

PHILIPS

Data handbook



Electronic
components
and materials

Components and materials

1985

Wirewound components
for TVs and monitors

WIREWOUND COMPONENTS FOR TV AND MONITORS

| | <i>page</i> |
|---|-------------|
| Selection guide | |
| Recommended combinations for colour television | 2 |
| Recommended combinations for colour data graphic displays | 4 |
| Recommended combinations for monochrome data graphic displays | 6 |
| Glass delay lines | 8 |
| Degaussing coils | 11 |
| Device specifications | |
| Line output transformers | 13 |
| Linearity correctors | 119 |
| Linearity control units | 137 |
| Amplitude controls | 151 |
| Luminance delay lines | 161 |
| Glass delay lines and comb filters | 183 |
| Degaussing coils | 221 |
| Transformers, chokes and coils | 243 |
| Mains transformers | 325 |
| Index of type numbers | 334 |
| Conversion list (catalogue number-to-type number) | 336 |

DATA HANDBOOK SYSTEM

Our Data Handbook System comprises more than 60 books with specifications on electronic components, subassemblies and materials. It is made up of four series of handbooks:

| | |
|--------------------------|--------|
| ELECTRON TUBES | BLUE |
| SEMICONDUCTORS | RED |
| INTEGRATED CIRCUITS | PURPLE |
| COMPONENTS AND MATERIALS | GREEN |

The contents of each series are listed on pages iv to viii.

The data handbooks contain all pertinent data available at the time of publication, and each is revised and reissued periodically.

When ratings or specifications differ from those published in the preceding edition they are indicated with arrows in the page margin. Where application information is given it is advisory and does not form part of the product specification.

Condensed data on the preferred products of Philips Electronic Components and Materials Division is given in our Preferred Type Range catalogue (issued annually).

Information on current Data Handbooks and on how to obtain a subscription for future issues is available from any of the Organizations listed on the back cover.

Product specialists are at your service and enquiries will be answered promptly.

ELECTRON TUBES (BLUE SERIES)

The blue series of data handbooks comprises:

- T1 Tubes for r.f. heating**
- T2a Transmitting tubes for communications, glass types**
- T2b Transmitting tubes for communications, ceramic types**
- T3 Klystrons**
- T4 Magnetrons for microwave heating**
- T5 Cathode-ray tubes**
Instrument tubes, monitor and display tubes, C.R. tubes for special applications
- T6 Geiger-Müller tubes**
- T7 Gas-filled tubes (will not be reprinted)**
- T8 Colour display systems**
Colour TV picture tubes, colour data graphic display tube assemblies, deflection units
- T9 Photo and electron multipliers**
- T10 Plumbicon camera tubes and accessories**
- T11 Microwave semiconductors and components**
- T12 Vidicon and Newvicon camera tubes**
- T13 Image intensifiers**
- T14 Infrared detectors**
- T15 Dry reed switches**
- T16 Monochrome tubes and deflection units**
Black and white TV picture tubes, monochrome data graphic display tubes, deflection units

} Data collations on these subjects are available now.
Data Handbooks will be published in 1985.

SEMICONDUCTORS (RED SERIES)

The red series of data handbooks comprises:

- S1 Diodes**
Small-signal germanium diodes, small-signal silicon diodes, voltage regulator diodes (< 1,5 W), voltage reference diodes, tuner diodes, rectifier diodes
- S2a Power diodes**
- S2b Thyristors and triacs**
- S3 Small-signal transistors**
- S4a Low-frequency power transistors and hybrid modules**
- S4b High-voltage and switching power transistors**
- S5 Field-effect transistors**
- S6 R.F. power transistors and modules**
- S7 Surface mounted semiconductors**
- S8 Devices for optoelectronics**
Photosensitive diodes and transistors, light-emitting diodes, displays, photocouplers, infrared sensitive devices, photoconductive devices.
- S9 Power MOS transistors**
- S10 Wideband transistors and wideband hybrid IC modules**
- S11 Microwave semiconductors** (to be published in this series in 1985)
At present available in Handbook T11
- S12 Surface acoustic wave devices**

INTEGRATED CIRCUITS (PURPLE SERIES)

The purple series of data handbooks comprises:

EXISTING SERIES

Superseded by:

| | | |
|-------------|--|---------------------------------|
| IC1 | Bipolar ICs for radio and audio equipment | IC01N |
| IC2 | Bipolar ICs for video equipment | IC02Na and IC02Nb |
| IC3 | ICs for digital systems in radio, audio and video equipment | IC01N, IC02Na and IC02Nb |
| IC4 | Digital integrated circuits CMOS HE4000B family | |
| IC5 | Digital integrated circuits – ECL ECL10 000 (GX family), ECL100 000 (HX family), dedicated designs | IC08N |
| IC6 | Professional analogue integrated circuits | |
| IC7 | Signetics bipolar memories | |
| IC8 | Signetics analogue circuits | IC11N |
| IC9 | Signetics TTL logic | IC09N and IC15N |
| IC10 | Signetics Integrated Fuse Logic (IFL) | IC13N |
| IC11 | Microprocessors, microcomputers and peripheral circuitry | |

NEW SERIES

| | | |
|--------|--|------------------|
| IC01N | Radio, audio and associated systems Bipolar, MOS | (published 1985) |
| IC02Na | Video and associated systems Bipolar, MOS Types MAB8031AH to TDA1524A | (published 1985) |
| IC02Nb | Video and associated systems Bipolar, MOS Types TDA2501 to TEA1002 | (published 1985) |
| IC03N | Integrated circuits for telephony | (published 1985) |
| IC04N | HE4000B logic family CMOS | |
| IC05N | HE4000B logic family – uncased ICs CMOS | (published 1984) |
| IC06N | High-speed CMOS; PC54/74HC/HCT/HCU Logic family | (published 1985) |
| IC07N | High-speed CMOS; PC54/74HC/HCT/HCU – uncased ICs Logic family | |
| IC08N | ECL 10K and 100K logic families | (published 1984) |
| IC09N | TTL logic series | (published 1984) |
| IC10N | Memories MOS, TTL, ECL | |
| IC11N | Linear LSI | (published 1985) |
| IC12N | Semi-custom gate arrays & cell libraries ISL, ECL, CMOS | |
| IC13N | Semi-custom Integrated Fuse Logic | (published 1985) |
| IC14N | Microprocessors, microcontrollers & peripherals Bipolar, MOS | |
| IC15N | FAST TTL logic series | (published 1984) |

Note

Books available in the new series are shown with their date of publication.

COMPONENTS AND MATERIALS (GREEN SERIES)

The green series of data handbooks comprises:

- C1 Programmable controller modules**
PLC modules, PC20 modules
- C2 Television tuners, coaxial aerial input assemblies, surface acoustic wave filters**
- C3 Loudspeakers**
- C4 Ferroxcube potcores, square cores and cross cores**
- C5 Ferroxcube for power, audio/video and accelerators**
- C6 Synchronous motors and gearboxes**
- C7 Variable capacitors**
- C8 Variable mains transformers**
- C9 Piezoelectric quartz devices**
- C10 Connectors**
- C11 Non-linear resistors**
Voltage dependent resistors (VDR), light dependent resistors (LDR), negative temperature coefficient thermistors (NTC), positive temperature coefficient thermistors (PTC)
- C12 Potentiometers, encoders and switches**
- C13 Fixed resistors**
- C14 Electrolytic and solid capacitors**
- C15 Ceramic capacitors**
- C16 Permanent magnet materials**
- C17 Stepping motors and associated electronics**
- C18 Direct current motors**
- C19 Piezoelectric ceramics**
- C20 Wire-wound components for TVs and monitors**
- C21* Assemblies for industrial use**
HNIL FZ/30 series, NORbits 60-, 61-, 90-series, input devices
- C22 Film capacitors**

* Will be issued in 1985.

