.0	
Sound carrier	59.75 MHz	0.6	1.6	2.6	
Adjacent vision carrier	61.75 MHz	34	40	–	
Adjacent sound carrier	53.75 MHz	36	44	–	dB
Lower sidelobe	50.50...53.50 MHz	34	42	–	
Upper sidelobe	62.00...64.00 MHz	36	44	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 57.50 MHz		40	47	–	
Attenuation of direct breakthrough					
1.2 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 57.50 MHz		48	53	–	
Group delay Constant group delay up to 54.50...60.50 MHz Ripple		–	50	80	ns
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 57.50 MHz		Input: 1.8 kΩ II 12 pF Output: 0.27 kΩ II 13 pF			

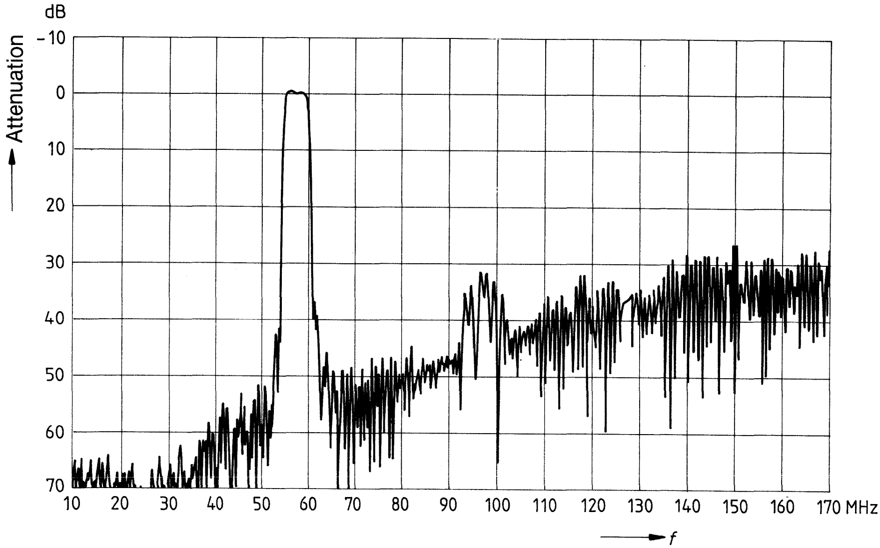
Amplitude response



Amplitude response and group delay

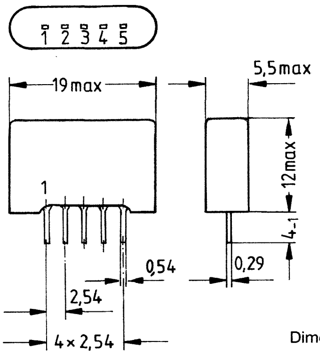


Far-off selectivity

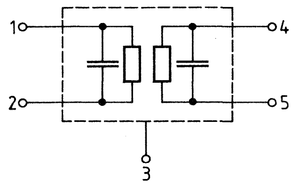


Preliminary data

Standard	M/N, FCC, USA
Application	Standard vestigial sideband filter for channel A 03. Vision carrier at 61.25 MHz.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	–25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	–25°C
Upper storage temperature	T_{stg} (max)	+85°C

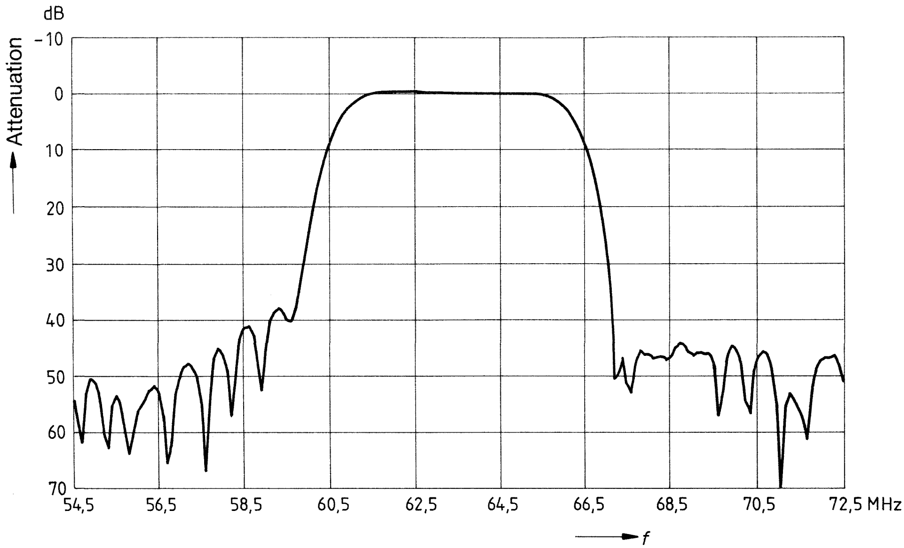
Type	Ordering code
OFW X 350	B39613-X350-N100

Measuring conditions

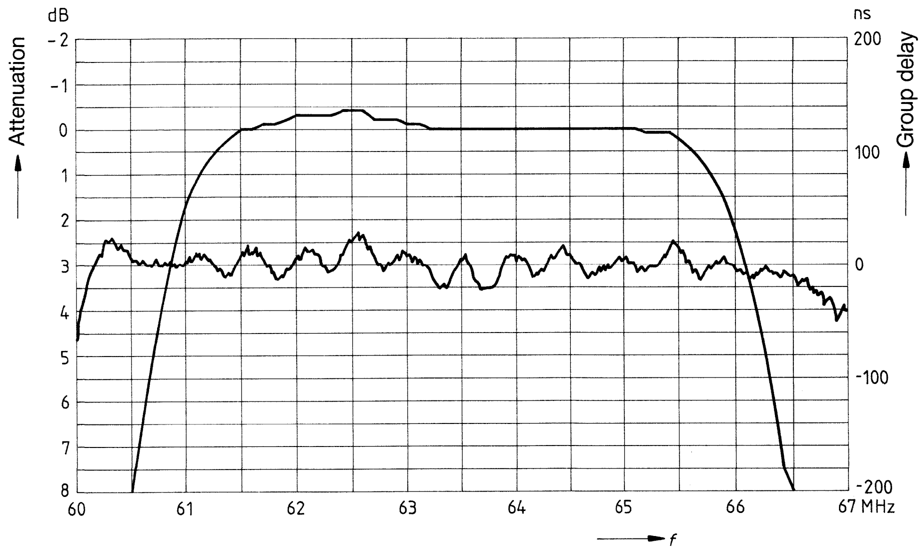
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	63.50 MHz	16.5	17.5	19.0	
Attenuation values					
Vision carrier	61.25 MHz	−0.5	0.5	1.,5	
Vestigial sideband	60.50 MHz	4.0	8.0	13.0	
Sound carrier	65.75 MHz	0	1.1	2.0	
Adjacent vision carrier	67.25 MHz	36	45	–	
Adjacent sound carrier	59.75 MHz	30	36	–	
Lower sidelobe	56.50...59.50 MHz	32	37	–	dB
Upper sidelobe	67.50...70.00 MHz	36	44	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse		40	44	–	
Test pulse: 250 ns,					
Carrier frequency: 63.50 MHz					
Attenuation of direct breakthrough					
1.2 µs...1.0 µs prior to main pulse		48	55	–	
Test pulse: 250 ns,					
Carrier frequency: 63.50 MHz					
Group delay					
Constant group delay 60.50...66.50 MHz					ns
Ripple		–	40	80	
Temperature coefficient		–	−70	–	ppm/K
Small-signal impedances typical values at 63.50 MHz		Input: 1.2 kΩ II 13 pF Output: 0.24 kΩ II 14 pF			

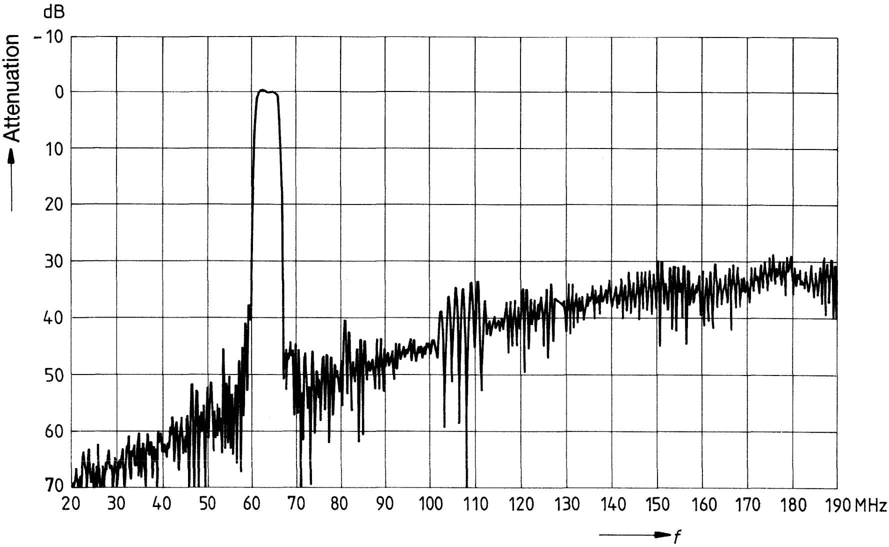
Amplitude response



Amplitude response and group delay

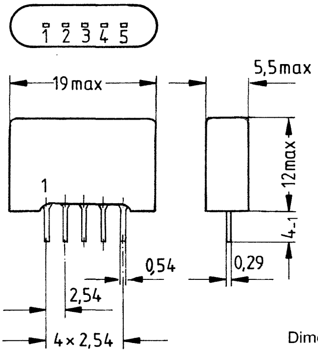


Far-off selectivity

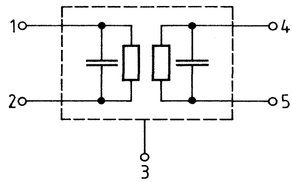


Preliminary data

Standard	M/N, FCC, USA
Application	Standard vestigial sideband filter for channel A 04. Vision carrier at 67.25 MHz.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

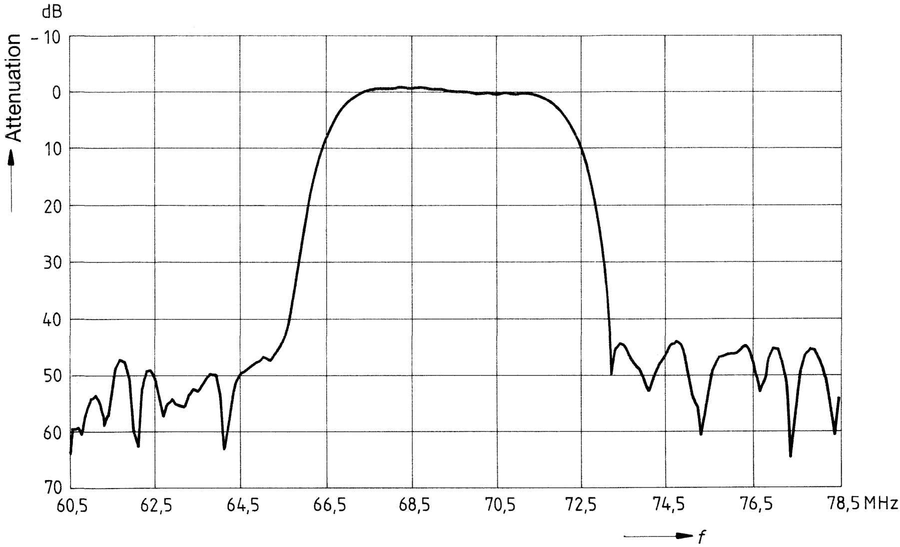
Type	Ordering code
OFW X 450	B39673-X450-N100

Measuring conditions

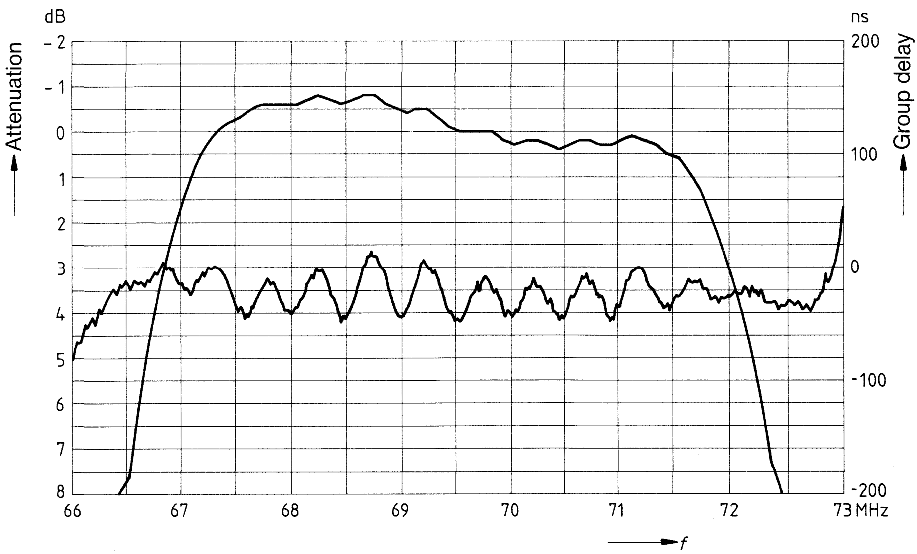
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	69.50 MHz	15.0	16.0	17.5	
Attenuation values					
Vision carrier	67.25 MHz	−1.0	0.3	1.5	
Vestigial sideband	66.50 MHz	6.0	8.0	11.0	
Sound carrier	71.75 MHz	0.5	1.5	3.0	
Adjacent vision carrier	73.25 MHz	38	46	–	
Adjacent sound carrier	65.75 MHz	30	36	–	
Lower sidelobe	61.50...65.75 MHz	38	47	–	dB
Upper sidelobe	73.25...77.00 MHz	38	44	–	
Attenuation of reflections					
1.2 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 69.50 MHz		36	41	–	
Attenuation of direct breakthrough					
1.2 µs...0.9 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 69.50 MHz		48	56	–	
Group delay Constant group delay 66.50...72.50 MHz					ns
Ripple		–	50	80	
Temperature coefficient		–	−70	–	ppm/K
Small-signal impedances typical values at 69.50 MHz		Input: 0.61 kΩ ll 12 pF Output: 0.57 kΩ ll 14 pF			

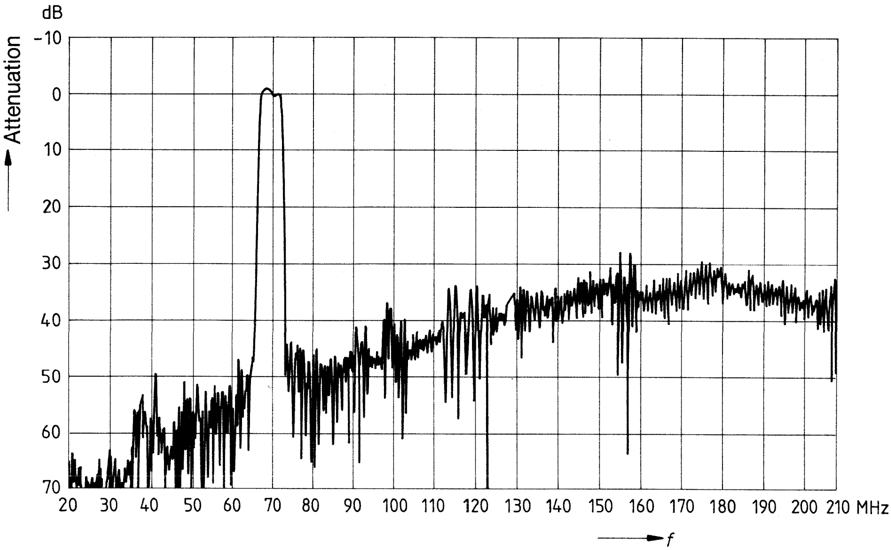
Amplitude response



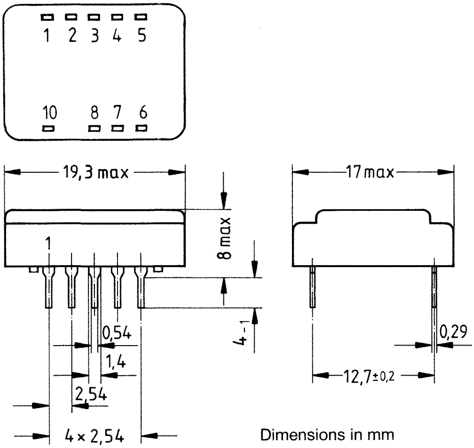
Amplitude response and group delay



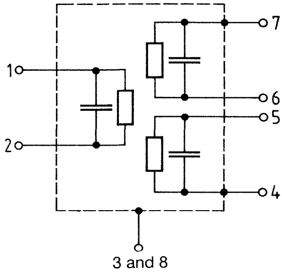
Far-off selectivity



Standard	M/N, FCC, USA
Application	TV two-channel filter for channel 3 and 4
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND)
3 GND
4 GND } Channel 3
5 Output }
6 Output } Channel 4
7 GND }
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

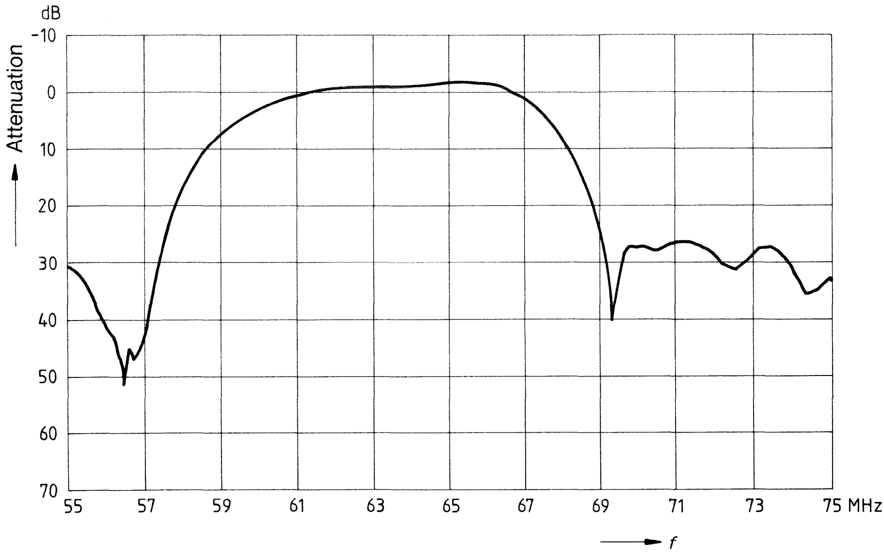
Type	Ordering code
OFW W 150	B39613-W150-P100

Measuring conditions

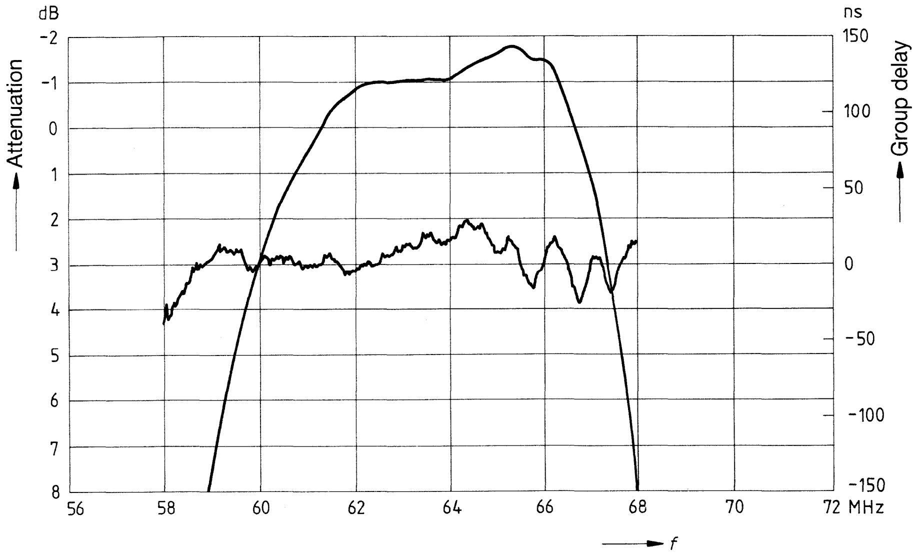
Ambient temperature	25°C
Drive impedance	75 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	61.30 MHz	–	25	–	
Attenuation values					
$f_T + 3.0$ MHz	64.25 MHz	–4	– 1.3	0	
$f_T + 4.5$ MHz	65.75 MHz	–4	– 1.6	0	
$f_T - 4.0$ MHz	57.25 MHz	20	28	–	
$f_T + 10$ MHz	70.25 MHz	20	25	–	
Lower sidelobe	0.50… 57.25 MHz	20	30	–	
Upper sidelobe	76.25…102.00 MHz	18	21	–	dB
Attenuation of reflections					
1.0 µs…3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 61.30 MHz		38	54	–	
Attenuation of direct breakthrough					
0.6 µs…0.8 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 61.30 MHz		38	44	–	
Group delay Reference frequency 61.30 MHz Group delay 60.50…65.75 MHz Ripple		–50	± 0	50	ns
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 61.30 MHz		Input: 2.0 kΩ ll 6.0 pF Output: 0.7 kΩ ll 11.0 pF			

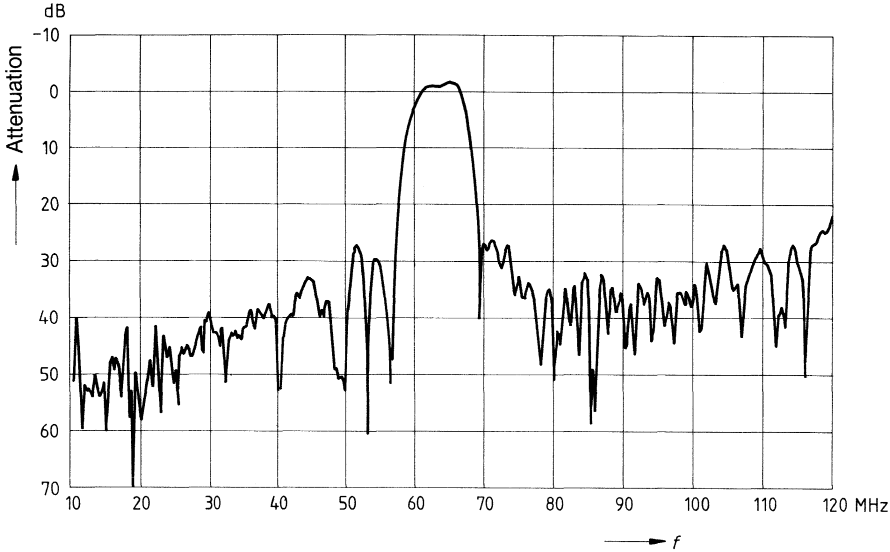
Amplitude response



Amplitude response and group delay



Far-off selectivity

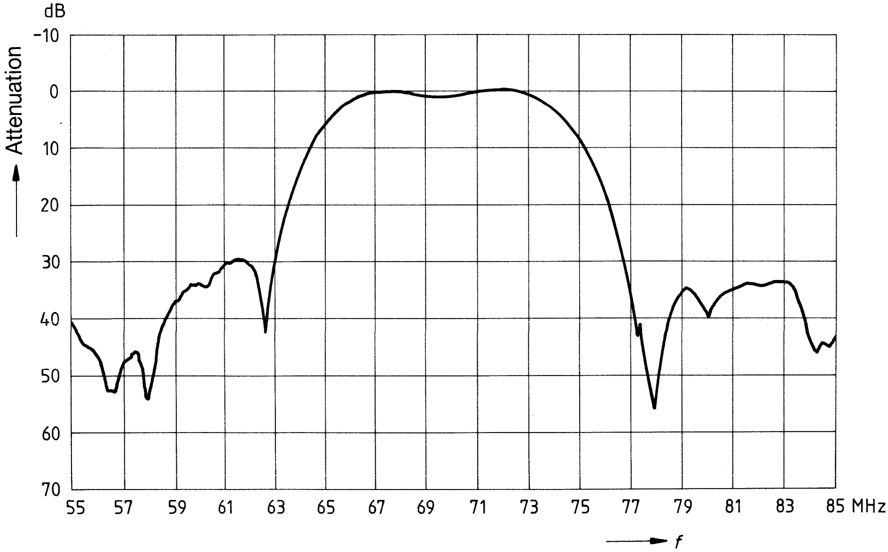


Measuring conditions

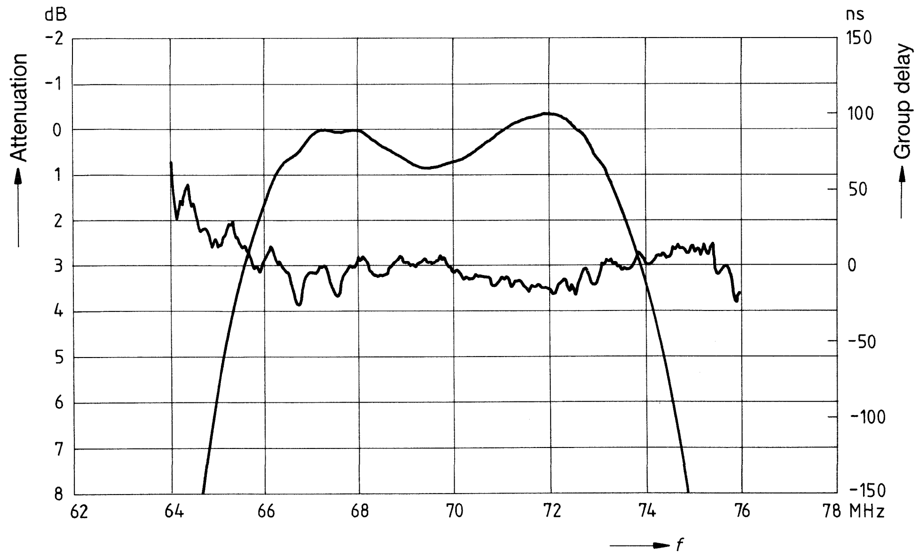
Ambient temperature	25°C
Drive impedance	75 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	67.30 MHz	–	27	–	
Attenuation values					
f_T + 3.0 MHz	70.25 MHz	–2.0	0.4	2.0	
f_T + 4.5 MHz	71.75 MHz	–2.0	– 0.4	2.0	
f_T – 4.0 MHz	63.25 MHz	20	23	–	
f_T + 10 MHz	77.25 MHz	20	38	–	
Lower sidelobe	0.50 ... 63.25 MHz	20	30	–	
Upper sidelobe	77.25 ... 102.00 MHz	20	32	–	dB
Attenuation of reflections					
1.0 µs ... 3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 67.30 MHz		38	45	–	
Attenuation of direct breakthrough					
0.6 µs ... 0.8 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 67.30 MHz		38	46	–	
Group delay Reference frequency 67.30 MHz Group delay 66.50 ... 71.75 MHz Ripple		–50	± 0	50	ns
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 67.30 MHz		Input: 2.0 kΩ ІІ 6.0 pF Output: 0.7 kΩ ІІ 11.0 pF			

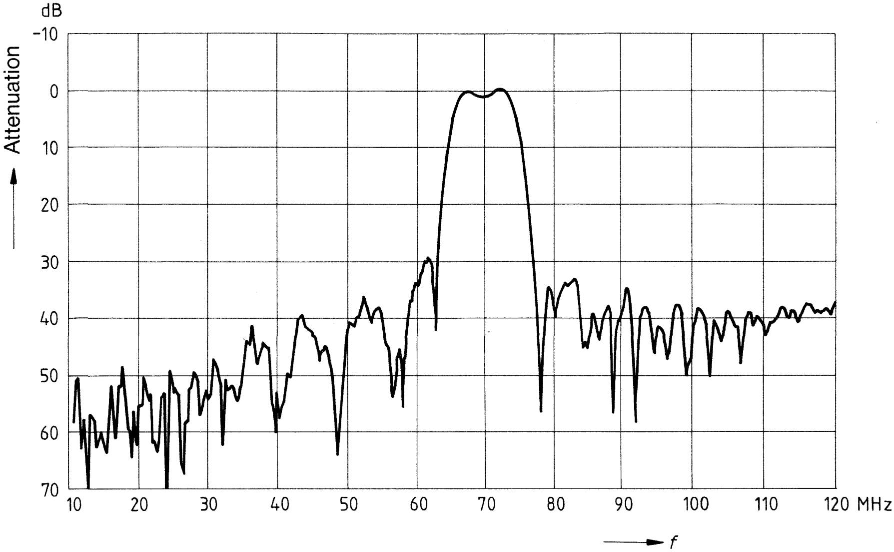
Amplitude response



Amplitude response and group delay

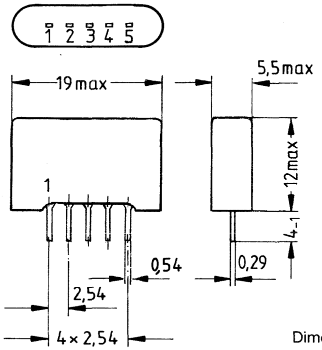


Far-off selectivity

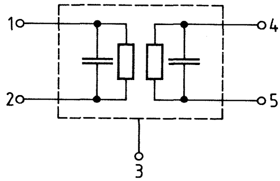


Preliminary data

Standard	M/N, FCC, USA
Application	Standard vestigial sideband filter for channel A 06. Vision carrier at 83.25 MHz.
Version	Single in-line plastic package: SIP 5 L, approx. weight 1.4 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Ground for input voltage
3 Chip carrier – GND
4, 5 } Output

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

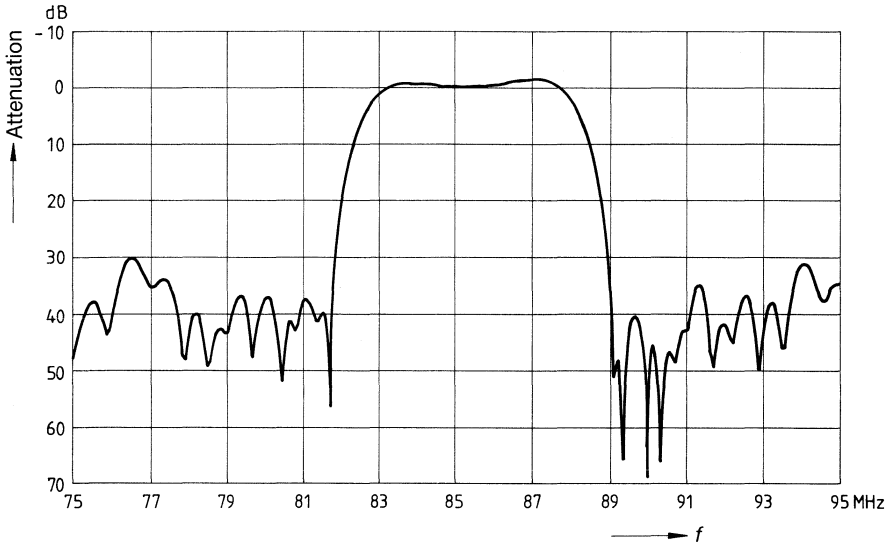
Type	Ordering code
OFW X 650	B39833-X650-N100

Measuring conditions

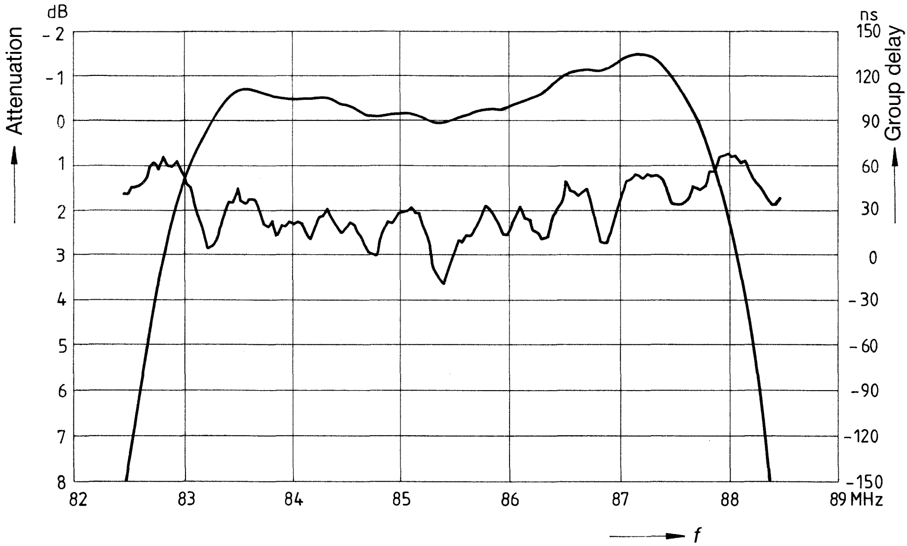
Ambient temperature	25°C
Drive impedance	75 Ω
Load impedance	75 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	85.50 MHz	–	20.0	–	
Attenuation values					
Vision carrier	83.25 MHz	–	0.0	–	
Vestigial sideband	82.50 MHz	–	8.0	–	
Sound carrier	87.75 MHz	–	1.0	–	
Adjacent vision carrier	89.25 MHz	–	49	–	
Adjacent sound carrier VHF	81.75 MHz	–	50	–	
Lower sidelobe	75.00...81.75 MHz	–	35	–	
Upper sidelobe	89.25...95.00 MHz	–	32	–	dB
Attenuation of reflections					
1.0 µs...3.5 µs after main pulse Test pulse: 250 ns, Carrier frequency: 85.50 MHz		–	44	–	
Attenuation of direct breakthrough					
0.7 µs...1.0 µs prior to main pulse Test pulse: 250 ns, Carrier frequency: 85.50 MHz		–	44	–	
Group delay Ripple		–	40	80	ns
Temperature coefficient		–	–70	–	ppm/K

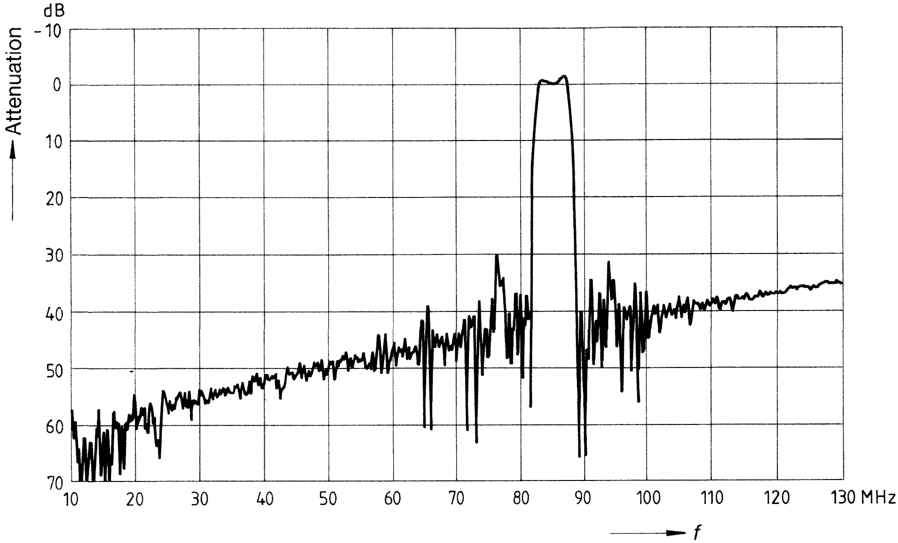
Amplitude response



Amplitude response and group delay



Far-off selectivity



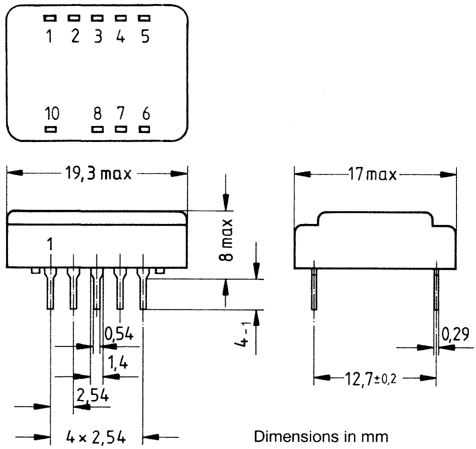
Satellite and Bandpass Filters

Survey of Satellite and Bandpass Filters

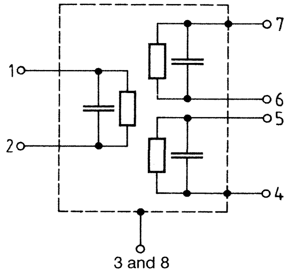
Center frequency (nominal) MHz	Bandwidth[1]) (3 dB) MHz	Bandwidth[1]) (35 dB) MHz	Package	Type OFW...	Page
134.0	19.2	37.2	DIP10	Y 101	307
479.5	28.7	45.3	DIP10(HF)[2])	Y 6950	311 S
479.5	36.3	46.7	TO8[3])	B 526	315
479.5	27.8	44.7	TO8[3])	B 527	318

[1]) typ., referred to maximum amplitude range
[2]) Modified pin configuration in comparison to DIP 10
[3]) Metal case

Standard	Sat TV
Application	Bandpass filter for satellite TV reception, center frequency 134 MHz.
Version	Dual in-line plastic package: DIP 10, approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Not connected
6, 7 Output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

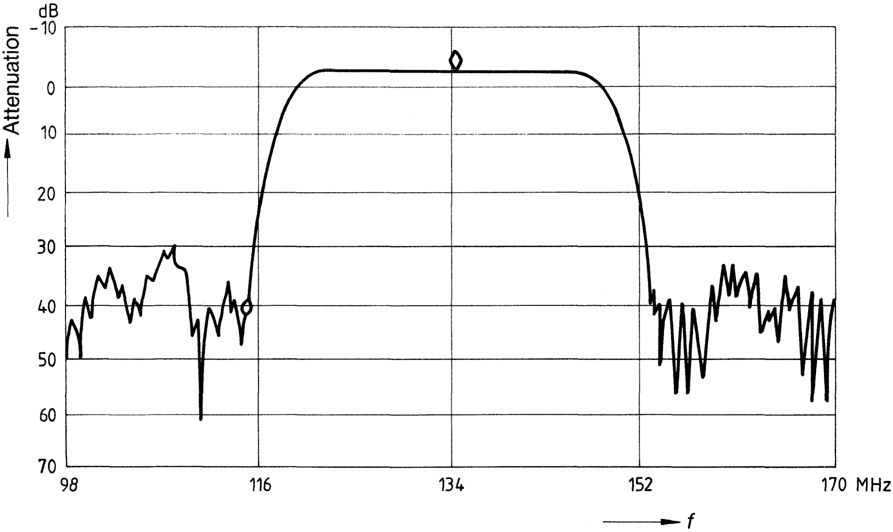
Type	Ordering code
OFW Y 101	B39134-Y101-P100

Measuring conditions

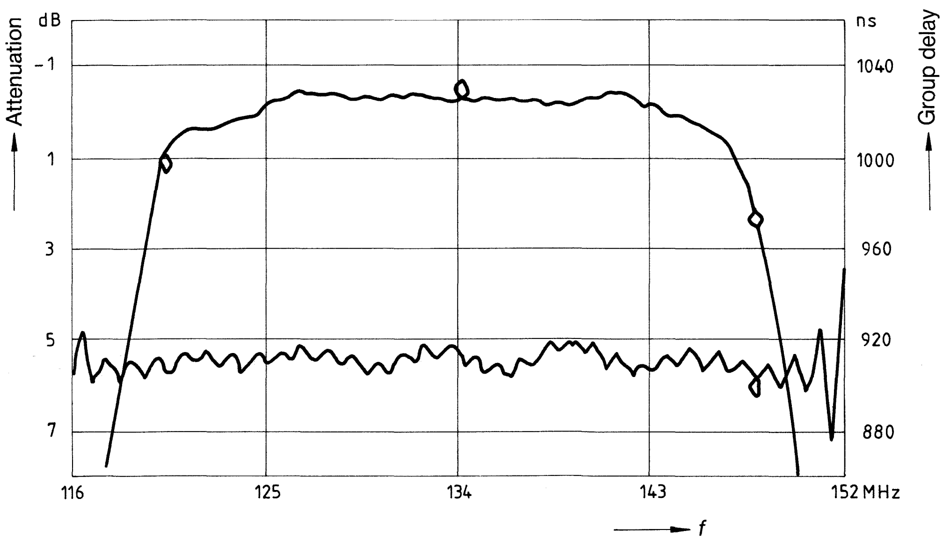
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss		–	22	25	
at center frequency	134.00 MHz				
Reference level for the following data					
Attenuation values					
	120.50 MHz	0	1.5	4.5	dB
	147.50 MHz	0	3.0	5.5	
	124...144.00 MHz	–1	0	1	
	114.80 MHz	28	34	–	
	153.20 MHz	28	38	–	
Lower sidelobe	0...114.00 MHz	28	33	–	
Upper sidelobe	154...194.00 MHz	28	34	–	
Group delay					
Reference frequency 134 MHz					ns
Constant group delay 120.50...147.50 MHz		–	± 0	–	
Ripple		–	18	30	
Temperature coefficient		–	–70	–	ppm/K
Small-signal impedances typical values at 134.00 MHz		Input: 12.5 kΩ II 8 pF Output: 0.76 kΩ II 6 pF			

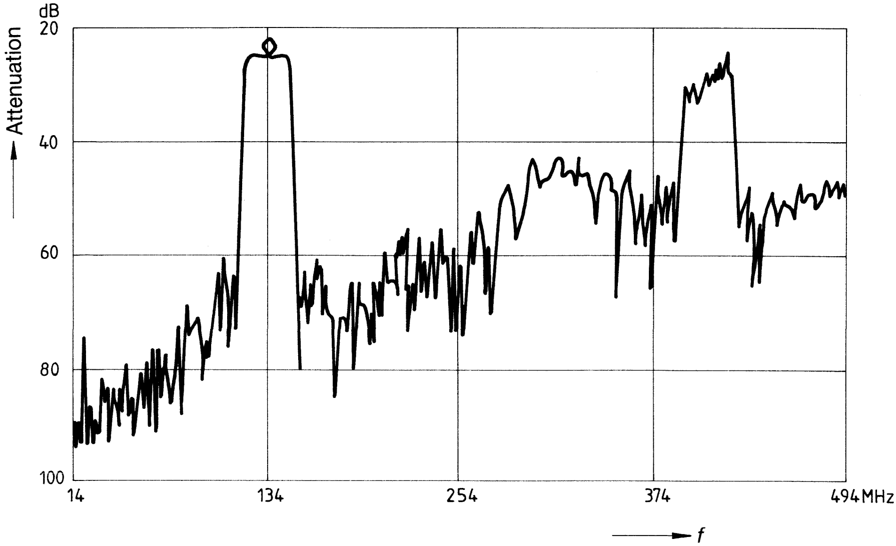
Amplitude response



Amplitude response and group delay

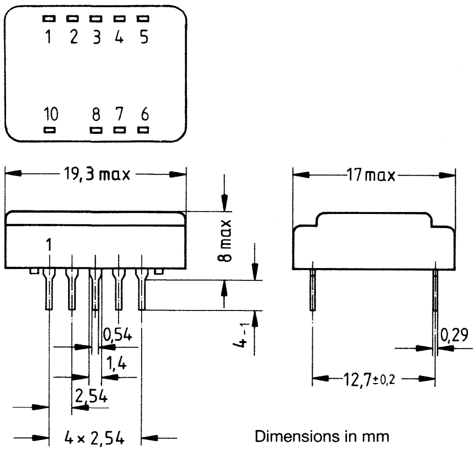


Far-off selectivity

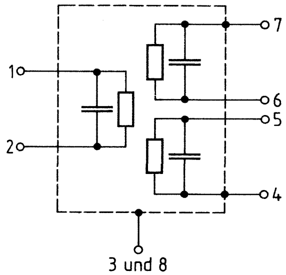


Preliminary data

Application	Bandpass filter for satellite TV reception, TV sat indoor units, center frequency 479.5 MHz, bandwidth 28.7 MHz.
Version	Dual in-line plastic package: DIP 10 (HF) approx. weight 2.5 g
Terminals	Tinned copper
Marking	Type designation and marking for pin 1 are stamped on the package



Dimensions in mm



1 Input
2 Input (GND) in the case of unbalanced driving
3 GND
4, 5 Not connected
6, 7 Output
8 GND
9 Free
10 Not connected

Maximum ratings

DIN climatic category (DIN 40040)	**HPF**		
Lower category temperature	**H**	−25 °C	
Upper category temperature	**P**	+85 °C	
Humidity category	**F**	average relative humidity ≤ 75% 95% for 30 days per year, continuously, 85% for the remaining days, occasionally, no dew precipitation permitted	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V (between any pins)

Storage temperatures

Lower storage temperature	T_{stg} (min)	−25°C
Upper storage temperature	T_{stg} (max)	+85°C

