

FM IF Amplifier and Demodulator for TV Sound Application

Technology: Bipolar

Features

- Outstanding limiting qualities
- Very few external components
- Wide supply voltage range
- High ripple rejection
- Minimum IF passage to audio output
- High IF residual carrier rejection
- U 828 B with integrated deemphasis resistor

Case: 8 pin dual inline plastic

Absolute Maximum Ratings

Reference point pin 3

Parameters	Symbol	Value	Unit
Supply voltage Pin 7	V_S	18	V
Power dissipation $T_{amb} = 70\text{ °C}$	P_{tot}	550	mW
Junction temperature	T_j	125	°C
Ambient temperature range	T_{amb}	-15 ... +70	°C
Storage temperature range	T_{stg}	-25 ... +125	°C

Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient	R_{thJA}	100	K/W

U 828 B U 829 B / U 829 BS

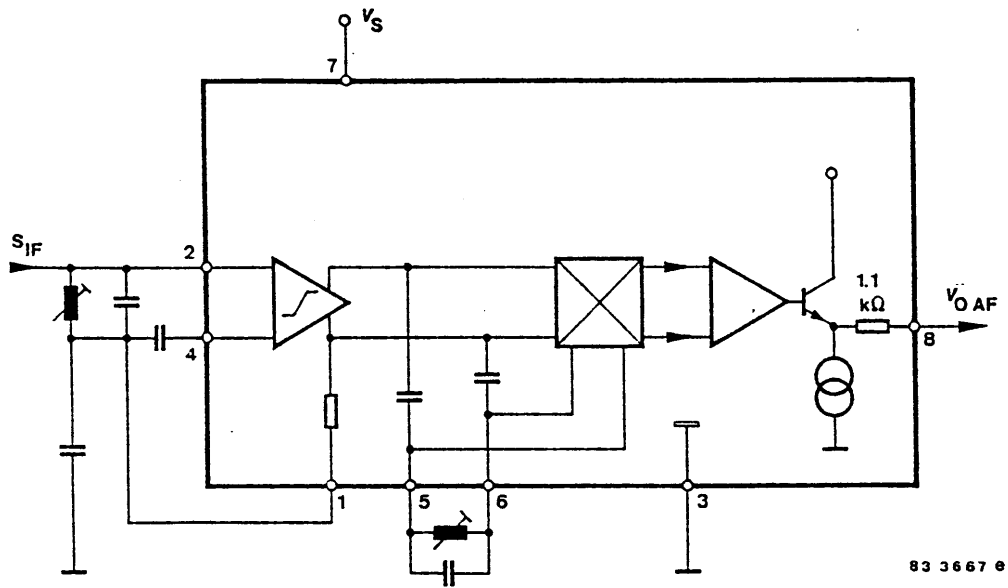


Figure 1 Block diagram U 828 B

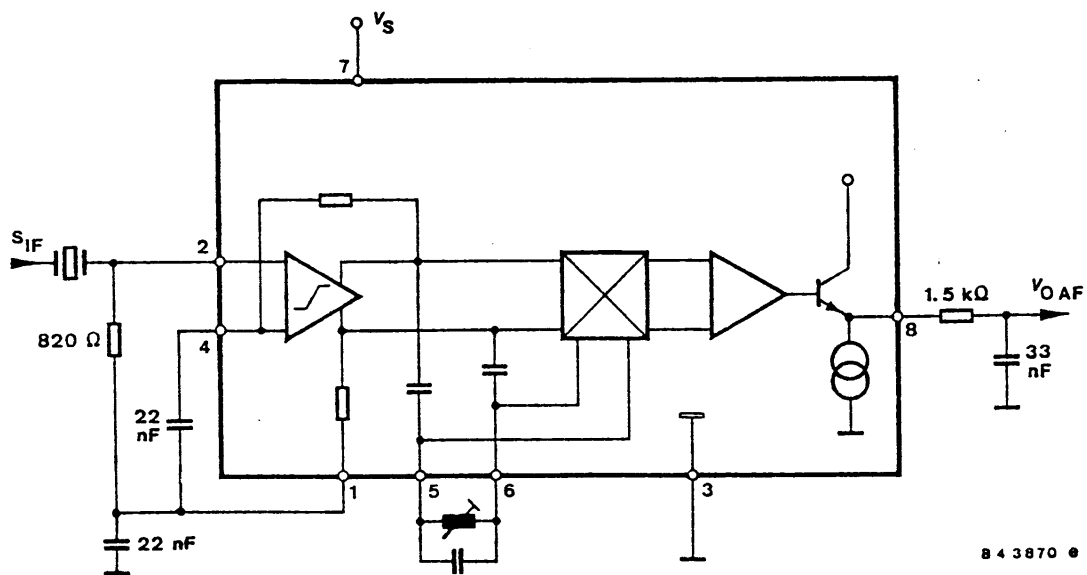


Figure 2 Block diagram U 829 B

Electrical Characteristics

$V_S = 12\text{ V}$, reference point pin 3, $T_{\text{amb}} = 25\text{ }^\circ\text{C}$, unless otherwise specified