SELECTION GUIDE

RECOMMENDED COMBINATIONS FOR COLOUR TELEVISION

90°

| | | |
|--------------------------------------|----------------------------|------------------------|
| Picture tube | A37-573X | A37-590X A37-591X |
| Deflection unit | AT1205 | AT1206 |
| Screen diagonal | 37 cm | 37 cm |
| Multipole | AT1052 | AT1052 |
| Degaussing coil single insulation | 3122 138 99840 | 3122 138 99840 |
| Mains filter choke | AT4043/90 | AT4043/90 |
| Switched mode driver transformer | | AT4043/29 |
| Switched mode transformer | AT3010/90* | — |
| Mains transformer | — | TS561/2 or TS521B |
| Input choke | — | AT4043/81 |
| Synchronous power pack transformer | — | AT2077/80 or AT2076/80 |
| Line output transformer | AT2079/10* | — |
| Linearity control unit | AT4042/04A or AT4042/91 | AT4042/91 |

110°

| | | |
|---|-------------------------------------|------------------|
| Picture tube | A51-540X | |
| Deflection unit | AT1850 | |
| Screen diagonal | 51 cm | |
| Degaussing coil single insulation double insulation | 3122 138 55220 or 3122 138 56320 | |
| Mains filter choke | AT4043/55 or /90 | AT4043/55 or /90 |
| Driver transformer | — | AT4043/29 |
| Switched mode transformer | AT3010/110* | — |
| Mains transformer | TS561/2 | TS561/2 |
| Current sensing transformer | — | AT4043/46 |
| Bridge coil | AT4043/100 | AT4043/100 |
| East/west choke | AT4043/60 | AT4043/60 |
| Input choke | — | AT4043/16A |
| Line output transformer | AT2077/81 | AT2077/82 |
| Audio choke | — | AT4043/96 |
| Power pack system line choke | — | AT4043/53 |
| Linearity control unit or linearity corrector | AT4042/08A or AT4042/90 | AT4042/90 |

* Data not included in this Handbook.

| | | | |
|---|---|---|---|
| A42-570X AT1215 42 cm | A42-590X A42-591X AT1216 or AT1470 42 cm | A51-570X AT1237 51 cm | A51-590X A51-591X AT1236 or AT1480 51 cm |
| AT1052 3122 138 99850 AT4043/90 — AT3010/90* — — — AT2079/07* AT4042/04A or AT4042/91 | AT1052 3122 138 99850 AT4043/90 AT4043/29 — TS561/2 or TS521B AT4043/81 AT2077/80 or AT2076/80 — AT4042/91 | AT1052 3122 138 56070 AT4043/90 — AT3010/90* — — — AT2079/10* AT4042/04A or AT4042/91 | AT1052 3122 138 56070 AT4043/90 AT4043/29 — TS561/2 or TS521B AT4043/81 AT2077/80 or AT2076/80 — AT4042/91 |

| | |
|---|--|
| A56-540X AT1860 56 cm | A66-540X AT1870 66 cm |
| 3122 138 55220 or 3122 138 56320 AT4043/55 or /90 AT3010/110* TS561/2 — AT4043/100 AT4043/60 — AT2077/81 — — AT4042/08A or AT4042/90 | 3122 138 55230 or 3122 138 56310 AT4043/55 or /90 — AT3010/110* TS561/2 — AT4043/100 AT4043/60 — AT2077/81 — — AT4042/08A or AT4042/90 |

RECOMMENDED COMBINATIONS FOR COLOUR DATA GRAPHIC DISPLAYS

| | line frequency | | | |
|---|----------------------------|-------------------------------------|---|---|
| | 16 kHz | | | 24 kHz |
| | medium resolution | high resolution | | high resolution |
| | 14 inch | 10 inch | 14 inch | 14 inch |
| Colour monitor tube assembly | M34EAQ00X01 M34EAQ10X01 | 250ARB22N-TC03 (M25-100X/N/4130) | M37-103X/N/1020 M37-108X/N/1020 M37-118X/N/1020 | M37-103X/N/1020 M37-108X/N/1020 M37-118X/N/1020 |
| Inductance of line deflection coils | 1,9 mH | 1,93 mH | 1,2 mH | 1,2 mH |
| Line output transformer | AT2077/81 | AT2076/81 | AT2076/81 | AT2076/51 |
| Linearity control unit | AT4042/34 | AT4042/04A or AT4042/08A | AT4042/08A | AT4042/08A |
| Driver transformer | AT4043/01 | AT4043/01 | AT4043/01 | AT4043/01 |
| Shift transformer | — | AT4043/09 | AT4043/09 | AT4043/09 |
| Dynamic focusing transformer | — | — | — | — |
| Bridge coil | AT4043/68 | AT4043/68 | AT4043/68 | AT4043/68 |

| 32 kHz | | line frequency | |
|---|-----------------|---|---------------------------------|
| | | 45 kHz | 64 kHz |
| high resolution | | high resolution | high resolution |
| 14 inch | 20 inch | 14 inch | 20 inch |
| M37-103X/N/1030 M37-108X/N/1030 M37-118X/N/1030 | M51-107X/N/7171 | M37-103X/N/1050 M37-108X/N/1050 M37-118X/N/1050 | M48JFJ58X32 |
| 0,3 mH | 0,71 mH | 0,14 to 0,16 mH | 0,18 mH |
| AT2076/51 | AT2076/51 | AT2077/85 | AT2076/60 |
| AT4042/32A | AT4042/32A | AT4042/32A | AT4042/32A |
| AT4043/01 | AT4043/01 | AT4043/87 | 2 x AT4043/87+ 1 x AT4043/01 |
| AT4043/09 | AT4043/09 | AT4043/09 | AT4043/09 |
| — | AT4043/67 | — | — |
| AT4043/68 | AT4043/68 | AT4043/13 | AT4043/08A |

RECOMMENDED COMBINATIONS FOR MONOCHROME DATA GRAPHIC DISPLAYS

| | | | |
|------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Line frequency | 15 to 22 kHz | 15 to 22 kHz | 15 to 22 kHz |
| E.H.T. | 11 kV | 11 kV | 11 kV |
| Number of characters/line | 40 to 80 | 40 to 80 | 40 to 80 |
| Picture tube | M24-306 | M31-336/M31-340 | M32EAA series |
| Screen diagonal | 9 in | 12 in | 14 in |
| Deflection angle | 90° | 90° | 90° |
| Format | landscape | landscape | landscape |
| Deflection unit | AT1077/09 | AT1077/05 | AT1077/13 |
| Line output transformer | AT2240/16** or AT2140/16B** | AT2240/16** or AT2140/16B** | AT2240/16** or AT2140/16B** |
| Linearity control unit | AT4042/08A or AT4042/46 | AT4042/08A or AT4042/46 | AT4042/08A or AT4042/46 |
| Line driver transformer | — | — | — |
| Dynamic focusing transformer | — | — | — |
| D.C. shift transformer | — | — | — |
| Amplitude control unit | AT4044/39D | AT4044/39D | AT4044/39D |
| Transducer | — | — | — |

* E.H.T. cable, catalogue number 3122 137 63370, to be ordered separately.

** E.H.T. cable, catalogue number 3122 137 63920, to be ordered separately.

▲ E.H.T. cable, catalogue number 3111 108 34740, to be ordered separately.