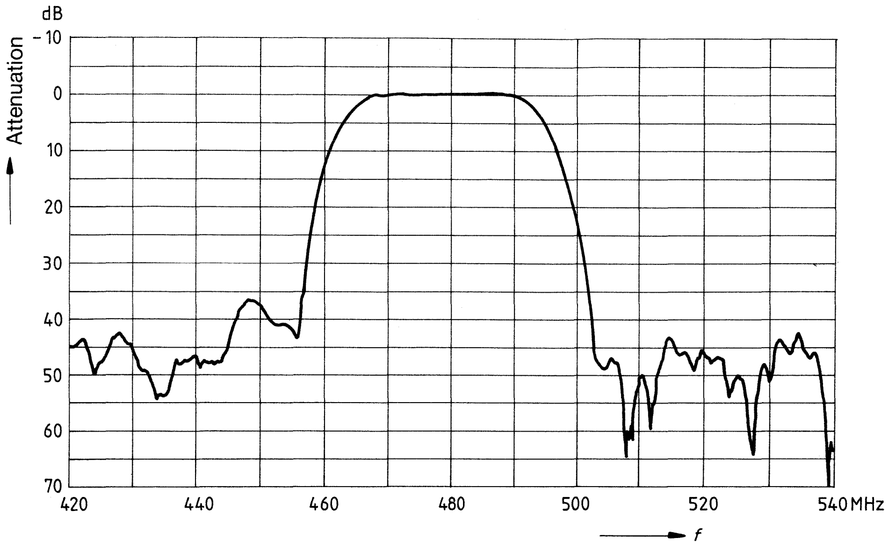
Type	Ordering code
OFW Y 6950	B39480-Y6950-H100

Measuring conditions

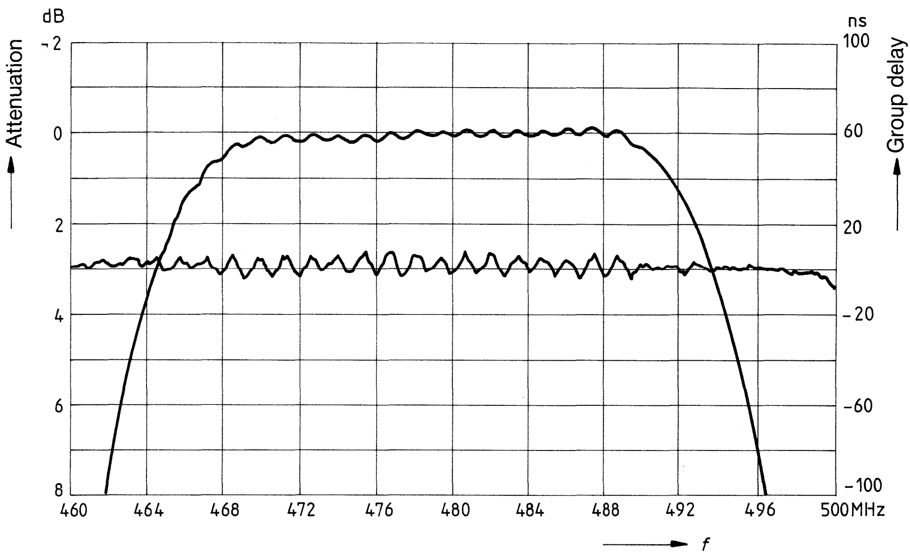
Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

Characteristics		min.	typ.	max.	Unit
Insertion loss Reference level for the following data	479.50 MHz	–	17.5	–	
Attenuation values					
Vision carrier	466.00 MHz	–	1.5	–	
Color carrier	470.00 MHz	–	0	–	
Sound carrier	489.00 MHz	–	0	–	
Adjacent vision carrier	493.00 MHz	–	2.0	–	
Adjacent sound carrier	455.50 MHz	–	40	–	
	503.50 MHz	–	40	–	
Lower sidelobe	250.00...455.50 MHz	–	35	–	dB
Upper sidelobe	503.50...750.00 MHz	–	35	–	
Attenuation of reflections					
0.2 µs...0.6 µs after main pulse		–	40	–	
Test pulse: 250 ns,					
Carrier frequency: 479.50 MHz					
Attenuation of direct breakthrough					
0.3 µs...0.4 µs prior to main pulse		–	40	–	
Test pulse: 250 ns,					
Carrier frequency: 479.50 MHz					
Group delay Ripple		–	<15	–	ns
Temperature coefficient		–	–72	–	ppm/K
Small-signal impedances typical values at 479.5 MHz		Input: 125 Ω II 3 pF Output: 0.5 kΩ II 2.5 pF			

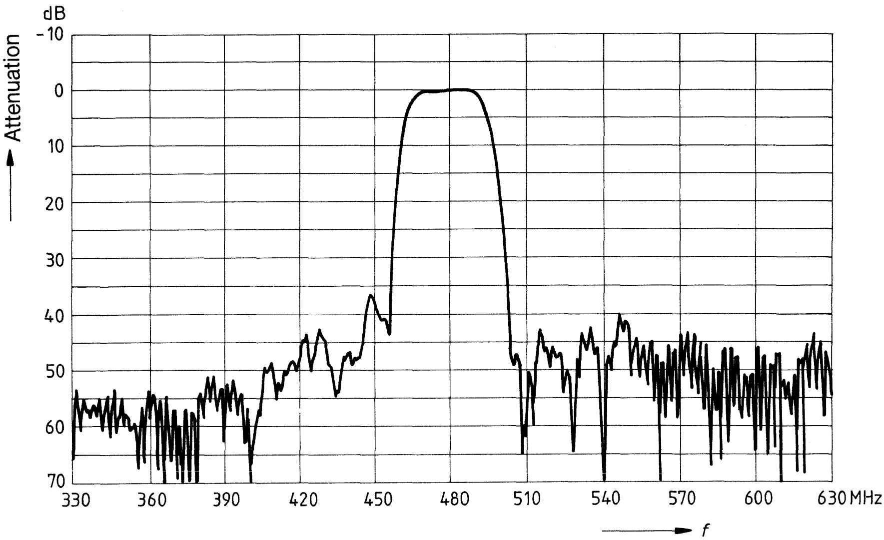
Amplitude response



Amplitude response and group delay

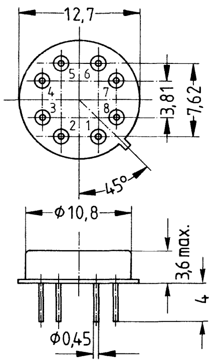


Far-off selectivity

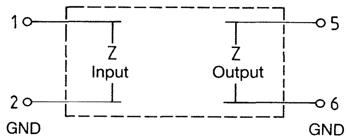


Preliminary data

Application	Bandpass filter for professional ECS receiver and processing systems meeting increased electrical and climatic requirements; center frequency 479.5 MHz, bandwidth 36 MHz.
Version	Metal TO 8, hermetically sealed, surface cap: nickel, gold-plated base plate with 8 pins
Terminals	NiFeCo, gold-plated
Marking	Type designation and date code are stamped on the package



Dimensions in mm



Pins 3, 4, 7 and 8 connected to package base

Maximum ratings

Lower category temperature	**H**	–5 °C	
Upper category temperature	**P**	+65 °C	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V

Storage temperatures

Lower storage temperature	T_{stg}	(min)	–25°C
Upper storage temperature	T_{stg}	(max)	+85°C

Type	Ordering code
OFW B 526	B39481-B526-C210

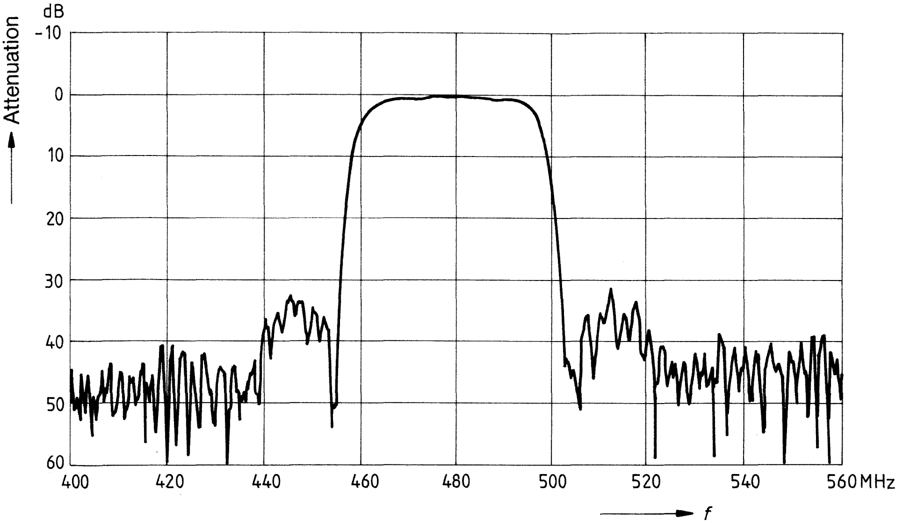
Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

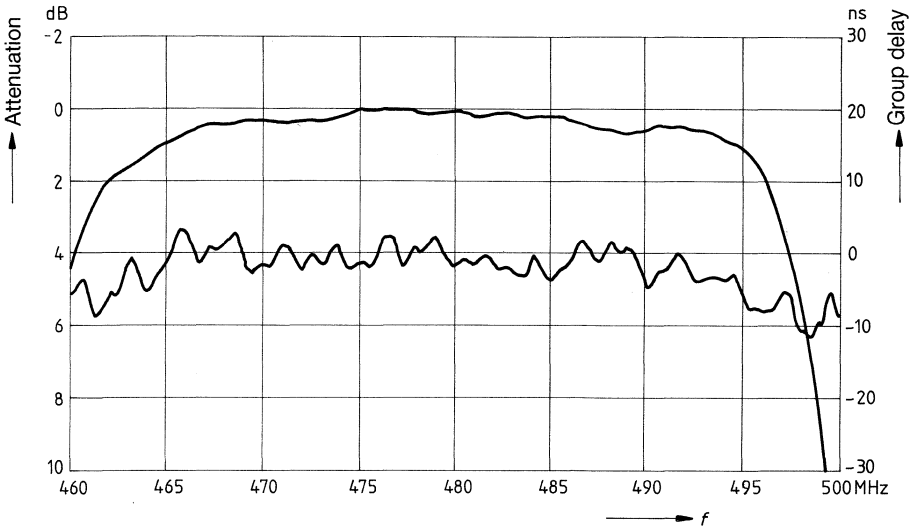
Characteristics	min.	typ.	max.	Unit
Amplitude range: 461 to 497 MHz				
Reference frequency f_{ref}	–	479.9	–	MHz
Insertion loss at f_{ref}	23	24.5	26	dB
Amplitude ripple (peak-to-peak)	–	0.3	0.7	dB
Group delay ripple (peak-to-peak)	–	10	20	ns
Attenuation values				
461 MHz	1.5	2.5	4.0	dB
497 MHz	1.5	3.0	4.0	dB
372 to 455 MHz	28	33	–	dB
504 to 588 MHz	28	33	–	dB
Temperature coefficient *TC*[1]) of center frequency f_c	–	–72	–	ppm/K

[1]) Temperature dependency of f_c : $f_c = f_o\,(1 + TC\,(T - T_o))$

Amplitude response

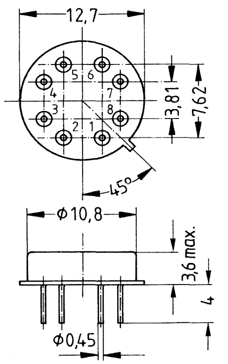


Amplitude response and group delay

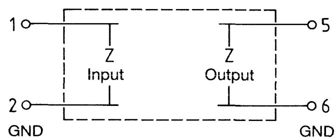


Preliminary data

Application	Bandpass filter for professional TV sat receiver and processing systems meeting increased electrical and climatic requirements; center frequency 479.5 MHz, bandwidth 27 MHz.
Version	Metal case TO 8, hermetically sealed, surface cap: nickel, gold-plated base plate with 8 pins
Terminals	NiFeCo, gold-plated
Marking	Type designation and date code are stamped on the package



Dimensions in mm



Pins 3, 4, 7 and 8 connected to package base

Maximum ratings

Lower category temperature	**H**	−5 °C	
Upper category temperature	**P**	+65 °C	
DC voltage	V	(max)	18 V
AC voltage	V	(max)	20 V

Storage temperatures

Lower storage temperature	T_{stg}	(min)	−25°C
Upper storage temperature	T_{stg}	(max)	+85°C

Type	Ordering code
OFW B 527	B39481-B527-C210

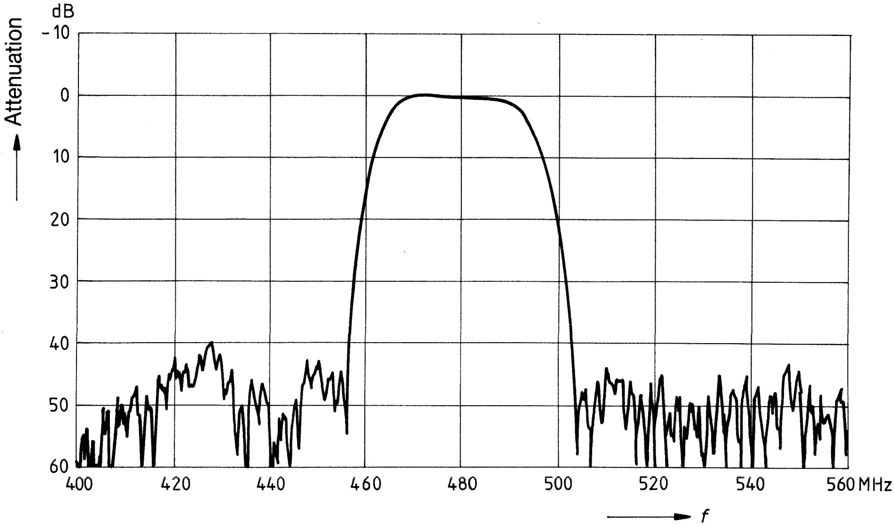
Measuring conditions

Ambient temperature	25°C
Drive impedance	50 Ω
Load impedance	50 Ω

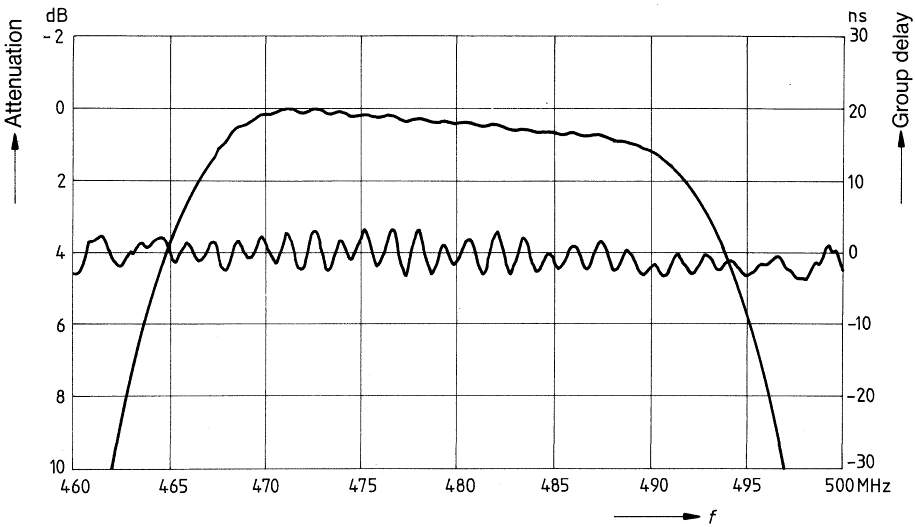
Characteristics	min.	typ.	max.	Unit
Amplitude range: 466 to 493 MHz				
Reference frequency f_{ref}	–	479.5	–	MHz
Insertion loss at f_{ref}	19	20	21	dB
Amplitude ripple (peak-to-peak)	–	0.2	0.5	dB
Group delay ripple (peak-to-peak)	–	10	20	ns
Attenuation values				
466 MHz	1	1.6	3	dB
493 MHz	1	3	4	dB
372 to 455 MHz	30	40	–	dB
504 to 588 MHz	35	45	–	dB
Temperature coefficient *TC*[1] of center frequency f_c	–	–72	–	ppm/K

[1]) Temperature dependency of f_c : $f_c = f_o (1 + TC (T - T_o))$

Amplitude response



Amplitude response and group delay



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Notes

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Vestigial Sideband Filters

Filters for TV Channels

Satellite and Bandpass Filters

Siemens Worldwide (Addresses)

Transistoren für Verstärker- und Schalteranwendungen

Datenbuch 1988/89

Siemens Aktiengesellschaft

Vorwort

Vorliegendes Datenbuch beschreibt das komplette Lieferspektrum unserer bipolaren Transistoren für Verstärker- und Schalteranwendungen. Das Buch beinhaltet alle derzeit bekannten Neuheiten, Verbesserungen und Erweiterungen auf diesem Sektor. Mit der Herausgabe dieses Datenbuches werden vorhergehende Ausgaben ungültig. Für weitere hier nicht aufgeführte Transistoren gibt es eigene Unterlagen, die Sie bei Ihrer nächstgelegenen Siemens Geschäftsstelle bestellen können.

Literaturverzeichnis

- Datenbuch 1986/1987 „Tunerhalbleiter" (Bestell-Nr. B3-B3587)
- Datenbuch 1987/1988 „Mikrowellenhalbleiter" (in Vorbereitung)
- Datenbuch 1987/1988 „Diskrete Halbleiter für Oberflächenmontage" (Bestell-Nr. B3-B3497)
- Datenbuch 1987/1988 „SIPMOS Bauelemente" (Bestell-Nr. B3-B3508)

Inhaltsverzeichnis

NF-Transistoren

Typ NPN = N PNP = P		Grenzwerte			Kennwerte bei $T_A = 25\,°C$						Gehäuse	Seite
		V_{CBO}	I_C	P_{tot}	h_{FE}	I_C	V_{CE}	I_{CBO}	V_{CEsat}	f_T		
		V	mA	mW	–	mA	V	nA	V	MHz		
BC 167	N	50	100	500	110...450	2	5	≤15	≤0,60	200	TO 92	18
BC 168	N	30	100	500	110...800	2	5	≤15	≤0,60	200	TO 92	18
BC 169	N	30	100	500	200...800	2	5	≤15	≤0,60	200	TO 92	18
BC 182	N	60	100	500	110...800	2	5	≤15	≤0,60	200	TO 92	21
BC 183	N	45	100	500	110...800	2	5	≤15	≤0,60	200	TO 92	21
BC 212	P	60	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	24
BC 213	P	45	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	24
BC 237	N	50	100	500	110...450	2	5	≤15	≤0,60	200	TO 02	27
BC 238	N	30	100	500	110...800	2	5	≤15	≤0,60	200	TO 92	27
BC 239	N	30	100	500	110...800	2	5	≤15	≤0,60	200	TO 92	27
BC 257	P	50	100	500	125...475	2	5	≤15	≤0,65	250	TO 92	30
BC 258	P	30	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	30
BC 259	P	25	100	500	220...800	2	5	≤15	≤0,65	250	TO 92	30
BC 307	P	50	100	500	125...475	2	5	≤15	≤0,65	250	TO 92	33
BC 308	P	30	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	33
BC 309	P	25	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	33
BC 327	P	50	800	625	100...630	100	1	≤100	≤0,70	200	TO 92	36
BC 328	P	30	800	625	100...630	100	1	≤100	≤0,70	200	TO 92	36
BC 337	N	50	800	625	100...630	100	1	≤100	≤0,70	170	TO 92	40
BC 338	N	30	800	625	100...630	100	1	≤100	≤0,70	170	TO 92	40
BC 368	N	25	1000	800	63...400	500	1	≤100	≤0,50	100	TO 92	44
BC 369	P	25	1000	800	63...400	500	1	≤100	≤0,50	100	TO 92	48
BC 413	N	45	100	500	200...800	2	5	≤15	≤0,60	200	TO 92	52
BC 414	N	50	100	500	200...800	2	5	≤15	≤0,60	200	TO 92	52
BC 415	P	45	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	55
BC 416	P	50	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	55
BC 546	N	80	100	500	100...450	2	5	≤15	≤0,60	200	TO 92	58
BC 547	N	50	100	500	110...800	2	5	≤15	≤0,60	200	TO 92	58
BC 548	N	30	100	500	110...800	2	5	≤15	≤0,60	200	TO 92	58
BC 549	N	30	100	500	200...800	2	5	≤15	≤0,60	200	TO 92	58
BC 550	N	50	100	500	200...800	2	5	≤15	≤0,60	200	TO 92	58
BC 556	P	80	100	500	125...475	2	5	≤15	≤0,65	250	TO 92	65
BC 557	P	50	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	65
BC 558	P	30	100	500	125...800	2	5	≤15	≤0,65	250	TO 92	65
BC 559	P	30	100	500	220...800	2	5	≤15	≤0,65	250	TO 92	65
BC 560	P	50	100	500	220...475	2	5	≤15	≤0,65	250	TO 92	65
BC 635	N	45	1000	800	40...250	150	2	≤100	≤0,50	100	TO 92	72
BC 637	N	60	1000	800	40...160	150	2	≤100	≤0,50	100	TO 92	72
BC 639	N	100	1000	800	40...160	150	2	≤100	≤0,50	100	TO 92	72
BC 636	P	45	1000	800	40...250	150	2	≤100	≤0,50	100	TO 92	76
BC 638	P	60	1000	800	40...160	150	2	≤100	≤0,50	100	TO 92	76
BC 640	P	100	1000	800	40...160	150	2	≤100	≤0,50	100	TO 92	76

Typenübersicht

NF-Transistoren

Typ NPN = N PNP = P	Grenzwerte			Kennwerte bei $T_A = 25\,°C$						Gehäuse	Seite
	V_{CBO}	I_C	P_{tot}	h_{FE}	I_C	V_{CE}	I_{CBO}	V_{CEsat}	f_T		
	V	mA	mW	–	mA	V	nA	V	MHz		
BCX 58 N	32	100	500	120…630	2	5	≤20	≤0,5	200	TO 92	80
BCX 59 N	45	100	500	120…630	2	5	≤20	≤0,5	200	TO 92	80
BCX 73 N	60	800	625	100…630	100	1	≤20	≤0,6	170	TO 92	85
BCX 74 N	75	800	625	100…630	100	1	≤20	≤0,6	170	TO 92	85
BCX 75 P	60	800	625	100…630	100	1	≤20	≤0,6	200	TO 92	89
BCX 76 P	75	800	625	100…630	100	1	≤20	≤0,6	200	TO 92	89
BCX 78 P	32	100	500	120…630	2	5	≤20	≤0,6	250	TO 92	93
BCX 79 P	45	100	500	120…630	2	5	≤20	≤0,6	250	TO 92	93
BD 825 N	45	1000	8000	40…250	150	2	≤100	≤0,5	100	TO 202	98
BD 827 N	60	1000	8000	40…160	150	2	≤100	≤0,5	100	TO 202	98
BD 829 N	100	1000	8000	40…160	150	2	≤100	≤0,5	100	TO 202	98
BD 826 P	45	1000	8000	40…250	150	2	≤100	≤0,5	125	TO 202	101
BD 828 P	60	1000	8000	40…160	150	2	≤100	≤0,5	125	TO 202	101
BD 830 P	100	1000	8000	40…160	150	2	≤100	≤0,5	125	TO 202	101

Transistoren mit hohen Sperrspannungen

Typ NPN = N PNP = P	Grenzwerte			Kennwerte bei $T_A = 25\,°C$						Gehäuse	Seite
	V_{CBO}	I_C	P_{tot}	h_{FE}	I_C	V_{CE}	I_{CBO}	V_{CEsat} $V_{CEsatHF}$*	f_T		
	V	mA	mW	–	mA	V	nA	V	MHz		
BF 420 N	300	50	830	≥50	25	20	≤10	≤20*	100	TO 92	106
BF 422 N	250	50	830	≥50	25	20	≤10	≤20*	100	TO 92	106
BF 421 P	300	50	830	≥50	25	20	≤10	≤20*	100	TO 92	110
BF 423 P	250	50	830	≥50	25	20	≤10	≤20*	100	TO 92	110
BF 857 N	160	200	1800	≥25	30	10	≤50	≤1	100	TO 202	114
BF 858 N	250	200	1800	≥25	30	10	≤50	≤1	100	TO 202	114
BF 859 N	300	200	1800	≥25	30	10	≤50	≤1	100	TO 202	114
BF 869 N	250	50	1600	≥50	25	20	≤10	≤20*	100	TO 202	118
BF 871 N	300	50	1600	≥40	25	20	≤10	≤20*	100	TO 202	118
BF 881 N	400	50	1600	≥40	25	20	≤100	≤20*	100	TO 202	118
BF 870 P	250	50	1600	≥50	25	20	≤10	≤20*	100	TO 202	122
BF 872 P	300	50	1600	≥40	25	20	≤10	≤20*	100	TO 202	122
BFP 22 N	200	200	625	≥50	30	10	≤100	≤0,5	70	TO 92	126
BFP 25 N	300	200	625	≥40	30	10	≤100	≤0,4	70	TO 92	126
BFP 23 P	200	200	625	≥50	30	10	≤100	≤0,4	70	TO 92	130
BFP 26 P	300	200	625	≥40	30	10	≤100	≤0,5	70	TO 92	130

NF-Darlington-Transistoren

Typ NPN = N PNP = P		Grenzwerte			Kennwerte bei $T_A = 25\,°C$						Gehäuse	Seite
		V_{CBO}	I_C	P_{tot}	h_{FE}	I_C	V_{CE}	I_{CBO}	V_{CEsat}	f_T		
		V	mA	mW	–	mA	V	nA	V	MHz		
BC 516	P	40	500	625	≥30 000	20	2	≤100	≤1	200	TO 92	136
BC 517	N	40	500	625	≥30 000	20	2	≤100	≤1	150	TO 92	140
BC 617	N	50	500	625	≥20 000	200	5	≤100	≤1,1	150	TO 92	144
BC 618	N	80	500	625	≥10 000	200	5	≤100	≤1,1	150	TO 92	144
BC 875	N	60	1000	800	≥2000	500	10	≤100	≤1,3	150	TO 92	148
BC 877	N	80	1000	800	≥2000	500	10	≤100	≤1,3	150	TO 92	148
BC 879	N	100	1000	800	≥2000	500	10	≤100	≤1,3	150	TO 92	148
BC 876	P	60	1000	800	≥2000	500	10	≤100	≤1,3	150	TO 92	152
BC 878	P	80	1000	800	≥2000	500	10	≤100	≤1,3	150	TO 92	152
BC 880	P	100	1000	800	≥2000	500	10	≤100	≤1,3	150	TO 92	152

Bestellnummernverzeichnis

	Typ	Bestellnummer	Seite
	BC 167	Q62702-C706	18
S	BC 167 A	Q62702-C74	18
S	BC 167 B	Q62702-C75	18
	BC 168	Q62702-C707	18
	BC 168 A	Q62702-C76	18
	BC 168 B	Q62702-C77	18
	BC 168 C	Q62702-C78	18
	BC 169	Q62702-C708	18
	BC 169 B	Q62702-C79	18
	BC 169 C	Q62702-C80	18
	BC 182	Q62702-C455	21
	BC 182 A	Q62702-C372	21
	BC 182 B	Q62702-C373	21
	BC 183	Q62702-C833	21
	BC 183 A	Q62702-C388	21
	BC 183 B	Q62702-C387	21
	BC 183 C	Q62702-C524	21
	BC 212	Q62702-C242	24
	BC 212 A	Q62702-C374-V1	24
	BC 212 B	Q62702-C374-V2	24
	BC 213	Q62702-C564	24
	BC 213 A	Q62702-C1159	24
	BC 213 B	Q62702-C1160	24
	BC 213 C	Q62702-C1158	24
	BC 237	Q62702-C697	27
S	BC 237 A	Q62702-C276	27
S	BC 237 B	Q62702-C277	27
	BC 238	Q62702-C698	27

	Typ	Bestellnummer	Seite
	BC 238 A	Q62702-C278	27
S	BC 238 B	Q62702-C279	27
S	BC 238 C	Q62702-C280	27
	BC 239	Q62702-C699	27
	BC 239 B	Q62702-C281	27
S	BC 239 C	Q62702-C282	27
	BC 257	Q62702-C700	30
S	BC 257 A	Q62702-C184	30
S	BC 257 B	Q62702-C206	30
	BC 258	Q62702-C701	30
	BC 258 A	Q62702-C187	30
	BC 258 B	Q62702-C188	30
	BC 258 C	Q62702-C438	30
	BC 259	Q62702-C702	30
	BC 259 B	Q62702-C192	30
	BC 259 C	Q62702-C439	30
	BC 307	Q62702-C703	33
S	BC 307 A	Q62702-C283	33
S	BC 307 B	Q62702-C324	33
	BC 308	Q62702-C704	33
	BC 308 A	Q62702-C285	33
S	BC 308 B	Q62702-C286	33
S	BC 308 C	Q62702-C393	33
	BC 309	Q62702-C705	33
	BC 309 B	Q62702-C289	33
	BC 309 C	Q62702-C323	33
	BC 327	Q62702-C311	36
S	BC 327-16	Q62702-C311-V3	36

S = Schwerpunkttyp

Bestellnummernverzeichnis

	Typ	Bestellnummer	Seite
S	BC 327-25	Q62702-C311-V4	36
S	BC 327-40	Q62702-C311-V2	36
	BC 328	Q62702-C312	36
	BC 328-16	Q62702-C312-V3	36
S	BC 328-25	Q62702-C312-V4	36
S	BC 328-40	Q62702-C312-V2	36
	BC 337	Q62702-C313	40
S	BC 337-16	Q62702-C313-V3	40
S	BC 337-25	Q62702-C313-V1	40
S	BC 337-40	Q62702-C313-V2	40
	BC 338	Q62702-C314	40
	BC 338-16	Q62702-C314-V1	40
S	BC 338-25	Q62702-C314-V2	40
S	BC 338-40	Q62702-C314-V3	40
S	BC 368	Q62702-C747	44
S	BC 369	Q62702-C748	48
	BC 413	Q62702-C375	52
	BC 413 B	Q62702-C375-V1	52
	BC 413 C	Q62702-C375-V2	52
	BC 414	Q62702-C376	52
	BC 414 B	Q62702-C376-V1	52
S	BC 414 C	Q62702-C376-V2	52
	BC 415	Q62702-C377	55
	BC 415 A	Q62702-C377-V1	55
	BC 415 B	Q62702-C377-V2	55
S	BC 415 C	Q62702-C377-V3	55
	BC 416	Q62702-C378	55
	BC 416 A	Q62702-C378-V1	55
	BC 416 B	Q62702-C378-V2	55
S	BC 416 C	Q62702-C378-V3	55
S	BC 516	Q62702-C944	136
S	BC 517	Q62702-C825	140
	BC 546	Q62702-C687	58
	BC 546 A	Q62702-C687-V1	58
S	BC 546 B	Q62702-C687-V2	58
	BC 547	Q62702-C688	58
	BC 547 A	Q62702-C688-V1	58
S	BC 547 B	Q62702-C688-V2	58
	BC 548	Q62702-C689	58
	BC 548 A	Q62702-C689-V1	58
S	BC 548 B	Q62702-C689-V2	58
S	BC 548 C	Q62702-C689-V3	58
	BC 549	Q62702-C690	58
	BC 549 B	Q62702-C690-V1	58
S	BC 549 C	Q62702-C690-V2	58
	BC 550	Q62702-C691	58

	Typ	Bestellnummer	Seite
	BC 550 B	Q62702-C691-V1	58
S	BC 550 C	Q62702-C691-V2	58
	BC 556	Q62702-C692	65
	BC 556 A	Q62702-C692-V1	65
S	BC 556 B	Q62702-C692-V2	65
	BC 557	Q62702-C693	65
	BC 557 A	Q62702-C693-V1	65
S	BC 557 B	Q62702-C693-V2	65
	BC 558	Q62702-C694	65
	BC 558 A	Q62702-C694-V1	65
S	BC 558 B	Q62702-C694-V2	65
S	BC 558 C	Q62702-C694-V3	65
	BC 559	Q62702-C695	65
	BC 559 A	Q62702-C695-V1	65
	BC 559 B	Q62702-C695-V2	65
S	BC 559 C	Q62702-C695-V3	65
	BC 560	Q62702-C696	65
	BC 560 A	Q62702-C696-V1	65
S	BC 560 B	Q62702-C696-V2	65
S	BC 560 C	Q62702-C696-V3	65
	BC 617	Q62702-C1137	144
	BC 618	Q62702-C1138	144
S	BC 635	Q68000-A3360	72
S	BC 636	Q68000-A3365	76
S	BC 637	Q68000-A2285	72
S	BC 638	Q68000-A3366	76
S	BC 639	Q68000-A3361	72
S	BC 640	Q68000-A3367	76
S	BC 875	Q62702-C853	148
S	BC 876	Q62702-C943	152
S	BC 877	Q62702-C854	148
S	BC 878	Q62702-C942	152
S	BC 879	Q62702-C855	148
S	BC 880	Q62702-C941	152
	BCX 58 VIII	Q62702-C619	80
	BCX 58 IX	Q62702-C620	80
	BCX 58 X	Q62702-C621	80
	BCX 59 VIII	Q62702-C623	80
	BCX 59 IX	Q62702-C624	80
	BCX 59 X	Q62702-C625	80
	BCX 73	Q62702-C634	85
	BCX 73-16	Q62702-C634-S1	85
	BCX 73-25	Q62702-C634-S2	85
	BCX 73-40	Q62702-C634-S3	85
	BCX 74	Q62702-C635	85
	BCX 74-16	Q62702-C635-S1	85

S = Schwerpunkttyp

Bestellnummernverzeichnis

Typ	Bestellnummer	Seite
BCX 74-25	Q62702-C635-S2	85
BCX 74-40	Q62702-C635-S3	85
BCX 75	Q62702-C636	89
BCX 75-16	Q62702-C636-S1	89
BCX 75-25	Q62702-C636-S2	89
BCX 75-40	Q62702-C636-S3	89
BCX 76	Q62702-C637	89
BCX 76-16	Q62702-C637-S1	89
BCX 76-25	Q62702-C637-S2	89
BCX 76-40	Q62702-C637-S3	89
BCX 78	Q62702-C717	93
BCX 78 VII	Q62702-C626	93
BCX 78 VIII	Q62702-C627	93
BCX 78 IX	Q62702-C628	93
BCX 78 X	Q62702-C629	93
BCX 79	Q62702-C718	93
BCX 79 VII	Q62702-C630	93
BCX 79 VIII	Q62702-C631	93
BCX 79 IX	Q62702-C632	93
BCX 79 X	Q62702-C633	93
BD 825	Q62702-D968	98
BD 825-6	Q62702-D932	98
BD 825-10	Q62702-D933	98
BD 825-16	Q62702-D934	98
BD 826	Q62702-D969	101
BD 826-6	Q62702-D935	101
BD 826-10	Q62702-D936	101
BD 826-16	Q62702-D937	101
BD 827	Q62702-D970	98

Typ	Bestellnummer	Seite
BD 827-6	Q62702-D938	98
BD 827-10	Q62702-D939	98
BD 828	Q62702-D971	101
BD 828-6	Q62702-D940	101
BD 828-10	Q62702-D941	101
BD 829	Q62702-D972	98
BD 829-6	Q62702-D942	98
BD 829-10	Q62702-D943	98
BD 830	Q62702-D973	101
BD 830-6	Q62702-D944	101
BD 830-10	Q62702-D945	101
BF 420	Q62702-F531	106
BF 421	Q62702-F532	110
BF 422	Q62702-F495	106
BF 423	Q62702-F496	110
BF 857	Q62702-F623	114
BF 858	Q62702-F624	114
BF 859	Q62702-F625	114
BF 869	Q62702-F592	118
BF 870	Q62702-F602	122
BF 871	Q62702-F593	118
BF 872	Q62702-F603	122
BF 881	Q62702-F783	118
S BFP 22	Q62702-F621	126
S BFP 23	Q62702-F622	130
BFP 25	Q62702-F721	126
BFP 26	Q62702-F722	130

S = Schwerpunkttyp

Bezeichnungsschema

Der „europäische" Typenschlüssel nach Pro Electron verwendet zur Typenkennung zwei Buchstaben (Material- und Anwendungsklassen) und weitere drei oder mehr fortlaufende Registrierkennzeichen.

Der erste Buchstabe beschreibt das Halbleitermaterial:

A. Germanium (oder anderes Material mit Bandabstand 0,6...1,0 eV)
B. Silizium (oder Bandabstand 1,0...1,3 eV)
C. III-V-Material, z. B. Gallium-Arsenid (oder Bandabstand von mehr als 1,3 eV)
D. Material mit Bandabstand von weniger als 0,6 eV, z. B. Indium-Antimon
R. Halbleiterverbindungen für Photo- und Hall-Effektanwendungen

Der zweite Buchstabe beschreibt den Anwendungsbereich:

A. Signal-Diode, kleinste Leistung
B. Kapazitätsdiode
C. NF-Kleinsignaltransistor, $R_{thJC} \geqq 15$ K/W
D. NF-Leistungstransistor, $R_{thJC} \leqq 15$ K/W
E. Tunneldiode
F. HF-Kleinsignaltransistor, $R_{thJC} \geqq 15$ K/W
G. Bauelementekombination, Array, Multichip
H. Hallsonde
L. HF-Leistungstransistor, $R_{thJC} \leqq 15$ K/W
N. Optokoppler
P. Strahlungsempfänger, z. B. Photoelement
Q. Strahlungssender, z. B. Lumineszenzdiode
R. Schaltelement kleiner Leistung mit Thyristorcharakter, $R_{thJC} \geqq 15$ K/W
S. Schalttransistor kleiner Leistungen, $R_{thJC} \geqq 15$ K/W
T. Schaltelemente hoher Leistung mit Thyristorcharakter, $R_{thJC} \leqq 15$ K/W
V. Schalttransistor hoher Leistung, $R_{thJC} \leqq 15$ K/W
X. Frequenzvervielfacherdiode
Y. Leistungsgleichrichterdiode
Z. Spannungsbegrenzerdiode, Z-Diode, Referenzelement

Die laufende Registriernummer besteht bei Bauelementen, die für Geräte der „Unterhaltungs-elektronik" entwickelt wurden, aus drei Ziffern (z. B. BC 547), bei Bauelementen, die vorzugsweise in Geräten der „professionellen" Elektronik eingesetzt werden, aus einem Buchstaben und zwei Ziffern (z. B. BCX 58).

Ein Zusatzbuchstabe zur Registriernummer wird zur Definition einer mechanischen oder elektrischen Variante verwendet.

Andere Typenkennungen sind nach JEDEC-Schema oder hausinterner Nomenklatur möglich.

Typenstempel

Auf jedes Bauelement wird die volle Typenbezeichnung, der Herstelldatumscode (Jahr/Monat nach DIN 41314.1 oder Jahr/Woche nach DIN 41314.2 bzw. EIA) und das Hersteller-kennzeichen (§ bzw. S) aufgedruckt, in Sonderfällen (mangels Platz, Sonderspezifikationen usw.) werden besondere Codezeichen verwendet.

Bestellnummer

Die Bestellnummer ist im jeweiligen Datenblatt angegeben. Auf besonderen Lieferverträgen basierende Sonderausführungen erhalten eigene Bestellnummern. Die Bestellnummer für gegurtete Ausführungen erhalten sie auf Anfrage.

Erläuterungen der Datenblattwerte

Grenzwerte

Die angegebenen Grenzwerte sind eigenständige Absolutwerte der Bauelemente-Belastbarkeit, bei deren Überschreiten eine Zerstörung des Bauelementes oder eine nachhaltige Beeinträchtigung seiner Daten bzw. Funktionen zu erwarten ist. Bei Bauelementeprüfungen, etwa der Durchbruchspannung, wie auch beim Einsatz, muß durch geeignete Maßnahmen ein Überschreiten der Grenzwerte zuverlässig verhindert werden.

Kennwerte

Typische Kennwerte charakterisieren den Bauelementetyp unter definierten Betriebsbedingungen in Zahlen und Diagrammen; sie sind nicht als Werte jedes einzelnen Exemplares aufzufassen. Die aus wichtigen Qualitäts- oder Anwendungserfordernissen angegebenen Minimal- und Maximalwerte bezeichnen den tatsächlichen Streubereich der Kennwerte; in Diagrammen eingetragene Streukurven in der Regel den überwiegend zu erwartenden Streubereich. Die elektrischen Kennwerte sind fallweise nach Gleichstromwerten („statisch") und Wechselstromwerten („dynamisch") gruppiert.

Wärmewiderstand

Als eng mit der Belastbarkeit gekoppelter Kennwert ist der Wärmewiderstand als oberer Streuwert unmittelbar nach den Grenzwerten angeordnet. Die in den Datenblättern angegebenen Maximalwerte werden gegen ruhende Umgebungsluft bei nur geringer Wärmeableitung durch die Anschlüsse bestimmt und gelten ohne weiteres für die üblichen Einbauarten.

Gehäusewerte

Die Gehäusewerte sind durch Hinweis auf Normenblätter oder Maßzeichnungen definiert; die Verpackungsform wird als nicht bauelemente-typische Angabe nur in Sonderfällen im Datenblatt genannt (etwa als Bestellnummer-Variante).

Angaben zur Qualität

Lieferqualität [2]

Die Lieferqualität ist die Übereinstimmung der in diesem Datenbuch publizierten technischen Merkmale der Bauelemente wie Grenzwerte und Streugrenzen der Kennwerte zum Zeitpunkt der Lieferung.

Annehmbare Qualitätgrenzlage (AQL)

Zur Beurteilung der annehmbaren Qualitätsgrenzlage von Lieferlosen erfolgen stichprobenweise Überprüfungen der qualitativen Merkmale (Attribute), denen AQL-Werte zugrunde gelegt sind. Als Grundlage für die Attributprüfung dienen die Einfach-Stichprobenpläne für normale Prüfung. Hauptprüfniveau II nach DIN 40080 (oder IEC 410, MIL-STD-105D).

Fehlerklassen [1]

Ein Fehler liegt vor, wenn ein Bauelementemerkmal nicht den Angaben im Datenbuch bzw. Datenblatt entspricht. Die Fehler werden nach Art und Ausmaß klassifiziert.

- Ein Totalfehler (elektrisch und mechanisch) beschreibt den Zustand eines Bauelements, der jede funktionsgemäße Verwendung ausschließt.
- Fehler von geringerer Bedeutung unterteilen sich in
  -Summe der elektrischen Fehler und
  -Summe der mechanischen Fehler.

AQL-Tabelle	**AQL**
Totalfehler (mechanisch und elektrisch)	0.1
Summe Fehler statischer (Gleichstrom-)Daten	0.4
Fehler dynamischer (Wechselstrom-)Daten	1.5
Summe Fehler an Gehäusen und Zuleitungen	0.4

AQL-Werte beschreiben nicht die tatsächliche Qualität der einzelnen Lieferlose, sondern bestimmen bei Anwendung der Stichprobenpläne die Annahme oder Rückweisung.

Der durchschnittliche Anteil fehlerhafter Bauelemente eines Lieferloses liegt im allgemeinen unter den vereinbarten AQL-Werten.

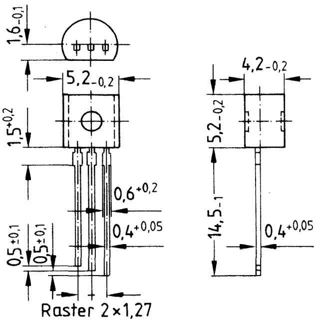
[1] Qualitätsbegriffe für elektronische Bauelemente (Bestellnummer B9-B3466)
[2] Bauelemente; Gesicherte Qualität zum Nutzen für den Anwender (Bestellnummer B9-B3583)

Gehäusebauformen

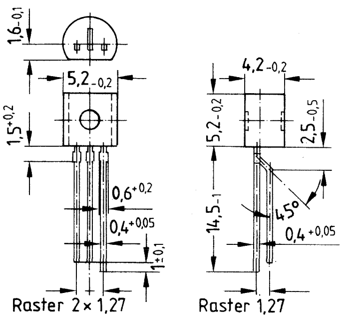
Kunststoffgehäuse: TO 92

Gewicht: ca. 0,25 g

in-line

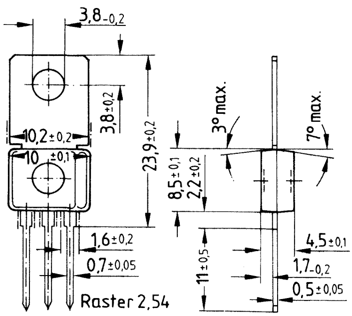


gekröpft



Kunststoffgehäuse: TO 202

Gewicht: ca. 15 g



Verpackung

Jede Verpackungseinheit regulärer Lieferungen trägt Aufdrucke mit Informationen über: Hersteller, Typ, Anzahl, Herstelldatum und -ort, sowie Loszugehörigkeit. Diese für den Inhalt verbindlichen Angaben kennzeichnen im Klartext insbesondere Typen, deren Bauformen keine ausführliche Bestempelung zulassen und sind zur Rückmeldung wichtig, sollten einmal Reklamationen nötig sein.

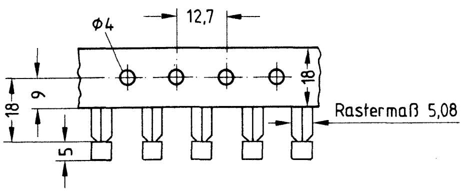
TO 202-Kunststoffgehäuse

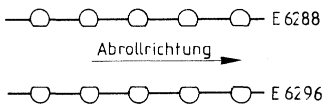
Wird als Schüttgut in Pappschachteln geliefert. Gehäuse mit gebogenem Anschlußblech sind auf Anfrage lieferbar.