Parameters	Test Conditions / Pin	Symbol	Min	Typ	Max	Unit
Supply voltage range	Pin 7	V_S	10		18	V
Supply current	Pin 7	I_S	9.5	14	17.5	mA
Frequency range		f			12	MHz
Input voltage for limitation	f = 5.5 MHz, $\Delta f = \pm 50\text{ kHz}$, $f_{\text{mod}} = 1\text{ kHz}$, $Q^{1)} = 45$					
	Pin 2	v_i		75	90	μV
Input impedance	Pin 2	R_i	15	40		$\text{k}\Omega$
		C_i		4.5	6	pF
Output impedance		R_o			200	Ω
AM-rejection	f = 5.5 MHz, $\Delta f = \pm 50\text{ kHz}$, m = 30 %, $Q^{1)} = 45$, $V_i = 500\text{ }\mu\text{V}$	k_{AM}	50	60		dB
DC voltage at AF output	$V_i = 0$	Pin 8				
	U 828 B	V_O		5.6		V
	U 829 B	V_O		4.0		V
Ripple rejection	Pin 7,8	k_{hum}		35		dB
IF residual voltage without C_D	Pin 8	V_{oIF}		20		mV
AF output voltage	$V_i = 10\text{ mV}$, f = 5.5 MHz, $\Delta f = \pm 50\text{ kHz}$, $f_{\text{mod}} = 1\text{ kHz}$, $Q^{1)} = 45$					
	Pin 8					
	U 828 B	V_{oAF}	0.8		1.3	V
Group 0	= U 829 B	V_{oAF}	1.0		1.90	V
Group 1	= U 829 BS	V_{oAF}	1.0		1.25	V
Group 2	= U 829 BS	V_{oAF}	1.22		1.55	V
Group 3	= U 829 BS	V_{oAF}	1.52		1.90	V
$Q^{1)} = 20$	U 828 B	V_{oAF}		0.65		V
	U 829 B	V_{oAF}		0.8		V
Distortion	Pin 8					
	f = 5.5 MHz, $V_i = 10\text{ mV}$, FM-Hub = 50 kHz, $f_{\text{mod}} = 1\text{ kHz}$					
$Q^{1)} = 45$		d		3.0		%
$Q^{1)} = 20$		d		1.0		%
Signal to noise ratio	$V_i = 10\text{ mV}$ (unmodulated), according to DIN 45 405 (A-weighted) Pin 8		70	80		dB
Mute function						
Switching current		I_{sw}			400	μA
Switching voltage		V_{mute}	3			V

¹⁾ Operation quality factor for the demodulator circuit

U 828 B U 829 B / U 829 BS

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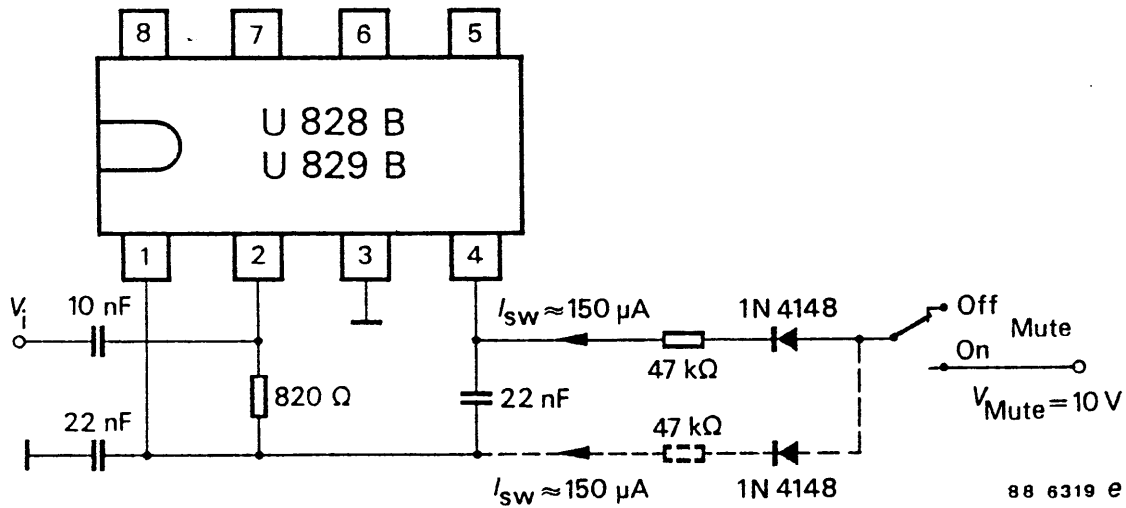