▲▲ E.H.T. cable, catalogue number 3122 137 58254, to be ordered separately.

| | | | | | | |
|--|--|--|--|--|--|---|
| 15,6 kHz 17 kV 80 M31-326/ M38-328 | 21,3 kHz 17 kV 80 M31-326/ M38-328 | 15 to 25 kHz 17 kV 80 M31-326/ M38-328 | 15 to 50 kHz 17 kV 100 to 132 M31-326 | 15 to 50 kHz 17 kV 100 to 132 M38-328 | 15 to 70 kHz 17 kV 100 to 132 M38-328 | 125 kHz 17 kV 192 M38-200 |
| 12 in/15 in 110° landscape | 12 in/15 in 110° landscape | 12 in/15 in 110° landscape | 12 in 110° landscape | 15 in 110° landscape | 15 in 110° portrait | 15 in 70° portrait |
| AT1038/40A AT2102/04C▲ | AT1038/40A AT2102/06C▲ | AT1038/40A AT2076/84* | AT1039/03 AT2076/84* | AT1039/01 AT2076/84* | AT1039/00 AT2076/84* | AT1991 DT2076/54▲▲ |
| AT4042/08A | AT4042/08A | AT4042/08A | AT4042/08A or AT4042/33A | AT4042/08A or AT4042/33A | AT4042/08A or AT4042/33A | |
| AT4043/59 — — — — | AT4043/59 AT4043/67 — — — | AT4043/64 AT4043/67 — — — | AT4043/64 — AT4043/29 AT4044/35 — | AT4043/64 — AT4043/29 AT4044/35 — | AT4043/64 — AT4043/29 AT4044/35 — | AT4043/87 — AT4043/29 — AT4041/52 |

GLASS DELAY LINES

| type | DL63 | DL680 | DL701 | DL703 |
|----------------------|----------------|----------------|----------------|----------------|
| catalogue number | 4322 027 84631 | 4322 027 84661 | 4322 027 84771 | 4322 027 84831 |
| application | CTV | VLP | CTV/VCR | VCR |
| system | PAL-Brazil | PAL | PAL-Europe | PAL-Europe |
| nominal frequency | 3,575611 MHz | 7,500000 MHz | 4,433619 MHz | 4,433619 MHz |
| -3 dB lower limit | 2,8 MHz | 5,5 MHz | 3,43 MHz | 3,03 MHz |
| -3 dB upper limit | 4,5 MHz | 8,5 MHz | 5,23 MHz | 5,43 MHz |
| insertion loss | 9 ± 3 dB | max. 17 dB | 9 ± 3 dB | 9 ± 3 dB |
| delay time | 63486 ± 5 ns | 64400 ± 50 ns | 63943 ± 5 ns | 63935 ± 5 ns |
| nominal phase | 0° | — | 180° | 180° |
| drift (+ 10/+ 60 °C) | typ. 5 ns | ≤ 10 ns | ≤ 5 ns | ≤ 5 ns |
| spurious (3 τ) | ≤ -22 dB | ≤ -20 dB | ≤ -25 dB | ≤ -28 dB |
| spurious ('others') | ≤ -30 dB | ≤ -30 dB | ≤ -33 dB | ≤ -26 dB |
| R1 (input) | 560 Ω | 150 Ω | 390 Ω | 390 Ω |
| R2 (output) | 560 Ω | 150 Ω | 390 Ω | 390 Ω |
| L1 eff. (input) | 18 μ H | 2,2 μ H | 10 μ H | 18 μ H |
| L2 eff. (output) | 18 μ H | 2,2 μ H | 10 μ H | 18 μ H |
| page | 185 | 189 | 193 | 197 |

| DL711 | DL720 | DL721 | DL722 | DL750 |
|----------------|----------------|----------------|----------------|-----------------|
| 4322 027 84781 | 4322 027 84721 | 4322 027 84731 | 4322 027 84741 | 4322 027 84751 |
| CTV | CTV | CTV | CTV | CTV comb f./VCR |
| PAL/SECAM | PAL-Argentina | PAL-Argentina | PAL-Argentina | NTSC |
| 4,433619 MHz | 3,582056MHz | 3,582056 MHz | 3,582056 MHz | 3,579545 MHz |
| 3,43 MHz | 2,8 MHz | 2,8 MHz | 2,8 MHz | 2,8 MHz |
| 5,23 MHz | 4,5 MHz | 4,5 MHz | 4,5 MHz | 4,5 MHz |
| 9 ± 3 dB | 9 ± 3 dB | 9 ± 3 dB | 9 ± 3 dB | 9 ± 3 dB |
| 63943 ± 5 ns | 63929 ± 5 ns | 64069 ± 5 ns | 64069 ± 5 ns | 63555 ± 5 ns |
| 180° | 0° | 180° | 180° | 180° |
| ≤ 5 ns | ≤ 5 ns | ≤ 5 ns | ≤ 5 ns | typ. 5 ns |
| ≤ -33 dB* | ≤ -22 dB | ≤ -22 dB | ≤ -22 dB | ≤ -22 dB |
| ≤ -33 dB* | ≤ -28 dB | ≤ -28 dB | ≤ -28 dB | ≤ -28 dB |
| 390 Ω | 560 Ω | 560 Ω | 390 Ω | 560 Ω |
| 390 Ω | 560 Ω | 560 Ω | 390 Ω | 560 Ω |
| 10 μH | 18 μH | 18 μH | 10 μH | 18 μH |
| 10 μH | 18 μH | 18 μH | 10 μH | 18 μH |
| 201 | 205 | 205 | 205 | 209 |

* Spurious signals measured in frequency range 3,9 to 4,75 MHz.

GLASS DELAY LINES/COMB FILTERS

| | | |
|---------------------|-----------------|-----------------|
| type | DL872 | CF873 |
| catalogue number | 4322 027 84841 | 4322 027 84581 |
| application | VCR comb filter | VCR comb filter |
| system | PAL-Europe | PAL-Europe |
| nominal frequency | 4,433619 MHz | 4,433619 MHz |
| -3 dB lower limit | 3,93 MHz | 3,93 MHz |
| -3 dB upper limit | 4,93 MHz | 4,93 MHz |
| Insertion loss | 18 ± 3 dB | 18 ± 3 dB |
| delay time | 128 μs | 128 μs |
| spurious (2τ) | ≤ -12 dB | ≤ -18 dB |
| spurious ('others') | ≤ -23 dB | ≤ -23 dB |
| comb depth at f_0 | ≥ 20 dB | ≥ 20 dB |
| comb depth at f_+ | ≥ 10 dB | ≥ 12 dB |
| comb depth at f_- | ≥ 10 dB | ≥ 12 dB |
| page | 213 | 217 |

Note: $f_0 = 4,42971$ MHz
 $f_+ = 4,92971$ MHz
 $f_- = 3,92971$ MHz

DEGAUSSING COILS

| | | | | | | | |
|-------------------------------------|-------------------------------|---------------|---------------|---------------|---------------|--------------------|--------------|
| Screen diagonal of picture tube | 10 inch 11 inch 12 inch | 14 inch | 16 inch | 20 inch | 20 inch | 20 inch 22 inch | 26 inch |
| Degaussing system | single coil | single coil | single coil | single coil | double coil | double coil | double coil |
| Mounting | twisted loop | asymmetrical | asymmetrical | asymmetrical | top + bottom | top + bottom | top + bottom |
| Ampere-turns | 500 | 600 | 600 | 700 | 2 x 300 | 2 x 300 | 2 x 300 |
| Catalogue number of degaussing coil | | | | | | | |
| 3122 138 | | | | | | | |
| single insulation | | 99840 | 99850 | 56070 | | 55220 | 55230 |
| double insulation | 56310 | 51860 | 51850 | 56170 | 55920 | 56320 | 56310 |
| Diameter | 435 mm | 300 mm | 330 mm | 435 mm | 385 mm | 385 mm | 435 mm |
| Mains voltage | 220/240V | 220/240 V | 220/240 V | 220/240 V | 110/220 V | 110/220 V | 110/220 V |
| Resistance | 8,6 Ω * | 21,7 Ω | 26,3 Ω | 19,5 Ω | 11,4 Ω | 11,5 Ω | 8,6 Ω |
| Number of turns | 52 | 97 | 107 | 120 | 65 | 49 | 52 |

* Resistor 10 Ω to be connected in series.