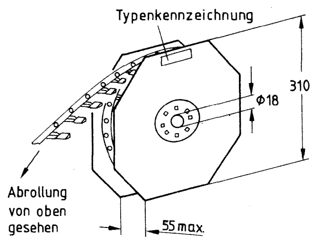
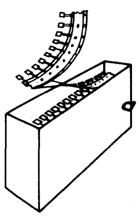
TO 92-Kunststoffgehäuse

Neben der Schüttgutverpackung wird das TO 92-Gehäuse gegurtet geliefert. Die zusätzlichen Bestellbezeichnungen sind aus der nachfolgenden Tabelle zu entnehmen.

Die Gurtmaße entsprechen den DIN-IEC-Normen-Vorschlägen. Die Anschlüsse sind symmetrisch entsprechend dem in-line-Rastermaß 200 mil, auf 5 mm gekröpft (äußere Anschlüsse).





Zusatzkennung	Verpackungseinheit		Karton
E6288	1500 Stück (pro Rolle)	3000 Stück (pro Karton, = 2 Rollen)	 Regelmäßiges Achteck
E6296	1500 Stück (pro Rolle)	3000 Stück (pro Karton, = 2 Rollen)	
E6325	Ammopack (Zick-Zack-Lagen)	100 Stück (pro Karton)	

Verarbeitungshinweise

Mechanische Beanspruchung

Bei Zurichtung und Einbau ist auf die Freiheit der Teile vor mechanischen Spannungen zu achten; gefährdet ist vor allem die Verankerung der Anschlüsse im Gehäuse, deren Lockerung Bauelementeausfall erwarten läßt.

- Abbiegen der Anschlüsse erfordert eine mechanische Entlastung zwischen Biegestelle und Gehäuse. Direkt am Gehäuse ansetzendes Biegen ist zu vermeiden.
- Bandförmige Anschlüsse sollen nicht in Bandebene gebogen werden.
- Wiederholtes Biegen an der gleichen Stelle ist unzulässig.

Löten

Beim Löten ist auf verspannungsfreie Fixierung des Bauelementes vor dem Lötvorgang zu achten.

Die Bauteile dürfen beim Lötvorgang nicht unzulässig hohen Temperatur-Zeit-Belastungen ausgesetzt werden; die folgende Tabelle gibt entsprechende Hinweise.

Zulässige Lötbeanspruchung

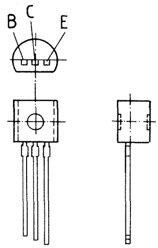
Freie Anschlußlänge	**0,5 mm**	**1,5 mm**	**5 mm**
Löttemperatur: 245 °C	4 s	5 s	10 s
Löttemperatur: 260 °C	3 s	5 s	5 s
Kolbenlötung: 300 °C	2,5 s	3 s	5 s

NF-Transistoren

Silizium-NPN-NF-Transistoren

BC 167
...BC 169

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BC 257, BC 258, BC 259



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BC 167	Q62702-C706	BC 168	C62702-C707	BC 169	Q62702-C708
S BC 167 A	Q62702-C74	BC 168 A	Q62702-C76	BC 169 B	Q62702-C79
S BC 167 B	Q62702-C75	BC 168 B	Q62702-C77	BC 169 C	Q62702-C80
		BC 168 C	Q62702-C78		

Grenzwerte

Bezeichnung	Symbol	BC 167	BC 168	BC 169	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	20	20	V
Kollektor-Basis-Spannung	V_{CBO}	50	30	30	V
Emitter-Basis-Spannung	V_{EBO}	6	5	5	V
Kollektorstrom	I_C		100		mA
Kollektorspitzenstrom	I_{CM}		200		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}		500		mW
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung	R_{thJA}		$\leqq 250$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 150$		K/W

Kennwerte

bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 2$ mA						
	BC 167		45	–	–	V
	BC 168		20	–	–	V
	BC 169		20	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 10\ \mu A$						
	BC 167		50	–	–	V
	BC 168		30	–	–	V
	BC 169		30	–	–	V
Emitter-Basis-Durchbruchspannung		$V_{(BR)EBO}$				
$I_E = 1\ \mu A$	BC 167		6	–	–	V
	BC 168, BC 169		5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 30$ V			–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$			–	–	4	µA
Stromverstärkung		h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V						
	BC 167 A, BC 168 A		–	90	–	–
	BC 167 B, BC 168 B, BC 169 B		–	150	–	–
	BC 168 C, BC 169 C		–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V						
	BC 167 A, BC 168 A		110	180	220	–
	BC 167 B, BC 168 B, BC 169 B		220	290	450	–
	BC 168 C, BC 169 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1]		V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA			–	90	250	mV
$I_C = 100$ mA, $I_B = 5$ mA			–	200	600	mV
Basis-Emitter-Sättigungsspannung[1]		V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA			–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA			–	900	–	mV
Basis-Emitter-Spannung		$V_{BE\,(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V			580	660	700	mV
$I_C = 10$ mA; $V_{CE} = 5$ V			–	–	770	mV

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

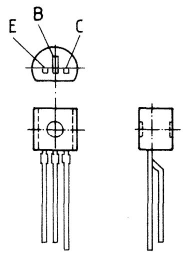
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	8	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 167 A, BC 168 A		–	2,7	–	kΩ
BC 167 B, BC 168 B, BC 169 B		–	4,5	–	kΩ
BC 168 C, BC 169 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 167 A, BC 168 A		–	1,5	–	10^{-4}
BC 167 B, BC 168 B, BC 169 B		–	2	–	10^{-4}
BC 168 C, BC 169 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 167 A, BC 168 A		–	200	–	–
BC 167 B, BC 168 B, BC 169 B		–	330	–	–
BC 168 C, BC 169 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 167 A, BC 168 A		–	18	–	µS
BC 167 B, BC 168 B, BC 169 B		–	30	–	µS
BC 168 C, BC 169 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F				
BC 167, BC 168		–	2	–	dB
BC 169		–	1	4	dB

Kennlinien siehe BC 546...BC 550

Silizium-NPN-NF-Transistoren

BC 182
BC 183

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BC 212, BC 213



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 182	Q62702-C455	BC 183	Q62702-C833
BC 182 A	Q62702-C372	BC 183 A	Q62702-C388
BC 182 B	Q62702-C373	BC 183 B	Q62702-C387
		BC 183 C	Q62702-C524

Grenzwerte

Bezeichnung	Symbol	BC 182	BC 183	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	50	30	V
Kollektor-Basis-Spannung	V_{CBO}	60	45	V
Emitter-Basis-Spannung	V_{EBO}	6		V
Kollektorstrom	I_C	100		mA
Kollektorspitzenstrom	I_{CM}	200		mA
Basisspitzenstrom	I_{BM}	200		mA
Emitterspitzenstrom	I_{EM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	500		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	≦250		K/W
Sperrschicht-Gehäuse	R_{thJC}	≦150		K/W

Kennwerte

bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung	$V_{(BR)CEO}$				
$I_C = 2$ mA					
BC 182		50	–	–	V
BC 183		30	–	–	V
Kollektor-Basis-Durchbruchspannung	$V_{(BR)CBO}$				
$I_C = 10\,\mu A$					
BC 182		60	–	–	V
BC 183		45	–	–	V
Emitter-Basis-Durchbruchspannung	$V_{(BR)EBO}$	6	–	–	V
$I_E = 1\,\mu A$					
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 50$ V		–	–	15	nA
$V_{CB} = 50$ V, $T_A = 150\,°C$		–	–	4	µA
Stromverstärkung	h_{FE}				
$I_C = 10\,\mu A$; $V_{CE} = 5$ V					
BC 182 A, BC 183 A		–	90	–	–
BC 182 B, BC 183 B		–	150	–	–
BC 183 C		–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V					
BC 182 A, BC 183 A		110	180	220	–
BC 182 B, BC 183 B		200	290	450	–
BC 183 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])	V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	75	250	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	200	600	mV
Basis-Emitter-Sättigungsspannung[1])	V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	900	–	mV
Basis-Emitter-Spannung	$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V		580	660	700	mV
$I_C = 10$ mA; $V_{CE} = 5$ V		–	–	770	mV

[1]) Pulstest: $\leq 300\,\mu s$, $D \leq 2\%$

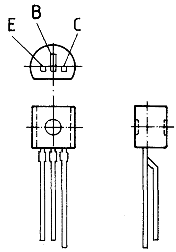
Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	8	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 182 A, BC 183 A		–	2,7	–	kΩ
BC 182 B, BC 183 B		–	4,5	–	kΩ
BC 183 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 182 A, BC 183 A		–	1,5	–	10^{-4}
BC 182 B, BC 183 B		–	2	–	10^{-4}
BC 183 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 182 A, BC 183 A		–	200	–	–
BC 182 B, BC 183 B		–	330	–	–
BC 183 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 182 A, BC 183 A		–	18	–	µS
BC 182 B, BC 183 B		–	30	–	µS
BC 183 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F	–	2	–	dB

Kennlinien siehe BC 546...BC 550

Silizium-PNP-NF-Transistoren

BC 212
BC 213

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BC 182, BC 183



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 212	Q62702-C242	BC 213	Q62702-C564
BC 212 A	Q62702-C374-V1	BC 213 A	Q62702-C1159
BC 212 B	Q62702-C374-V2	BC 213 B	Q62702-C1160
		BC 213 C	Q62702-C1158

Grenzwerte

Bezeichnung	Symbol	BC 212	BC 213	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	50	30	V
Kollektor-Basis-Spannung	V_{CBO}	60	45	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	100		mA
Kollektorspitzenstrom	I_{CM}	200		mA
Basisspitzenstrom	I_{BM}	200		mA
Emitterspitzenstrom	I_{EM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	500		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 250$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 150$		K/W

Kennwerte

bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Kollektor-Emitter-Durchbruchspannung	$V_{(BR)CEO}$				
$I_C = 2$ mA					
BC 212		50	–	–	V
BC 213		30	–	–	V
Kollektor-Basis-Durchbruchspannung	$V_{(BR)CBO}$				
$I_C = 10\ \mu A$					
BC 212		60	–	–	V
BC 213		45	–	–	V
Emitter-Basis-Durchbruchspannung	$V_{(BR)EBO}$	5	–	–	V
$I_E = 1\ \mu A$					
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	4	µA
Stromverstärkung	h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V					
BC 212 A, BC 213 A		–	90	–	–
BC 212 B, BC 213 B		–	150	–	–
BC 213 C		–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V					
BC 212 A, BC 213 A		125	180	250	–
BC 212 B, BC 213 B		220	290	475	–
BC 213 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])	V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	75	300	mV
$I_C = 100$ mA, $I_B = 5$ mA		–	250	650	mV
Basis-Emitter-Sättigungsspannung[1])	V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	930	–	mV
Basis-Emitter-Spannung	$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V		600	650	750	mV
$I_C = 10$ mA; $V_{CE} = 5$ V		–	–	820	mV

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

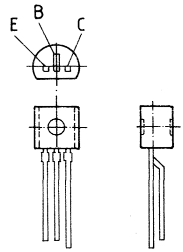
Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	250	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	4	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	10	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 212 A, BC 213 A		–	2,7	–	kΩ
BC 212 B, BC 213 B		–	4,5	–	kΩ
BC 213 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 212 A, BC 213 A		–	1,5	–	10^{-4}
BC 212 B, BC 213 B		–	2	–	10^{-4}
BC 213 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 212 A, BC 213 A		–	200	–	–
BC 212 B, BC 213 B		–	330	–	–
BC 213 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 212 A, BC 213 A		–	18	–	µS
BC 212 B, BC 213 B		–	30	–	µS
BC 213 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F	–	2	–	dB

Kennlinien siehe BC 556...BC 560

Silizium-NPN-NF-Transistoren

BC 237 ...BC 239

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BC 307, BC 308, BC 309



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BC 237	Q62702-C697	BC 238	Q62702-C698	BC 239	Q62702-C699
S BC 237 A	Q62702-C276	BC 238 A	Q62702-C278	BC 239 B	Q62702-C281
S BC 237 B	Q62702-C277	S BC 238 B	Q62702-C279	S BC 239 C	Q62702-C282
		S BC 238 C	Q62702-C280		

Grenzwerte

Bezeichnung	Symbol	BC 237	BC 238	BC 239	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	20	20	V
Kollektor-Basis-Spannung	V_{CBO}	50	30	30	V
Emitter-Basis-Spannung	V_{EBO}	6	5	5	V
Kollektorstrom	I_C		100		mA
Kollektorspitzenstrom	I_{CM}		200		mA
Basisspitzenstrom	I_{BM}		200		mA
Emitterspitzenstrom	I_{EM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}		500		mW
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung	R_{thJA}		$\leqq 250$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 150$		K/W

Kennwerte

bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung	$V_{(BR)CEO}$				
$I_C = 2$ mA					
BC 237		45	–	–	V
BC 238		20	–	–	V
BC 239		20	–	–	V
Kollektor-Basis-Durchbruchspannung	$V_{(BR)CBO}$				
$I_C = 10\ \mu A$					
BC 237		50	–	–	V
BC 238		30	–	–	V
BC 239		30	–	–	V
Emitter-Basis-Durchbruchspannung	$V_{(BR)EBO}$				
$I_E = 1\ \mu A$ BC 237		6	–	–	V
BC 238, BC 239		5	–	–	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	15	nA
$V_{CB} = 50$ V		–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	4	µA
$V_{CB} = 50$ V, $T_A = 150\,°C$		–	–	4	µA
Stromverstärkung	h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V					
BC 237 A, BC 238 A		–	90	–	–
BC 237 B, BC 238 B, BC 239 B		–	150	–	–
BC 238 C, BC 239 C		–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V					
BC 237 A, BC 238 A, BC 239 A		110	180	220	–
BC 237 B, BC 238 B, BC 239 B		200	290	450	–
BC 238 C, BC 239 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])	V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	90	250	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	200	600	mV
Basis-Emitter-Sättigungsspannung[1])	V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	900	–	mV
Basis-Emitter-Spannung	$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V		580	660	700	mV
$I_C = 10$ mA; $V_{CE} = 5$ V		–	–	770	mV

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

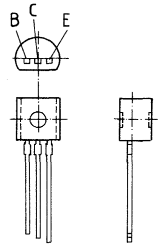
Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	8	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 237 A, BC 238 A		–	2,7	–	kΩ
BC 237 B, BC 238 B, BC 239 B		–	4,5	–	kΩ
BC 238 C, BC 239 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 237 A, BC 238 A		–	1,5	–	10^{-4}
BC 237 B, BC 238 B, BC 239 B		–	2	–	10^{-4}
BC 238 C, BC 239 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 237 A, BC 238 A		–	200	–	–
BC 237 B, BC 238 B, BC 239 B		–	330	–	–
BC 238 C, BC 239 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 237 A, BC 238 A		–	18	–	µS
BC 237 B, BC 238 B, BC 239 B		–	30	–	µS
BC 238 C, BC 239 C		–	60	–	µS
Rauschzahl	F				
$I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz BC 239		–	1,2	4	dB
$I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz BC 237, BC 238		–	2	–	dB

Kennlinien siehe BC 546...BC 550

Silizium-PNP-NF-Transistoren

BC 257 ...BC 259

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BC 167, BC 168, BC 169



TO-92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BC 257	Q62702-C700	BC 258	Q62702-C701	BC 259	Q62702-C702
S BC 257 A	Q62702-C184	BC 258 A	Q62702-C187	BC 259 B	Q62702-C192
S BC 257 B	Q62702-C206	BC 258 B	Q62702-C188	BC 259 C	Q62702-C439
		BC 258 C	Q62702-C438		

Grenzwerte

Bezeichnung	Symbol	BC 257	BC 258	BC 259	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	25	20	V
Kollektor-Basis-Spannung	V_{CBO}	50	30	25	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		100		mA
Kollektorspitzenstrom	I_{CM}		200		mA
Basisspitzenstrom	I_{BM}		200		mA
Emitterspitzenstrom	I_{EM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}		500		mW
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung	R_{thJA}		$\leqq 250$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 150$		K/W

Kennwerte

bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung	$V_{(BR)CEO}$				
$I_C = 2$ mA					
BC 257		45	–	–	V
BC 258		25	–	–	V
BC 259		20	–	–	V
Kollektor-Basis-Durchbruchspannung	$V_{(BR)CBO}$				
$I_C = 10\,\mu A$					
BC 257		50	–	–	V
BC 258		30	–	–	V
BC 259		25	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 1\,\mu A$	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	4	µA
Stromverstärkung	h_{FE}				
$I_C = 10\,\mu A$; $V_{CE} = 5$ V					
BC 257 A, BC 258 A		–	90	–	–
BC 257 B, BC 258 B, BC 259 B		–	150	–	–
BC 258 C, BC 259 C		–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V					
BC 257 A, BC 258 A		125	180	250	–
BC 257 B, BC 258 B, BC 259 B		220	290	475	–
BC 258 C, BC 259 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])	V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	75	300	mV
$I_C = 100$ mA, $I_B = 5$ mA		–	250	650	mV
Basis-Emitter-Sättigungsspannung[1])	V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	930	–	mV
Basis-Emitter-Spannung	$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V		600	650	750	mV
$I_C = 10$ mA; $V_{CE} = 5$ V		–	–	820	mV

[1]) Pulstest: $\leq 300\,\mu s$, $D \leq 2\%$

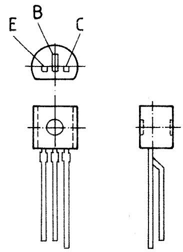
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	250	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	4	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	10	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 257 A, BC 258 A		–	2,7	–	kΩ
BC 257 B, BC 258 B, BC 259 B		–	4,5	–	kΩ
BC 258 C, BC 259 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 257 A, BC 258 A		–	1,5	–	10^{-4}
BC 257 B, BC 258 B, BC 259 B		–	2	–	10^{-4}
BC 258 C, BC 259 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 257 A, BC 258 A		–	200	–	–
BC 257 B, BC 258 B, BC 259 B		–	330	–	–
BC 258 C, BC 259 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 257 A, BC 258 A		–	18	–	µS
BC 257 B, BC 258 B, BC 259 B		–	30	–	µS
BC 258 C, BC 259 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F				
BC 257, BC 258		–	2	–	dB
BC 259		–	1	4	dB

Kennlinien siehe BC 556...BC 560

Silizium-PNP-NF-Transistoren

BC 307 ...BC 309

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BC 237, BC 238, BC 239



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BC 307	Q62702-C703	BC 308	Q62702-C704	BC 309	Q62702-C705
S BC 307 A	Q62702-C283	BC 308 A	Q62702-C285	BC 309 B	Q62702-C289
S BC 307 B	Q62702-C324	S BC 308 B	Q62702-C286	BC 309 C	Q62702-C323
		S BC 308 C	Q62702-C393		

Grenzwerte

Bezeichnung	Symbol	BC 307	BC 308	BC 309	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	25	20	V
Kollektor-Basis-Spannung	V_{CBO}	50	30	25	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		100		mA
Kollektorspitzenstrom	I_{CM}		200		mA
Basisspitzenstrom	I_{BM}		200		mA
Emitterspitzenstrom	I_{EM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}		500		mW
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung	R_{thJA}		$\leqq 250$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 150$		K/W

Kennwerte

bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 2$ mA						
	BC 307		45	–	–	V
	BC 308		25	–	–	V
	BC 309		20	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 10\ \mu A$						
	BC 307		50	–	–	V
	BC 308		30	–	–	V
	BC 309		25	–	–	V
Emitter-Basis-Durchbruchspannung		$V_{(BR)EBO}$	5	–	–	V
$I_E = 1\ \mu A$						
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 50$ V	BC 307		–	–	15	nA
$V_{CB} = 30$ V	BC 308		–	–	15	nA
$V_{CB} = 25$ V	BC 309		–	–	15	nA
$V_{CB} = 50$ V, $T_A = 150\,°C$	BC 307		–	–	4	µA
$V_{CB} = 30$ V, $T_A = 150\,°C$	BC 308		–	–	4	µA
$V_{CB} = 25$ V, $T_A = 150\,°C$	BC 309		–	–	4	µA
Stromverstärkung		h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V						
	BC 307 A, BC 308 A		–	90	–	–
	BC 307 B, BC 308 B, BC 309 B		–	150	–	–
	BC 308 C, BC 309 C		–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V						
	BC 307 A, BC 308 A, BC 309 A		125	180	250	–
	BC 307 B, BC 308 B, BC 309 B		220	290	475	–
	BC 308 C, BC 309 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])		V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA			–	75	300	mV
$I_C = 100$ mA; $I_B = 5$ mA			–	250	650	mV
Basis-Emitter-Sättigungsspannung[1])		V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA			–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA			–	930	–	mV
Basis-Emitter-Spannung		$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V			600	650	750	mV
$I_C = 10$ mA; $V_{CE} = 5$ V			–	–	820	mV

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

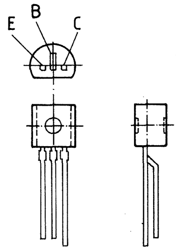
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	250	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	4	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	10	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 307 A, BC 308 A		–	2,7	–	kΩ
BC 307 B, BC 308 B, BC 309 B		–	4,5	–	kΩ
BC 308 C, BC 309 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 307 A, BC 308 A		–	1,5	–	10^{-4}
BC 307 B, BC 308 B, BC 309 B		–	2	–	10^{-4}
BC 308 C, BC 309 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 307 A, BC 308 A		–	200	–	–
BC 307 B, BC 308 B, BC 309 B		–	330	–	–
BC 308 C, BC 309 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 307 A, BC 308 A		–	18	–	µS
BC 307 B, BC 308 B, BC 309 B		–	30	–	µS
BC 308 C, BC 309 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ	F				
$f = 1$ kHz, $\Delta f = 200$ Hz BC 309		–	1	4	dB
BC 307, BC 308		–	2	–	dB

Kennlinien siehe BC 556...BC 560

Silizium-PNP-NF-Transistoren

BC 327
BC 328

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BC 337, BC 338



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 327	Q62702-C311	BC 328	Q62702-C312
S BC 327-16	Q62702-C311-V3	BC 328-16	Q62702-C312-V3
S BC 327-25	Q62702-C311-V4	S BC 328-25	Q62702-C312-V4
S BC 327-40	Q62702-C311-V2	S BC 328-40	Q62702-C312-V2

Grenzwerte

Bezeichnung	Symbol	BC 327	BC 328	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	25	V
Kollektor-Basis-Spannung	V_{CBO}	50	30	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	800		mA
Kollektorspitzenstrom	I_{CM}	1		A
Basisstrom	I_B	100		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$		K/W

Kennwerte

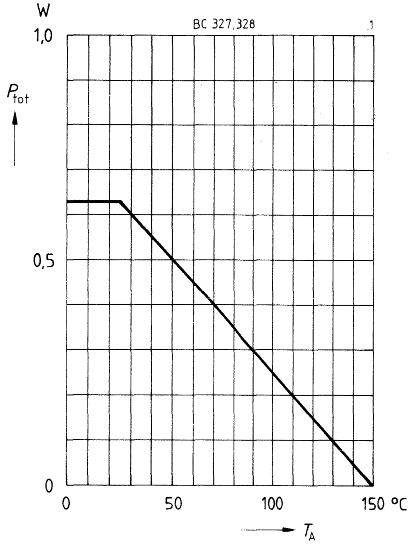
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 10$ mA						
	BC 327		45	–	–	V
	BC 328		25	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 100\,\mu A$						
	BC 327		50	–	–	V
	BC 328		30	–	–	V
Emitter-Basis-Durchbruchspannung		$V_{(BR)EBO}$	5	–	–	V
$I_E = 10\,\mu A$						
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 25$ V	BC 327		–	–	100	nA
$V_{CB} = 45$ V	BC 328		–	–	100	nA
$V_{CB} = 25$ V, $T_A = 150\,°C$	BC 327		–	–	10	µA
$V_{CB} = 45$ V, $T_A = 150\,°C$	BC 328		–	–	10	µA
Emitter-Basis-Reststrom		I_{EBO}	–	–	100	nA
$V_{EB} = 4$ V						
Stromverstärkung[1])		h_{FE}				
$I_C = 100$ mA; $V_{CE} = 1$ V						
	BC 327/16; BC 328/16		100	160	250	–
	BC 327/25; BC 328/25		160	250	400	–
	BC 327/40; BC 328/40		250	350	630	–
$I_C = 300$ mA; $V_{CE} = 1$ V						
	BC 327/16; BC 328/16		60	–	–	–
	BC 327/25; BC 328/25		100	–	–	–
	BC 327/40; BC 328/40		170	–	–	–
Kollektor-Emitter-Sättigungsspannung[1])		V_{CEsat}	–	–	0,7	V
$I_C = 500$ mA; $I_B = 50$ mA						
Basis-Emitter-Sättigungsspannung[1])		V_{BEsat}	–	–	2	V
$I_C = 500$ mA; $I_B = 50$ mA						

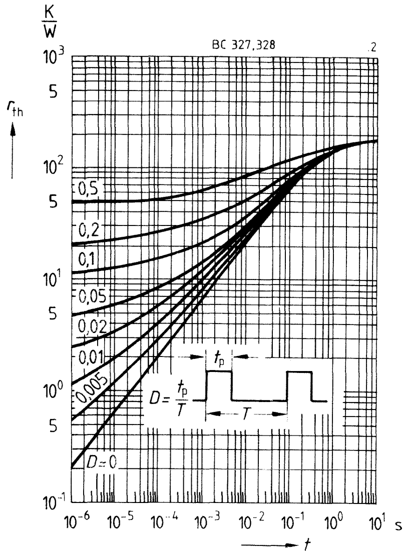
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	12	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	60	–	pF

[1]) Pulstest: $\leq 300\,\mu s$, $D \leq 2\%$

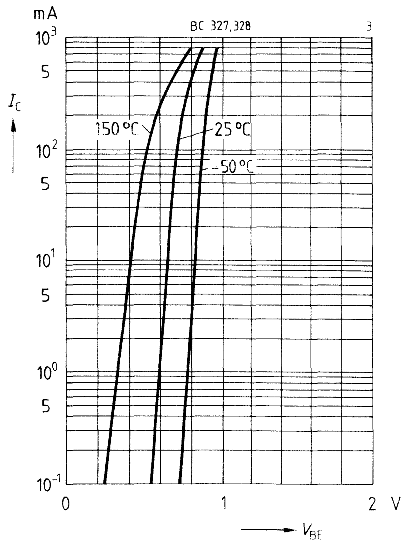
Gesamtverlustleistung $P_{tot} = f\ (T_A)$



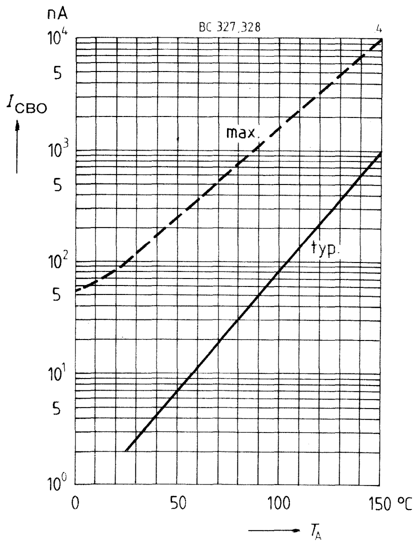
Impulsbelastbarkeit $r_{th} = f\ (t)$



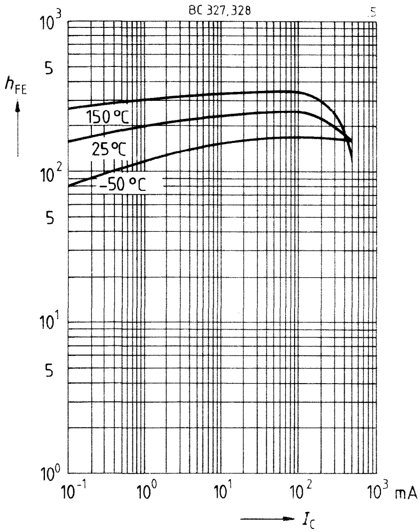
Kollektorstrom $I_C = f\ (V_{BE})$
$V_{CE} = 1$ V



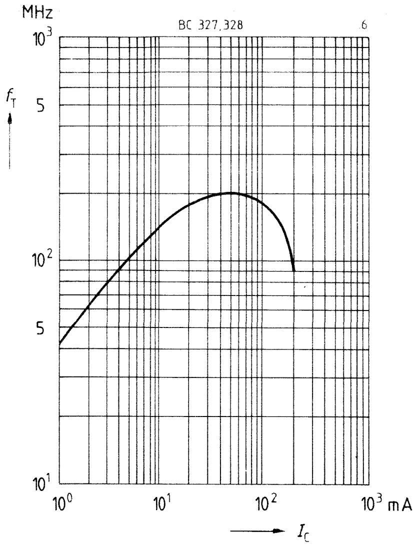
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 45$ V



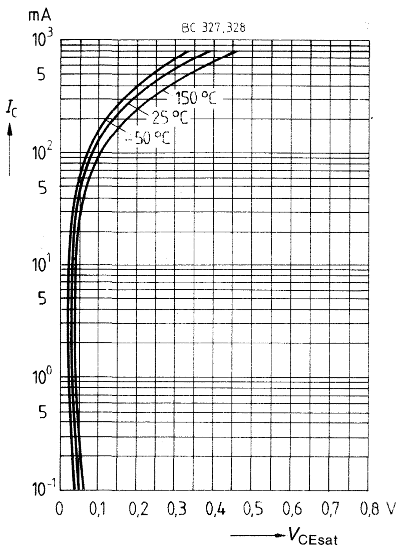
Stromverstärkung $h_{FE} = f\,(I_C)$
$V_{CE} = 1$ V



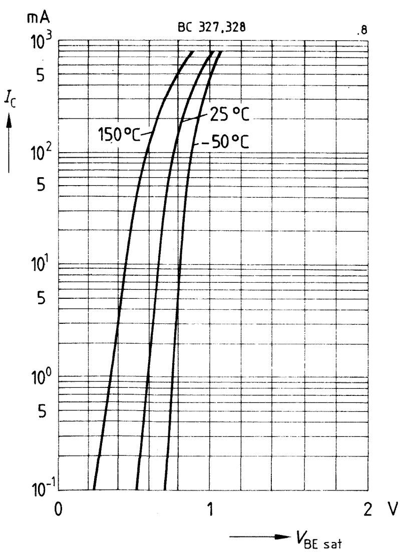
Transitfrequenz $f_T = f\,(I_C)$
$f = 20$ MHz, $T_A = 25$ °C



Sättigungsspannung $V_{CEsat} = f\,(I_C)$
$h_{FE} = 10$



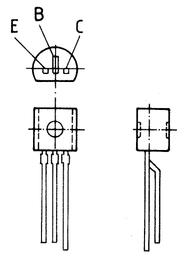
Sättigungsspannung $V_{BEsat} = f\,(I_C)$
$h_{FE} = 10$



Silizium-NPN-NF-Transistoren

BC 337
BC 338

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BC 327, BC 328



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 337	Q62702–C313	BC 338	Q62702–C314
S BC 337-16	Q62702–C313-V3	BC 338-16	Q62702–C314-V1
S BC 337-25	Q62702–C313-V1	S BC 338-25	Q62702–C314-V2
S BC 337-40	Q62702–C313-V2	S BC 338-40	Q62702–C314-V3

Grenzwerte

Bezeichnung	Symbol	BC 337	BC 338	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	25	V
Kollektor-Basis-Spannung	V_{CBO}	50	30	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	800		mA
Kollektorspitzenstrom	I_{CM}	1		A
Basisstrom	I_B	100		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$		K/W

Kennwerte

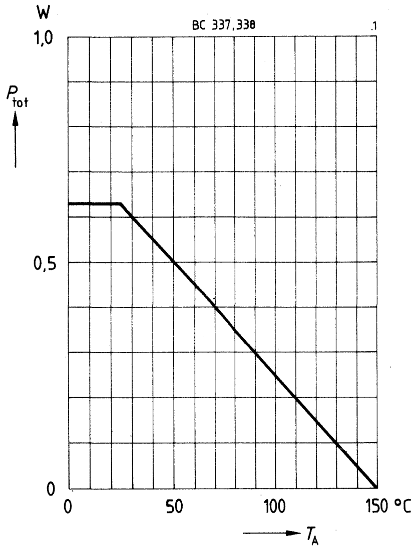
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ mA		$V_{(BR)CEO}$				
	BC 337		45	–	–	V
	BC 338		25	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100\ \mu A$		$V_{(BR)CBO}$				
	BC 337		50	–	–	V
	BC 338		30	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10\ \mu A$		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 25$ V	BC 337		–	–	100	nA
$V_{CB} = 45$ V	BC 338		–	–	100	nA
$V_{CB} = 25$ V, $T_A = 150\,°C$	BC 337		–	–	10	µA
$V_{CB} = 45$ V, $T_A = 150\,°C$	BC 338		–	–	10	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V		I_{EBO}	–	–	100	nA
Stromverstärkung[1]) $I_C = 100$ mA; $V_{CE} = 1$ V		h_{FE}				
	BC 337/16; BC 338/16		100	160	250	–
	BC 337/25; BC 338/25		160	250	400	–
	BC 337/40; BC 338/40		250	350	630	–
$I_C = 300$ mA; $V_{CE} = 1$ V						
	BC 337/16; BC 338/16		60	–	–	–
	BC 337/25; BC 338/25		100	–	–	–
	BC 337/40; BC 338/40		170	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 500$ mA; $I_B = 50$ mA		V_{CEsat}	–	–	0,7	V
Basis-Emitter-Sättigungsspannung $I_C = 500$ mA; $I_B = 50$ mA		V_{BEsat}	–	–	2	V

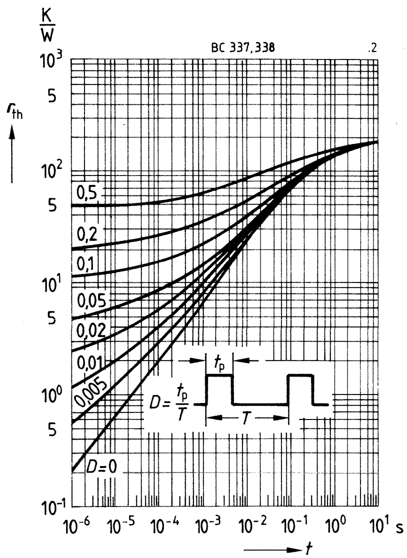
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	170	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	8	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	60	–	pF

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

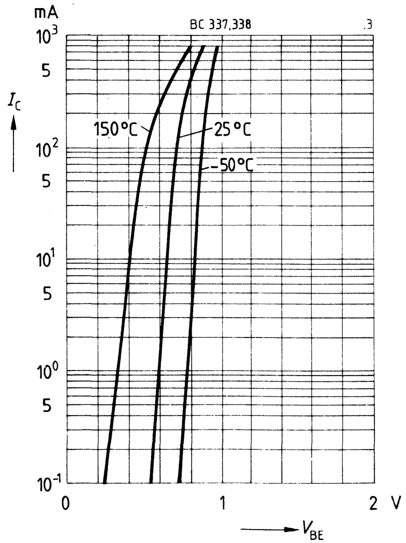
Gesamtverlustleistung $P_{tot} = f(T_A)$



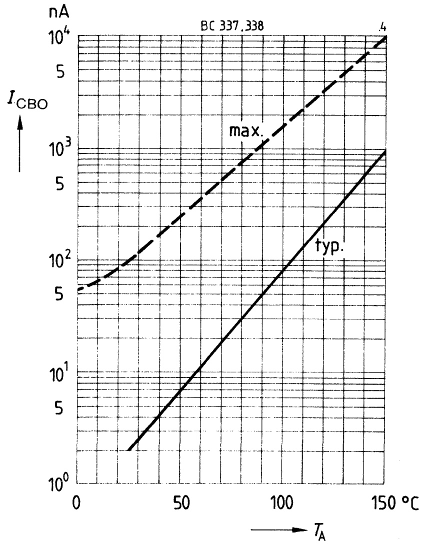
Impulsbelastbarkeit $r_{th} = f(t)$



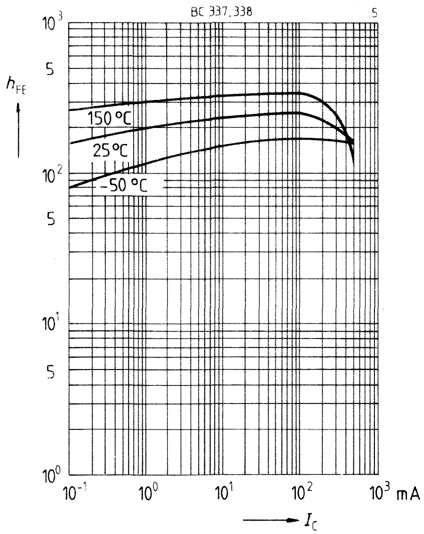
Kollektorstrom $I_C = f(V_{BE})$
$V_{CE} = 1$ V



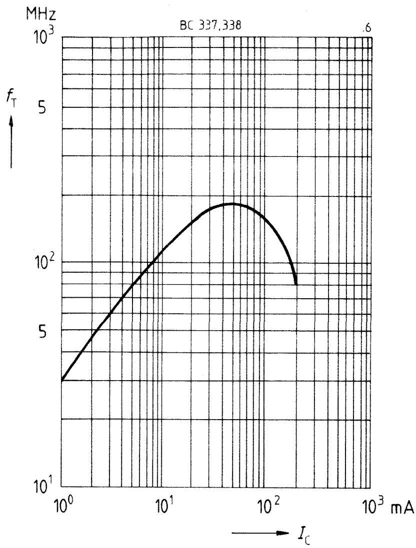
Reststrom $I_{CBO} = f(T_A)$
$V_{CB} = 45$ V



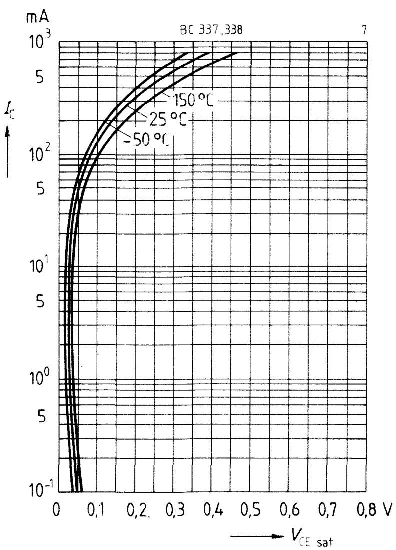
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 1$ V



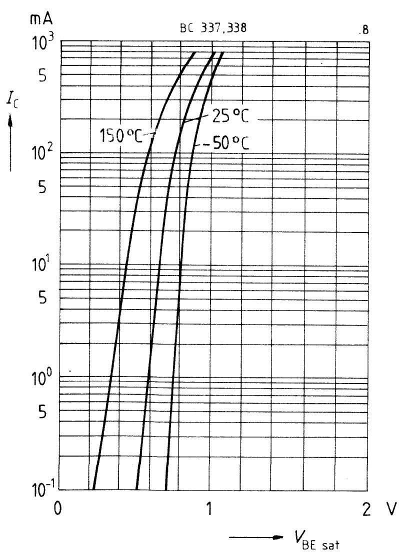
Transitfrequenz $f_T = f\ (I_C)$
$f = 20$ MHz, $T_A = 25$ °C



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 10$

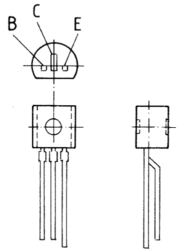


Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 10$



Silizium-NPN-NF-Transistor BC 368

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementärer PNP-Typ: BC 369



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer
BC 368	C62702–C747

Grenzwerte

Bezeichnung	Symbol	BC 368	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	20	V
Kollektor-Basis-Spannung	V_{CBO}	25	V
Emitter-Basis-Spannung	V_{EBO}	5	V
Kollektorstrom	I_C	1	A
Kollektorspitzenstrom	I_{CM}	2	A
Basisstrom	I_B	100	mA
Basisspitzenstrom	I_{BM}	200	mA
Gesamtverlustleistung $T_A = 25\,°C$[1])	P_{tot}	0,8 (1)	W
Sperrschichttemperatur	T_j	150	°C
Lagertemperatur	T_{stg}	−65…+150	°C
Wärmewiderstand			
Sperrschicht-Umgebung[1])	R_{thJA}	$\leqq$156	K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq$ 60	K/W

[1]) Werden die Transistoren mit max. 4 mm langen Anschlußdrähten auf Leiterplatten mit min. 10 mm x 10 mm großer Kupferfläche für den Kollektoranschluß montiert, ist $R_{thJA} = 125$ K/W und damit $P_{tot\,(max.)} = 1$ W bei $T_A = 25\,°C$.

Kennwerte

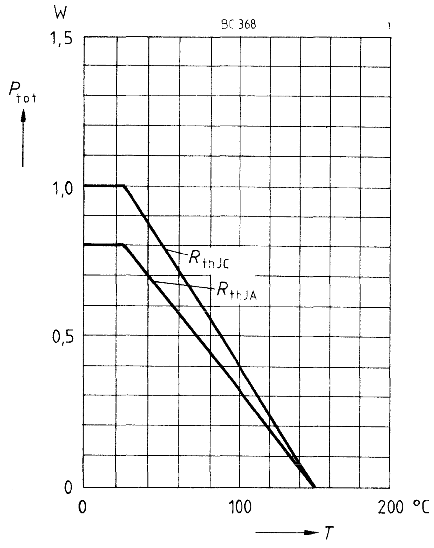
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 30$ mA	$V_{(BR)CEO}$	20	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 10$ µA	$V_{(BR)CBO}$	25	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 1$ µA	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom $V_{CB} = 25$ V $V_{CB} = 25$ V, $T_A = 150\,°C$	I_{CBO}	 – –	 – –	 100 10	 nA µA
Emitter-Basis-Reststrom $V_{EB} = 5$ V	I_{EBO}	–	–	10	µA
Stromverstärkung $I_C = 5$ mA; $V_{CE} = 10$ V $I_C = 500$ mA; $V_{CE} = 1$ V [1] $I_C = 1$ A; $V_{CE} = 1$ V [1]	h_{FE}	 50 63 60	 – 160 –	 – 400 –	 – – –
Kollektor-Emitter-Sättigungsspannung[1] $I_C = 1$ A; $I_B = 100$ mA	V_{CEsat}	–	–	0,5	V
Basis-Emitter-Spannung[1] $I_C = 5$ mA; $V_{CE} = 10$ V $I_C = 1$ A; $V_{CE} = 1$ V	V_{BE}	 – –	 0,6 –	 – 1	 V V

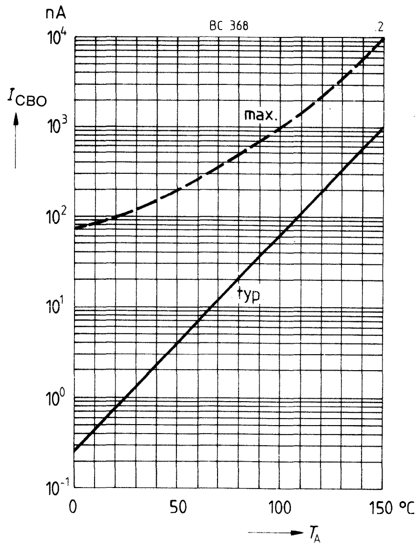
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 100$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	100	–	MHz

[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

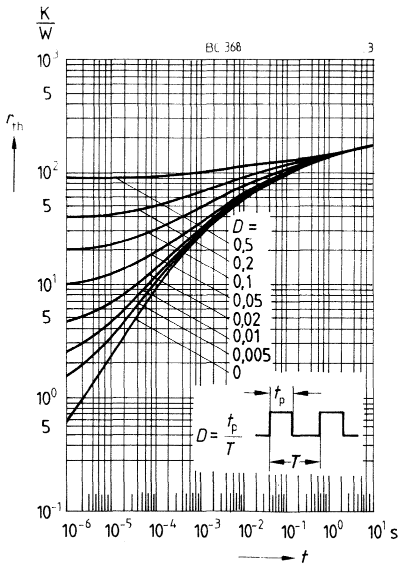
Gesamtverlustleistung $P_{tot} = f(T)$



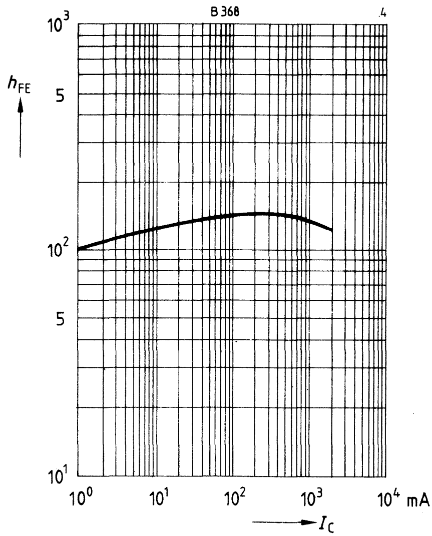
Reststrom $I_{CBO} = f(T_A)$
$V_{CB} = 25$ V



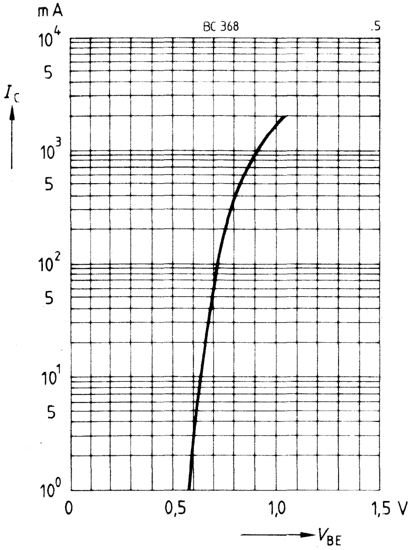
Impulsbelastbarkeit $r_{th} = f(t)$



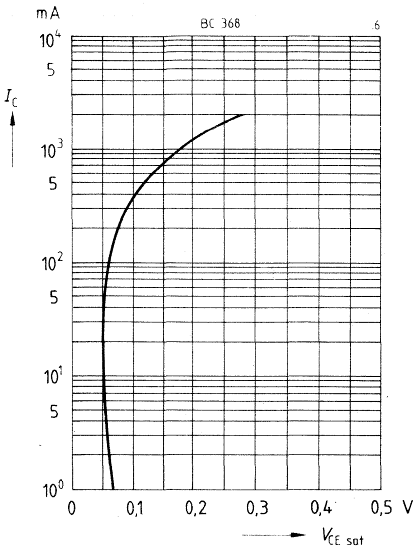
Stromverstärkung $h_{FE} = f(I_C)$
$V_{CE} = 1$ V, $T_A = 25$ °C



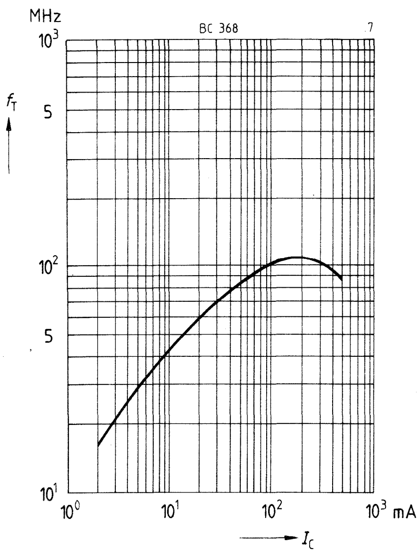
Kollektorstrom $I_C = f\ (V_{BE})$
$V_{CE} = 1$ V



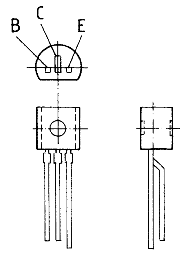
Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 10$, $T_A = 25\ °C$



Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 5$ V, $f = 20$ MHz



- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementärer NPN-Typ: BC 368



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer
Ⓢ BC 369	C62702-C748

Grenzwerte

Bezeichnung	Symbol	BC 369	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	20	V
Kollektor-Basis-Spannung	V_{CBO}	25	V
Emitter-Basis-Spannung	V_{EBO}	5	V
Kollektorstrom	I_C	1	A
Kollektorspitzenstrom	I_{CM}	2	A
Basisstrom	I_B	100	mA
Basisspitzenstrom	I_{BM}	200	mA
Gesamtverlustleistung $T_A = 25\,°C$[1])	P_{tot}	0,8 (1)	W
Sperrschichttemperatur	T_j	150	°C
Lagertemperatur	T_{stg}	−65…+150	°C
Wärmewiderstand			
Sperrschicht-Umgebung[1])	R_{thJA}	≦156	K/W
Sperrschicht-Gehäuse	R_{thJC}	≦ 60	K/W

[1]) Werden die Transistoren mit max. 4 mm langen Anschlußdrähten auf Leiterplatten mit min. 10 mm x 10 mm großer Kupferfläche für den Kollektoranschluß montiert, ist $R_{thJA} = 125$ K/W und damit $P_{tot\,(max.)} = 1$ W bei $T_A = 25\,°C$.