Figure 3

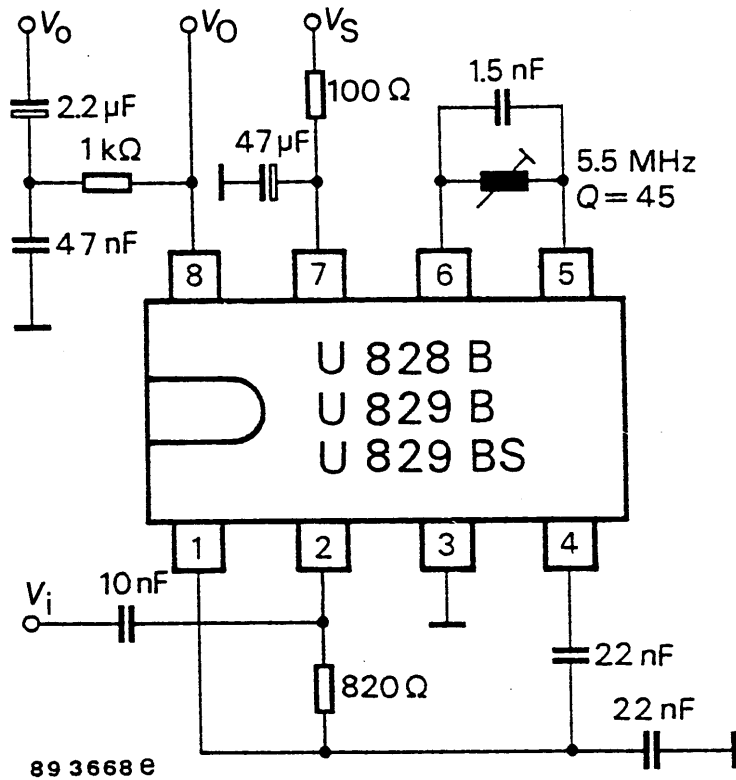
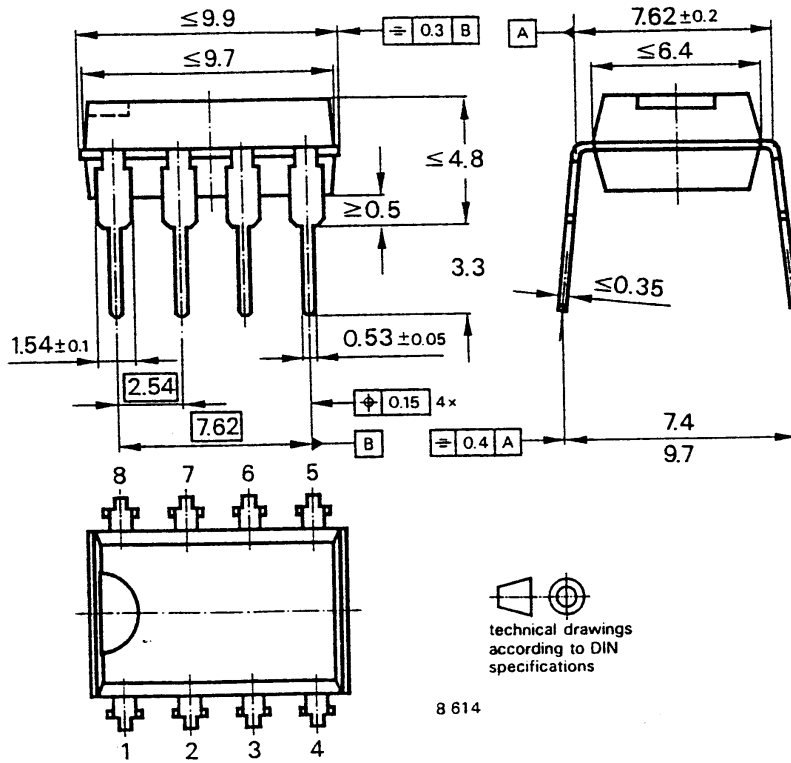


Figure 4 Test circuit

Supply voltage must be disconnected before inserting the integrated circuit in the socket.

Dimensions in mm



Case
DIP 8-leads

OZONE DEPLETING SUBSTANCES POLICY STATEMENT

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements and
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

Of particular concern is the control or elimination of releases into the atmosphere of those substances which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) will soon severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of any ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA and
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with and do not contain ozone depleting substances.

We reserve the right to make changes without further notice to improve technical design.

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