LINE OUTPUT TRANSFORMERS

DIODE-SPLIT LINE OUTPUT TRANSFORMER

- Three-layer e.h.t. coil, focus tap for hi-bi
- Aluminium foil primary winding
- Piggy-back type
- For Data Graphic Displays

QUICK REFERENCE DATA

For transistor line output stages

| | deflection angle | 110° | 90° |
|---|------------------|--|---|
| I_{eht} | | max. 1,5 mA | max. 1 mA |
| E.H.T. | | 25 kV | 25 kV |
| $R_i(\text{eht})$ | | 1,86 M Ω | 2,45 M Ω |
| $I_{\text{p-p}}$ deflection (incl. 6% overscan) | | 5,3 A | 2,85 A |
| Supply voltage (V_B') | | 151 V | 151,5 V |
| Supply current (I_{average}) at | | 477 mA ($I_{\text{eht}} = 1,5 \text{ mA}$) | 291 mA ($I_{\text{beam}} = 1 \text{ mA}$) |
| Voltages of primary windings * | | $V_p = + 114, + 520$ $+ 1060, + 1090$ | $+ 112, + 515$ $+ 1050, + 1080$ |
| Voltages of auxiliary windings | | $V_p = -280, -149, + 64,$ $+ 227, + 326$ | $-275, -146, + 62$ $+ 223, + 322$ |
| | | picture tube heater voltage | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 110° and 90° colour picture tubes in transistor equipped receivers presenting 625 lines at 50 fields per second (CCIR) or 525 lines at 60 fields per second (USA).

It is intended for use in conjunction with:

| | deflection angle | 110° | 90° |
|--|------------------|------------------------|-------------------|
| – deflection unit | | AT1870, AT1860, AT1850 | AT1235/00 |
| – bridge coil | | AT4043/68 | AT4043/68 |
| – linearity control unit | | AT4042/08A or /30 | AT4042/04A or /90 |
| – line output transistor | | BU508A | BU508A |
| – screened e.h.t. cable with a length of 1 m; catalogue number 3122 137 58254. | | | |

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube U-cores, screwed together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The e.h.t. winding is moulded in flame retarding polyester, meeting the self-extinguishing requirements of IEC 65, para. 14.4 and UL492, para. 280-SE1. The transformer has 2 M3 screw-studs for mounting.** External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 2).

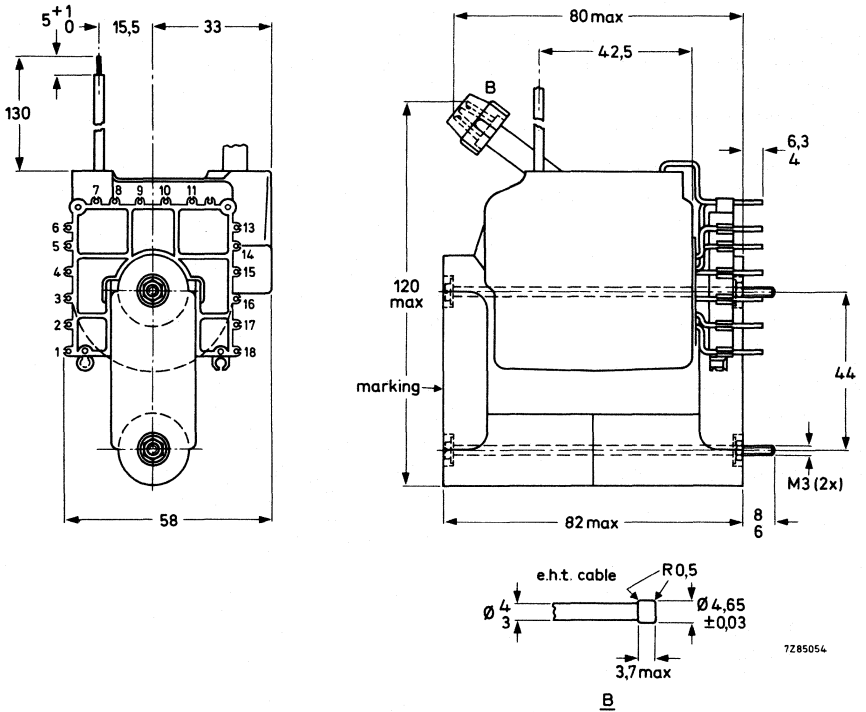
* D.C. component on these pulses is V_B' (see Fig. 3).

** For mounting on the printed-wiring board a washer of 20 mm in diameter has to be used. Tightening torque on printed-wiring board: 500 + 100 mNm.

MECHANICAL DATA

Outlines

Dimensions in mm



7285054

Fig. 1.

Solderability in accordance with IEC 68, Test T

MOUNTING

The transformer may be mounted on either a printed-wiring board or, under certain conditions, on a metal chassis. Two securing studs (M3) are provided. The fit of the connecting and the mounting pins in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 2.

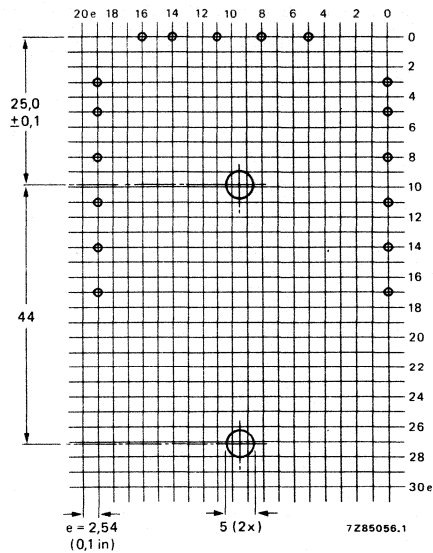


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side). Grid hole diameter $1,3 \pm 0,1$ mm.

Whether the transformer is board or chassis mounted, **the core must be earthed.**

Temperature

The operating temperature of the e.h.t. coil should not exceed $+85\text{ }^{\circ}\text{C}$ under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to $45\text{ }^{\circ}\text{C}$).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and **neighbouring conductive flat surfaces** must be maintained:

From the e.h.t. coil radially, 10 mm

From the e.h.t. coil axially, 10 mm

Sharp edges of conductive parts must have greater distances than given above.

The transformer, leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA with 110° COLOUR PICTURE TUBES

| E.H.T. supply | I_{eht} e.h.t. $R_i(\text{eht})$ | mA kV MΩ | 0,03 25,0 | 1 23,2 -1,86- | 1,5 22,2 |
|---|---|----------------|--------------|---------------------|-------------|
| Power supply | V_B | V | 158,5 | 158,5 | 158,5 |
| | $V_{B'}$ | V | 151 | 147,2 | 145,0 |
| | I_{average} | mA | 259 | 397 | 477 |
| Output transistor | V_{CEM} | V | 1240 | 1210 | 1190 |
| | $+ I_{\text{CEM}}$ | A | 3,5 | 3,6 | 3,65 |
| Deflection | $I_{\text{p-p}}$ | A | 5,3 | 5,2 | 5,15 |
| | t_{flyback} | μs | 11,4 | - | - |
| | Overscan | % | 6 | - | 6,5 |
| V_{focus} | | kV | 8,6 | 8,1 | 7,8 |
| Auxiliary windings: picture tube heater voltage V_{3-1} (r.m.s.) peak voltages at | | V | 9,04 | 8,74 | 8,54 |
| pin 2 | V_2 | V | -280 | | |
| pin 6 | V_6 | V | -149 | | |
| pin 4 | V_4 | V | +64 | | |
| pin 11 | V_{11} | V | +227 | | |
| pin 8 | V_8 | V | +326 | | |
| pin 9 | V_9^* | V | +114 | | |
| pin 14 | V_{14}^* | V | +520 | | |
| pin 16 | V_{16}^* | V | +1060 | | |
| pin 17 | V_{17}^* | V | +1090 | | |

Above measurements using circuits of Figs 3, 4a and 4b.