Kennwerte

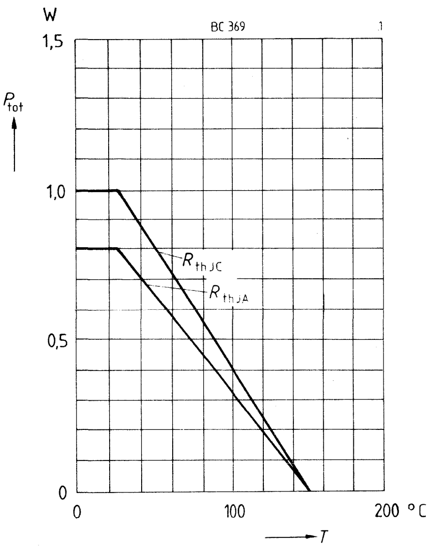
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 30$ mA	$V_{(BR)CEO}$	20	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 10$ µA	$V_{(BR)CBO}$	25	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 1$ µA	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom $V_{CB} = 25$ V $V_{CB} = 25$ V, $T_A = 150\,°C$	I_{CBO}	 – –	 – –	 100 10	 nA µA
Emitter-Basis-Reststrom $V_{EB} = 5$ V	I_{EBO}	–	–	10	µA
Stromverstärkung $I_C =$ 5 mA; $V_{CE} = 10$ V $I_C = 500$ mA; $V_{CE} = 1$ V[1] $I_C = 1$ A; $V_{CE} = 1$ V[1]	h_{FE}	 50 63 60	 – 160 –	 – 400 –	 – – –
Kollektor-Emitter-Sättigungsspannung[1] $I_C = 1$ A; $I_B = 100$ mA	V_{CEsat}	–	–	0,5	V
Basis-Emitter-Spannung[1] $I_C = 5$ mA; $V_{CE} = 10$ V $I_C = 1$ A; $V_{CE} = 1$ V	V_{BE}	 – –	 0,6 –	 – 1	 V V

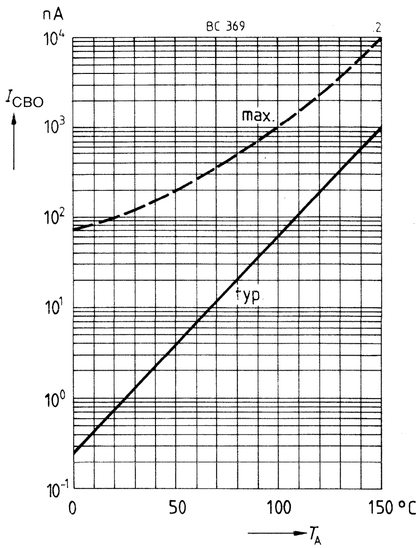
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 100$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	100	–	MHz

[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

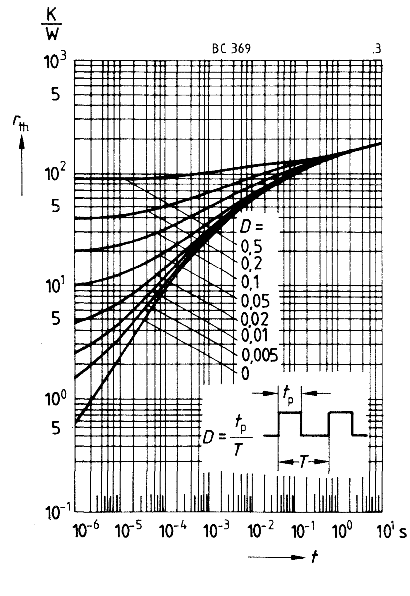
Gesamtverlustleistung $P_{tot} = f\ (T)$



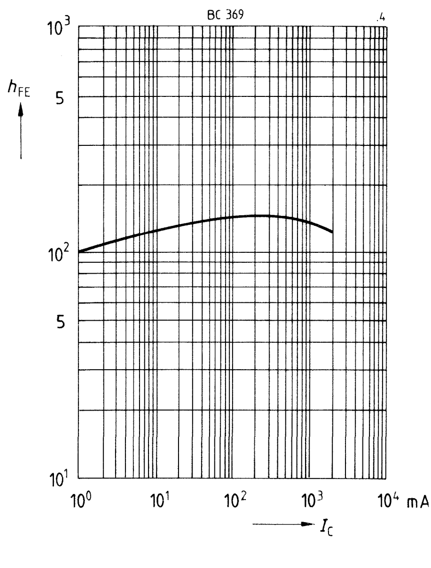
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 25$ V



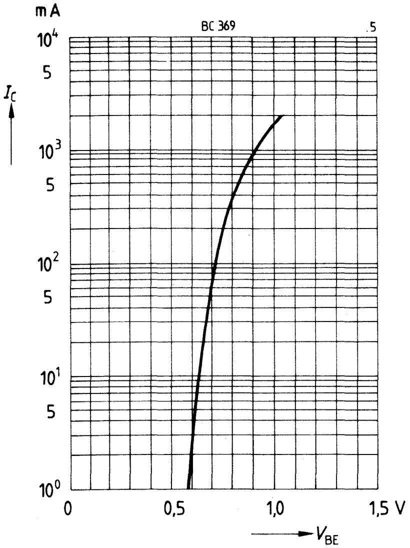
Impulsbelastbarkeit $r_{th} = f\ (t)$



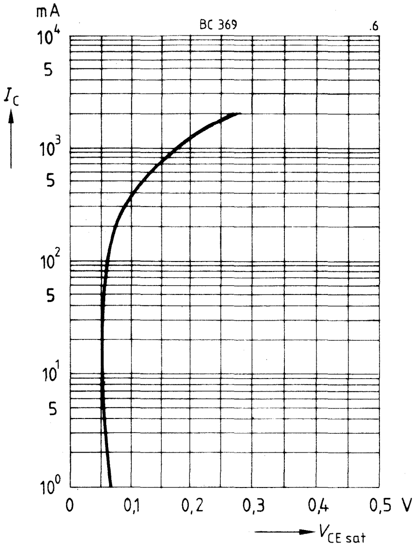
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 1$ V, $T_A = 25$ °C



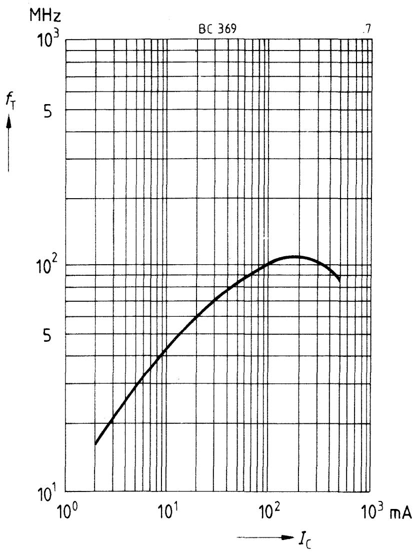
Kollektorstrom $I_C = f\ (V_{BE})$
$V_{CE} = 1$ V, $T_A = 25$ °C



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 10$, $T_A = 25$ °C



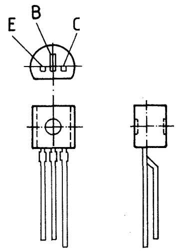
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 5$ V, $f = 20$ MHz



Silizium-NPN-NF-Transistoren

BC 413
BC 414

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Rauschwerte zwischen 30 Hz und 15 kHz
- Komplementäre PNP-Typen: BC 415, BC 416



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 413	Q62702–C375	BC 414	Q62702–C376
BC 413 B	Q62702–C375-V1	BC 414 B	Q62702–C376-V1
BC 413 C	Q62702–C375-V2	$\boxed{S}$ BC 414 C	Q62702–C376-V2

Grenzwerte

Bezeichnung	Symbol	BC 413	BC 414	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	30	45	V
Kollektor-Basis-Spannung	V_{CBO}	45	50	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	100		mA
Kollektorspitzenstrom	I_{CM}	200		mA
Basisspitzenstrom	I_{BM}	200		mA
Emitterspitzenstrom	I_{EM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	500		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65…+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	≦250		K/W
Sperrschicht-Gehäuse	R_{thJC}	≦150		K/W

Kennwerte

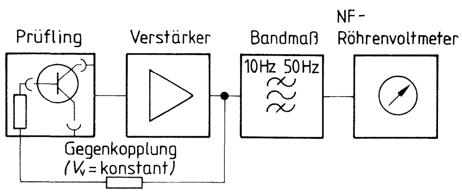
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung	$V_{(BR)CEO}$				
$I_C = 2$ mA					
BC 413		30	–	–	V
BC 414		45	–	–	V
Kollektor-Basis-Durchbruchspannung	$V_{(BR)CBO}$				
$I_C = 10\ \mu A$					
BC 413		45	–	–	V
BC 414		50	–	–	V
Emitter-Basis-Durchbruchspannung	$V_{(BR)EBO}$	5	–	–	V
$I_E = 1\ \mu A$					
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	4	µA
Stromverstärkung	h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V					
BC 413 B, BC 414 B		100	150	–	–
BC 413 C, BC 414 C		100	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V					
BC 413 B, BC 414 B		200	290	450	–
BC 413 C, BC 414 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])	V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	90	250	mV
$I_C = 100$ mA, $I_B = 5$ mA		–	200	600	mV
Basis-Emitter-Sättigungsspannung[1])	V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	900	–	mV
Basis-Emitter-Spannung	$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V		580	660	700	mV
$I_C = 10$ mA; $V_{CE} = 5$ V		–	–	770	mV

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 200$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	8	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz BC 413 B, BC 414 B BC 413 C, BC 414 C	h_{11e}	 – –	 4,5 8,7	 – –	 kΩ kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz BC 413 B, BC 414 B BC 413 C, BC 414 C	h_{12e}	 – –	 2 3	 – –	 10^{-4} 10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz BC 413 B, BC 414 B BC 413 C, BC 414 C	h_{21e}	 – –	 330 600	 – –	 – –
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz BC 413 B, BC 414 B BC 413 C, BC 414 C	h_{22e}	 – –	 30 60	 – –	 µS µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F	 –	 1,2	 4	 dB
Rauschspannung $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 10$ Hz...50 Hz	E_n	 –	 –	 0,135	 mV

Testschaltbild für Rauschmessung

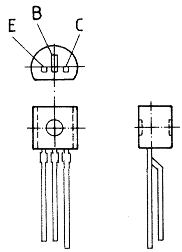


Kennlinien siehe BC 546...BC 550

Silizium-PNP-NF-Transistoren

BC 415
BC 416

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Rauschwerte zwischen 30 Hz und 15 kHz
- Komplementäre NPN-Typen: BC 413, BC 414



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 415	Q62702-C377	BC 416	Q62702-C378
BC 415 A	Q62702-C377-V1	BC 416 A	Q62702-C378-V1
BC 415 B	Q62702-C377-V2	BC 416 B	Q62702-C378-V2
$\boxed{S}$ BC 415 C	Q62702-C377-V3	$\boxed{S}$ BC 416 C	Q62702-C378-V3

Grenzwerte

Bezeichnung	Symbol	BC 415	BC 416	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	35	45	V
Kollektor-Basis-Spannung	V_{CBO}	45	50	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	100		mA
Kollektorspitzenstrom	I_{CM}	200		mA
Basisspitzenstrom	I_{BM}	200		mA
Emitterspitzenstrom	I_{EM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	500		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 250$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 150$		K/W

Kennwerte

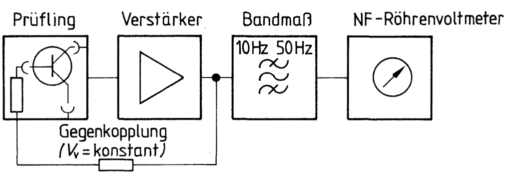
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 2$ mA	$V_{(BR)CEO}$				
BC 415		35	–	–	V
BC 416		45	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 10$ µA	$V_{(BR)CBO}$				
BC 415		45	–	–	V
BC 416		50	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 1$ µA	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	4	µA
Stromverstärkung $I_C = 10$ µA; $V_{CE} = 5$ V	h_{FE}				
BC 415 A, BC 416 A		40	90	–	–
BC 415 B, BC 416 B		100	150	–	–
BC 415 C, BC 416 C		100	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V					
BC 415 A, BC 416 A		125	180	250	–
BC 415 B, BC 416 B		220	290	475	–
BC 415 C, BC 416 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])	V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	75	300	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	250	650	mV
Basis-Emitter-Sättigungsspannung[1])	V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	930	–	mV
Basis-Emitter-Spannung	$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V		600	650	750	mV
$I_C = 10$ mA; $V_{CE} = 5$ V		–	–	820	mV

[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	250	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	4	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	10	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 415 A, BC 416 A		–	2,7	–	kΩ
BC 415 B, BC 416 B		–	4,5	–	kΩ
BC 415 C, BC 416 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 415 A, BC 416 A		–	1,5	–	10^{-4}
BC 415 B, BC 416 B		–	2	–	10^{-4}
BC 415 C, BC 416 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 415 A, BC 416 A		–	200	–	–
BC 415 B, BC 416 B		–	330	–	–
BC 415 C, BC 416 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 415 A, BC 416 A		–	18	–	µS
BC 415 B, BC 416 B		–	30	–	µS
BC 415 C, BC 416 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F	–	1	4	dB
Rauschspannung $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 10 \ldots 50$ Hz	E_n	–	–	0,110	mV

Testschaltbild für Rauschspannung

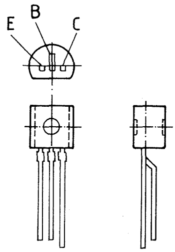


Kennlinien siehe BC 556...BC 560

Silizium-NPN-NF-Transistoren

BC 546 ...BC 550

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Rauschwerte zwischen 30 Hz und 15 kHz
- Komplementäre PNP-Typen: BC 556, BC 557, BC 558, BC 559, BC 560



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 546	Q62702-C687	S BC 548 B	Q62702-C689-V2
BC 546 A	Q62702-C687-V1	S BC 548 C	Q62702-C689-V3
S BC 546 B	Q62702-C687-V2	BC 549	Q62702-C690
BC 547	Q62702-C688	BC 549 B	Q62702-C690-V1
BC 547 A	Q62702-C688-V1	S BC 549 C	Q62702-C690-V2
S BC 547 B	Q62702-C688-V2	BC 550	Q62702-C691
BC 548	Q62702-C689	BC 550 B	Q62702-C691-V1
BC 548 A	Q62702-C689-V1	S BC 550 C	Q62702-C691-V2

Grenzwerte

Bezeichnung	Symbol	BC 546	BC 547 BC 550	BC 548 BC 549	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	65	45	30	V
Kollektor-Basis-Spannung	V_{CBO}	80	50	30	V
Emitter-Basis-Spannung	V_{EBO}	6	6	5	V
Kollektorstrom	I_C		100		mA
Kollektorspitzenstrom	I_{CM}		200		mA
Basisspitzenstrom	I_{BM}		200		mA
Emitterspitzenstrom	I_{EM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}		500		mW
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C

Wärmewiderstand

Bezeichnung	Symbol	Wert	Einheit
Sperrschicht-Umgebung	R_{thJA}	$\leqq 250$	K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 150$	K/W

Kennwerte

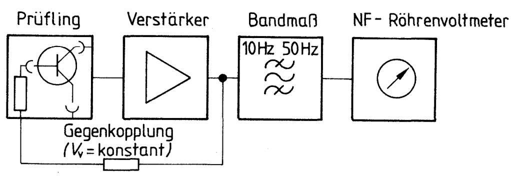
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 2$ mA	BC 546		65	–	–	V
	BC 547, BC 550		45	–	–	V
	BC 548, BC 549		30	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 10\ \mu A$	BC 546		80	–	–	V
	BC 547, BC 550		50	–	–	V
	BC 548, BC 549		30	–	–	V
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CES}$				
$I_C = 10\ \mu A$, $V_{BE} = 0$	BC 546		80	–	–	V
	BC 547, BC 550		50	–	–	V
	BC 548, BC 549		30	–	–	V
Emitter-Basis-Durchbruchspannung		$V_{(BR)EBO}$				
$I_E = 1\ \mu A$	BC 546, BC 547		6	–	–	V
	BC 548, BC 549, BC 550		5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 30$ V			–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$			–	–	4	µA
Stromverstärkung		h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V						
BC 546 A, BC 547 A, BC 548 A			–	90	–	–
BC 546 B, BC 547 B, BC 548 B, BC 549 B, BC 550 B			–	150	–	–
BC 547 C, BC 548 C, BC 549 C, BC 550 C			–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V						
BC 546 A, BC 547 A, BC 548 A			110	180	220	–
BC 546 B, BC 547 B, BC 548 B, BC 549 B, BC 550 B			200	290	450	–
BC 547 C, BC 548 B, BC 549 C, BC 550 C			420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1])		V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA			–	90	250	mV
$I_C = 100$ mA, $I_B = 5$ mA			–	200	600	mV
Basis-Emitter-Sättigungsspannung[1])		V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA			–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA			–	900	–	mV
Basis-Emitter-Spannung		$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V			580	660	700	mV
$I_C = 10$ mA; $V_{CE} = 5$ V			–	–	770	mV

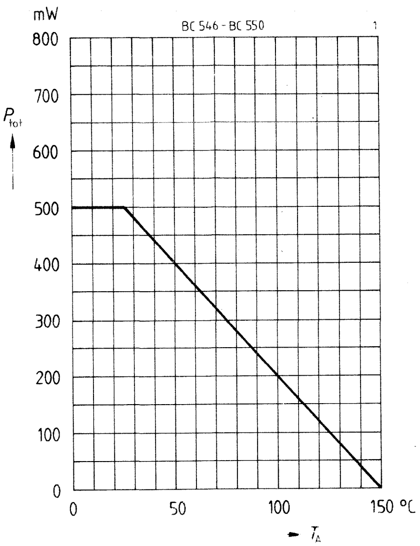
[1]) Pulstest: $t \leq 300\ \mu s$, $D \leq 2\%$

Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	8	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 546 A, BC 547 A, BC 548 A		–	2,7	–	kΩ
BC 546 B, BC 547 B, BC 548 B, BC 549 B, BC 550 B		–	4,5	–	kΩ
BC 547 C, BC 548 C, BC 549 C, BC 550 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 45$ V, $f = 1$ kHz	h_{12e}				
BC 546 A, BC 547 A, BC 548 A		–	1,5	–	10^{-4}
BC 546 B, BC 547 B, BC 548 B, BC 549 B, BC 550 B		–	2	–	10^{-4}
BC 547 C, BC 548 C, BC 549 C, BC 550 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 546 A, BC 547 A, BC 548 A		–	200	–	–
BC 546 B, BC 547 B, BC 548 B, BC 549 B, BC 550 B		–	330	–	–
BC 547 C, BC 548 C, BC 549 C, BC 550 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 546 A, BC 547 A, BC 548 A		–	18	–	µS
BC 546 B, BC 547 B, BC 548 B, BC 549 B, BC 550 B		–	30	–	µS
BC 547 C, BC 548 C, BC 549 C, BC 550 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ	F				
$f = 30$ Hz...15 kHz — BC 549		–	1,4	4	dB
BC 550		–	1,4	3	dB
$I_C = 1$ kHz, $\Delta f = 200$ Hz — BC 549		–	1,2	4	dB
BC 550		–	1	4	dB
BC 546, BC 547, BC 548		–	2	–	dB
Rauschspannung $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ	E_n				
$f = 10$ Hz...50 Hz — BC 550		–	–	0,135	mV

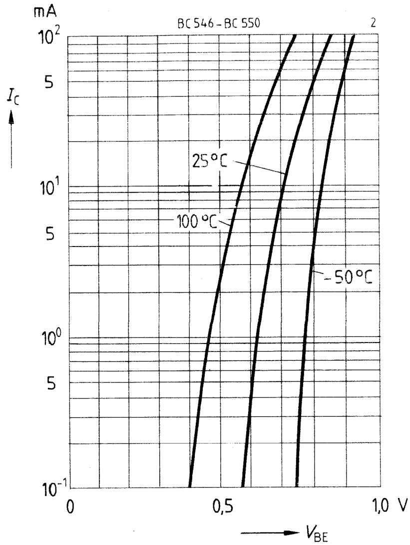
Testschaltbild für Rauschmessung



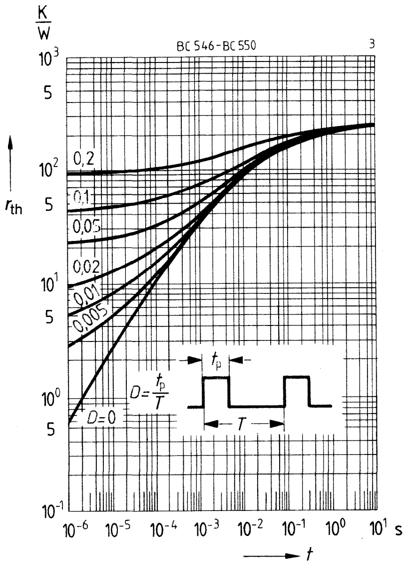
Gesamtverlustleistung $P_{tot} = f\,(T_A)$



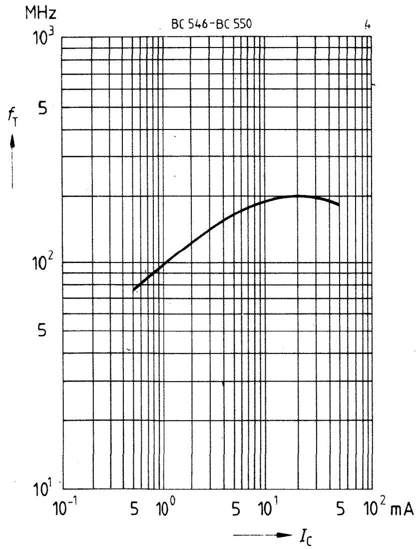
Kollektorstrom $I_C = f\,(V_{BE})$
$V_{CE} = 5$ V



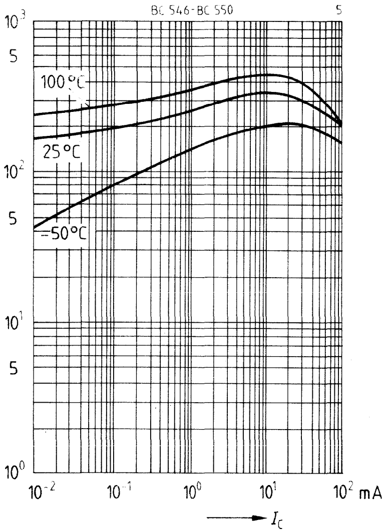
Impulsbelastbarkeit $r_{th} = f\,(t)$



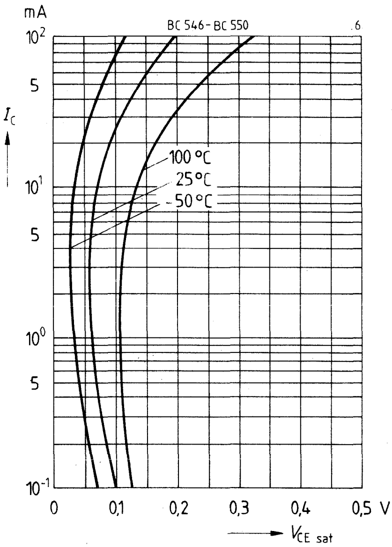
Transitfrequenz $f_T = f\,(I_C)$
$V_{CE} = 5$ V, $f = 100$ MHz



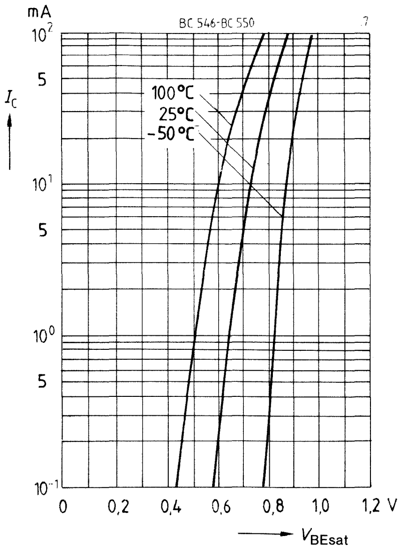
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 5$ V (Emitterschaltung)



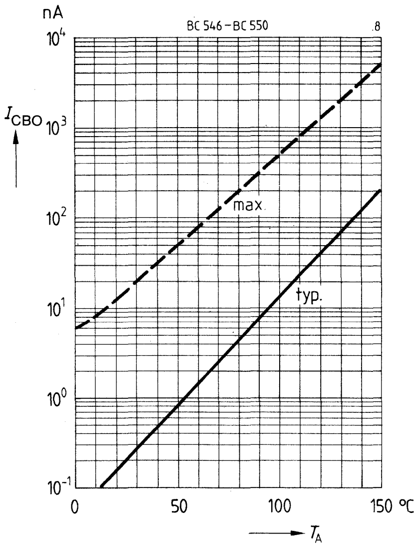
Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 20$



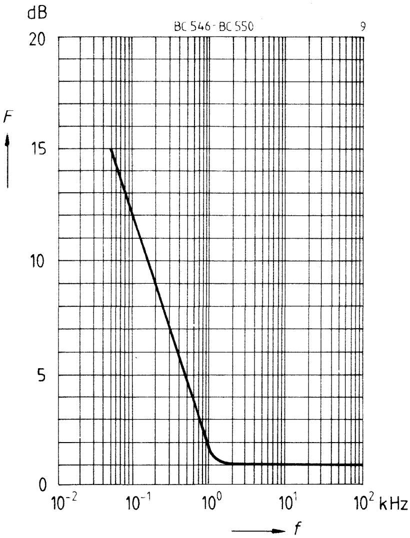
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 20$



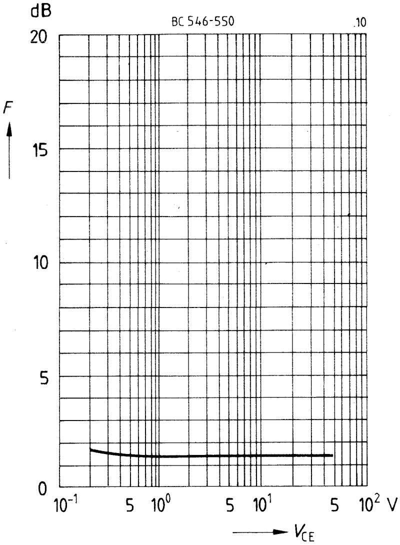
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 30$ V



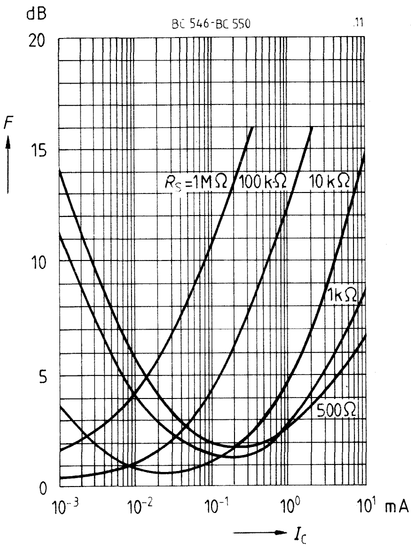
Rauschzahl $F = f\ (f)$
$I_C = 0{,}2$ mA, $f = 1$ kHz, $R_S = 2$ kΩ



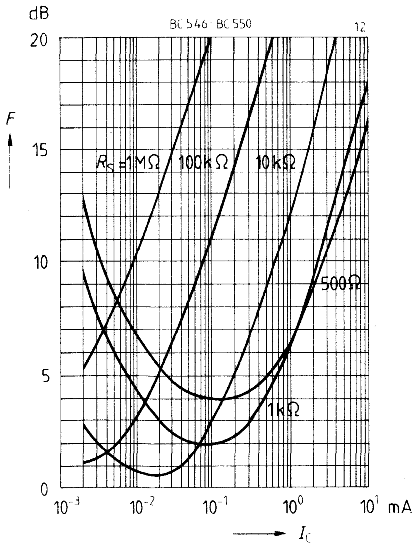
Rauschzahl $F = f\ (V_{CE})$
$I_C = 0{,}2$ mA, $R_S = 2$ kΩ, $f = 1$ kHz
$\Delta f = 200$ Hz, $T_A = 25$ °C



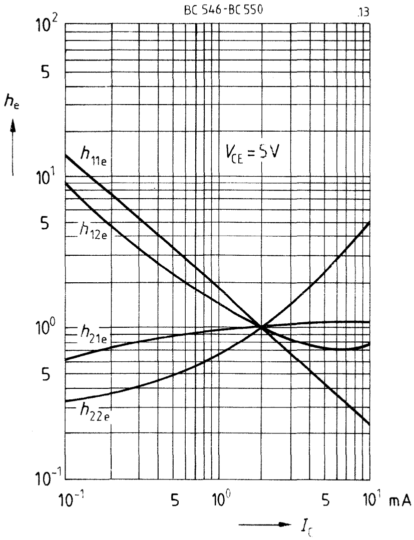
Rauschzahl $F = f\ (I_C)$
$V_{CE} = 5$ V, $f = 120$ kHz



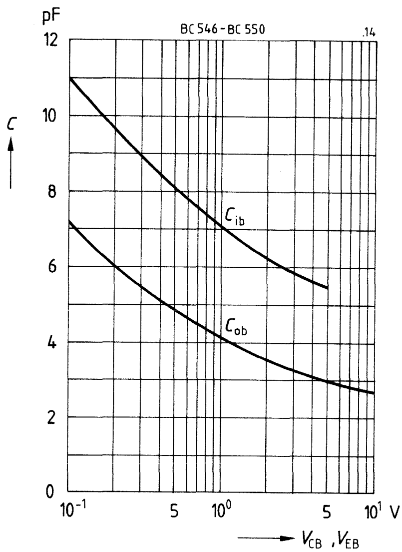
Rauschzahl $F = f\ (I_C)$
$V_{CE} = 5$ V, $f = 1$ Hz



h-Parameter $h_e = f\ (I_C)$



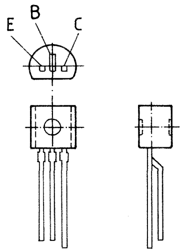
Kapazität $C = f\ (V_{CB}, V_{EB})$



Silizium-PNP-NF-Transistoren

BC 556
...BC 560

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Rauschwerte zwischen 30 Hz und 15 kHz
- Komplementäre NPN-Typen: BC 546, BC 547,
  BC 548, BC 549, BC 550



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 556	Q62702-C692	S BC 558 C	Q62702-C694-V3
BC 556 A	Q62702-C692-V1	BC 559	Q62702-C695
S BC 556 B	Q62702-C692-V2	BC 559 A	Q62702-C695-V1
BC 557	Q62702-C693	BC 559 B	Q62702-C695-V2
BC 557 A	Q62702-C693-V1	S BC 559 C	Q62702-C695-V3
S BC 557 B	Q62702-C693-V2	BC 560	Q62702-C696
BC 558	Q62702-C694	BC 560 A	Q62702-C696-V1
BC 558 A	Q62702-C694-V1	S BC 560 B	Q62702-C696-V2
S BC 558 B	Q62702-C694-V2	S BC 560 C	Q62702-C696-V3

Grenzwerte

Bezeichnung	Symbol	BC 556	BC 557 BC 560	BC 558 BC 559	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	65	45	30	V
Kollektor-Basis-Spannung	V_{CBO}	80	50	30	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		100		mA
Kollektorspitzenstrom	I_{CM}		200		mA
Basisspitzenstrom	I_{BM}		200		mA
Emitterspitzenstrom	I_{EM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}		500		mW
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C

Wärmewiderstand

Sperrschicht-Umgebung	R_{thJA}	$\leqq 250$	K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 150$	K/W

Kennwerte

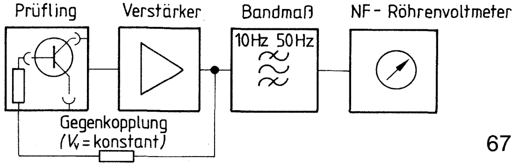
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung	$V_{(BR)CEO}$				
$I_C = 2$ mA					
BC 556		65	–	–	V
BC 557, BC 560		45	–	–	V
BC 558, BC 559		30	–	–	V
Kollektor-Basis-Durchbruchspannung	$V_{(BR)CBO}$				
$I_C = 10$ µA					
BC 556		80	–	–	V
BC 557, BC 560		50	–	–	V
BC 558, BC 559		30	–	–	V
Kollektor-Emitter-Durchbruchspannung	$V_{(BR)CES}$				
$I_C = 10$ µA, $V_{BE} = 0$					
BC 556		80	–	–	V
BC 557, BC 560		50	–	–	V
BC 558, BC 559		30	–	–	V
Emitter-Basis-Durchbruchspannung	$V_{(BR)EBO}$	5	–	–	V
$I_E = 1$ µA					
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	15	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	4	µA
Stromverstärkung	h_{FE}				
$I_C = 10$ µA; $V_{CE} = 5$ V					
BC 556 A, BC 557 A, BC 558 A		–	90	–	–
BC 556 B, BC 557 B, BC 558 B, BC 559 B, BC 560 B		–	150	–	–
BC 557 C, BC 558 C, BC 559 C		–	270	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V					
BC 556 A, BC 557 A, BC 558 A		125	180	250	–
BC 556 B, BC 557 B, BC 558 B, BC 559 B, BC 560 B		220	290	475	–
BC 557 C, BC 558 C, BC 559 C		420	520	800	–
Kollektor-Emitter-Sättigungsspannung[1]	V_{CEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	75	300	mV
$I_C = 100$ mA, $I_B = 5$ mA		–	250	650	mV
Basis-Emitter-Sättigungsspannung[1]	V_{BEsat}				
$I_C = 10$ mA; $I_B = 0{,}5$ mA		–	700	–	mV
$I_C = 100$ mA; $I_B = 5$ mA		–	930	–	mV
Basis-Emitter-Spannung	$V_{BE(on)}$				
$I_C = 2$ mA; $V_{CE} = 5$ V		600	650	750	mV
$I_C = 10$ mA; $V_{CE} = 5$ V		–	–	820	mV

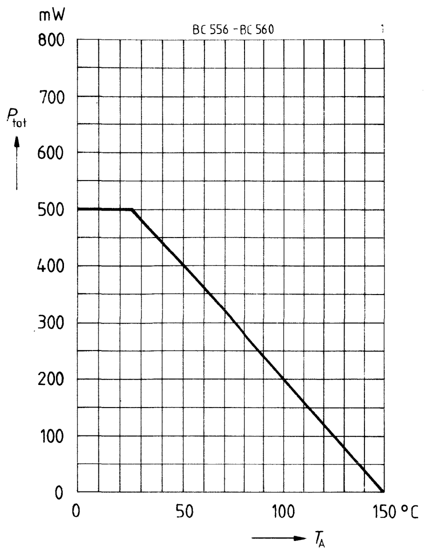
[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	250	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	4	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	10	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BC 556 A, BC 557 A, BC 558 A		–	2,7	–	kΩ
BC 556 B, BC 557 B, BC 558 B, BC 559 B, BC 560 B		–	4,5	–	kΩ
BC 557 C, BC 558 C, BC 559 C, BC 560 C		–	8,7	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BC 556 A, BC 557 A, BC 558 A		–	1,5	–	10^{-4}
BC 556 B, BC 557 B, BC 558 B, BC 559 B, BC 560 B		–	2	–	10^{-4}
BC 557 C, BC 558 C, BC 559 C, BC 560 C		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BC 556 A, BC 557 A, BC 558 A		–	200	–	–
BC 556 B, BC 557 B, BC 558 B, BC 559 B, BC 560 B		–	330	–	–
BC 557 C, BC 558 C, BC 559 C, BC 560 C		–	600	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BC 556 A, BC 557 A, BC 558 A		–	18	–	µS
BC 556 B, BC 557 B, BC 558 B, BC 559 B, BC 560 B		–	30	–	µS
BC 557 C, BC 558 C, BC 559 C, BC 560 C		–	60	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ	F				
$f = 30$ Hz...15 kHz BC 559		–	1,2	4	dB
BC 560		–	1	3	dB
$I_C = 1$ kHz, $\Delta f = 200$ Hz BC 559		–	1	4	dB
BC 560		–	1	4	dB
BC 556, BC 557, BC 558		–	2	–	dB
Rauschspannung $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ	E_n				
$f = 10$ Hz...50 Hz BC 560		–	–	0,110	mV

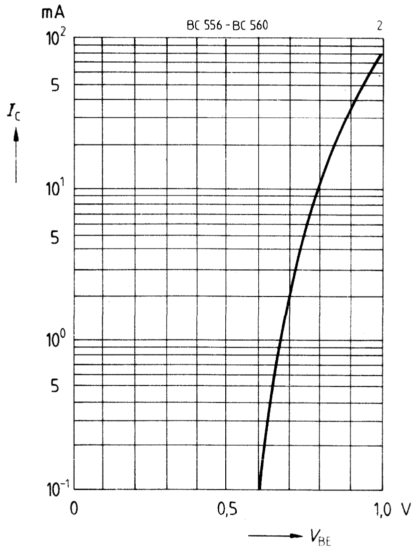
Testschaltbild für Rauschmessung



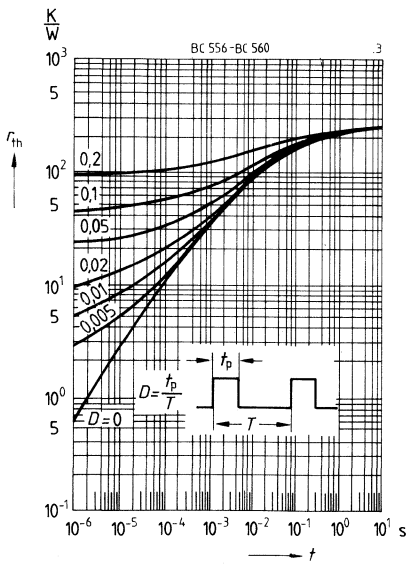
Gesamtverlustleistung $P_{tot} = f(T_A)$



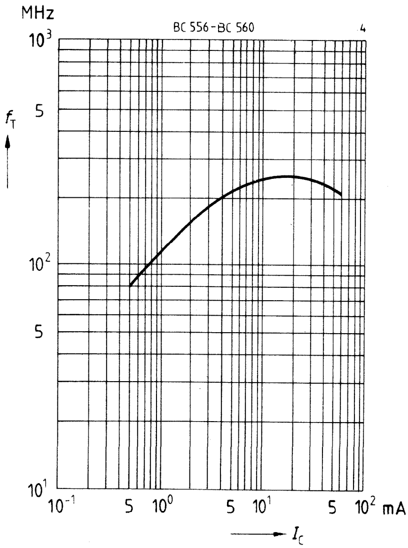
Kollektorstrom $I_C = f(V_{BE})$
$V_{CE} = 5$ V



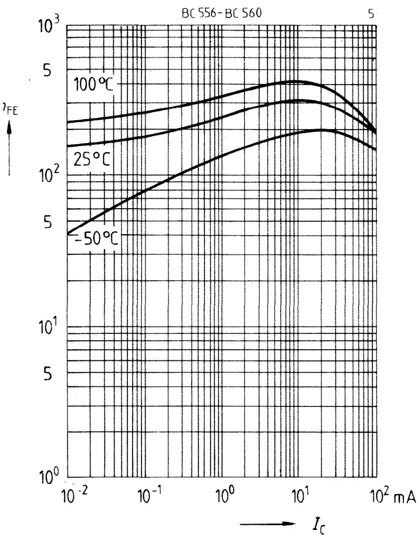
Impulsbelastbarkeit $r_{th} = f(t)$



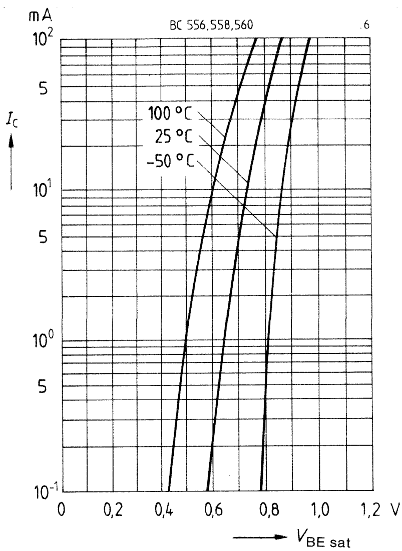
Transitfrequenz $f_T = f(I_C)$
$V_{CE} = 5$ V, $f = 100$ MHz



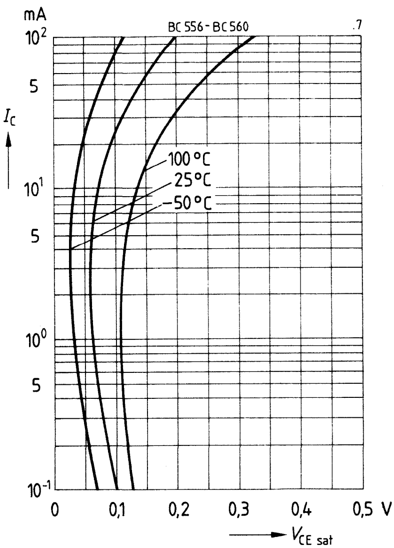
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 5$ V (Emitterschaltung)



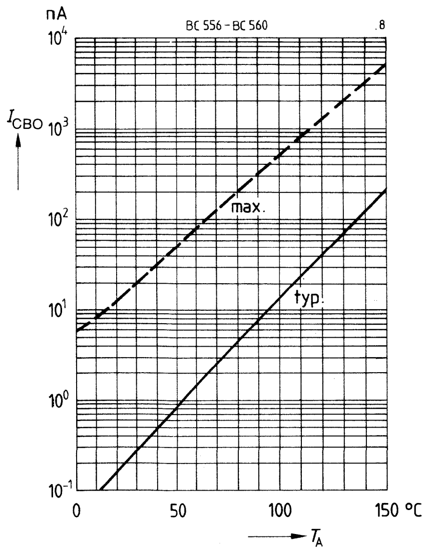
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 20$



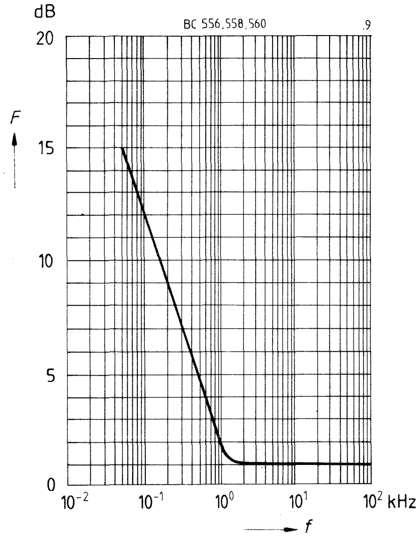
Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 20$



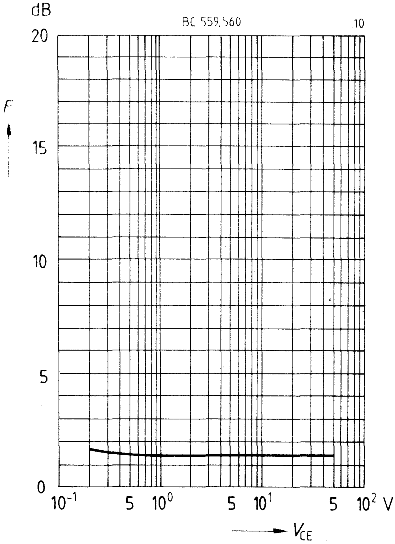
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 30$ V



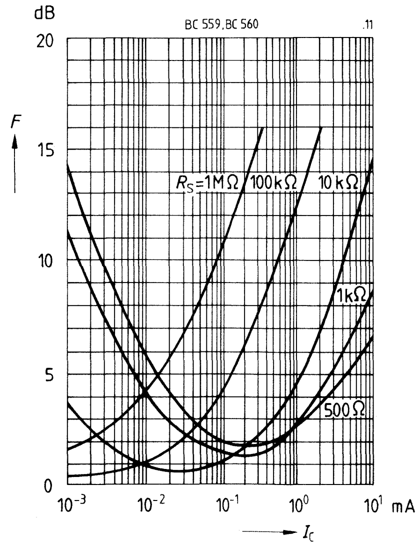
Rauschzahl $F = f\,(f)$
$I_C = 0{,}2$ mA, $f = 12$ kHz, $R_S = 2$ kΩ



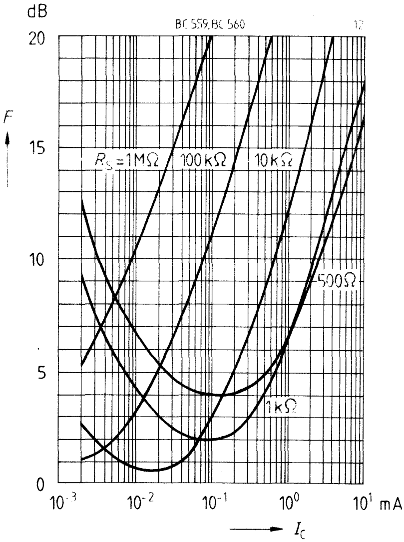
Rauschzahl $F = f\,(V_{CE})$
$I_C = 0{,}2$ mA, $R_S = 2$ kΩ, $f = 1$ kHz
$\Delta f = 200$ Hz, $T_A = 25$ °C



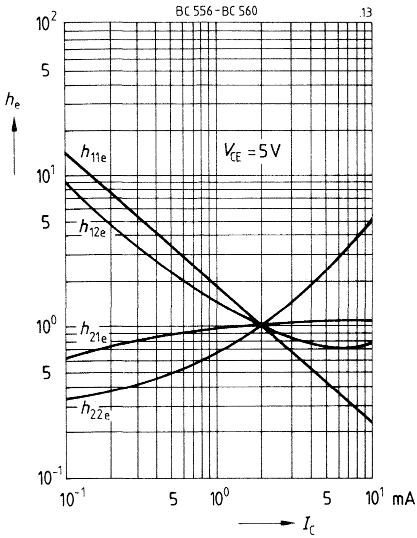
Rauschzahl $F = f\,(I_C)$
$V_{CE} = 5$ V, $f = 120$ kHz



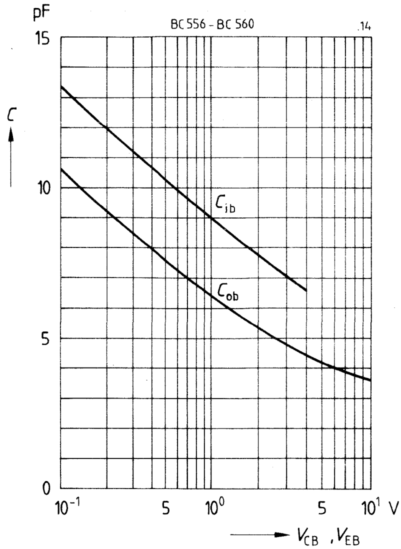
Rauschzahl $F = f\,(I_C)$
$V_{CE} = 5$ V, $f = 1$ Hz



h-Parameter $h_e = f\ (I_C)$



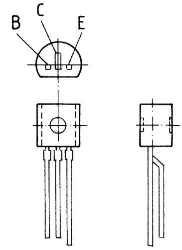
Kapazität $C = f\ (V_{CB},\ V_{EB})$



Silizium-NPN-NF-Transistoren

BC 635 ...BC 639

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BC 636, BC 638, BC 640



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
S BC 635	Q68000-A3360	S BC 637	Q68000-A2285	S BC 639	Q68000-A3361

Auf Wunsch sind die Transistoren selektiert als –10 (h_{FE} = 63...160) bzw. –16 (h_{FE} = 100...250) lieferbar. Bestellnummern auf Anfrage.

Grenzwerte

Bezeichnung	Symbol	BC 635	BC 637	BC 639	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	60	80	V
Kollektor-Basis-Spannung	V_{CBO}	45	60	100	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		1		A
Kollektorspitzenstrom	I_{CM}		1,5		A
Basisstrom	I_B		100		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$[1]	P_{tot}		0,8 (1)		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		–65...+150		°C

Wärmewiderstand

Sperrschicht-Umgebung[1]	R_{thJA}		≦156		K/W
Sperrschicht-Gehäuse	R_{thJC}		≦55		K/W

[1]) Werden die Transistoren mit (max.) 4 mm langen Anschlußdrähten auf Leiterplatten mit (min.) 10 mm x 10 mm großer Kupferfläche für den Kollektoranschluß montiert, ist R_{thJA} = 125 K/W und damit $P_{tot\,(max)}$ = 1 W bei $T_A = 25\,°C$.

Kennwerte

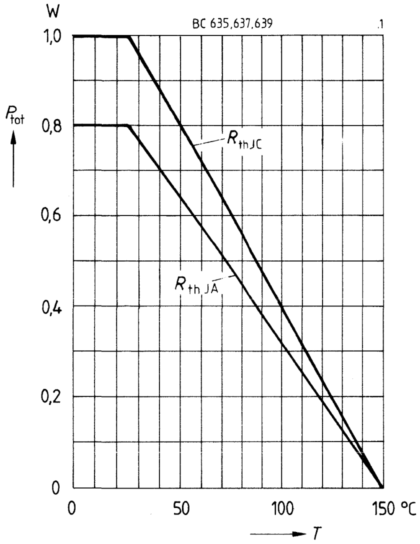
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ mA	$V_{(BR)CEO}$				
BC 635		45	–	–	V
BC 637		60	–	–	V
BC 639		80	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100\ \mu A$	$V_{(BR)CBO}$				
BC 635		45	–	–	V
BC 637		60	–	–	V
BC 639		100	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10\ \mu A$	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	100	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	nA
Stromverstärkung	h_{FE}				
$I_C =$ 5 mA; $V_{CE} = 2$ V		25	–	–	–
$I_C = 150$ mA; $V_{CE} = 2$ V[1])					
BC 635-6, BC 637-6, BC 639-6		40	63	100	–
BC 635-10, BC 637-10, BC 639-10		63	100	160	–
BC 635-16		100	160	250	–
$I_C = 500$ mA; $V_{CE} = 2$ V[1])		25	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 500$ mA; $I_B = 50$ mA	V_{CEsat}	–	–	500	mV
Basis-Emitter-Spannung[1]) $I_C = 500$ mA; $V_{CE} = 2$ V	V_{BE}	–	–	1	V

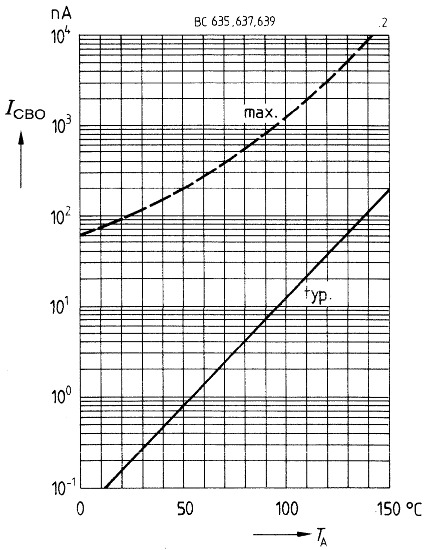
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

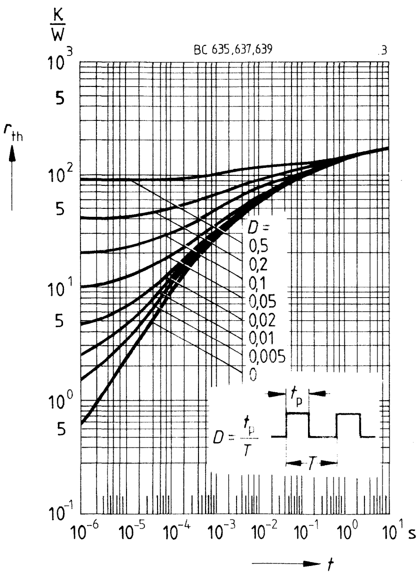
Gesamtverlustleistung $P_{tot} = f\ (T)$



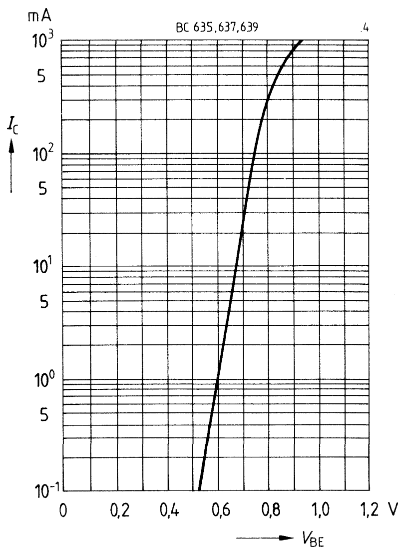
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 30$ V



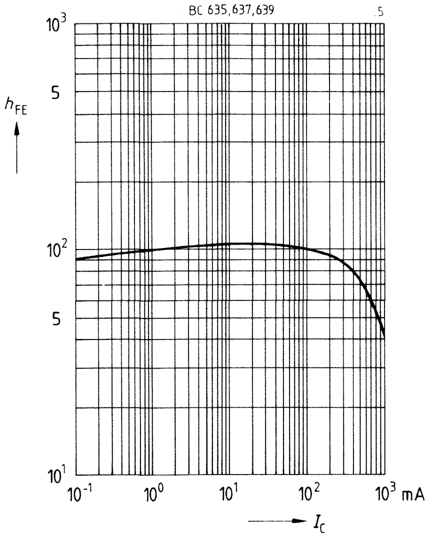
Impulsbelastbarkeit $r_{th} = f\ (t)$



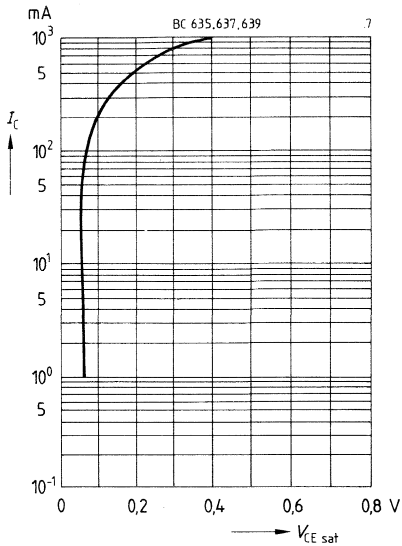
Kollektorstrom $I_C = f\ (V_{BE})$
$V_{CE} = 2$ V



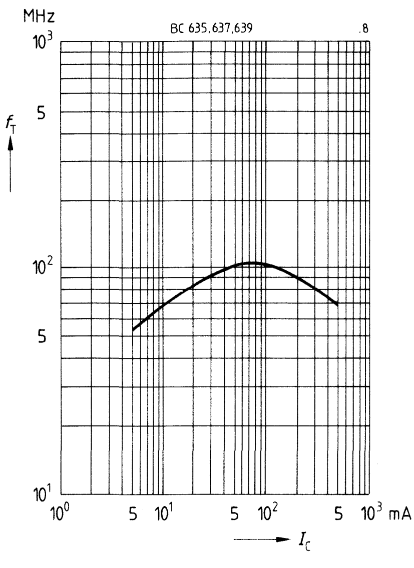
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 2$ V



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 10$



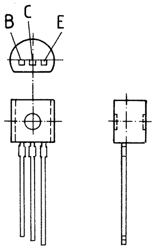
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



Silizium-PNP-NF-Transistoren

BC 636 ...BC 640

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BC 635, BC 637, BC 639



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BC 636	Q68000-A3365	BC 638	Q68000-A3366	BC 640	Q68000-A3367

Auf Wunsch sind die Transistoren selektiert als –10 (h_{FE} = 63...160) bzw. –16 (h_{FE} = 100...250) lieferbar. Bestellnummern auf Anfrage.

Grenzwerte

Bezeichnung	Symbol	BC 636	BC 638	BC 640	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	60	80	V
Kollektor-Basis-Spannung	V_{CBO}	45	60	100	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		1		A
Kollektorspitzenstrom	I_{CM}		1,5		A
Basisstrom	I_B		100		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$[1])	P_{tot}		0,8 (1)		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		–65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung[1])	R_{thJA}		≦156		K/W
Sperrschicht-Gehäuse	R_{thJC}		≦55		K/W

[1]) Werden die Transistoren mit max. 4 mm langen Anschlußdrähten auf Leiterplatten mit min. 10 mm x 10 mm großer Kupferfläche für den Kollektoranschluß montiert, ist R_{thJA} = 125 K/W und damit $P_{tot\,(max.)}$ = 1 W bei $T_A = 25\,°C$.

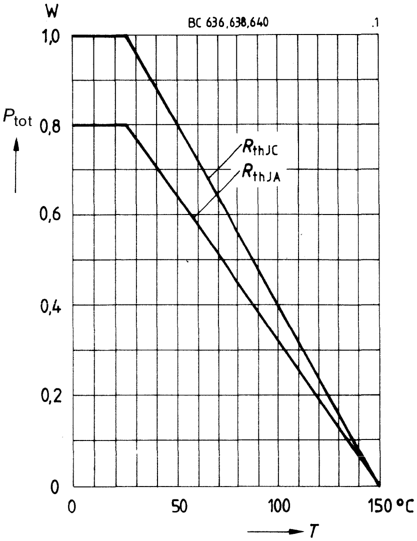
Kennwerte
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ mA	$V_{(BR)CEO}$				
BC 636		45	–	–	V
BC 638		60	–	–	V
BC 640		80	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100\ \mu A$	$V_{(BR)CBO}$				
BC 636		45	–	–	V
BC 638		60	–	–	V
BC 640		100	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10\ \mu A$	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	100	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	nA
Stromverstärkung	h_{FE}				
$I_C = 5$ mA; $V_{CE} = 2$ V		25	–	–	–
$I_C = 150$ mA; $V_{CE} = 2$ V[1])					
BC 636-6, BC 638-6, BC 640-6		40	63	100	–
BC 636-10, BC 638-10, BC 640-10		63	100	160	–
BC 636-16		100	160	250	–
$I_C = 500$ mA; $V_{CE} = 2$ V[1])		25	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 500$ mA; $I_B = 50$ mA	V_{CEsat}	–	–	500	V
Basis-Emitter-Spannung[1]) $I_C = 500$ mA; $V_{CE} = 2$ V	V_{BE}	–	–	1	V

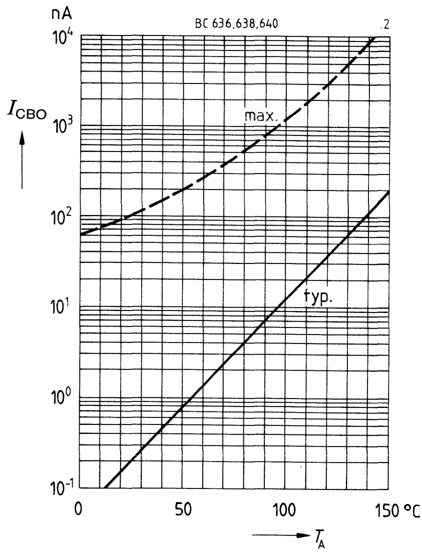
Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

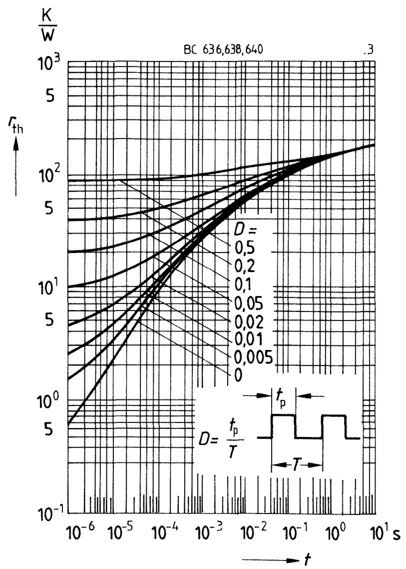
Gesamtverlustleistung $P_{tot} = f(T)$



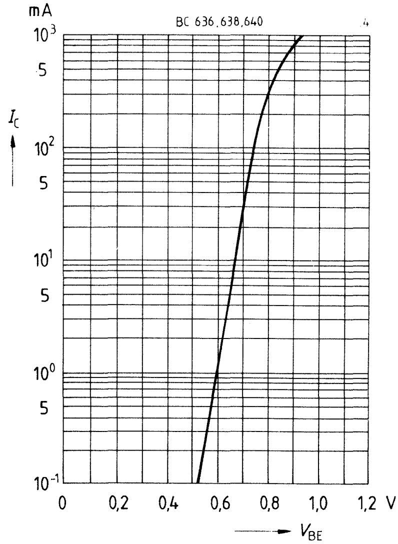
Reststrom $I_{CBO} = f(T_A)$
$V_{CB} = 30$ V



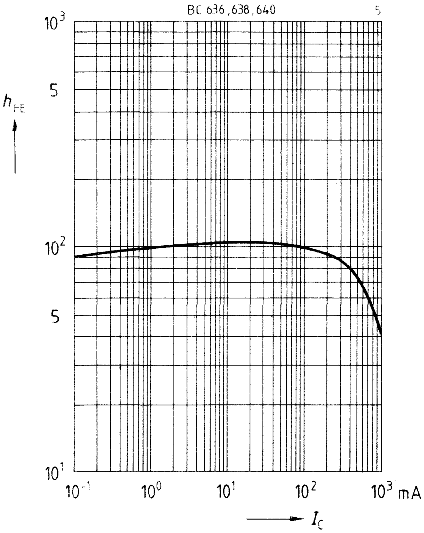
Impulsbelastbarkeit $r_{th} = f(t)$



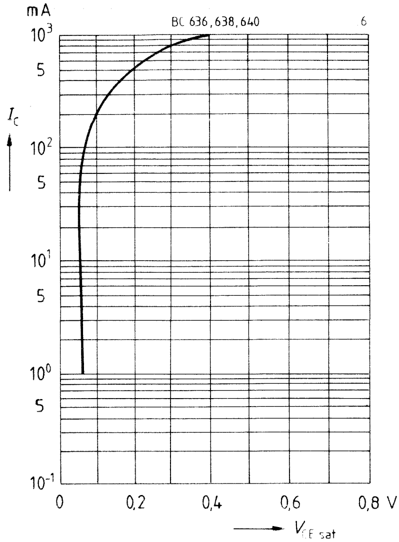
Kollektorstrom $I_C = f(V_{BE})$
$V_{CE} = 2$ V



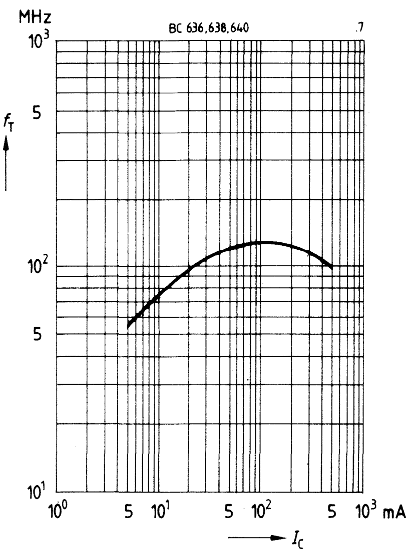
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 2$ V



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 10$



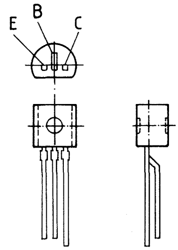
Transitfrequenz $f_T = f\ (I_C)$



Silizium-NPN-NF-Transistoren

BCX 58
BCX 59

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BCX 78, BCX 79



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BCX 58 VIII	Q62702-C619	BCX 59 VIII	Q62702-C623
BCX 58 IX	Q62702-C620	BCX 59 IX	Q62702-C624
BCX 58 X	Q62702-C621	BCX 59 X	Q62702-C625

Grenzwerte

Bezeichnung	Symbol	BCX 58	BCX 59	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	32	45	V
Kollektor-Basis-Spannung	V_{CBO}	32	45	V
Emitter-Basis-Spannung	V_{EBO}	7		V
Kollektorstrom	I_C	100		mA
Kollektorspitzenstrom	I_{CM}	200		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	500		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65…+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 250$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 150$		K/W

Kennwerte

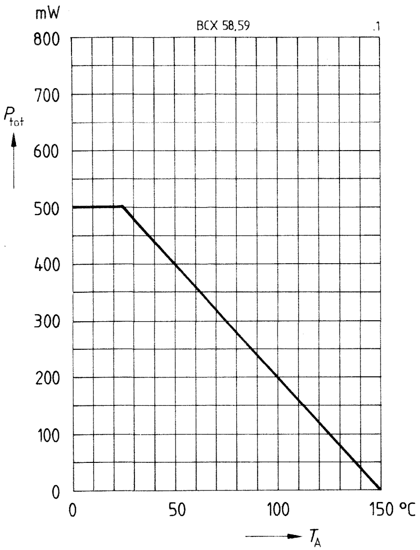
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 2$ mA	BCX 58		32	–	–	V
	BCX 59		45	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 10\ \mu A$	BCX 58		32	–	–	V
	BCX 59		45	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 1\ \mu A$		$V_{(BR)EBO}$	7	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 32$ V	BCX 58		–	–	20	nA
$V_{CB} = 45$ V	BCX 59		–	–	20	nA
$V_{CB} = 32$ V, $T_A = 150\,°C$	BCX 58		–	–	10	µA
$V_{CB} = 45$ V, $T_A = 150\,°C$	BCX 59		–	–	10	µA
Kollektor-Emitter-Reststrom		I_{CEX}				
$V_{CE} = 32$ V, $V_{BE} = 0{,}2$ V, $T_A = 100\,°C$			–	–	20	µA
$V_{CE} = 45$ V, $V_{BE} = 0{,}2$ V, $T_A = 100\,°C$			–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V		I_{EBO}	–	–	20	nA
Stromverstärkung		h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V						
	BCX 58 VII, BCX 59 VII		20	78	–	–
	BCX 58 VIII, BCX 59 VIII		20	145	–	–
	BCX 58 IX, BCX 59 IX		40	220	–	–
	BCX 58 X, BCX 59 X		100	300	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V						
	BCX 58 VII, BCX 59 VII		120	170	220	–
	BCX 58 VIII, BCX 59 VIII		180	250	310	–
	BCX 58 IX, BCX 59 IX		250	350	460	–
	BCX 58 X, BCX 59 X		380	500	630	–
$I_C = 100$ mA; $V_{CE} = 1$ V[1])						
	BCX 58 VII, BCX 59 VII		40	–	–	–
	BCX 58 VIII, BCX 59 VIII		45	–	–	–
	BCX 58 IX, BCX 59 IX		60	–	–	–
	BCX 58 X, BCX 59 X		60	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 100$ mA; $I_B = 2{,}5$ mA		V_{CEsat}	–	–	0,5	V
Basis-Emitter-Sättigungsspannung[1]) $I_C = 100$ mA; $I_B = 2{,}5$ mA		V_{BEsat}	–	–	1,0	V
Basis-Emitter-Spannung		$V_{BE(on)}$				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V			–	0,52	–	V
$I_C = 2$ mA; $V_{CE} = 5$ V			0,55	0,65	0,75	V
$I_C = 100$ mA; $V_{CE} = 1$ V[1])			–	0,83	–	V

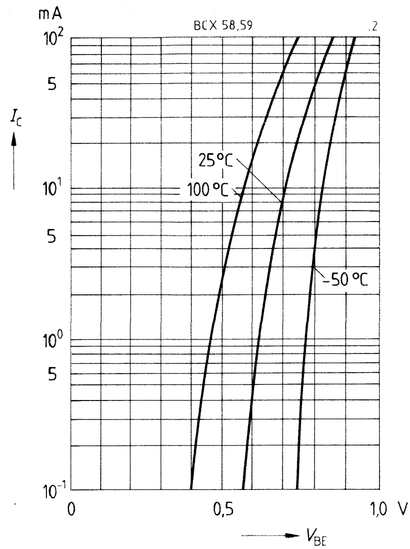
[1]) Pulstest: $t \leq 300\ \mu s$, $D \leq 2\%$

Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	8	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BCX 58 VII, BCX 59 VII		–	2,7	–	kΩ
BCX 58 VIII, BCX 59 VIII		–	3,6	–	kΩ
BCX 58 IX, BCX 59 IX		–	4,5	–	kΩ
BCX 58 X, BCX 59 X		–	7,5	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BCX 58 VII, BCX 59 VII		–	1,5	–	10^{-4}
BCX 58 VIII, BCX 59 VIII		–	2	–	10^{-4}
BCX 58 IX, BCX 59 IX		–	2	–	10^{-4}
BCX 58 X, BCX 59 X		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BCX 58 VII, BCX 59 VII		–	200	–	–
BCX 58 VIII, BCX 59 VIII		–	260	–	–
BCX 58 IX, BCX 59 IX		–	330	–	–
BCX 58 X, BCX 59 X		–	520	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BCX 58 VII, BCX 59 VII		–	18	–	µS
BCX 58 VIII, BCX 59 VIII		–	24	–	µS
BCX 58 IX, BCX 59 IX		–	30	–	µS
BCX 58 X, BCX 59 X		–	50	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F	–	2	–	dB

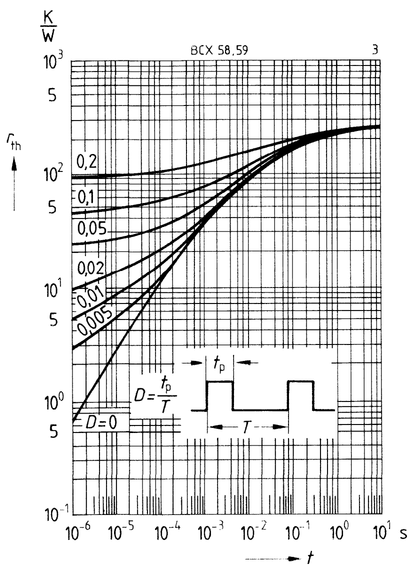
Gesamtverlustleistung $P_{tot} = f(T_A)$



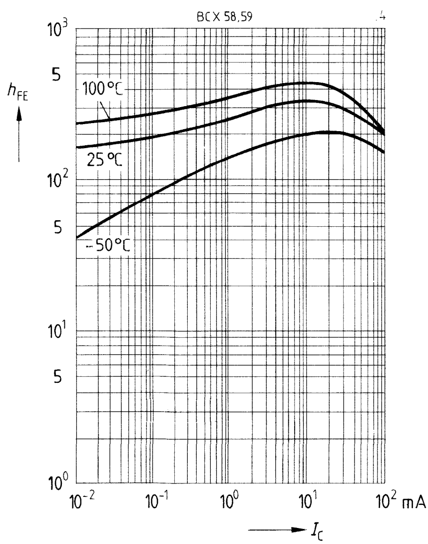
Kollektorstrom $I_C = f(V_{BE})$
$V_{CE} = 5$ V (Emitterschaltung)



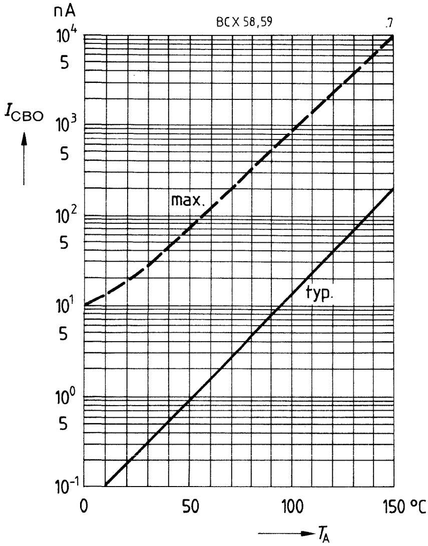
Impulsbelastbarkeit $r_{th} = f(t)$



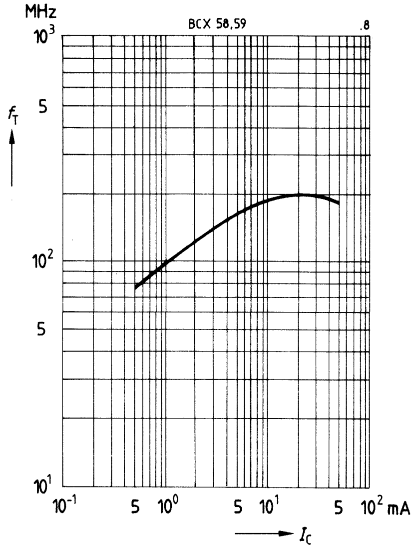
Stromverstärkung $h_{FE} = f(I_C)$
$V_{CE} = 5$ V (Emitterschaltung)



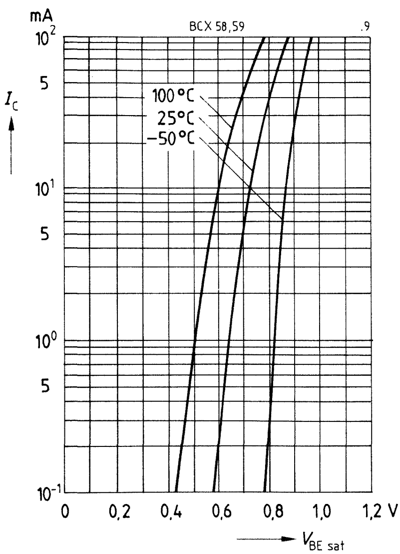
Reststrom $I_{CBO} = f\,(T_A)$
$V_{CB} = 45$ V



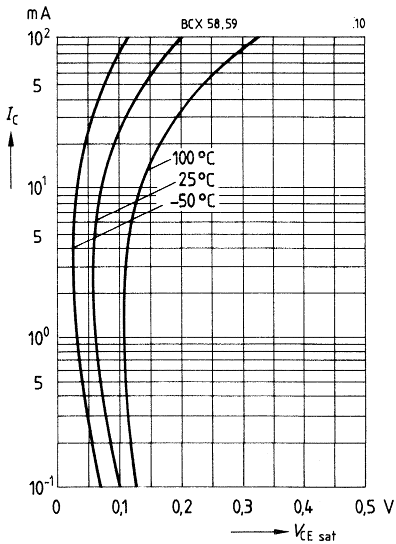
Transitfrequenz $f_T = f\,(I_C)$
$V_{CE} = 5$ V, $f = 100$ MHz



Sättigungsspannung $V_{BEsat} = f\,(I_C)$
$h_{FE} = 20$



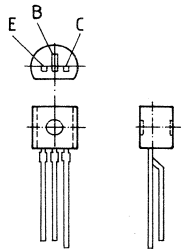
Sättigungsspannung $V_{CEsat} = f\,(I_C)$
$h_{FE} = 20$



Silizium-NPN-NF-Transistoren

BCX 73
BCX 74

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BCX 75, BCX 76



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BCX 73	Q62702–C634	BCX 74	Q62702–C635
BCX 73-16	Q62702–C634-S1	BCX 74-16	Q62702–C635-S1
BCX 73-25	Q62702–C634-S2	BCX 74-25	Q62702–C635-S2
BCX 73-40	Q62702–C634-S3	BCX 74-40	Q62702–C635-S3

Grenzwerte

Bezeichnung	Symbol	BCX 73	BCX 74	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	32	45	V
Kollektor-Basis-Spannung	V_{CBO}	60	75	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	800		mA
Kollektorspitzenstrom	I_{CM}	1		A
Basisstrom	I_B	100		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$		K/W

Kennwerte

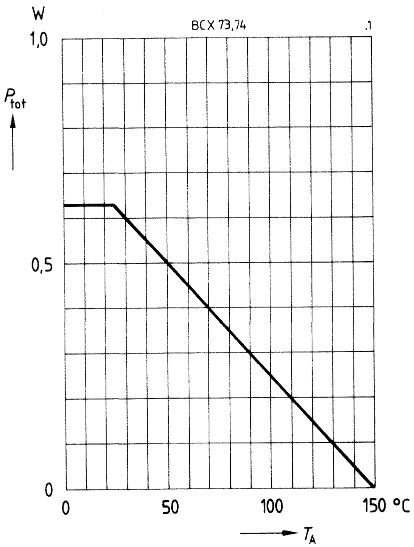
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 10$ mA	BCX 73		32	–	–	V
	BCX 74		45	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 100\ \mu A$	BCX 73		60	–	–	V
	BCX 74		75	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10\ \mu A$		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 35$ V	BCX 73		–	–	20	nA
$V_{CB} = 45$ V	BCX 74		–	–	20	nA
$V_{CB} = 35$ V, $T_A = 150\,°C$	BCX 73		–	–	5	µA
$V_{CB} = 45$ V, $T_A = 150\,°C$	BCX 74		–	–	5	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V		I_{EBO}	–	–	100	nA
Stromverstärkung		h_{FE}				
$I_C = 100\ \mu A$; $V_{CE} = 10$ V			35	–	–	–
$I_C = 1$ mA; $V_{CE} = 1$ V			50	–	–	–
$I_C = 10$ mA; $V_{CE} = 1$ V			75	–	–	–
$I_C = 100$ mA; $V_{CE} = 1$ V[1]						
	BCX 73-16; BCX 74-16		100	160	250	–
	BCX 73-25; BCX 74-25		160	250	400	–
	BCX 73-40; BCX 74-40		250	350	630	–
$I_C = 500$ mA; $V_{CE} = 2$ V[1]			35	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]		V_{CEsat}				
$I_C = 100$ mA; $I_B = 10$ mA			–	–	0,25	V
$I_C = 500$ mA; $I_B = 50$ mA			–	–	0,6	V
Basis-Emitter-Sättigungsspannung[1] $I_C = 500$ mA; $I_B = 50$ mA		V_{BEsat}	–	–	1,5	V

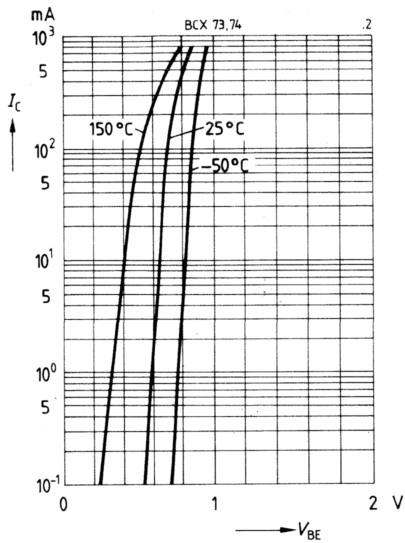
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	170	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	8	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	60	–	pF

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

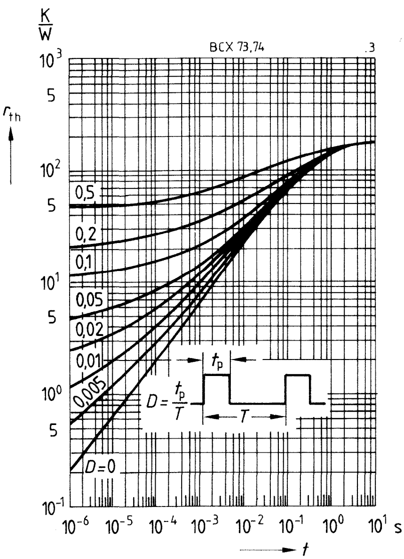
Gesamtverlustleistung $P_{tot} = f\,(T_A)$



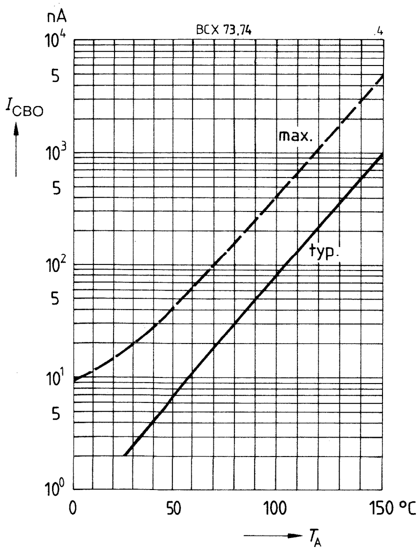
Kollektorstrom $I_C = f\,(V_{BE})$
$V_{CE} = 1$ V



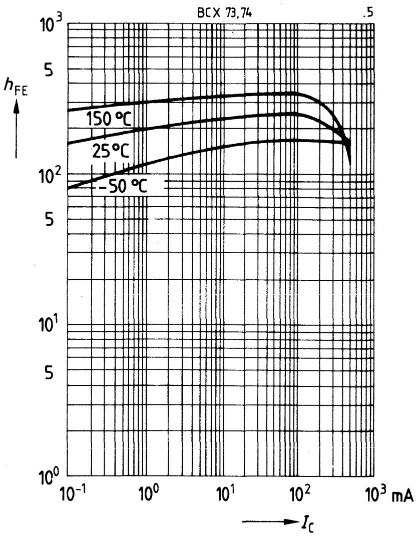
Impulsbelastbarkeit $r_{th} = f\,(t)$



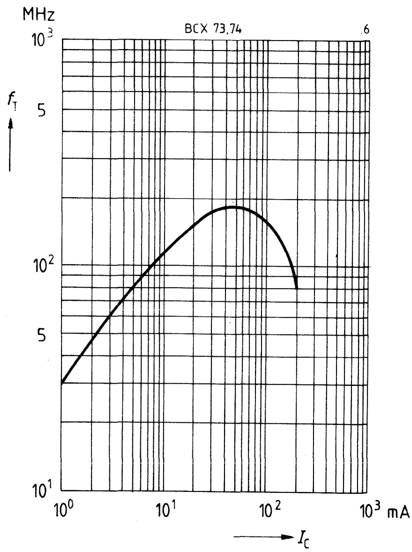
Reststrom $I_{CBO} = f\,(T_A)$
$V_{CB} = 45$ V



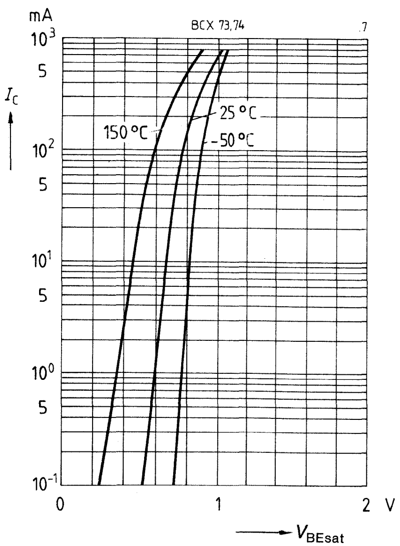
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 1$ V



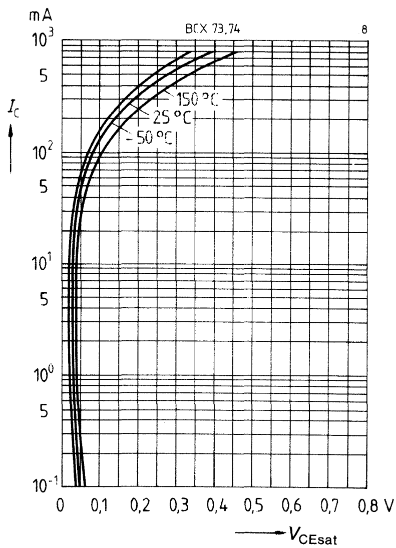
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 5$ V, $f = 200$ MHz



Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 10$



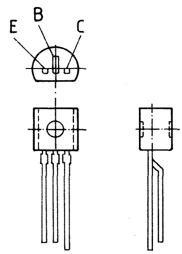
Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 10$ (Emitterschaltung)



Silizium-PNP-NF-Transistoren

BCX 75
BCX 76

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BCX 73, BCX 74



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BCX 75	Q62702–C636	BCX 76	Q62702–C637
BCX 75-16	Q62702–C636-S1	BCX 76-16	Q62702–C637-S1
BCX 75-25	Q62702–C636-S2	BCX 76-25	Q62702–C637-S2
BCX 75-40	Q62702–C636-S3	BCX 76-40	Q62702–C637-S3

Grenzwerte

Bezeichnung	Symbol	BCX 75	BCX 76	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	32	45	V
Kollektor-Basis-Spannung	V_{CBO}	60	75	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	800		mA
Kollektorspitzenstrom	I_{CM}	1		A
Basisstrom	I_B	100		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$		K/W

Kennwerte

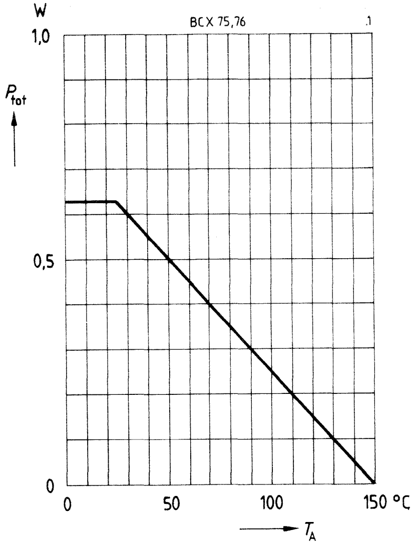
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 10$ mA	BCX 75		32	–	–	V
	BCX 76		45	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 100$ µA	BCX 75		60	–	–	V
	BCX 76		75	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10$ µA		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 32$ V	BCX 75		–	–	20	nA
$V_{CB} = 45$ V	BCX 76		–	–	20	nA
$V_{CB} = 32$ V, $T_A = 150\,°C$	BCX 75		–	–	5	µA
$V_{CB} = 45$ V, $T_A = 150\,°C$	BCX 76		–	–	5	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V		I_{EBO}	–	–	100	nA
Stromverstärkung		h_{FE}				
$I_C = 100$ µA; $V_{CE} = 10$ V			35	–	–	–
$I_C = 1$ mA; $V_{CE} = 1$ V			50	–	–	–
$I_C = 10$ mA; $V_{CE} = 1$ V			75	–	–	–
$I_C = 100$ mA; $V_{CE} = 1$ V[1]						
	BCX 75-16; BCX 76-16		100	160	250	–
	BCX 75-25; BCX 76-25		160	250	400	–
	BCX 75-40; BCX 76-40		250	350	630	–
$I_C = 500$ mA; $V_{CE} = 2$ V[1]			35	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]		V_{CEsat}				
$I_C = 100$ mA; $I_B = 10$ mA			–	–	0,25	V
$I_C = 500$ mA; $I_B = 50$ mA			–	–	0,6	V
Basis-Emitter-Sättigungsspannung[1] $I_C = 500$ mA; $I_B = 50$ mA		V_{BEsat}	–	–	1,5	V

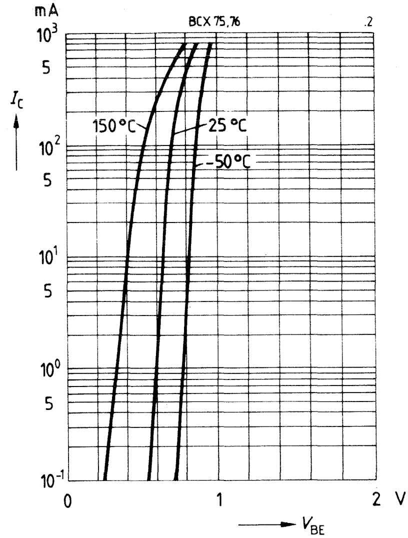
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	12	–	pF
Eingangskapazität $V_{EB} = 0,5$ V, $f = 1$ MHz	C_{ib}	–	60	–	pF