An alternative 3-diode modulator circuit is shown in Fig. 4c.

* D.C. component on these pulses is $V_{B'}$.

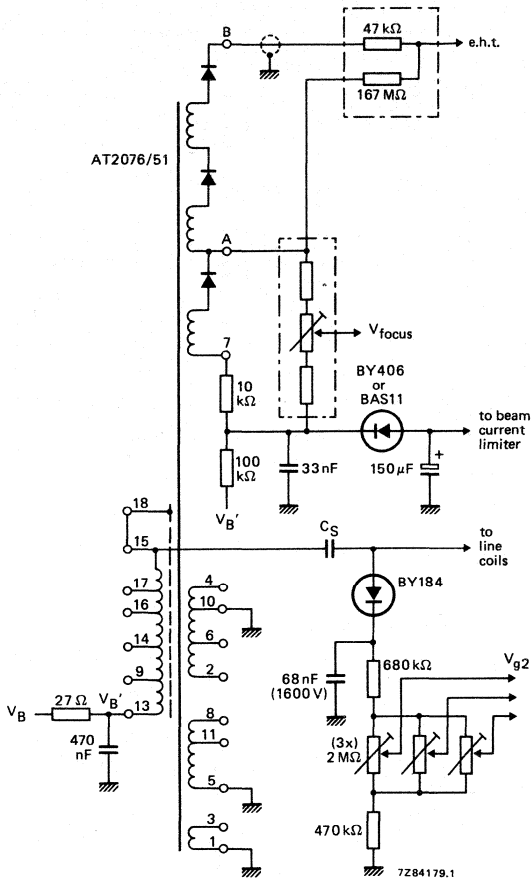


Fig. 3 Circuit diagram of transformer, and e.h.t., focus voltage and V_{g2} circuits.

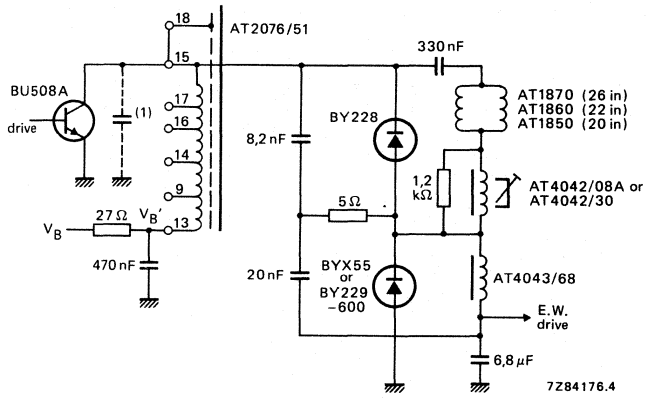


Fig. 4a Diode modulator with split tuning.

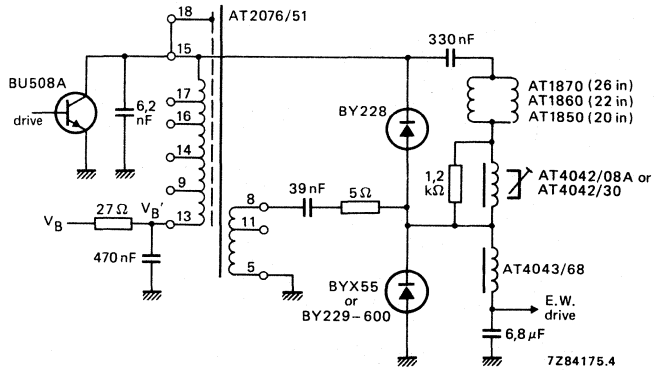


Fig. 4b Diode modulator with tap on transformer.

(1) Transformer stray capacitance.

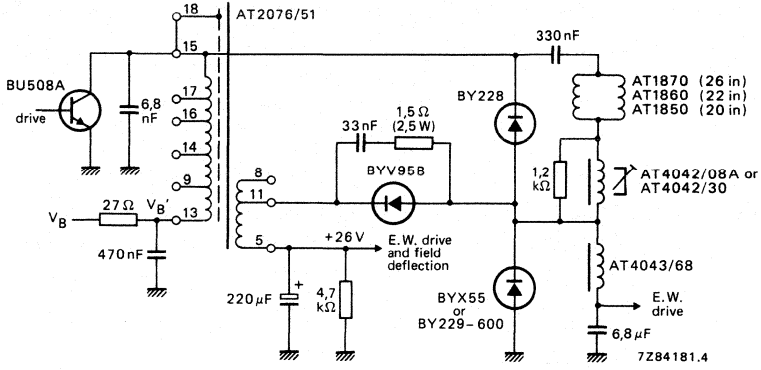


Fig. 4c Three-diode modulator circuit.

ELECTRICAL DATA with 90° COLOUR PICTURE TUBES.

| | | Figs 3 and 5a $V_B = 154,5 \text{ V}$ | | Figs 3 and 5b $V_B = 134,3 \text{ V}$ | | |
|--|----------------------|--|--------|--|-------|-------|
| E.H.T. supply | I_{eht} | mA | 0,03 | 1 | 0,03 | 1 |
| | e.h.t. | kV | 24,55 | 22,1 | 25,0 | 22,5 |
| | $R_i(\text{eht})$ | M Ω | -2,45- | | -2,5- | |
| Power supply | $V_{B'}$ | V | 151,5 | 148,1 | 130,0 | 126,1 |
| | I_{average} | mA | 168 | 291 | 226 | 375 |
| Output transistor | V_{CEM} | V | 1220 | 1150 | 1060 | 995 |
| | $+ I_{\text{CEM}}$ | A | 2,0 | 2,1 | 2,4 | 2,5 |
| Deflection | $I_{\text{p-p}}$ | A | 2,85 | 2,7 | 2,9 | 2,75 |
| | t_{flyback} | μs | 11,45 | | 11,45 | |
| | Overscan | % | 6 | 7,5 | 6 | 7,5 |
| V_{focus} | | kV | 8,45 | 7,7 | 8,6 | 7,8 |
| Auxiliary windings: | | | | | | |
| picture tube heater voltage V_{3-1} (r.m.s.) | | V | 9,13 | 8,7 | 9,30 | 8,79 |
| peak voltages at | | | | | | |
| pin 2 | V_2 | V | -275 | | -280 | |
| pin 6 | V_6 | V | -146 | | -149 | |
| pin 4 | V_4 | V | +62 | | +64 | |
| pin 11 | V_{11} | V | +223 | | +227 | |
| pin 8 | V_8 | V | +322 | | +326 | |
| pin 9 | V_9^* | V | +112 | | +114 | |
| pin 14 | V_{14}^* | V | +515 | | +520 | |
| pin 15 | V_{15}^* | V | | | +1240 | |
| pin 16 | V_{16}^* | V | +1050 | | | |
| pin 17 | V_{17}^* | V | +1080 | | +1090 | |

Above measurements using circuits of Figs 3, 5a and 5b.

* D.C. component on these pulses is $V_{B'}$.