[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

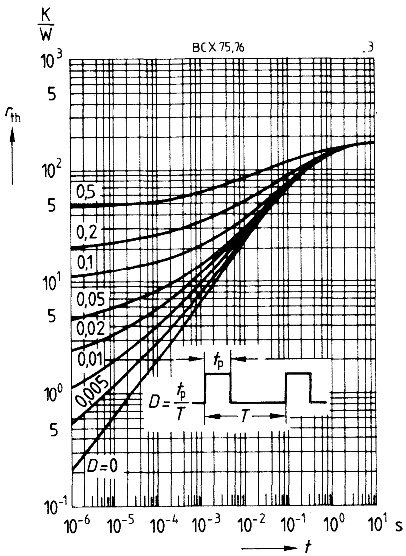
Gesamtverlustleistung $P_{tot} = f\ (T_A)$



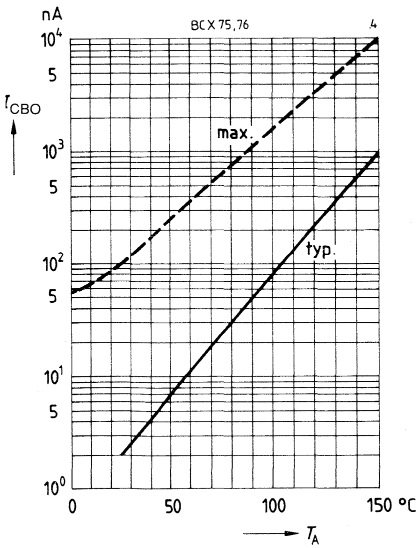
Kollektorstrom $I_C = f\ (V_{BE})$
$V_{CE} = 1$ V



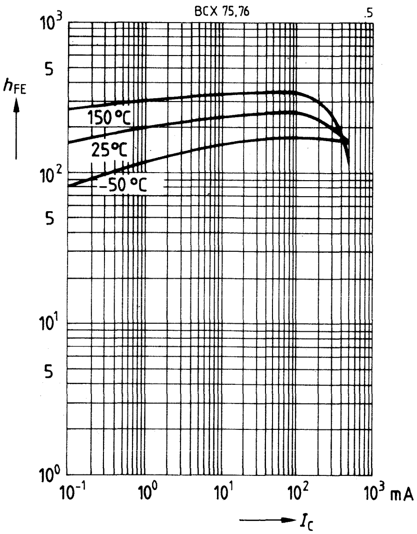
Impulsbelastbarkeit $r_{th} = f\ (t)$



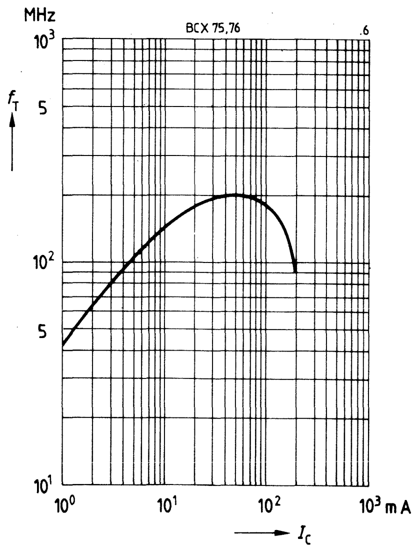
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 45$ V



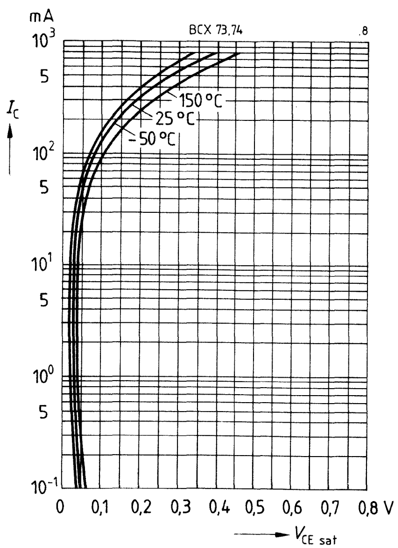
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 1$ V, T_A = Parameter



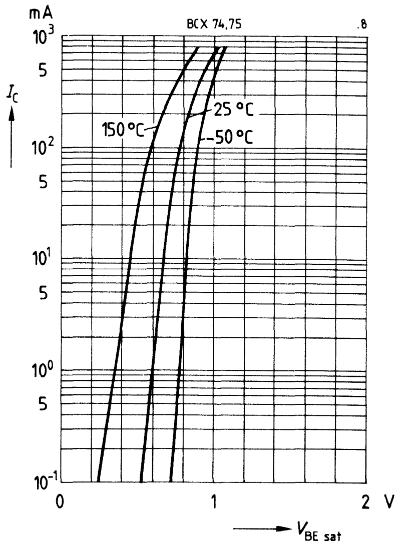
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 5$ V, $f = 20$ MHz



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 10$



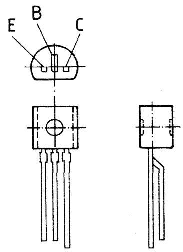
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 10$



Silizium-PNP-NF-Transistoren

BCX 78
BCX 79

- Hohe Stromverstärkung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Rauschwerte bei 1 kHz
- Niedrige Rauschwerte bei niedrigen Frequenzen
- Komplementäre NPN-Typen: BCX 58, BCX 59



TO 92-Gehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BCX 78	Q62702-C717	BCX 79	Q62702-C718
BCX 78-VII	Q62702-C626	BCX 79-VII	Q62702-C630
BCX 78-VIII	Q62702-C627	BCX 79-VIII	Q62702-C631
BCX 78-IX	Q62702-C628	BCX 79-IX	Q62702-C632
BCX 78-X	Q62702-C629	BCX 79-X	Q62702-C633

Grenzwerte

Bezeichnung	Symbol	BCX 78	BCX 79	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	32	45	V
Kollektor-Basis-Spannung	V_{CBO}	32	45	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	100		mA
Kollektorspitzenstrom	I_{CM}	200		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	500		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	≤ 250		K/W
Sperrschicht-Gehäuse	R_{thJC}	≤ 150		K/W

Kennwerte

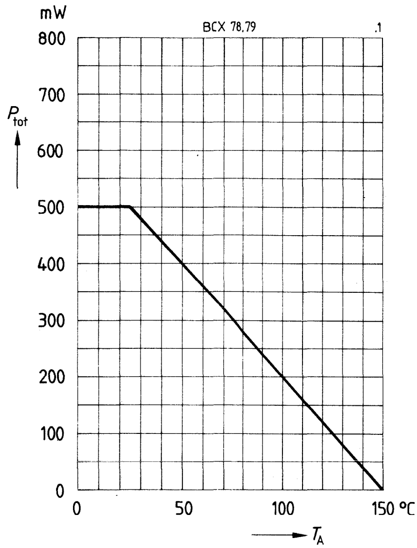
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 2$ mA	BCX 78		32	–	–	V
	BCX 79		45	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 10\ \mu A$	BCX 78		32	–	–	V
	BCX 79		45	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 1\ \mu A$		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 32$ V	BCX 78		–	–	20	nA
$V_{CB} = 45$ V	BCX 79		–	–	20	nA
$V_{CB} = 32$ V, $T_A = 150\,°C$	BCX 78		–	–	10	µA
$V_{CB} = 45$ V, $T_A = 150\,°C$	BCX 79		–	–	10	µA
Kollektor-Emitter-Reststrom		I_{CEX}				
$V_{CE} = 32$ V, $V_{BE} = 0{,}2$ V, $T_A = 100\,°C$			–	–	20	µA
$V_{CE} = 45$ V, $V_{BE} = 0{,}2$ V, $T_A = 100\,°C$			–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V		I_{EBO}	–	–	20	nA
Stromverstärkung		h_{FE}				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V						
	BCX 78 VII, BCX 79 VII		20	140	–	–
	BCX 78 VIII, BCX 79 VIII		30	200	–	–
	BCX 78 IX, BCX 79 IX		40	270	–	–
	BCX 78 X, BCX 79 X		100	340	–	–
$I_C = 2$ mA; $V_{CE} = 5$ V						
	BCX 78 VII, BCX 79 VII		120	170	220	–
	BCX 78 VIII, BCX 79 VIII		180	250	310	–
	BCX 78 IX, BCX 79 IX		250	350	460	–
	BCX 78 X, BCX 79 X		380	500	630	–
$I_C = 100$ mA; $V_{CE} = 1$ V[1])						
	BCX 78 VII, BCX 79 VII		40	–	–	–
	BCX 78 VIII, BCX 79 VIII		45	–	–	–
	BCX 78 IX, BCX 79 IX		60	–	–	–
	BCX 78 X, BCX 79 X		60	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 100$ mA; $I_B = 2{,}5$ mA		V_{CEsat}	–	–	0,6	V
Basis-Emitter-Sättigungsspannung[1]) $I_C = 100$ mA; $I_B = 2{,}5$ mA		V_{BEsat}	–	–	1	V
Basis-Emitter-Spannung		$V_{BE(on)}$				
$I_C = 10\ \mu A$; $V_{CE} = 5$ V			–	0,52	–	V
$I_C = 2$ mA; $V_{CE} = 5$ V			0,55	0,65	0,75	V
$I_C = 100$ mA, $V_{CE} = 1$ V[1])			–	0,93	–	V

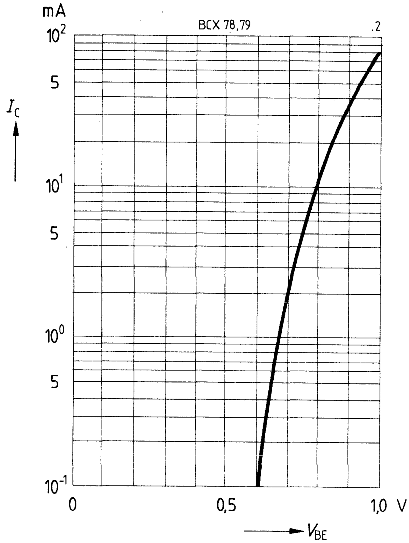
[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 5$ V, $f = 100$ MHz	f_T	–	250	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3	–	pF
Eingangskapazität $V_{EB} = 0{,}5$ V, $f = 1$ MHz	C_{ib}	–	10	–	pF
Kurzschluß-Eingangswiderstand $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{11e}				
BCX 78 VII, BCX 79 VII		–	2,7	–	kΩ
BCX 78 VIII, BCX 79 VIII		–	3,6	–	kΩ
BCX 78 IX, BCX 79 IX		–	4,5	–	kΩ
BCX 78 X, BCX 79 X		–	7,5	–	kΩ
Leerlauf-Spannungsrückwirkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{12e}				
BCX 78 VII, BCX 79 VII		–	1,5	–	10^{-4}
BCX 78 VIII, BCX 79 VIII		–	2	–	10^{-4}
BCX 78 IX, BCX 79 IX		–	2	–	10^{-4}
BCX 78 X, BCX 79 X		–	3	–	10^{-4}
Kurzschluß-Vorwärtsstromverstärkung $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{21e}				
BCX 78 VII, BCX 79 VII		–	200	–	–
BCX 78 VIII, BCX 79 VIII		–	260	–	–
BCX 78 IX, BCX 79 IX		–	330	–	–
BCX 78 X, BCX 79 X		–	520	–	–
Leerlauf-Ausgangsleitwert $I_C = 2$ mA, $V_{CE} = 5$ V, $f = 1$ kHz	h_{22e}				
BCX 78 VII, BCX 79 VII		–	18	–	µS
BCX 78 VIII, BCX 79 VIII		–	24	–	µS
BCX 78 IX, BCX 79 IX		–	30	–	µS
BCX 78 X, BCX 79 X		–	50	–	µS
Rauschzahl $I_C = 0{,}2$ mA, $V_{CE} = 5$ V, $R_S = 2$ kΩ $f = 1$ kHz, $\Delta f = 200$ Hz	F	–	2	–	dB

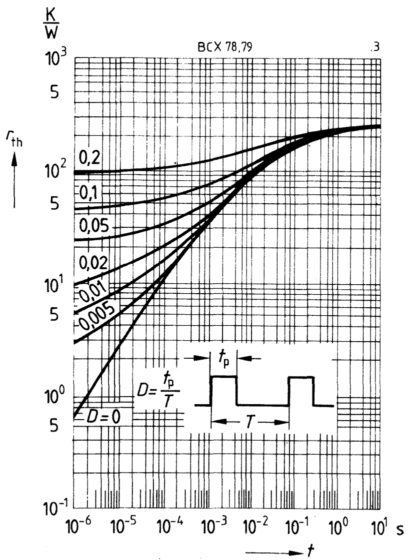
Gesamtverlustleistung $P_{tot} = f(T_A)$



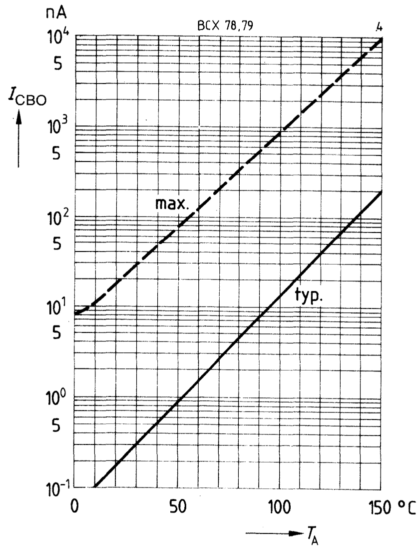
Kollektorstrom $I_C = f(V_{BE})$
$V_{CE} = 5$ V



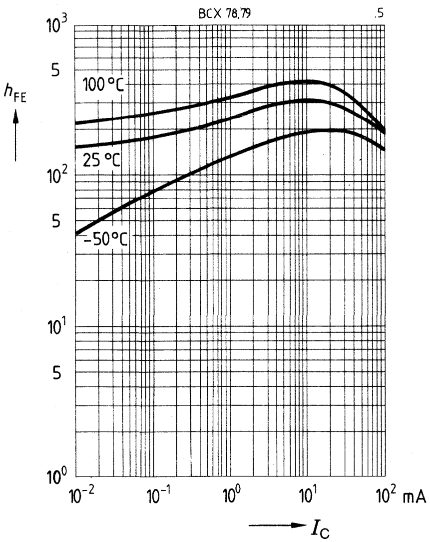
Zulässige Impulsbelastbarkeit $r_{th} = f(t)$



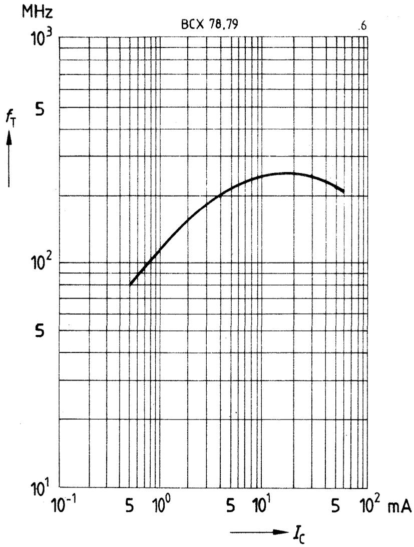
Reststrom $I_{CBO} = f(T_A)$
für max. zulässige Sperrspannung



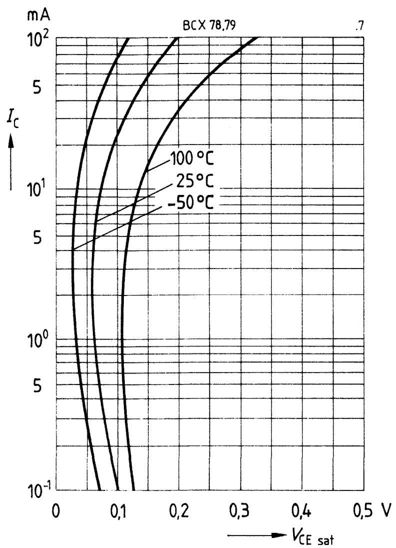
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 5$ V (Emitterschaltung)



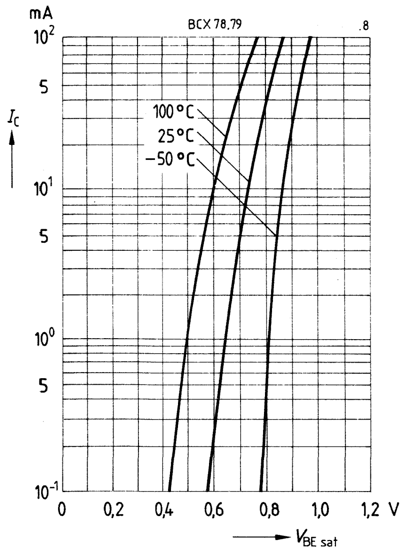
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 5$ V



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 20$



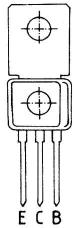
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 20$



Silizium-NPN-NF-Transistoren

BD 825 ...BD 829

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BD 826, BD 828, BD 830



TO 202-Kunststoffgehäuse
Gewicht: ca. 15 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BD 825	Q62702-D968	BD 827	Q62702-D970	BD 829	Q62702-D972
BD 825-6	Q62702-D932	BD 827-6	Q62702-D938	BD 829-6	Q62702-D942
BD 825-10	Q62702-D933	BD 827-10	Q62702-D939	BD 829-10	Q62702-D943
BD 825-16	Q62702-D934				

Grenzwerte

Bezeichnung	Symbol	BD 825	BD 827	BD 829	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	60	80	V
Kollektor-Basis-Spannung	V_{CBO}	45	60	100	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		1		A
Kollektorspitzenstrom	I_{CM}		1,5		A
Basistrom	I_B		100		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung $T_C = 25\,°C$	P_{tot}		8		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung	R_{thJA}		$\leqq 62{,}5$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 15$		K/W

Kennwerte

bei $T_A = 25\,°C$, wenn nicht anders angegeben

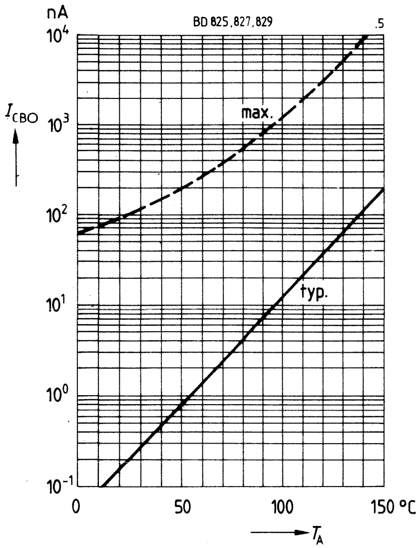
Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ mA	$V_{(BR)CEO}$				
BD 825		45	–	–	V
BD 827		60	–	–	V
BD 829		80	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100$ µA	$V_{(BR)CBO}$				
BD 825		45	–	–	V
BD 827		60	–	–	V
BD 829		100	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10$ µA	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	100	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	nA
Stromverstärkung	h_{FE}				
$I_C = 5$ mA; $V_{CE} = 2$ V		25	–	–	–
$I_C = 150$ mA; $V_{CE} = 2$ V					
BD 825-6, BD 827-6, BD 829-6		40	63	100	–
BD 825-10, BD 827-10, BD 829-10		63	100	160	–
BD 825-16		100	160	250	–
$I_C = 500$ mA; $V_{CE} = 2$ V[1])		25	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 500$ mA; $I_B = 50$ mA	V_{CEsat}	–	–	0,5	V
Basis-Emitter-Spannung[1]) $I_C = 500$ mA; $V_{CE} = 2$ V	V_{BE}	–	–	1	V

Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz

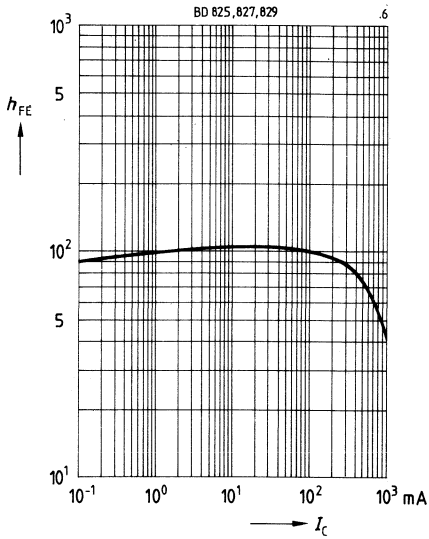
Leistungskennlinien wie PNP-Transistoren BD 826...BD 830 auf Seite 103.

[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

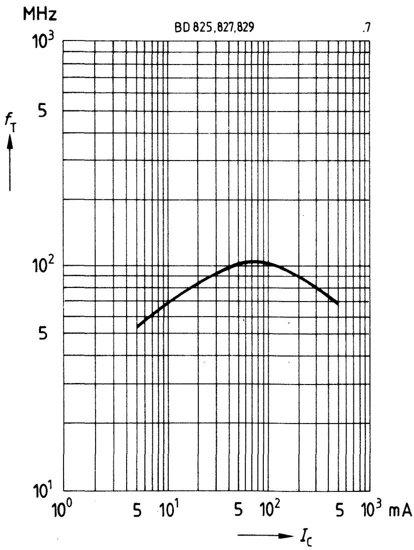
Reststrom $I_{CBO} = f\,(T_A)$
$V_{CB} = 30$ V



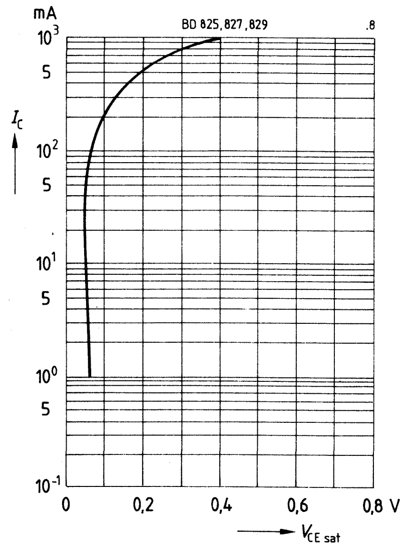
Stromverstärkung $h_{FE} = f\,(I_C)$
$V_{CE} = 2$ V



Transitfrequenz $f_T = f\,(I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



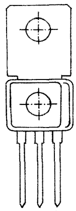
Sättigungsspannung $V_{CEsat} = f\,(I_C)$
$h_{FE} = 10$



Silizium-PNP-NF-Transistoren

BD 826 ...BC 830

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BC 825, BC 827, BC 829



TO 202-Kunststoffgehäuse
Gewicht: ca. 15 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BD 826	Q62702-D969	BD 828	Q62702-D971	BD 830	Q62702-D973
BD 826-6	Q62702-D935	BD 828-6	Q62702-D940	BD 830-6	Q62702-D944
BD 826-10	Q62702-D936	BD 828-10	Q62702-D941	BD 830-10	Q62702-D945
BD 826-16	Q62702-D937				

Grenzwerte

Bezeichnung	Symbol	BD 826	BD 828	BD 830	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	60	80	V
Kollektor-Basis-Spannung	V_{CBO}	45	60	100	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		1		A
Kollektorspitzenstrom	I_{CM}		1,5		A
Basisstrom	I_B		100		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung $T_C = 25\,°C$	P_{tot}		8		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung	R_{thJA}		≦62,5		K/W
Sperrschicht-Gehäuse	R_{thJC}		≦15		K/W

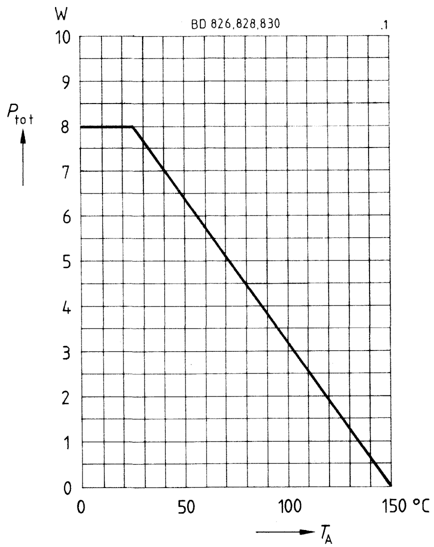
Kennwerte
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ mA	$V_{(BR)CEO}$				
BD 826		45	–	–	V
BD 828		60	–	–	V
BD 830		80	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100\ \mu A$	$V_{(BR)CBO}$				
BD 826		45	–	–	V
BD 828		60	–	–	V
BD 830		100	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10\ \mu A$	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = 30$ V		–	–	100	nA
$V_{CB} = 30$ V, $T_A = 150\,°C$		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	nA
Stromverstärkung	h_{FE}				
$I_C = 5$ mA; $V_{CE} = 2$ V		25	–	–	–
$I_C = 150$ mA; $V_{CE} = 2$ V					
BD 826-6, BD 828-6, BD 830-6		40	63	100	–
BD 826-10, BD 828-10, BD 830-10		63	100	160	–
BD 826-16		100	160	250	–
$I_C = 500$ mA; $V_{CE} = 2$ V[1]		25	–	–	–
Kollektor-Emitter-Sättigungsspannung[1] $I_C = 500$ mA; $I_B = 50$ mA	V_{CEsat}	–	–	500	V
Basis-Emitter-Spannung[1] $I_C = 500$ mA; $V_{CE} = 2$ V	V_{BE}	–	–	1	V

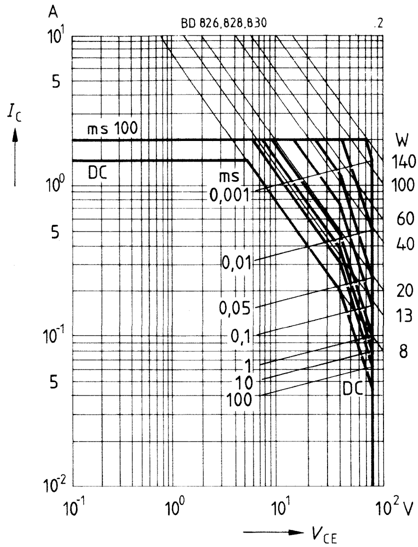
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	125	–	MHz

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

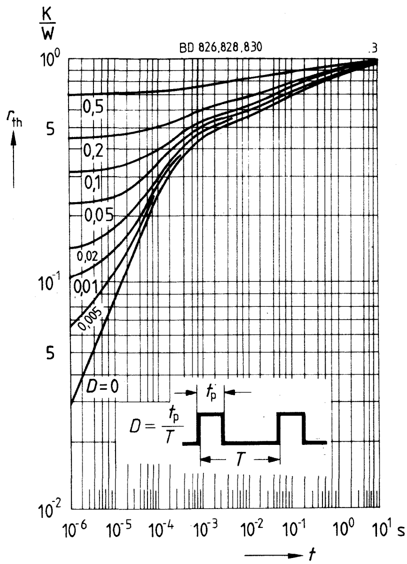
Gesamtverlustleistung $P_{tot} = f\ (T_A)$



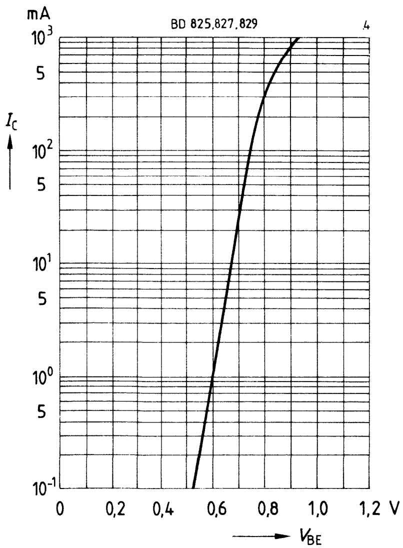
Betriebsbereich $I_C = f\ (V_{CE})$
$T_A = 25\ °C,\ D = 0$



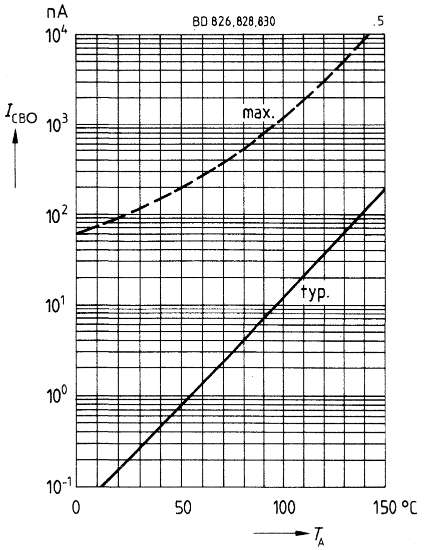
Impulsbelastbarkeit $r_{th} = f\ (t)$
(normiert)



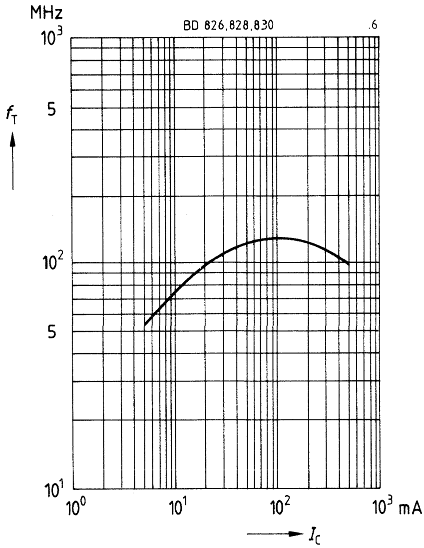
Kollektorstrom $I_C = f\ (V_{BE})$



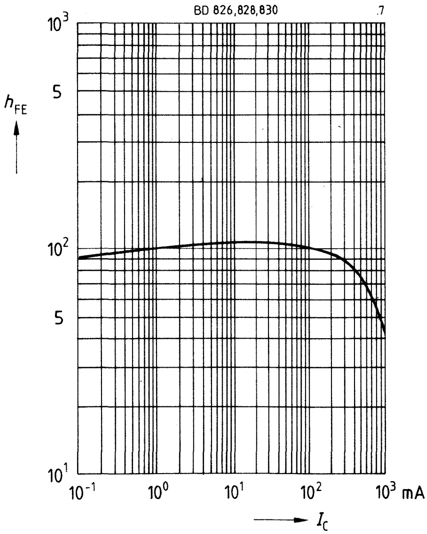
Reststrom $I_{CBO} = f\,(T_A)$
$V_{CB} = 30$ V



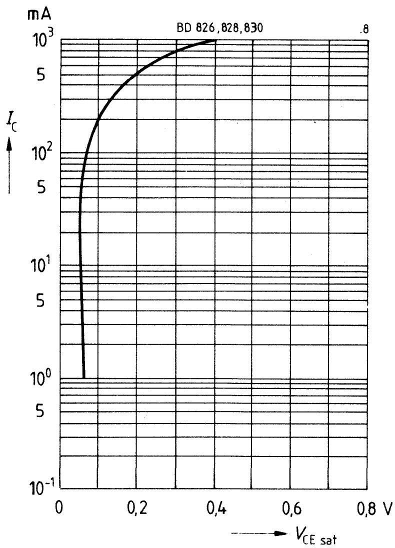
Transitfrequenz $f_T = f\,(I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



Stromverstärkung $h_{FE} = f\,(I_C)$
$V_{CE} = 2$ V



Sättigungsspannung $V_{CEsat} = f\,(I_C)$
$h_{FE} = 10$

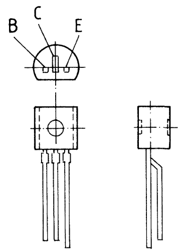


Transistoren mit hohen Sperrspannungen

Silizium-NPN-Transistoren mit hohen Sperrspannungen

BF 420 BF 422

- Hohe Durchbruchspannung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Kapazität
- Komplementäre PNP-Typen: BF 421, BF 423



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	**Bestellnummer**	**Typ**	**Bestellnummer**
BF 420	Q62702–F531	BF 422	Q62702–F495

Grenzwerte

Bezeichnung	**Symbol**	**BF 420**	**BF 422**	**Einheit**
Kollektor-Emitter-Spannung	V_{CEO}	–	250	V
Kollektor-Emitter-Spannung $R_{BE} = 2{,}7\ k\Omega$	V_{CER}	300	–	V
Kollektor-Basis-Spannung	V_{CBO}	300	250	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	50		mA
Basisspitzenstrom	I_{BM}	100		mA
Gesamtverlustleistung $T_A = 25\ °C$	P_{tot}	830		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 150$		K/W

Kennwerte

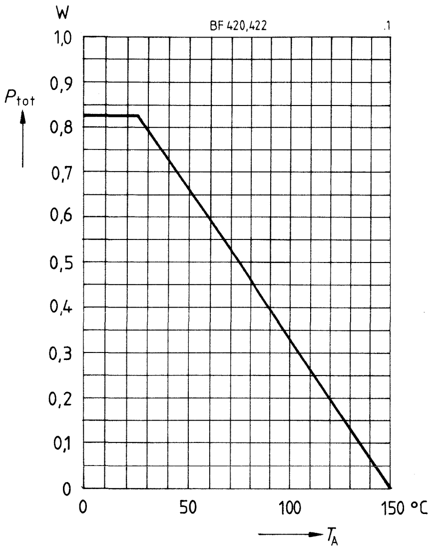
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 1$ mA	BF 422	$V_{(BR)CEO}$	250	–	–	V
Kollektor-Emitter-Durchbruchspannung $I_C = 10\ \mu A$, $R_{BE} = 2{,}7\ k\Omega$	BF 420	$V_{(BR)CER}$	300	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 10\ \mu A$	BF 420	$V_{(BR)CBO}$	300	–	–	V
	BF 422		250	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10\ \mu A$		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom $V_{CB} = 200$ V		I_{CBO}	–	–	10	nA
Kollektor-Basis-Reststrom $V_{CE} = 200$ V, $R_{BE} = 2{,}7\ k\Omega$, $T_A = 150\,°C$		I_{CER}	–	–	10	μA
Emitter-Basis-Reststrom $V_{EB} = 5$ V		I_{EBO}	–	–	10	μA
Stromverstärkung $I_C = 100\ \mu A$; $V_{CE} = 20$ V		h_{FE}	15	–	–	–
$I_C = 25$ mA; $V_{CE} = 20$ V			50	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 25$ mA; $T_j = 150\,°C$		$V_{CEsatHF}$	–	–	20	V

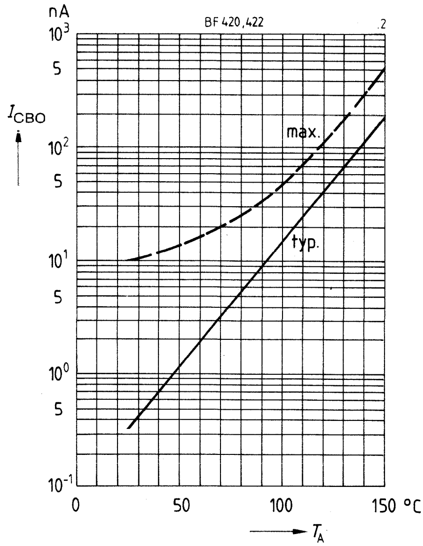
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 10$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz
Ausgangskapazität $V_{CB} = 30$ V, $f = 1$ MHz	C_{ob}	–	0,8	–	pF

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

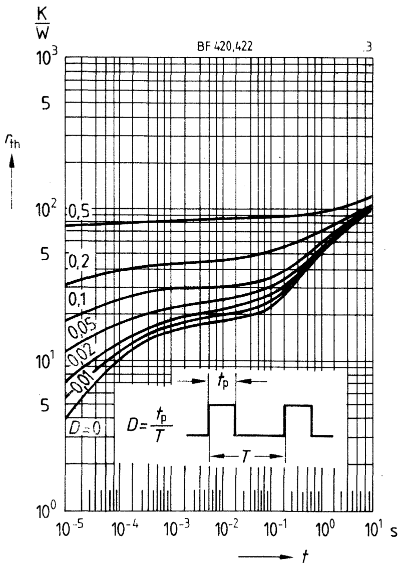
Gesamtverlustleistung $P_{tot} = f(T_A)$



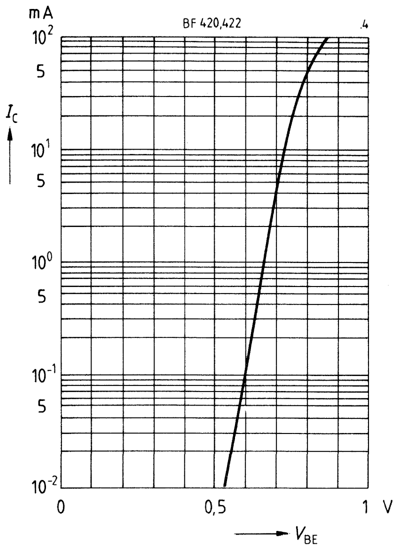
Reststrom $I_{CBO} = f(T_A)$
$V_{CB} = 200$ V



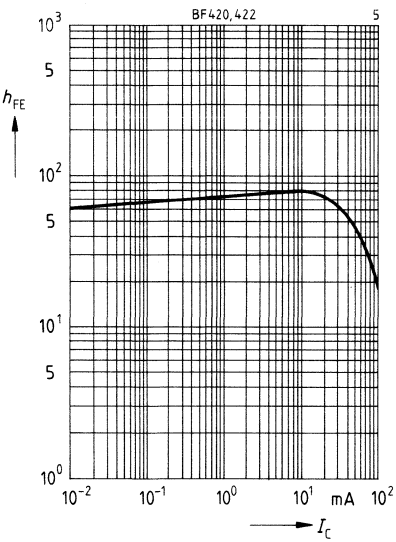
Impulsbelastbarkeit $r_{th} = f(t)$



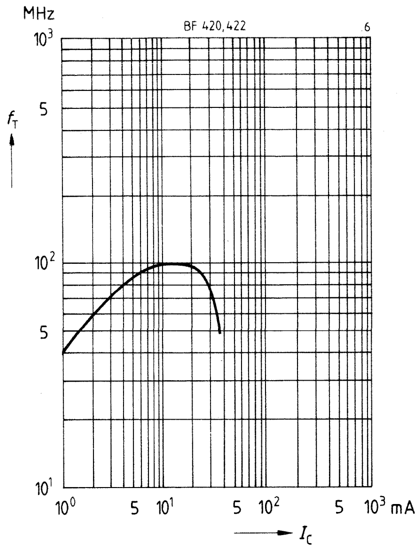
Kollektorstrom $I_C = f(V_{BE})$
$V_{CE} = 20$ V, $T_A = 25$ °C



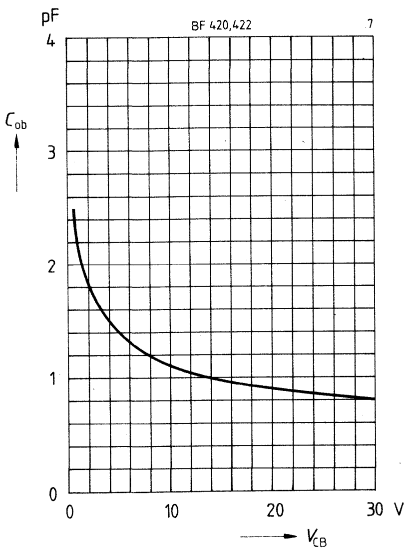
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 20$ V, $T_A = 25\ °C$



Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



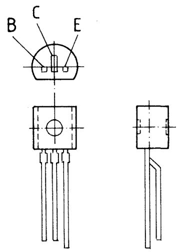
Ausgangskapazität $C_{ob} = f\ (V_{CB})$
$I_C = 0$, $f = 1$ MHz



Silizium-PNP-Transistoren mit hohen Sperrspannungen

BF 421 BF 423

- Hohe Durchbruchspannung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Kapazität
- Komplementäre NPN-Typen: BF 420, BF 422



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	**Bestellnummer**	**Typ**	**Bestellnummer**
BF 421	Q62702–F532	BF 423	Q62702–F496

Grenzwerte

Bezeichnung	**Symbol**	**BF 421**	**BF 423**	**Einheit**
Kollektor-Emitter-Spannung	V_{CEO}	–	250	V
Kollektor-Emitter-Spannung $R_{BE} = 2{,}7\ k\Omega$	V_{CER}	300	–	V
Kollektor-Basis-Spannung	V_{CBO}	300	250	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	50		mA
Basisspitzenstrom	I_{BM}	100		mA
Gesamtverlustleistung $T_A = 25\ °C$	P_{tot}	830		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	–65…+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	≦150		K/W

Kennwerte

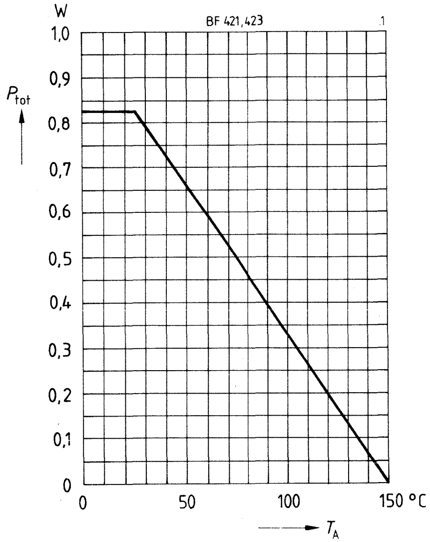
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 1$ mA BF 423	$V_{(BR)CEO}$	250	–	–	V
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ µA, $R_{BE} = 2{,}7$ kΩ BF 421	$V_{(BR)CER}$	300	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 10$ µA BF 421 BF 423	$V_{(BR)CBO}$	300 250	– –	– –	V V
Emitter-Basis-Durchbruchspannung $I_E = 10$ µA	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom $V_{CB} = 200$ V	I_{CBO}	–	–	10	nA
Kollektor-Basis-Reststrom $V_{CE} = 200$ V, $R_{BE} = 2{,}7$ kΩ, $T_A = 150\,°C$	I_{CER}	–	–	10	µA
Emitter-Basis-Reststrom $V_{EB} = 5$ V	I_{EBO}	–	–	10	µA
Stromverstärkung $I_C = 100$ µA; $V_{CE} = 20$ V $I_C = 25$ mA; $V_{CE} = 20$ V	h_{FE}	15 50	– –	– –	– –
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 25$ mA; $T_j = 150\,°C$	$V_{CEsatHF}$	–	–	20	V

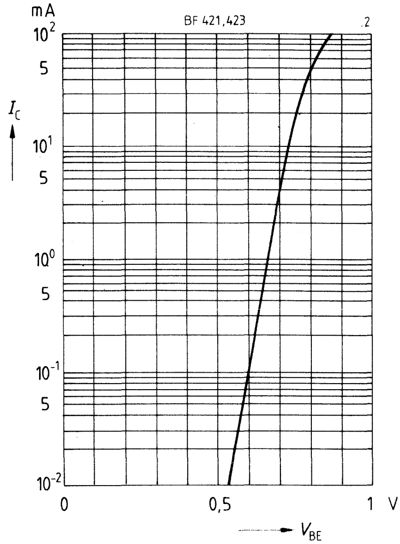
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz
Ausgangskapazität $V_{CB} = 30$ V, $f = 1$ MHz	C_{ob}	–	0,8	–	pF

[1]) Pulstest: ≤300 µs, $D \leq 2\%$

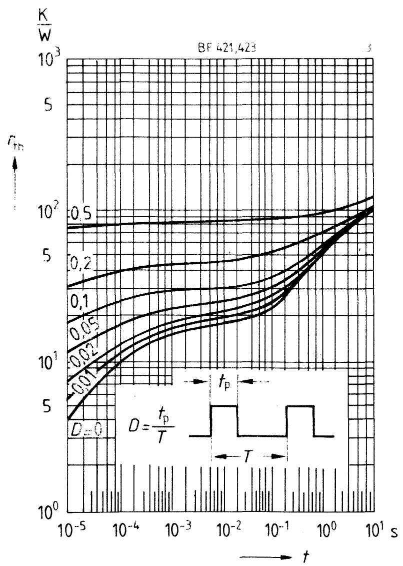
Gesamtverlustleistung $P_{tot} = f\ (T_A)$



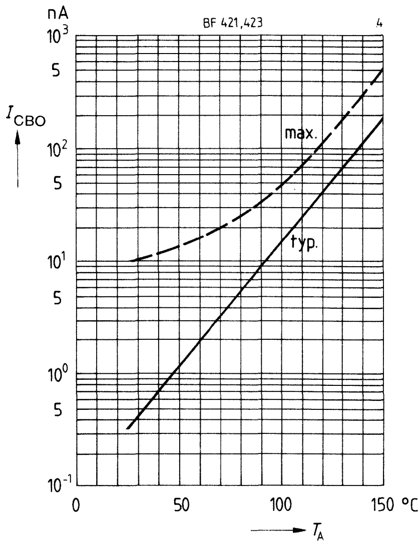
Kollektorstrom $I_C = f\ (V_{BE})$
$V_{CE} = 20$ V, $T_A = 25$ °C



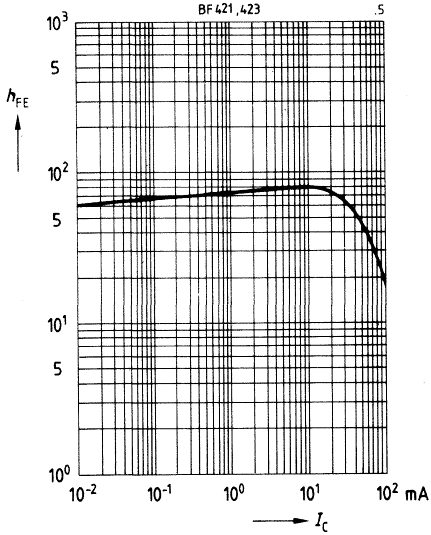
Impulsbelastbarkeit $r_{th} = f\ (t)$



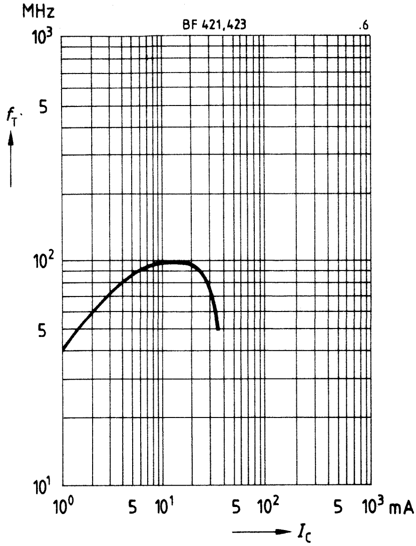
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 200$ V



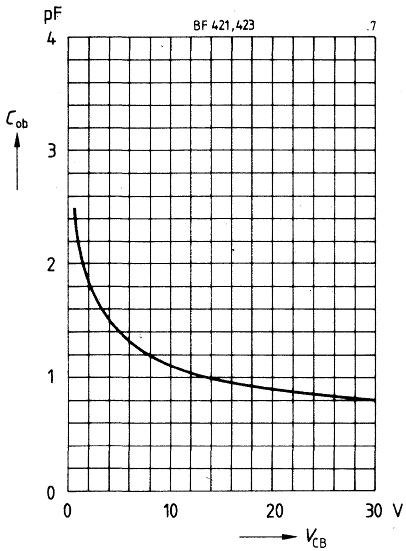
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 20$ V, $T_A = 25$ °C



Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



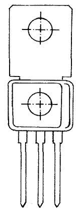
Ausgangskapazität $C_{ob} = f\ (V_{CB})$
$I_C = 0$, $f = 1$ MHz



Silizium-NPN-Transistoren mit hohen Sperrspannungen

BF 857 ...BF 859

- Hohe Durchbruchspannung
- Niedrige Kollektor-Emitter-Sättigungsspannung



TO 202-Kunststoffgehäuse
Gewicht: ca. 15 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BF 857	Q62702–F623	BF 858	Q62702–F624	BF 859	Q62702–F625

Grenzwerte

Bezeichnung	Symbol	BF 857	BF 858	BF 859	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	160	250	300	V
Kollektor-Basis-Spannung	V_{CBO}	160	250	300	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		200		mA
Kollektorspitzenstrom	I_{CM}		500		mA
Basisstrom	I_B		100		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung	P_{tot}				
$T_A = 25\,°C$			1,8		W
$T_C = 100\,°C$			2,5		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung	R_{thJA}		$\leqq 70$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 20$		K/W

Kennwerte

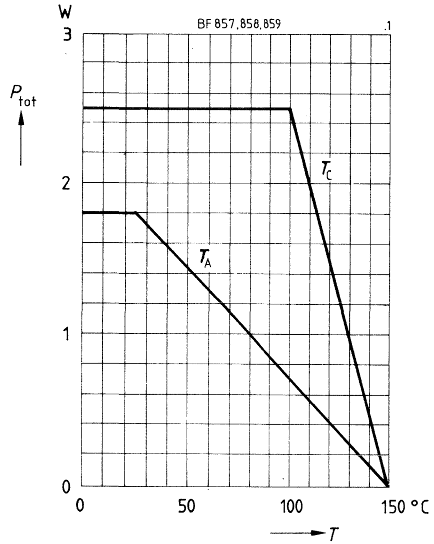
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 10$ mA	BF 857		160	–	–	V
	BF 858		250	–	–	V
	BF 859		300	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 100$ µA	BF 857		160	–	–	V
	BF 858		250	–	–	V
	BF 859		300	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 100$ µA		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 100$ V	BF 857		–	–	50	nA
$V_{CB} = 200$ V	BF 858		–	–	50	nA
$V_{CB} = 250$ V	BF 859		–	–	50	nA
$V_{CB} = 100$ V, $T_A = 150\,°C$	BF 857		–	–	20	µA
$V_{CB} = 200$ V, $T_A = 150\,°C$	BF 858		–	–	20	µA
$V_{CB} = 250$ V, $T_A = 150\,°C$	BF 859		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 3$ V		I_{EBO}	–	–	50	nA
Stromverstärkung $I_C = 30$ mA; $V_{CE} = 10$ V[1])		h_{FE}	25	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 30$ mA; $I_B = 6$ mA		V_{CEsat}	–	–	1	V

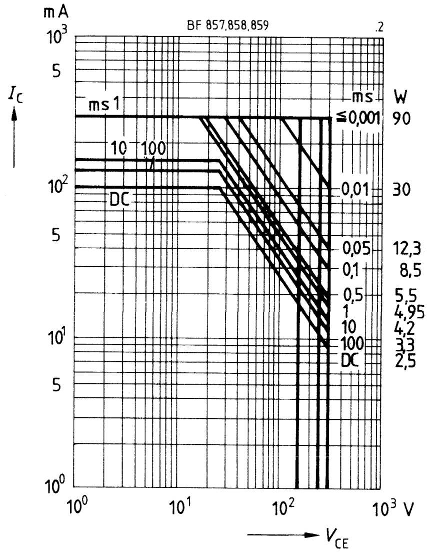
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz
Ausgangskapazität $V_{CB} = 30$ V, $f = 1$ MHz	C_{ob}	–	5,5	–	pF

[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

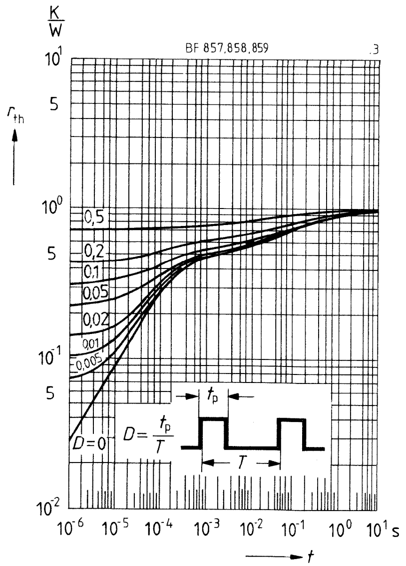
Gesamtverlustleistung $P_{tot} = f(T)$



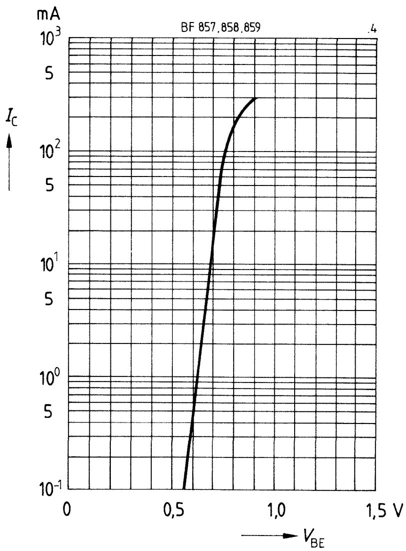
Zulässiger Betriebsbereich $I_C = f(V_{CE})$
$T_A = 100\ °C$, $D = 0$



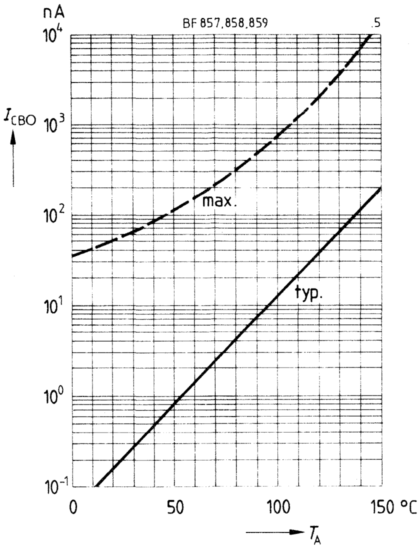
Impulsbelastbarkeit $r_{th} = f(t)$
(normiert)



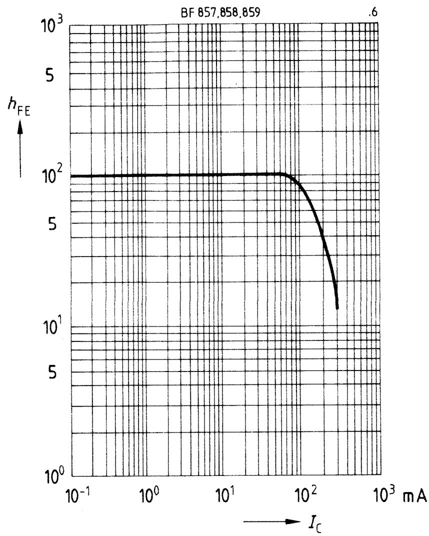
Kollektorstrom $I_C = f(V_{BE})$
$V_{CE} = 10\ V$



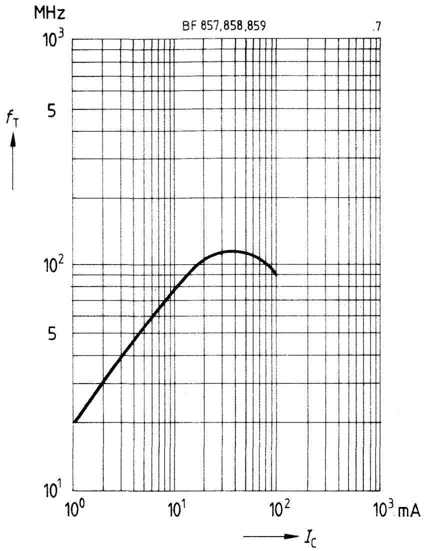
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 100\ V/200\ V/250\ V$



Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 10\ V,\ T_A = 25\ °C$



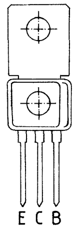
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 10\ V,\ f = 20\ MHz$



Silizium-NPN-Transistoren mit hohen Sperrspannungen

BF 869 ...BF 881

- Hohe Durchbruchspannung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Kapazität
- Komplementäre PNP-Typen: BF 870, BF 872



TO 202-Kunststoffgehäuse
Gewicht: ca. 15 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
BF 869	Q62702-F592	BF 871	Q62702-F593	BF 881	Q62702-F783

Grenzwerte

Bezeichnung	Symbol	BF 869	BF 871	BF 881	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	250	–	–	V
Kollektor-Emitter-Spannung $R_{BE} = 2{,}7\ k\Omega$	V_{CER}	–	300	400	V
Kollektor-Basis-Spannung	V_{CBO}	250	300	400	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		50		mA
Basisspitzenstrom	I_{BM}		100		mA
Gesamtverlustleistung	P_{tot}				
$T_A = 40\ °C$			1,6		W
$T_C = 110\ °C$			1,6		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		–65...+150		°C

Wärmewiderstand

Bezeichnung	Symbol	BF 869 ... BF 881	Einheit
Sperrschicht-Umgebung	R_{thJA}	$\leqq 70$	K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 25$	K/W

Kennwerte

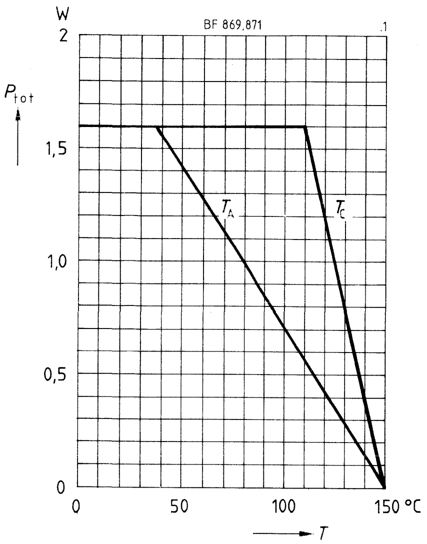
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 1$ mA	BF 869		250	–	–	V
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CER}$				
$I_C = 10$ µA	BF 871		300	–	–	V
	BF 881		400	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 10$ µA	BF 869		250	–	–	V
	BF 871		300	–	–	V
	BF 881		400	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10$ µA		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 200$ V	BF 869, BF 871		–	–	10	nA
$V_{CB} = 350$ V	BF 881				100	nA
Kollektor-Basis-Reststrom		I_{CER}				
$V_{CE} = 200$ V, $R_{BE} = 2{,}7$ kΩ, $T_A = 150\,°C$	BF 869, BF 871		–	–	10	µA
$V_{CE} = 350$ V, $R_{BE} = 2{,}7$ kΩ, $T_A = 150\,°C$	BF 881		–	–	10	µA
Emitter-Basis-Reststrom $V_{EB} = 5$ V		I_{EBO}	–	–	10	µA
Stromverstärkung		h_{FE}				
$I_C = 25$ mA; $V_{CE} = 20$ V	BF 869		50	–	–	–
	BF 871, BF 881		40	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 25$ mA; $T_j = 150\,°C$		$V_{CEsatHF}$	–	–	20	V

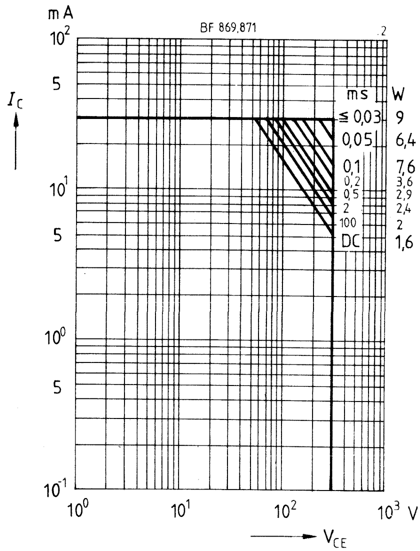
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 10$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz
Ausgangskapazität $V_{CB} = 30$ V, $f = 1$ MHz	C_{ob}	–	1,2	–	pF

[1]) Pulstest: ≤300 µs, $D \leq 2\%$

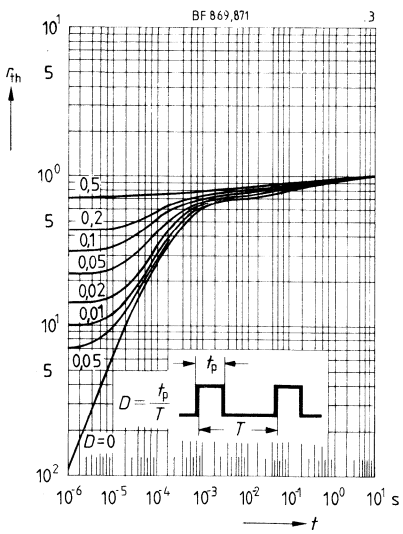
Gesamtverlustleistung $P_{tot} = f\,(T)$



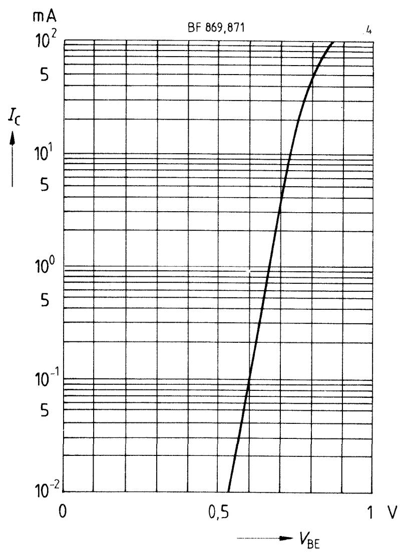
Betriebsbereich $I_C = f\,(V_{CE})$
$T_A \leqq 110$ °C, $D = 0{,}01$



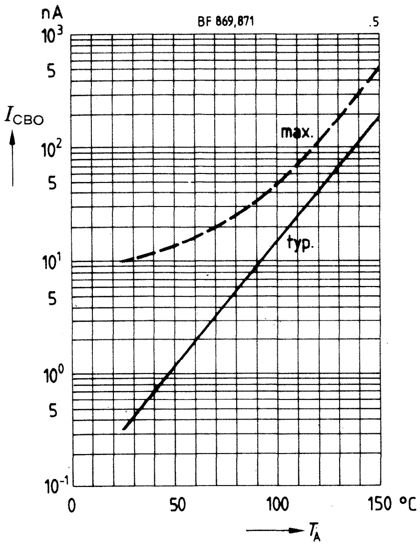
Impulsbelastbarkeit $r_{th} = f\,(t)$
(normiert)



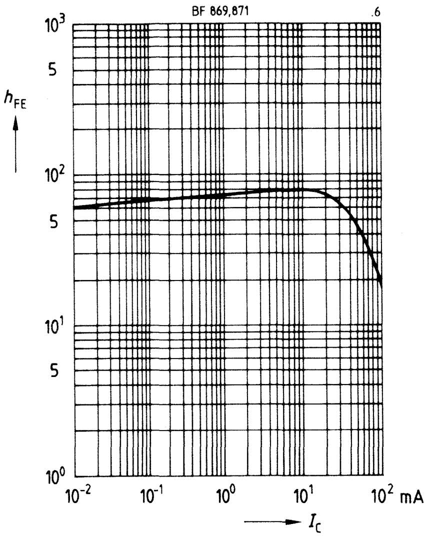
Kollektorstrom $I_C = f\,(V_{BE})$
$V_{CE} = 20$ V



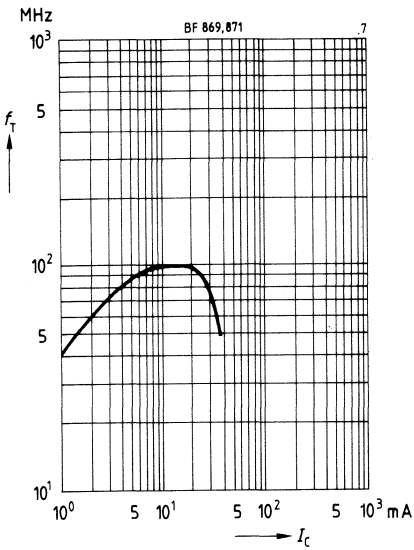
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 200$ V



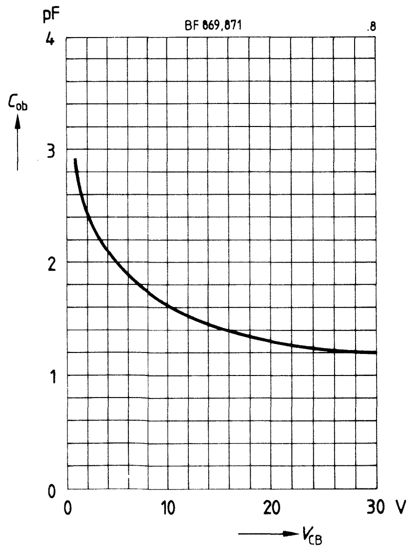
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 20$ V, $T_A = 25$ °C



Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



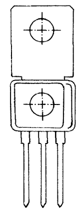
Ausgangskapazität $C_{ob} = f\ (V_{CB})$
$I_C = 0$, $f = 1$ MHz



Silizium-PNP-Transistor mit hohen Sperrspannungen

BF 870 BF 872

- Hohe Durchbruchspannung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Kapazität
- Komplementäre NPN-Typen: BF 869, BF 871



TO 202-Kunststoffgehäuse
Gewicht: ca. 15 g

Typ	Bestellnummer	Typ	Bestellnummer
BF 870	Q62702-F602	BF 872	Q62702-F603

Grenzwerte

Bezeichnung	Symbol	BF 870	BF 872	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	250	–	V
Kollektor-Emitter-Spannung $R_{BE} = 2{,}7\ k\Omega$	V_{CER}	–	300	V
Kollektor-Basis-Spannung	V_{CBO}	250	300	V
Emitter-Basis-Spannung	V_{EBO}	5		V
Kollektorstrom	I_C	50		mA
Basisspitzenstrom	I_{BM}	100		mA
Gesamtverlustleistung	P_{tot}			
$T_A = 40\ °C$		1,6		W
$T_C = 110\ °C$		1,6		W
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	≦70		K/W
Sperrschicht-Gehäuse	R_{thJC}	≦25		K/W

Kennwerte

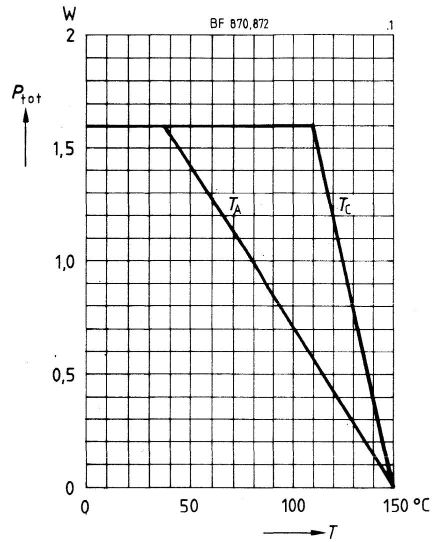
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 1$ mA	BF 870	$V_{(BR)CEO}$	250	–	–	V
Kollektor-Emitter-Durchbruchspannung $I_C = 10\,\mu A$	BF 872	$V_{(BR)CER}$	300	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 10\,\mu A$	BF 870 BF 872	$V_{(BR)CBO}$	250 300	– –	– –	V V
Emitter-Basis-Durchbruchspannung $I_E = 10\,\mu A$		$V_{(BR)EBO}$	5	–	–	V
Kollektor-Basis-Reststrom $V_{CB} = 200$ V		I_{CBO}	–	–	10	nA
Kollektor-Basis-Reststrom $V_{CE} = 200$ V, $R_{BE} = 2{,}7\,k\Omega$, $T_A = 150\,°C$		I_{CER}	–	–	10	µA
Emitter-Basis-Reststrom $V_{EB} = 5$ V		I_{EBO}	–	–	10	µA
Stromverstärkung $I_C = 25$ mA; $V_{CE} = 20$ V	BF 870 BF 872	h_{FE}	50 40	– –	– –	– –
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 25$ mA; $T_j = 150\,°C$		$V_{CEsatHF}$	–	–	20	V

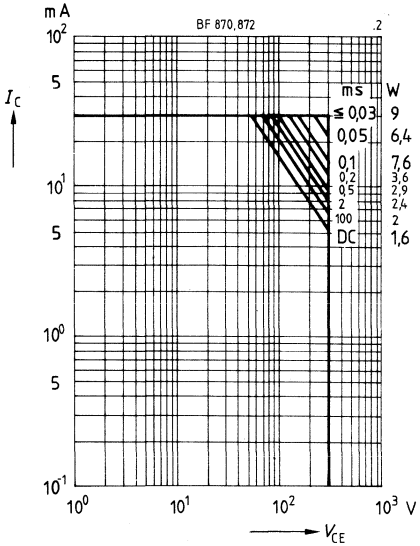
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 10$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	100	–	MHz
Ausgangskapazität $V_{CB} = 30$ V, $f = 1$ MHz	C_{ob}	–	1,2	–	pF

[1]) Pulstest: $\leq 300\,\mu s$, $D \leq 2\%$

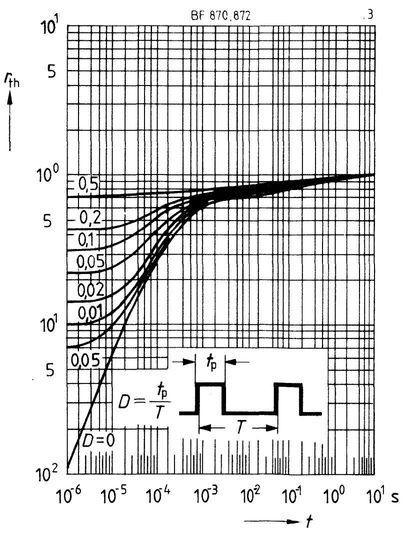
Gesamtverlustleistung $P_{tot} = f\,(T)$



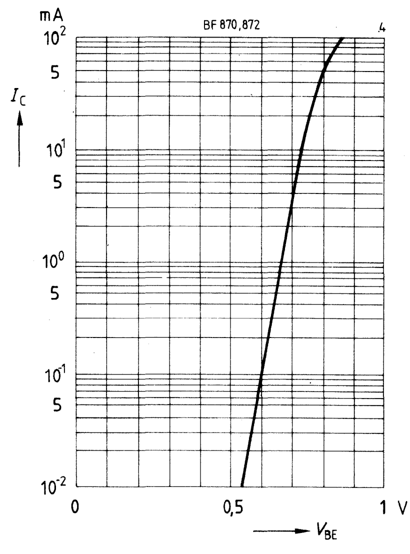
Betriebsbereich $I_C = f\,(V_{CE})$
$T_A \leqq 110\,°C$, $D = 0{,}01$



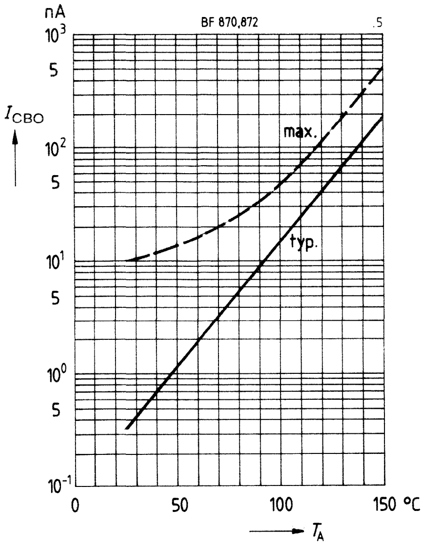
Impulsbelastbarkeit $r_{th} = f\,(t)$
(normiert)



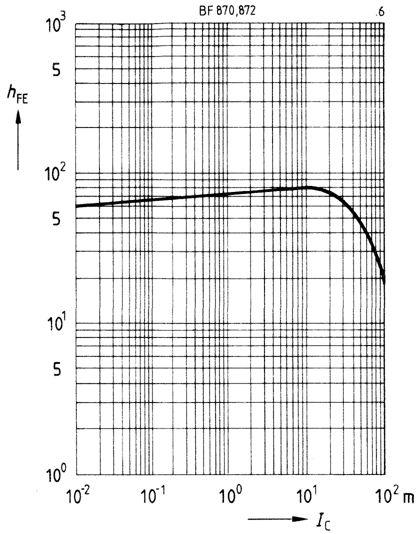
Kollektorstrom $I_C = f\,(V_{BE})$
$V_{CE} = 20$ V, $T_A = 25\,°C$



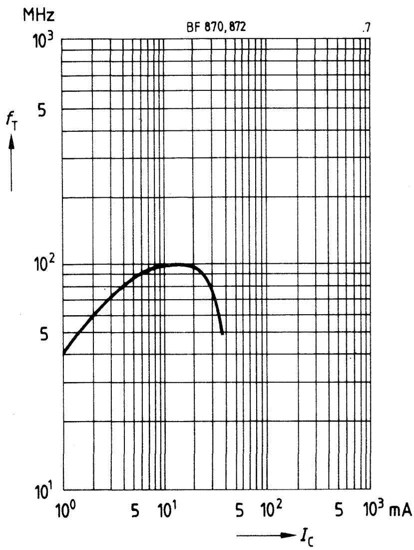
Reststrom $I_{CBO} = f\,(T_A)$
$V_{CB} = 200$ V



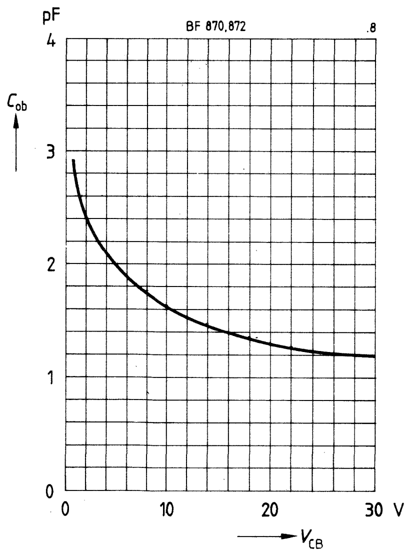
Stromverstärkung $h_{FE} = f\,(I_C)$
$V_{CE} = 20$ V, $T_A = 25$ °C



Transitfrequenz $f_T = f\,(I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



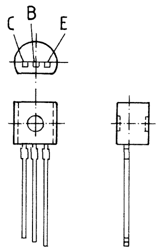
Ausgangskapazität $C_{ob} = f\,(V_{CB})$
$I_C = 0$, $f = 1$MHz



Silizium-NPN-Transistoren mit hohen Sperrspannungen

BFP 22
BFP 25

- Hohe Durchbruchspannung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Kapazität
- Komplementäre PNP-Typen: BFP 23, BFP 26



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnumnmer	Typ	Bestellnummer
S BFP 22	Q62702–F621	BFP 25	Q62702–F721

Grenzwerte

Bezeichnung	Symbol	BFP 22	BFP 25	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	200	300	V
Kollektor-Basis-Spannung	V_{CBO}	200	300	V
Emitter-Basis-Spannung	V_{EBO}	6		V
Kollektorstrom	I_C	200		mA
Kollektorspitzenstrom	I_{CM}	500		mA
Basisstrom	I_B	100		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$		K/W

Kennwerte

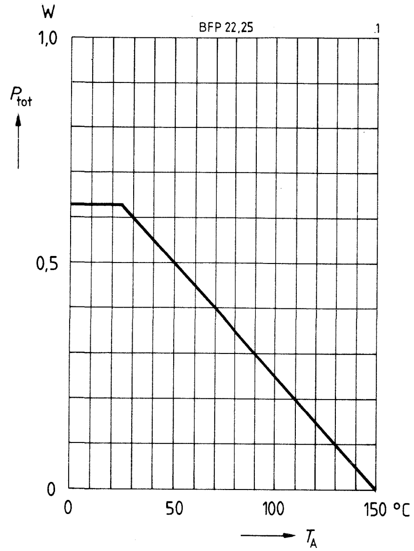
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 1$ mA	BFP 22		200	–	–	V
	BFP 25		300	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 100\ \mu A$	BFP 22		200	–	–	V
	BFP 25		300	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 100\ \mu A$		$V_{(BR)EBO}$	6	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 160$ V	BFP 22		–	–	100	nA
$V_{CB} = 250$ V	BFP 25		–	–	100	nA
$V_{CB} = 160$ V, $T_A = 150\,°C$	BFP 22		–	–	20	µA
$V_{CB} = 250$ V, $T_A = 150\,°C$	BFP 25		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V		I_{EBO}	–	–	100	nA
Stromverstärkung		h_{FE}				
$I_C = 1$ mA; $V_{CE} = 10$ V			25	–	–	–
$I_C = 10$ mA; $V_{CE} = 10$ V[1]			40	–	–	–
$I_C = 30$ mA; $V_{CE} = 10$ V[1]	BFP 22		50	–	–	–
	BFP 25		40	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]		V_{CEsat}				
$I_C = 20$ mA; $I_B = 2$ mA	BFP 25		–	–	0,5	V
	BFP 22		–	–	0,4	V
Basis-Emitter-Sättigungsspannung[1] $I_C = 20$ A; $I_B = 2$ mA		V_{BEsat}	–	–	0,9	V

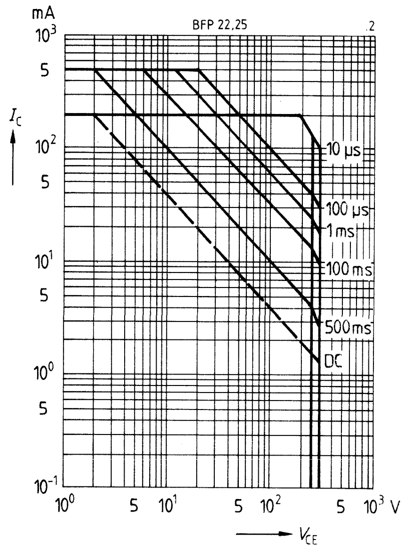
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	70	–	MHz
Ausgangskapazität $V_{CB} = 30$ V, $f = 1$ MHz	C_{ob}	–	1,5	–	pF

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

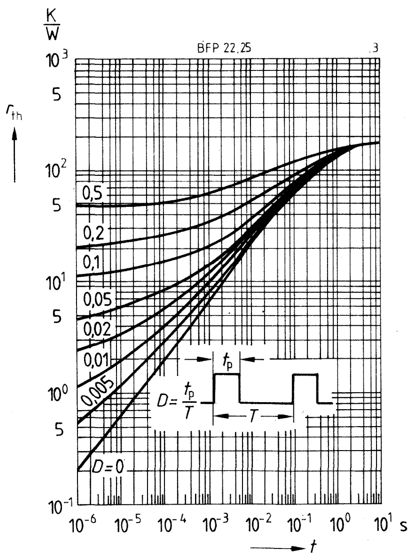
Gesamtverlustleistung $P_{tot} = f\,(T_A)$



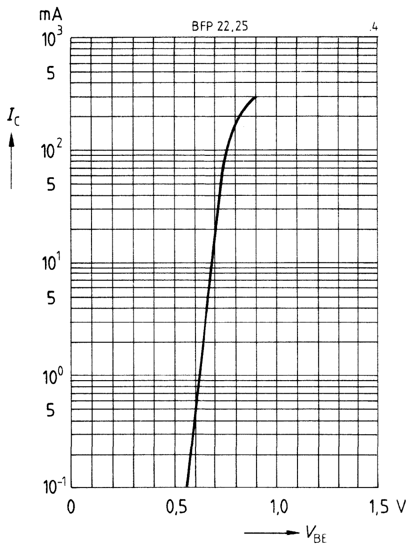
Betriebsbereich $I_C = f\,(V_{CE})$
$D = 0$, $T_A = 25\,°C$



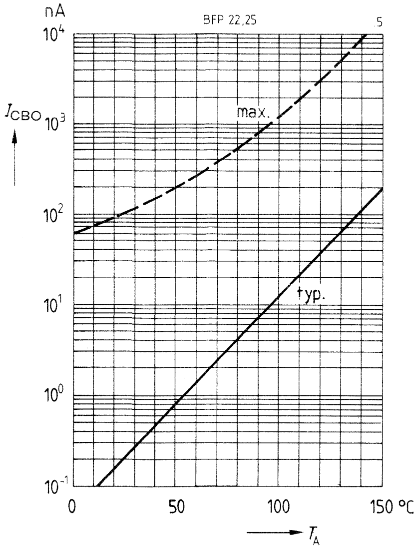
Impulsbelastbarkeit $r_{th} = f\,(t)$



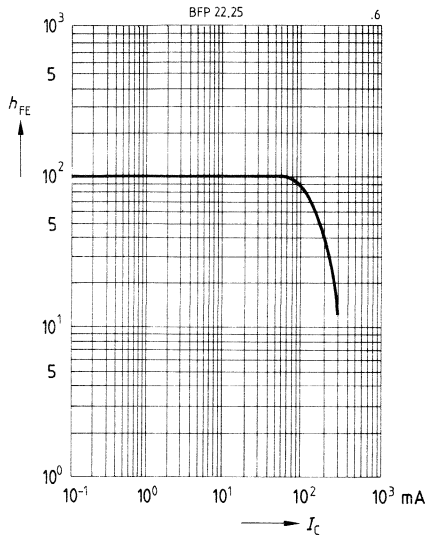
Kollektorstrom $I_C = f\,(V_{BE})$
$V_{CE} = 10\,V$, $T_A = 25\,°C$



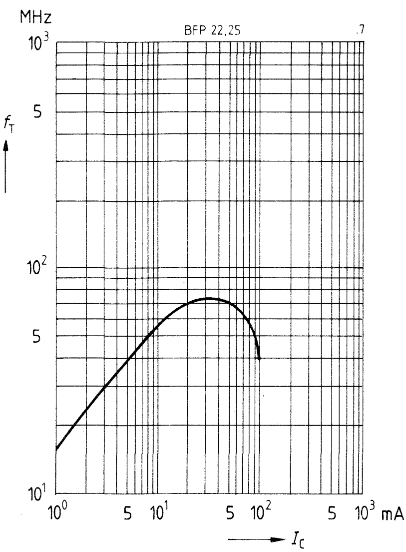
Reststrom $I_{CBO} = f(T)$
$V_{CB} = 160$ V, 250 V



Stromverstärkung $h_{FE} = f(I_C)$
$V_{CE} = 10$ V, $T_A = 25$ °C



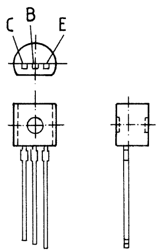
Transitfrequenz $f_T = f(I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



Silizium-PNP-Transistoren mit hohen Sperrspannungen

BFP 23 BFP 26

- Hohe Durchbruchspannung
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Niedrige Kapazität
- Komplementäre NPN-Typen: BFP 22, BFP 25



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
Ⓢ BFP 23	Q62702–F622	BFP 26	Q62702–F722

Grenzwerte

Bezeichnung	Symbol	BFP 23	BFP 26	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	200	300	V
Kollektor-Basis-Spannung	V_{CBO}	200	300	V
Emitter-Basis-Spannung	V_{EBO}	6		V
Kollektorstrom	I_C	200		mA
Kollektorspitzenstrom	I_{CM}	500		mA
Basisstrom	I_B	100		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65…+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$		K/W

Kennwerte

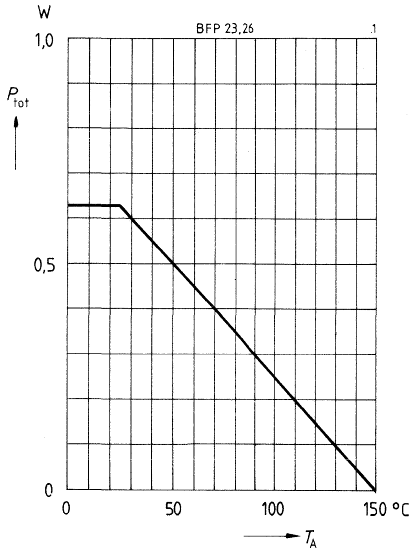
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 1$ mA	BFP 23		200	–	–	V
	BFP 26		300	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 100\,\mu A$	BFP 23		200	–	–	V
	BFP 26		300	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 100\,\mu A$		$V_{(BR)EBO}$	6	–	–	V
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 160$ V	BFP 23		–	–	100	nA
$V_{CB} = 250$ V	BFP 26		–	–	100	nA
$V_{CB} = 160$ V, $T_A = 150\,°C$	BFP 23		–	–	20	µA
$V_{CB} = 250$ V, $T_A = 150\,°C$	BFP 26		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 3$ V		I_{EBO}	–	–	100	nA
Stromverstärkung		h_{FE}				
$I_C = 1$ mA; $V_{CE} = 10$ V			25	–	–	–
$I_C = 10$ mA; $V_{CE} = 10$ V[1]			40	–	–	–
$I_C = 30$ mA; $V_{CE} = 10$ V[1]	BFP 23		50	–	–	–
	BFP 26		40	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]		V_{CEsat}				
$I_C = 20$ mA; $I_B = 2$ mA	BFP23		–	–	0,4	V
	BFP26		–	–	0,5	V
Basis-Emitter-Sättigungsspannung[1] $I_C = 20$ A; $I_B = 2$ mA		V_{BEsat}	–	–	0,9	V

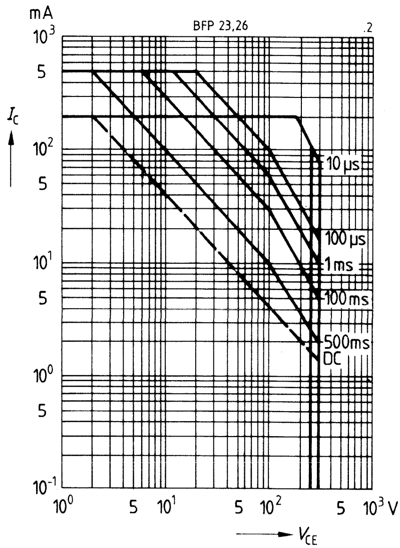
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 20$ mA, $V_{CE} = 10$ V, $f = 20$ MHz	f_T	–	70	–	MHz
Ausgangskapazität $V_{CB} = 30$ V, $f = 1$ MHz	C_{ob}	–	1,5	–	pF

[1]) Pulstest: $\leq 300\,\mu s$, $D \leq 2\%$

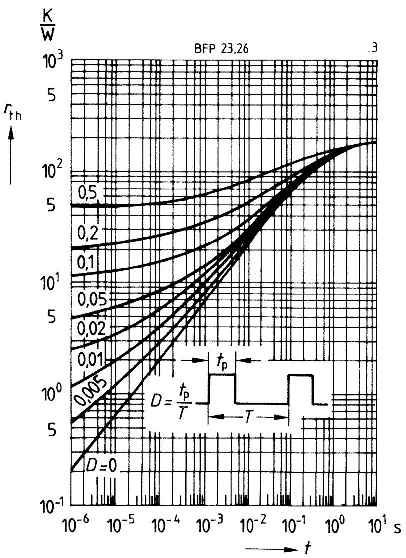
Gesamtverlustleistung $P_{tot} = f\ (T_A)$



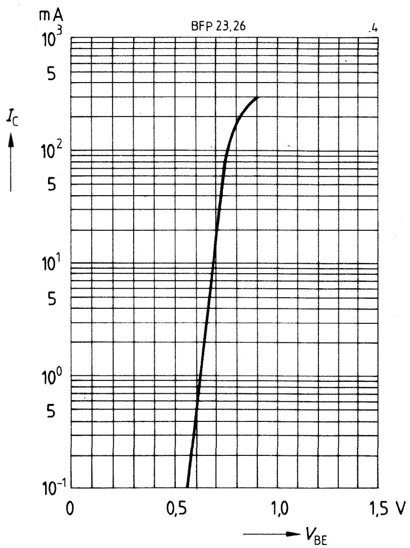
Betriebsbereich $I_C = f\ (V_{CE})$
$D = 0$, $T_A = 25\ °C$



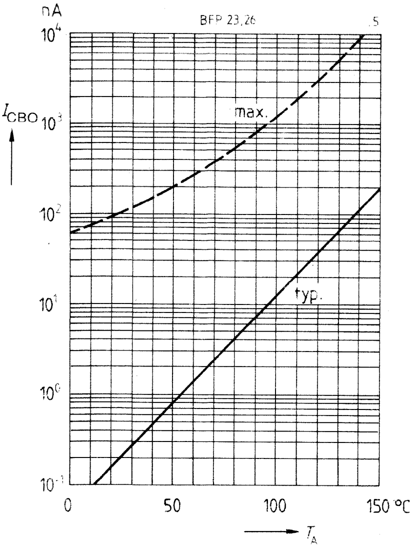
Impulsbelastbarkeit $r_{th} = f\ (t)$



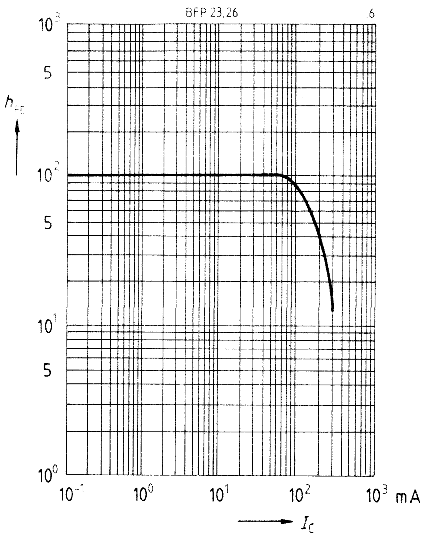
Kollektorstrom $I_C = f\ (V_{BE})$
$V_{CE} = 10$ V, $T_A = 25\ °C$



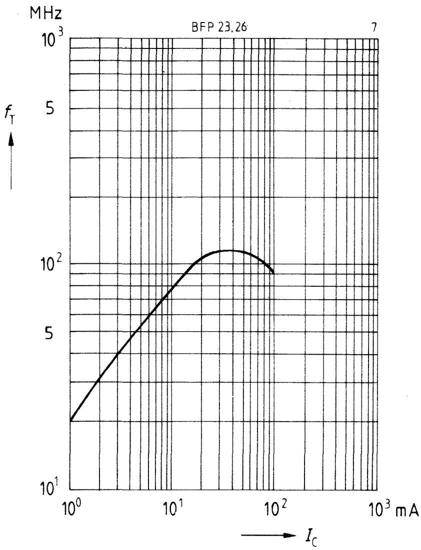
Reststrom $I_{CBO} = f\,(T_A)$
$V_{CB} = 160$ V, 250 V



Stromverstärkung $h_{FE} = f\,(I_C)$
$V_{CE} = 10$ V, $T_A = 25$ °C

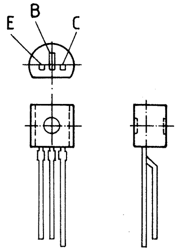


Transitfrequenz $f_T = f\,(I_C)$
$V_{CE} = 10$ V, $f = 20$ MHz



NF-Darlington-Transistoren

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Komplementärer NPN-Typ: BC 517



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer
S BC 516	Q62702–C944

Grenzwerte

Bezeichnung	Symbol	BC 516	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	30	V
Kollektor-Basis-Spannung	V_{CBO}	40	V
Emitter-Basis-Spannung	V_{EBO}	10	V
Kollektorstrom	I_C	500	mA
Kollektorspitzenstrom	I_{CM}	800	mA
Basisstrom	I_B	100	mA
Basisspitzenstrom	I_{BM}	200	mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625	mW
Sperrschichttemperatur	T_j	150	°C
Lagertemperatur	T_{stg}	−65...+150	°C
Wärmewiderstand			
Sperrschicht-Umgebung	R_{thJA}	≦200	K/W
Sperrschicht-Gehäuse	R_{thJC}	≦ 90	K/W