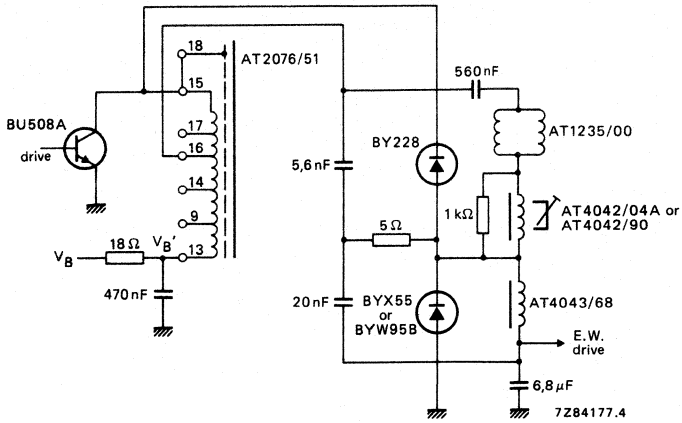


Fig. 5a Diode modulator, $V_B = 154,5 \text{ V}$.

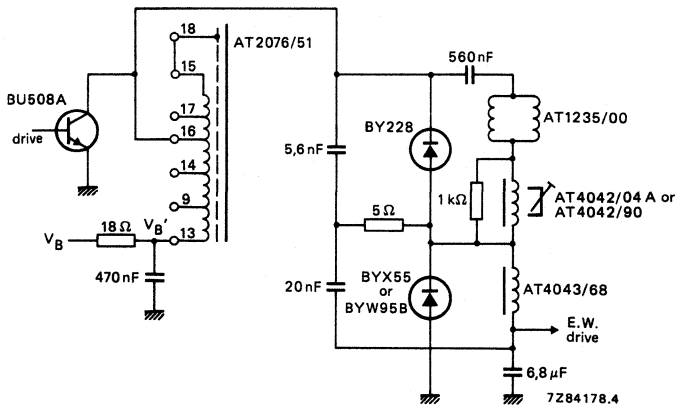


Fig. 5b Diode modulator, $V_B = 134,3 \text{ V}$.

DIODE-SPLIT LINE OUTPUT TRANSFORMER

- Three-layer e.h.t. coil
- Aluminium foil primary winding
- Piggy-back type
- For Data Graphic Displays.

QUICK REFERENCE DATA

For transistor line output stages

| | deflection angle | 110° | 90° |
|--|------------------|--|-----------------------------------|
| I_{eht} | | max. 1,5 mA | max. 1 mA |
| E.H.T. | | 25 kV | 25 kV |
| $R_i(eht)$ | | 1,86 M Ω | 2,45 M Ω |
| I_{p-p} deflection (incl. 6% overscan) | | 5,3 A | 2,85 A |
| Supply voltage (V_B ') | | 151 V | 151,5 V |
| Supply current ($I_{average}$) at | | 477 mA ($I_{eht} = 1,5$ mA) | 291 mA ($I_{beam} = 1$ mA) |
| Voltages of primary windings * | | $V_p = +114, +520$ $+1060, +1090$ | $+112, +515$ $+1050, +1080$ |
| Voltages of auxiliary windings | | $V_p = -280, -149, +64,$ $+227, +326$ | $-275, -146, +62$ $+223, +322$ |
| | | picture tube heater voltage | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 110° and 90° colour picture tubes in transistor equipped receivers presenting 625 lines at 50 fields per second (CCIR) or 525 lines at 60 fields per second (USA).

It is intended for use in conjunction with:

| | deflection angle | 110° | 90° |
|--|------------------|---------------------------|------------------|
| – deflection unit | | AT1270/00, AT1260, AT1250 | AT1235/00 |
| – bridge coil | | AT4043/68 | AT4043/68 |
| – linearity control unit | | AT4042/08 or /30 | AT4042/02 or /90 |
| – line output transistor | | BU508A | BU508A |
| – screened e.h.t. cable with a length of 1 m; catalogue number 3122 137 58254. | | | |

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube U-cores, screwed together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The e.h.t. winding is moulded in flame retarding polyester, meeting the self-extinguishing requirements of IEC65, para. 14.4 and UL492, para. 280-SE1. The transformer has 2 M3 screw-studs for mounting. ** External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 2).

* D.C. component on these pulses is V_B ' (see Fig. 3).

** For mounting on the printed-wiring board a washer of 20 mm in diameter has to be used. Tightening torque on printed-wiring board: 500 + 100 mNm.

MECHANICAL DATA

Dimensions in mm

Outlines

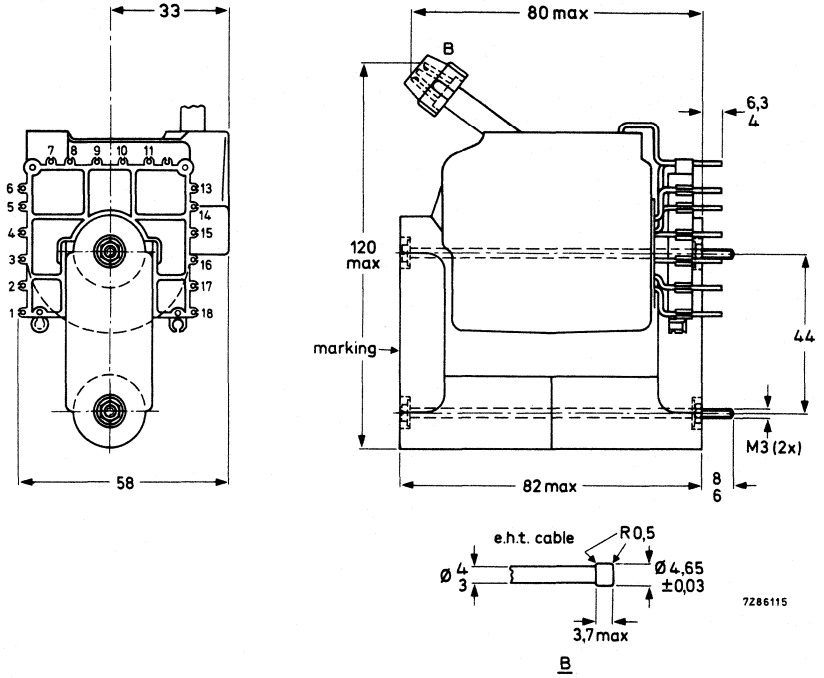


Fig. 1.

Solderability in accordance with IEC68, Test T

MOUNTING

The transformer may be mounted on either a printed-wiring board or, under certain conditions, on a metal chassis. Two securing studs (M3) are provided. The fit of the connecting and the mounting pins in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 2.

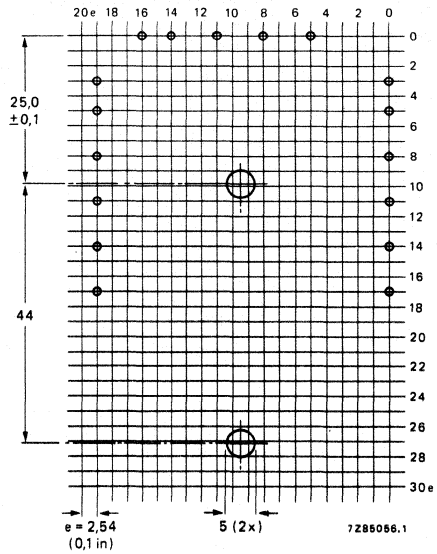


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side). Grid hole diameter $1,3 \pm 0,1$ mm.

Whether the transformer is board or chassis mounted, **the core must be earthed.**

Temperature

The operating temperature of the e.h.t. coil should not exceed $+85^{\circ}\text{C}$ under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45°C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained:

From the e.h.t. coil radially, 10 mm.

From the e.h.t. coil axially, 10 mm.

Sharp edges of conductive parts must have greater distances than given above.