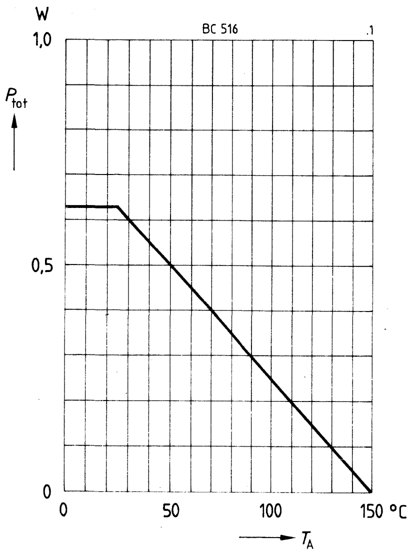
Kennwerte
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ mA	$V_{(BR)CEO}$	30	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100$ µA	$V_{(BR)CBO}$	40	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10$ µA	$V_{(BR)EBO}$	10	–	–	V
Kollektor-Basis-Reststrom $V_{CB} = 30$ V $V_{CB} = 30$ V, $T_A = 150\,°C$	I_{CBO}	 – –	 – –	 100 10	 nA µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	µA
Stromverstärkung $I_C = 20$ mA; $V_{CE} = 2$ V	h_{FE}	30000	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 100$ mA; $I_B = 0{,}1$ mA	V_{CEsat}	–	–	1	V
Basis-Emitter-Spannung[1]) $I_C = 10$ mA; $V_{CE} = 5$ V	V_{BE}	–	–	1,4	V

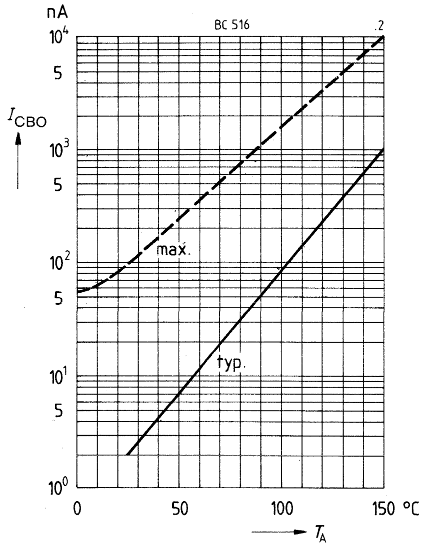
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	200	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3,5	–	pF

[1]) Pulstest: ≤ 300 µs, $D \leq 2\%$

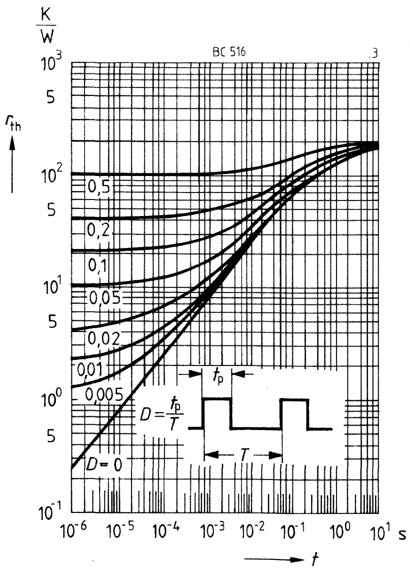
Gesamtverlustleistung $P_{tot} = f\ (T_A)$



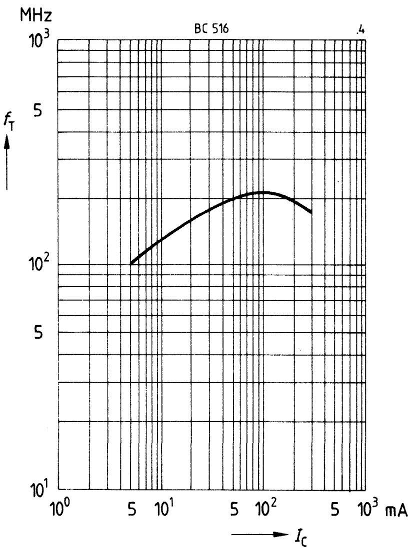
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 30$ V



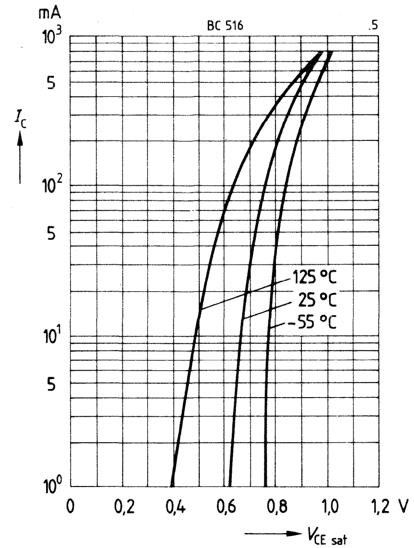
Impulsbelastbarkeit $r_{th} = f\ (t)$



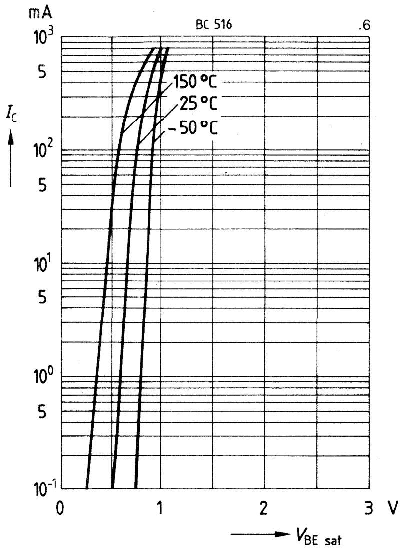
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 5$ V



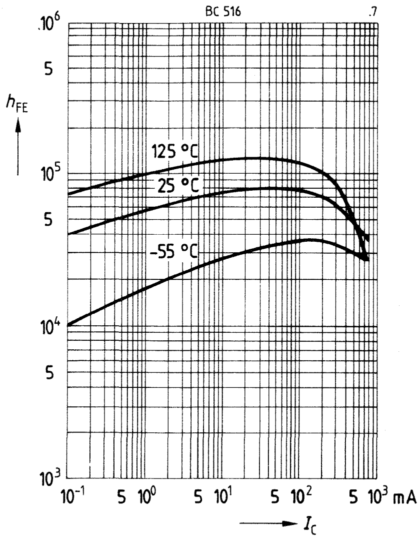
Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 1000$



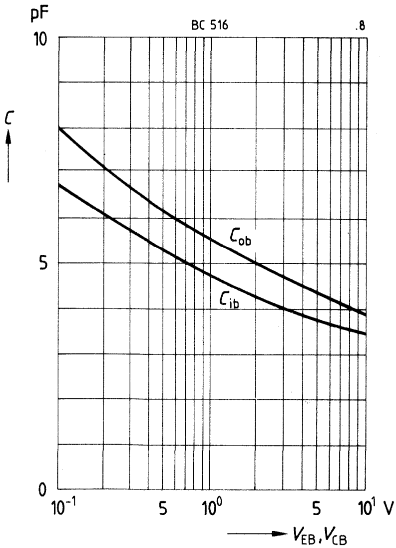
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 1000$



Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 2$ V

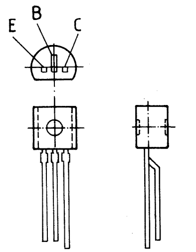


Kapazität $C = f\ (V_{EB}, V_{CB})$



Silizium-NPN-Darlington-Transistor **BC 517**

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Komplementärer PNP-Typ: BC 516



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	**Bestellnummer**
Ⓢ BC 517	Q62702–C825

Grenzwerte

Bezeichnung	**Symbol**	**BC 517**	**Einheit**
Kollektor-Emitter-Spannung	V_{CEO}	30	V
Kollektor-Basis-Spannung	V_{CBO}	40	V
Emitter-Basis-Spannung	V_{EBO}	10	V
Kollektorstrom	I_C	500	mA
Kollektorspitzenstrom	I_{CM}	800	mA
Basisstrom	I_B	100	mA
Basisspitzenstrom	I_{BM}	200	mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625	mW
Sperrschichttemperatur	T_j	150	°C
Lagertemperatur	T_{stg}	−65...+150	°C
Wärmewiderstand			
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$	K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$	K/W

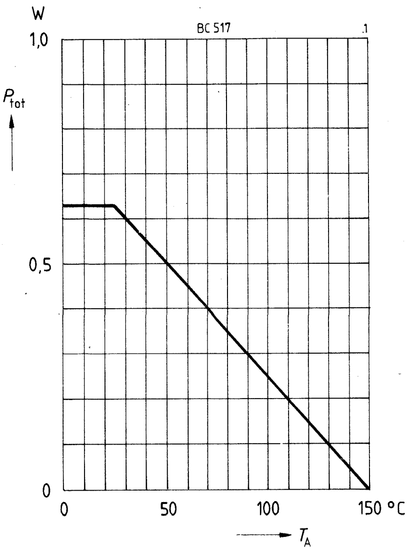
Kennwerte
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 10$ mA	$V_{(BR)CEO}$	30	–	–	V
Kollektor-Basis-Durchbruchspannung $I = 100\ \mu A$	$V_{(BR)CBO}$	40	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 10\ \mu A$	$V_{(BR)EBO}$	10	–	–	V
Kollektor-Basis-Reststrom $V_{CB} = 30$ V $V_{CB} = 30$ V, $T_A = 150\,°C$	I_{CBO}	 – –	 – –	 100 10	 nA µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	nA
Stromverstärkung $I_C = 20$ mA; $V_{CE} = 2$ V[1])	h_{FE}	30000	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]) $I_C = 100$ mA; $I_B = 0{,}1$ mA	V_{CEsat}	–	–	1	V
Basis-Emitter-Spannung[1]) $I_C = 10$ mA; $V_{CE} = 5$ V	V_{BE}	–	–	1,4	V

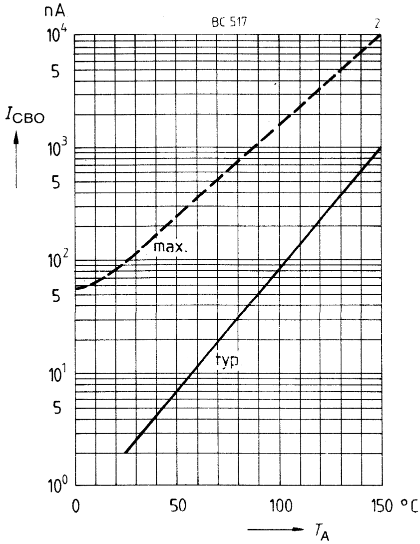
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 50$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	150	–	MHz
Ausgangskapazität $V_{CB} = 10$ V, $f = 1$ MHz	C_{ob}	–	3,5	–	pF

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

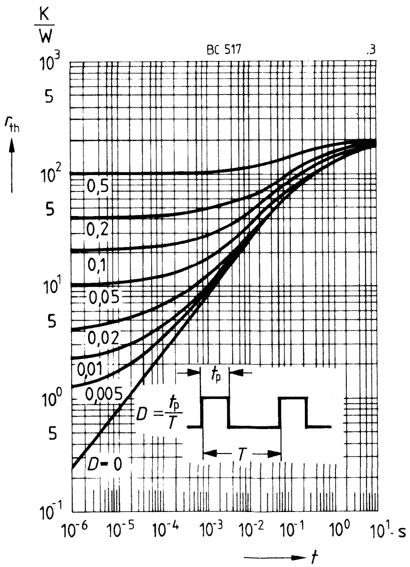
Gesamtverlustleistung $P_{tot} = f\ (T_A)$



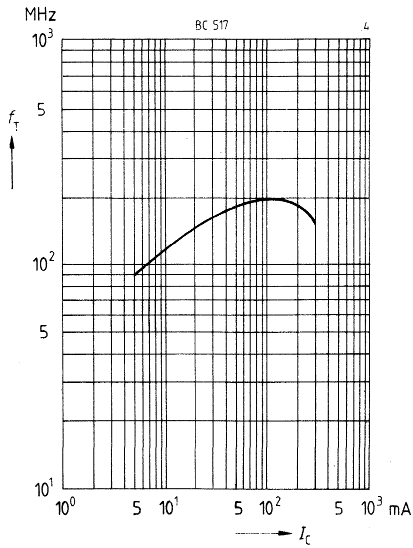
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 30$ V



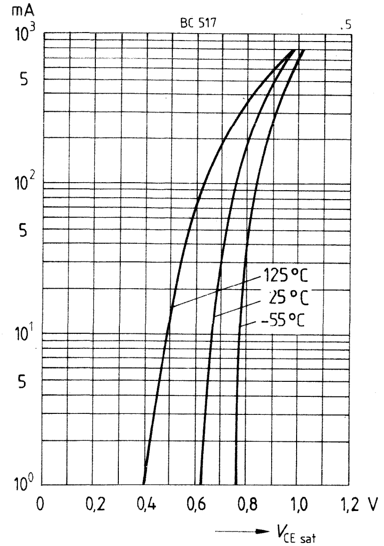
Impulsbelastbarkeit $r_{th} = f\ (t)$



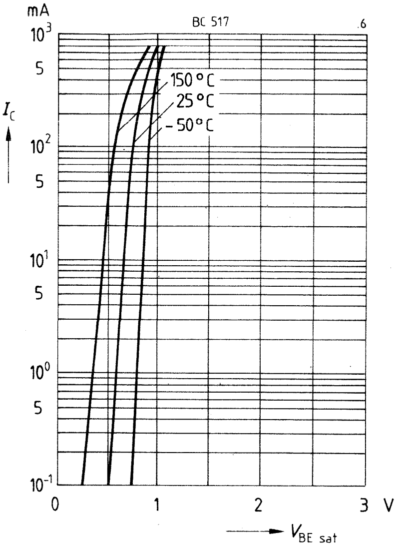
Transitfrequenz $f_T = f\ (I_C)$
$V_{CE} = 5$ V, $f = 20$ MHz



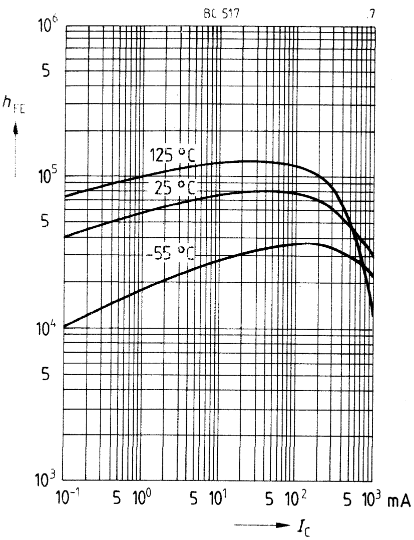
Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 1000$, Parameter $= T_A$



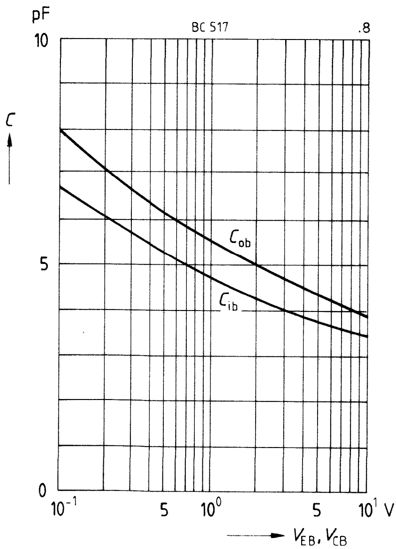
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 1000$, Parameter $= T_A$



Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 2$ V, Parameter $= T_A$



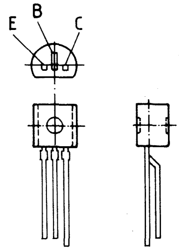
Kapazität $C = f\ (V_{EB},\ V_{CB})$



Silizium-NPN-Darlington-Transistoren

BC 617
BC 618

- Hohe Stromverstärkung
- Hoher Kollektorstrom



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer
BC 617	Q62702–C1137	BC 618	Q62702–C1138

Grenzwerte

Bezeichnung	Symbol	BC 617	BC 618	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	40	55	V
Kollektor-Basis-Spannung	V_{CBO}	50	80	V
Emitter-Basis-Spannung	V_{EBO}	12		V
Kollektorstrom	I_C	500		mA
Kollektorspitzenstrom	I_{CM}	800		mA
Basisstrom	I_B	100		mA
Basisspitzenstrom	I_{BM}	200		mA
Gesamtverlustleistung $T_A = 25\,°C$	P_{tot}	625		mW
Sperrschichttemperatur	T_j	150		°C
Lagertemperatur	T_{stg}	−65...+150		°C
Wärmewiderstand				
Sperrschicht-Umgebung	R_{thJA}	$\leqq 200$		K/W
Sperrschicht-Gehäuse	R_{thJC}	$\leqq 90$		K/W

Kennwerte

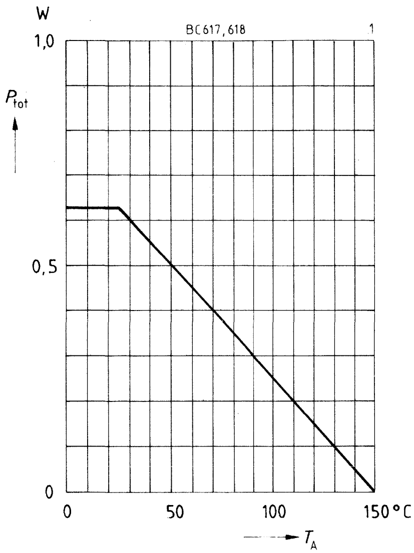
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte		Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung		$V_{(BR)CEO}$				
$I_C = 10$ mA						
	BC 617		40	–	–	V
	BC 618		55	–	–	V
Kollektor-Basis-Durchbruchspannung		$V_{(BR)CBO}$				
$I_C = 100\,\mu A$						
	BC 617		50	–	–	V
	BC 618		80	–	–	V
Emitter-Basis-Durchbruchspannung		$V_{(BR)EBO}$	12	–	–	V
$I_E = 10\,\mu A$						
Kollektor-Basis-Reststrom		I_{CBO}				
$V_{CB} = 40$ V	BC 617		–	–	100	nA
$V_{CB} = 60$ V	BC 618		–	–	100	nA
$V_{CB} = 40$ V, $T_A = 150\,°C$	BC 617				10	µA
$V_{CB} = 60$ V, $T_A = 150\,°C$	BC 618		–	–	10	µA
Emitter-Basis-Reststrom		I_{EBO}	–	–	100	nA
$V_{EB} = 4$ V						
Stromverstärkung		h_{FE}				
$I_C = 100\,\mu A$; $V_{CE} = 5$ V	BC 617		4000	–	–	–
	BC 618		2000	–	–	–
$I_C = 10$ mA; $V_{CE} = 5$ V[1]	BC 617		10000	–	–	–
	BC 618		4000	–	–	–
$I_C = 200$ mA; $V_{CE} = 5$ V[1]	BC 617		20000	–	70000	–
	BC 618		10000	–	50000	–
$I_C = 1000$ mA; $V_{CE} = 5$ V[1]	BC 617		10000	–	–	–
	BC 618		4000	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]		V_{CEsat}	–	–	1,1	V
$I_C = 200$ mA; $I_B = 0{,}2$ mA						
Basis-Emitter-Sättigungsspannung[1]		V_{BEsat}	–	–	1,6	V
$I_C = 200$ mA; $I_B = 0{,}2$ mA						

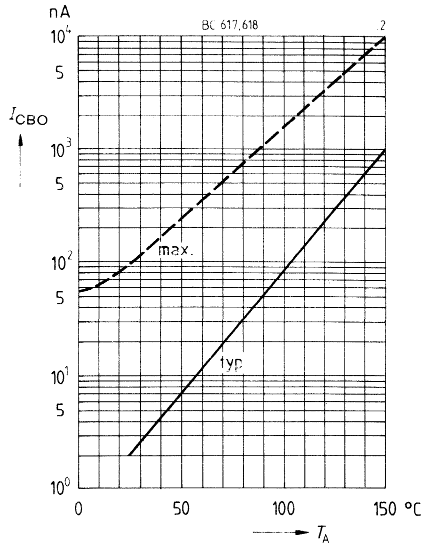
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitrequenz	f_T	–	150	–	MHz
$I_C = 50$ mA, $V_{CE} = 5$ V, $f = 20$ MHz					
Ausgangskapazität	C_{ob}	–	3,5	–	pF
$V_{CB} = 10$ V, $f = 1$ MHz					

[1]) Pulstest: $\leq 300\,\mu s$, $D \leq 2\%$

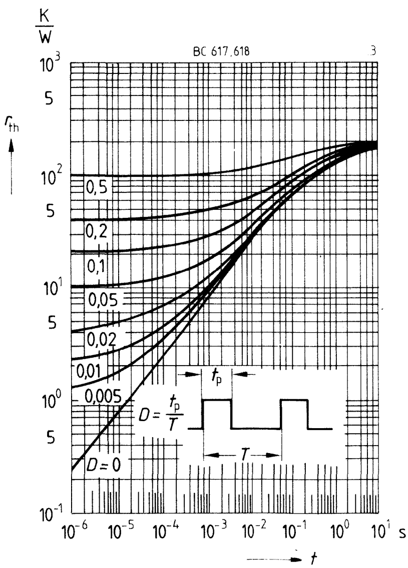
Gesamtverlustleistung $P_{tot} = f\,(T_A)$



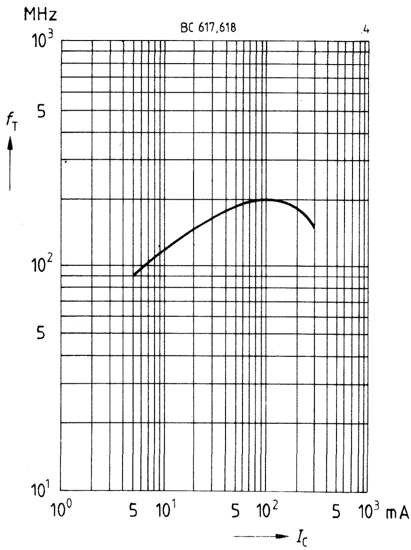
Reststrom $I_{CBO} = f\,(T_A)$
$V_{CB} = 40$ V, 60 V



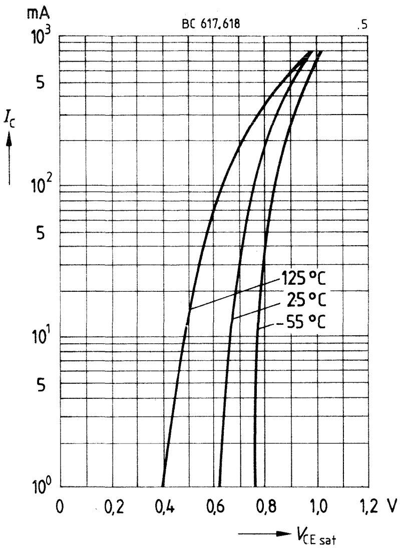
Impulsbelastbarkeit $r_{th} = f\,(t)$



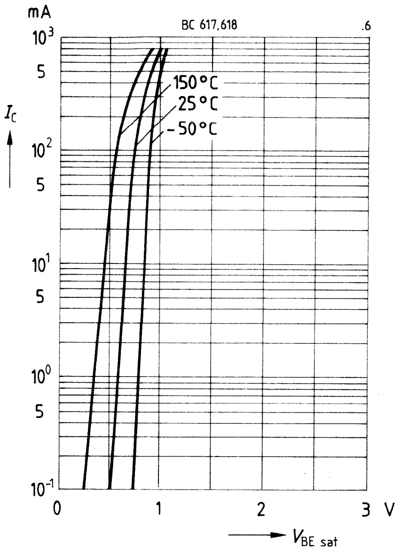
Transitfrequenz $f_T = f\,(I_C)$
$V_{CE} = 5$ V, $f = 20$ MHz



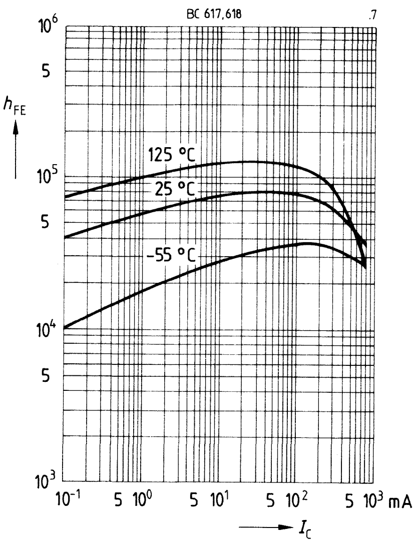
Sättigungsspannung $V_{CEsat} = f\ (I_C)$
$h_{FE} = 1000$, Parameter $= T_A$



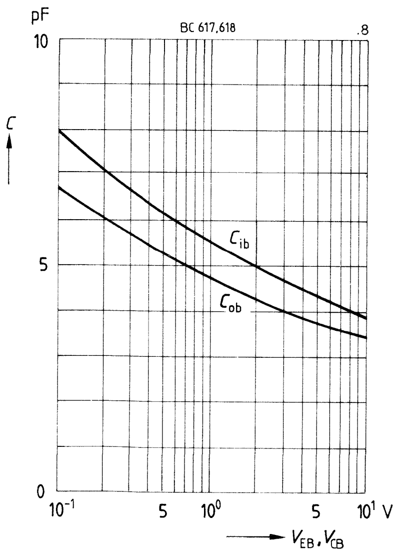
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
$h_{FE} = 1000$, Parameter $= T_A$



Stromverstärkung $h_{FE} = f\ (I_C)$



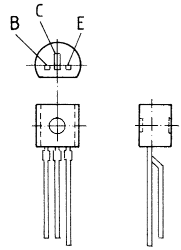
Kapazität $C = f\ (V_{EB}, V_{CB})$



Silizium-NPN-Darlington-Transistoren

BC 875 ...BC 879

- Hohe Stromwerte
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre PNP-Typen: BC 876, BC 878, BC 880



TO 92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
S BC 875	C62702-C853	S BC 877	C62702-C854	S BC 879	C62702-C855

Grenzwerte

Bezeichnung	Symbol	BC 875	BC 877	BC 879	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	60	80	V
Kollektor-Basis-Spannung	V_{CBO}	60	80	100	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		1		A
Kollektorspitzenstrom	I_{CM}		2		A
Basisstrom	I_B		100		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$[1])	P_{tot}		0,8 (1)		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung[1])	R_{thJA}		$\leqq 156$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 55$		K/W

[1]) Werden die Transistoren mit max. 4 mm langen Anschlußdrähten auf Leiterplatten mit min. 10 mm x 10 mm großer Kupferfläche für den Kollektoranschluß montiert, ist $R_{thJA} = 125$ K/W und damit $P_{tot\,(max.)} = 1$ W bei $T_A = 25\,°C$.

Kennwerte

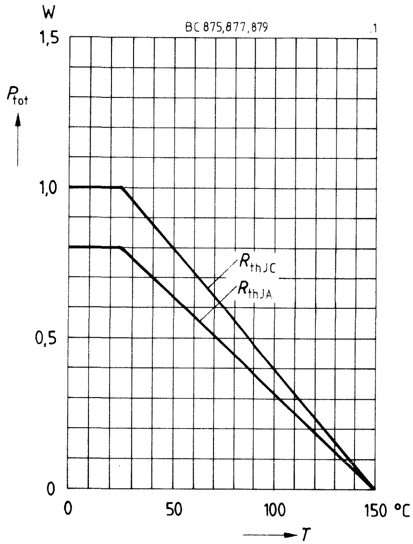
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Kollektor-Emitter-Durchbruchspannung $I_C = 50$ mA	$V_{(BR)CEO}$				
BC 875		45	–	–	V
BC 877		60	–	–	V
BC 879		80	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100$ µA	$V_{(BR)CBO}$				
BC 875		60	–	–	V
BC 877		80	–	–	V
BC 879		100	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 100$ µA	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Emitter-Reststrom $V_{CE} = 0{,}5$ V, V_{CEmax}	I_{CEO}	–	–	500	nA
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = V_{CBmax}$		–	–	100	nA
$V_{CB} = V_{CBmax}$, $T_A = 150\,°C$		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	nA
Stromverstärkung	h_{FE}				
$I_C = 150$ mA; $V_{CE} = 10$ V[1]		1 000	–	–	–
$I_C = 500$ mA; $V_{CE} = 10$ V[1]		2 000	–	–	–
Kollektor-Emitter-Sättigungsspannung[1]	V_{CEsat}				V
$I_C = 500$ mA; $I_B = 0{,}5$ mA		–	–	1,3	
$I_C = 1$ A, $I_B = 1$ mA		–	–	1,8	
Basis-Emitter-Sättigungsspannung[1] $I_C = 1$ A; $I_B = 1$ mA	V_{BEsat}	–	–	2,2	V

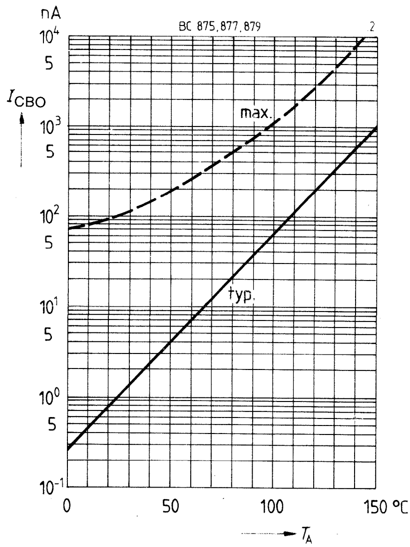
Dynamische Kennwerte	**Symbol**	**min.**	**typ.**	**max.**	**Einheit**
Transitfrequenz $I_C = 200$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	150	–	MHz

[1]) Pulstest: ≤300 µs, $D \leq 2\%$

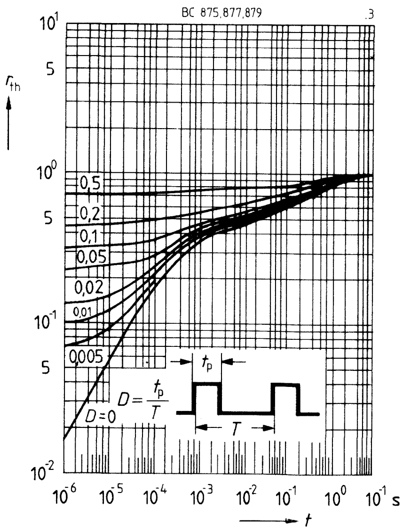
Gesamtverlustleistung $P_{tot} = f(T)$



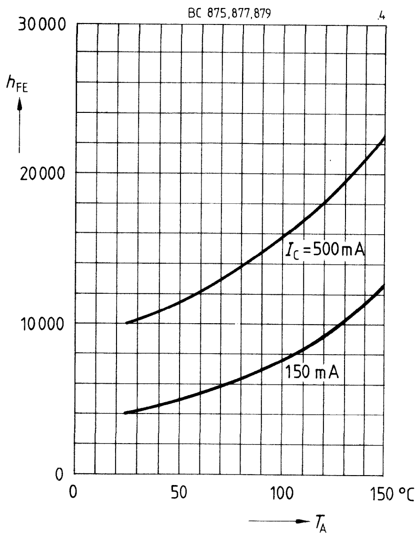
Reststrom $I_{CBO} = f(T_A)$
$V_{CB} = 100$ V



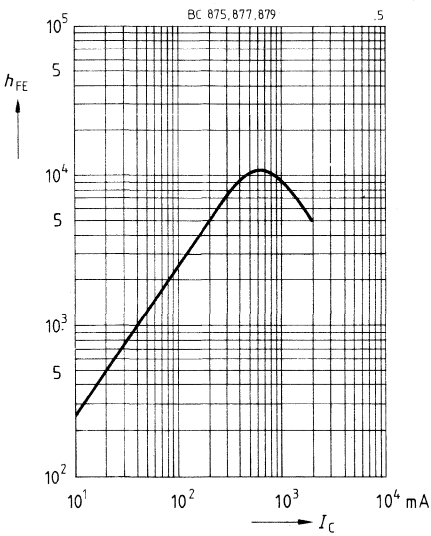
Impulsbelastbarkeit $r_{th} = f(t)$
(normiert)



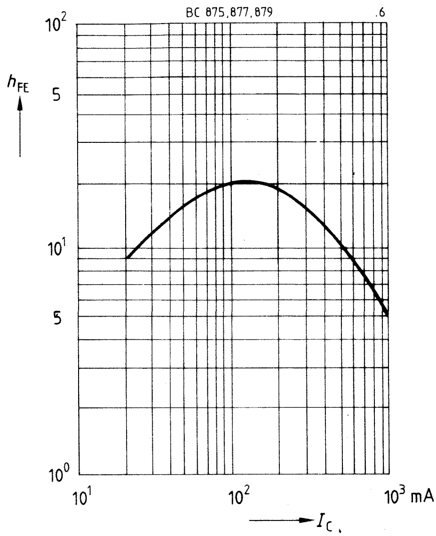
Stromverstärkung $h_{FE} = f(T_A)$
$V_{CE} = 10$ V



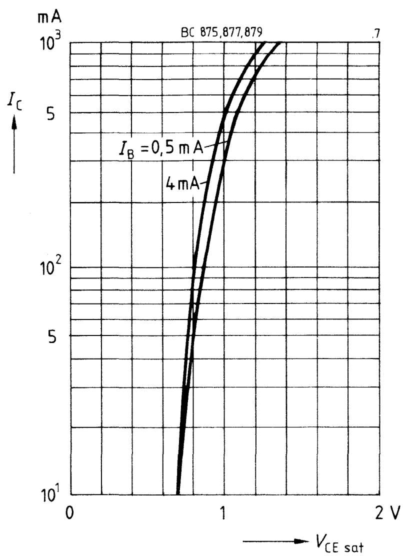
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 10$ V, $T_A = 25$ °C



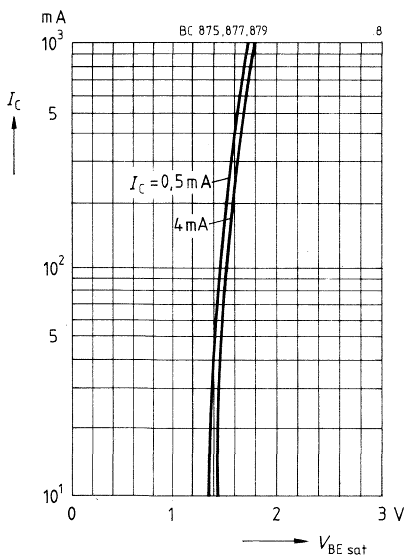
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 5$ V, $f = 35$ MHz



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
Parameter $= I_B$, $T_A = 25$ °C



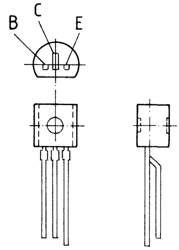
Sättigungsspannung $V_{BEsat} = f\ (I_C)$
Parameter $= I_B$, $T_A = 25$ °C



Silizium-PNP-Darlington-Transistoren

BC 876 ...BC 880

- Hohe Stromverstärkung
- Hoher Kollektorstrom
- Niedrige Kollektor-Emitter-Sättigungsspannung
- Komplementäre NPN-Typen: BC 875, BC 877, BC 879



TO-92-Kunststoffgehäuse
Gewicht: ca. 0,25 g

Typ	Bestellnummer	Typ	Bestellnummer	Typ	Bestellnummer
S BC 876	Q62702–C943	S BC 878	Q62702–C942	S BC 880	Q62702–C941

Grenzwerte

Bezeichnung	Symbol	BC 876	BC 878	BC 880	Einheit
Kollektor-Emitter-Spannung	V_{CEO}	45	60	80	V
Kollektor-Basis-Spannung	V_{CBO}	60	80	100	V
Emitter-Basis-Spannung	V_{EBO}		5		V
Kollektorstrom	I_C		1		A
Kollektorspitzenstrom	I_{CM}		2		A
Basisstrom	I_B		100		mA
Basisspitzenstrom	I_{BM}		200		mA
Gesamtverlustleistung $T_A = 25\,°C$[1])	P_{tot}		0,8 (1)		W
Sperrschichttemperatur	T_j		150		°C
Lagertemperatur	T_{stg}		−65...+150		°C
Wärmewiderstand					
Sperrschicht-Umgebung[1])	R_{thJA}		$\leqq 156$		K/W
Sperrschicht-Gehäuse	R_{thJC}		$\leqq 55$		K/W

[1]) Werden die Transistoren mit max. 4 mm langen Anschlußdrähten auf Leiterplatten mit min. 10 mm x 10 mm großer Kupferfläche für den Kollektoranschluß montiert, ist $R_{thJA} = 125$ K/W und damit $P_{tot\,(max.)} = 1$ W bei $T_A = 25\,°C$.

Kennwerte

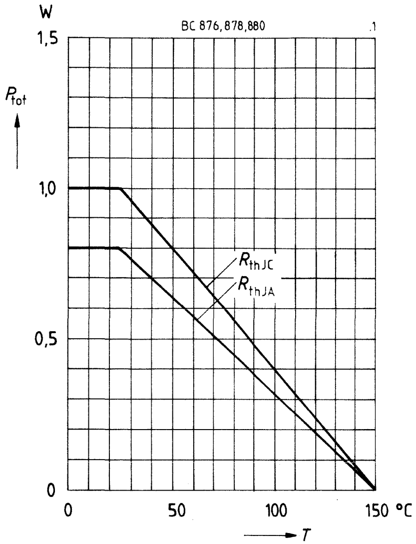
bei $T_A = 25\,°C$, wenn nicht anders angegeben

Statische Kennwerte	Symbol	min.	typ.	max.	Einheit
Kollektor-Emitter-Durchbruchspannung $I_C = 50$ mA	$V_{(BR)CEO}$				
BC 876		45	–	–	V
BC 878		60	–	–	V
BC 880		80	–	–	V
Kollektor-Basis-Durchbruchspannung $I_C = 100\ \mu A$	$V_{(BR)CBO}$				
BC 876		60	–	–	V
BC 878		80	–	–	V
BC 880		100	–	–	V
Emitter-Basis-Durchbruchspannung $I_E = 100\ \mu A$	$V_{(BR)EBO}$	5	–	–	V
Kollektor-Emitter-Reststrom $V_{CE} = 0{,}5$ V, V_{CEmax}	I_{CEO}	–	–	500	V
Kollektor-Basis-Reststrom	I_{CBO}				
$V_{CB} = V_{CBmax}$		–	–	100	nA
$V_{CB} = V_{CBmax}$; $T_A = 150\,°C$		–	–	20	µA
Emitter-Basis-Reststrom $V_{EB} = 4$ V	I_{EBO}	–	–	100	nA
Stromverstärkung	h_{FE}				
$I_C = 150$ mA; $V_{CE} = 10$ V[1])		1000	–	–	–
$I_C = 500$ mA; $V_{CE} = 10$ V[1])		2000	–	–	–
Kollektor-Emitter-Sättigungsspannung[1])	V_{CEsat}				V
$I_C = 500$ mA; $I_B = 0{,}5$ mA		–	–	1,3	
$I_C = 1000$ mA; $I_B = 1$ mA		–	–	1,8	
Basis-Emitter-Sättigungsspannung[1]) $I_C = 1000$ mA; $I_B = 1$ mA	V_{BEsat}	–	–	2,2	V

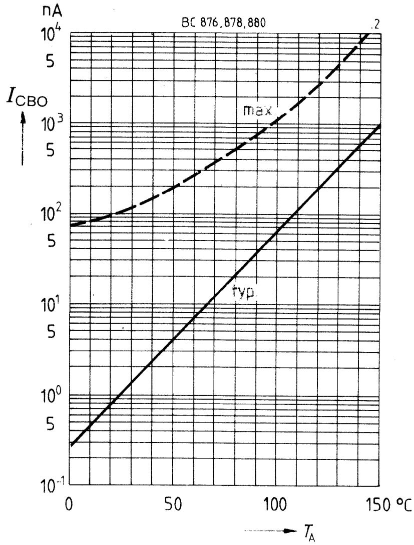
Dynamische Kennwerte	Symbol	min.	typ.	max.	Einheit
Transitfrequenz $I_C = 200$ mA, $V_{CE} = 5$ V, $f = 20$ MHz	f_T	–	150	–	MHz

[1]) Pulstest: $\leq 300\ \mu s$, $D \leq 2\%$

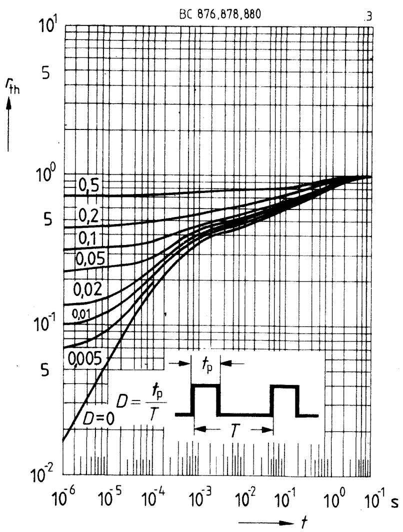
Gesamtverlustleistung $P_{tot} = f\ (T)$



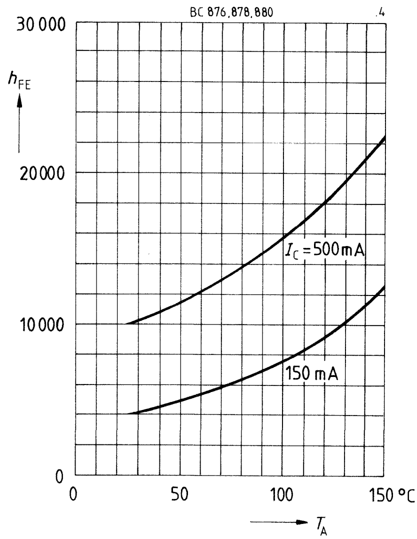
Reststrom $I_{CBO} = f\ (T_A)$
$V_{CB} = 100$ V



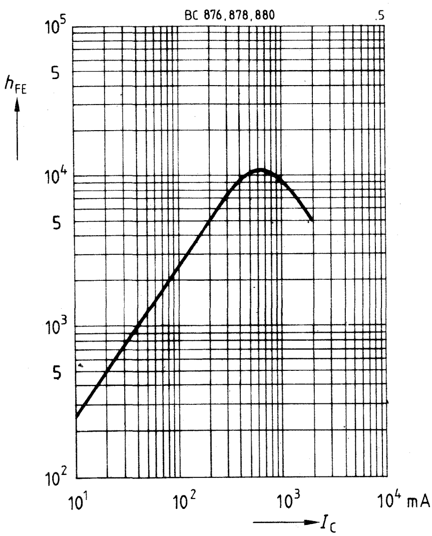
Impulsbelastbarkeit $r_{th} = f\ (t)$
(normiert)



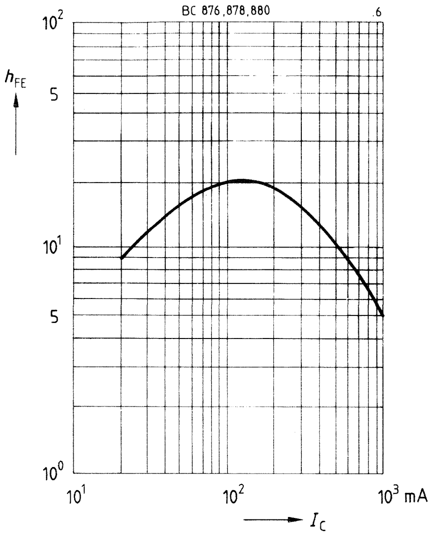
Stromverstärkung $h_{FE} = f\ (T_A)$
$V_{CE} = 10$ V



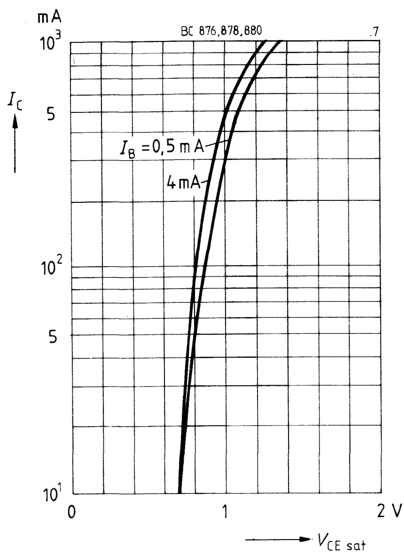
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 10$ V, $T_A = 25$ °C



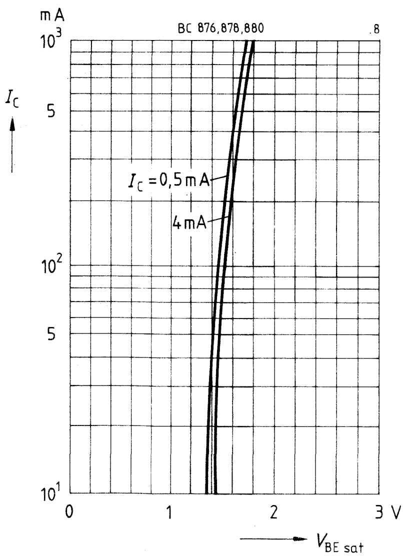
Stromverstärkung $h_{FE} = f\ (I_C)$
$V_{CE} = 5$ V, $f = 35$ MHz



Sättigungsspannung $V_{CEsat} = f\ (I_C)$
Parameter $= I_B$, $T_A = 25$ °C



Sättigungsspannung $V_{BEsat} = f\ (I_C)$
Parameter $= I_B$, $T_A = 25$ °C



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