The transformer, leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA with 110° COLOUR PICTURE TUBES

| | | | | | | |
|---|--|------------------------|---------------|---------------------|-------------|-------|
| E.H.T. supply | I_{eht} e.h.t. $R_{\text{i}}(\text{eht})$ | mA kV M Ω | 0,03 25,0 | 1 23,2 -1,86- | 1,5 22,2 | |
| Power supply | { | V_{B} | V | 158,5 | 158,5 | 158,5 |
| | | $V_{\text{B}'}$ | V | 151 | 147,2 | 145,0 |
| | | I_{average} | mA | 259 | 397 | 477 |
| Output transistor | { | V_{CEM} | V | 1240 | 1210 | 1190 |
| | | $+I_{\text{CEM}}$ | A | 3,5 | 3,6 | 3,65 |
| | | $I_{\text{p-p}}$ | A | 5,3 | 5,2 | 5,15 |
| Deflection | { | t_{flyback} | μs | 11,4 | - | - |
| | | Overscan | % | 6 | - | 6,5 |
| V_{focus} | | kV | 8,6 | 8,1 | 7,8 | |
| Auxiliary windings: picture tube heater voltage V_{3-1} (r.m.s.) peak voltages at | | V | 9,04 | 8,74 | 8,54 | |
| pin 2 | V_2 | V | -280 | | | |
| pin 6 | V_6 | V | -149 | | | |
| pin 4 | V_4 | V | +64 | | | |
| pin 11 | V_{11} | V | +227 | | | |
| pin 8 | V_8 | V | +326 | | | |
| pin 9 | V_9^* | V | +114 | | | |
| pin 14 | V_{14}^* | V | +520 | | | |
| pin 16 | V_{16}^* | V | +1060 | | | |
| pin 17 | V_{17}^* | V | +1090 | | | |

Above measurements using circuits of Figs 3, 4a and 4b.

An alternative 3-diode modulator circuit is shown in Fig. 4c.

* D.C. component on these pulses is $V_{\text{B}'}$.

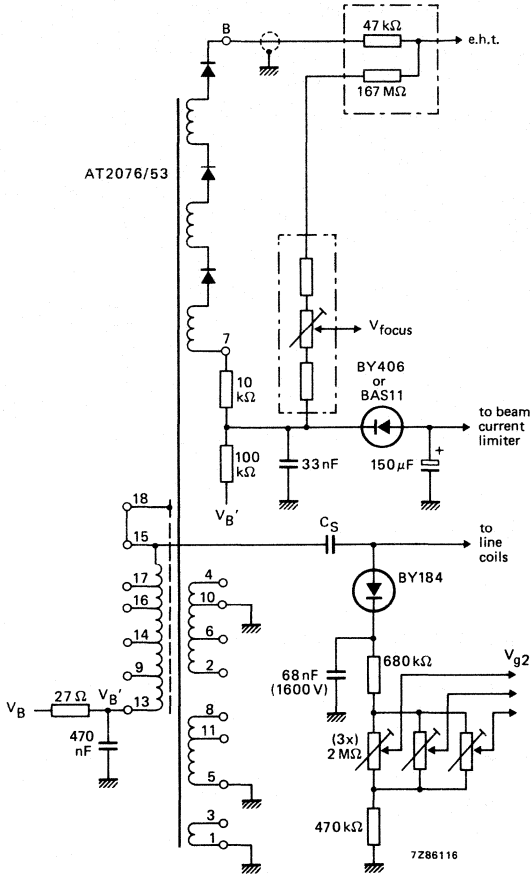


Fig. 3 Circuit diagram of transformer, and e.h.t., focus voltage and V_{g2} circuits.

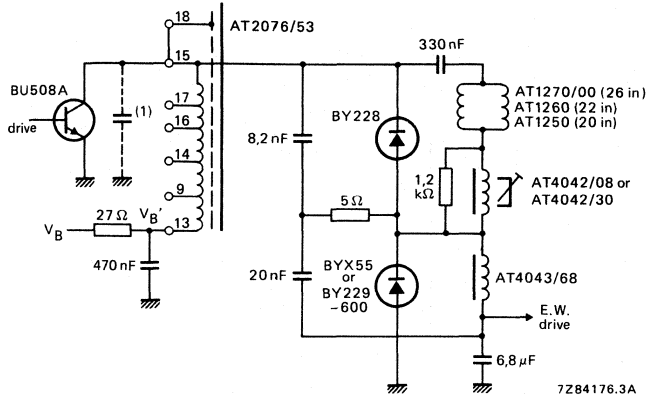


Fig. 4a Diode modulator with split tuning.

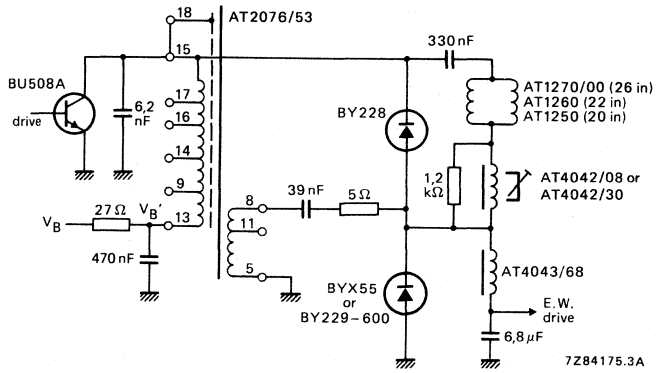


Fig. 4b Diode modulator with tap on transformer.

(1) Transformer stray capacitance.

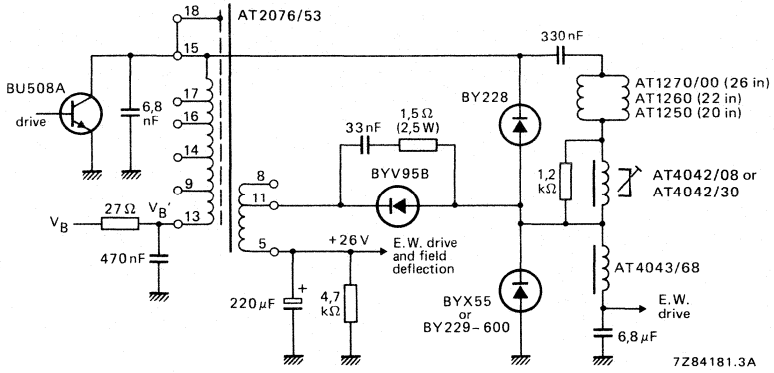


Fig. 4c Three-diode modulator circuit.

ELECTRICAL DATA with 90° COLOUR PICTURE TUBES

| | | | Figs 3 and 5a $V_B = 154,5 \text{ V}$ | | Figs 3 and 5b $V_B = 134,3 \text{ V}$ | | |
|--|---------------|------------|--|-------|--|-------|------|
| E.H.T. supply | I_{eht} | mA | 0,03 | 1 | 0,03 | 1 | |
| | $e.h.t.$ | kV | 24,55 | 22,1 | 25,0 | 22,5 | |
| | $R_i(eht)$ | M Ω | -2,45- | | -2,5- | | |
| Power supply | $V_{B'}$ | V | 151,5 | 148,1 | 130,0 | 126,1 | |
| | average | mA | 168 | 291 | 226 | 375 | |
| Output transistor | V_{CEM} | V | 1220 | 1150 | 1060 | 995 | |
| | $+I_{CEM}$ | A | 2,0 | 2,1 | 2,4 | 2,5 | |
| Deflection | I_{p-p} | A | 2,85 | 2,7 | 2,9 | 2,75 | |
| | $t_{flyback}$ | μs | 11,45 | | 11,45 | | |
| | Overscan | % | 6 | 7,5 | 6 | 7,5 | |
| V_{focus} | | kV | 8,45 | 7,7 | 8,6 | 7,8 | |
| Auxiliary windings: | | | | | | | |
| picture tube heater voltage V_{3-1} (r.m.s.) | | | V | 9,13 | 8,7 | 9,30 | 8,79 |
| peak voltages at | | | | | | | |
| pin 2 | V_2 | V | -275 | | -280 | | |
| pin 6 | V_6 | V | -146 | | -149 | | |
| pin 4 | V_4 | V | +62 | | +64 | | |
| pin 11 | V_{11} | V | +223 | | +227 | | |
| pin 8 | V_8 | V | +322 | | +326 | | |
| pin 9 | V_9^* | V | +112 | | +114 | | |
| pin 14 | V_{14}^* | V | +515 | | +520 | | |
| pin 15 | V_{15}^* | V | | | +1240 | | |
| pin 16 | V_{16}^* | V | +1050 | | | | |
| pin 17 | V_{17}^* | V | +1080 | | +1090 | | |

Above measurements using circuits of Figs 3, 5a and 5b.

* D.C. component on these pulses is $V_{B'}$.

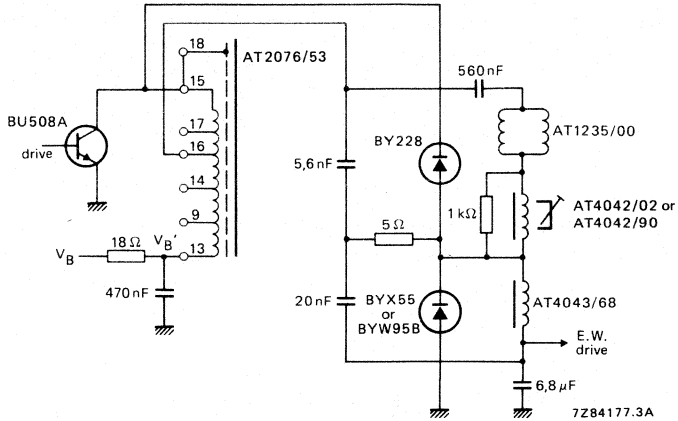


Fig. 5a Diode modulator, $V_B = 154,5 \text{ V}$.

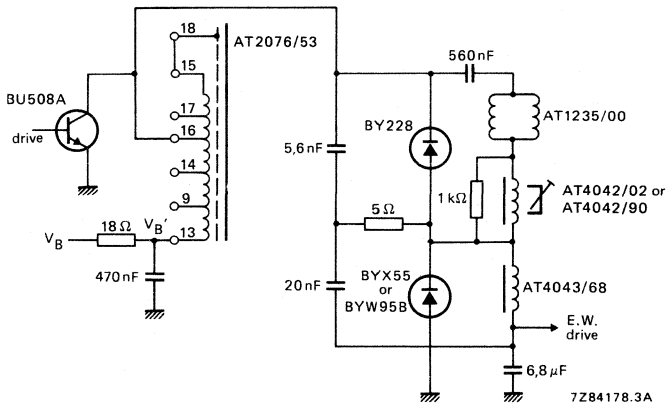


Fig. 5b Diode modulator, $V_B = 134,3 \text{ V}$.

DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

DT2076/54

UNIVERSAL DIODE-SPLIT LINE OUTPUT TRANSFORMER

- For monochrome Data Graphic Displays
- Three-layer e.h.t. coil
- Aluminium foil primary winding
- Piggy-back type

QUICK REFERENCE DATA

For transistor line output stages, deflection angle 110° , scan frequency 32 kHz.

| | | |
|---|---|---------------|
| I_{eht} | max. 0,5 | mA |
| E.H.T. | 17 | kV |
| $R_i(\text{eht})$ | 1,3 | M Ω |
| $I_{\text{p-p}}$ deflection | 3,8 | A |
| Supply voltage (V_B) | 129 | V |
| Supply current (I_{average}) | 210 | mA |
| Flyback time | 5,4 | μs |
| Auxiliary voltages | + 6 V, -6 V, + 11 V, + 26 V, + 41 V, + 52 V, -150 V, heater voltage 9,8 V(r.m.s.) | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 38 cm (15 in)/ 110° monochrome data graphic display tubes, at line scan frequencies of 15,625 kHz, 32 kHz or 64 kHz.

It is intended for use in conjunction with:

- deflection unit AT1039/00 (for 'portrait' scan mode, scan frequency 64 kHz) or AT1039/01 (for 'landscape' scan mode, scan frequency 15,625 kHz or 32 kHz);
- line output transistor BU508A;
- screened e.h.t. cable, length 1 m, catalogue number 3122 137 58254.

DESCRIPTION

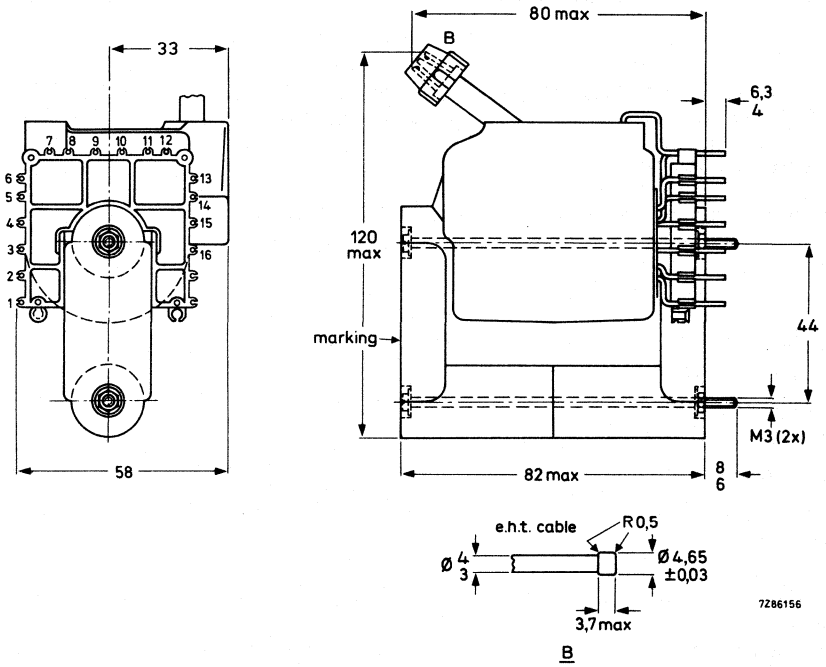
The magnetic circuit of the transformer comprises 2 Ferroxcube U-cores, screwed together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The e.h.t. winding is moulded in flame retarding polyester, meeting the self-extinguishing requirements of IEC 65, para. 14.4 and UL492, para. 280-SE1. The transformer has 2 M3 screw-studs for mounting.* External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 2).

* For mounting on the printed-wiring board a washer of 20 mm in diameter has to be used. Tightening torque on printed-wiring board: 500 ± 100 mNm.

MECHANICAL DATA

Dimensions in mm

Outlines



7286156

Fig. 1.

Mass approx. 500 g

Solderability in accordance with IEC 68, Test T

MOUNTING

The transformer may be mounted on either a printed-wiring board or, under certain conditions, on a metal chassis. Two securing studs (M3) are provided. The fit of the connecting and the mounting pins in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 2.

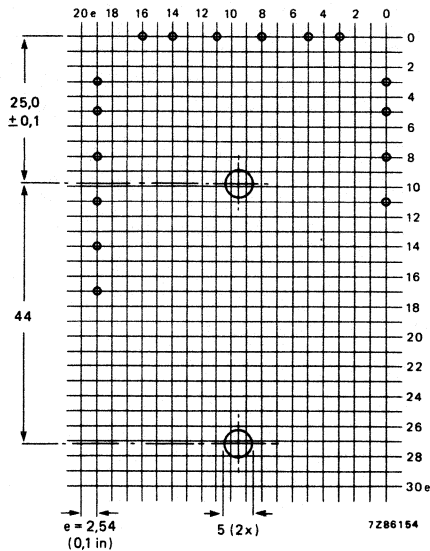


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side). Grid hole diameter $1,3 \pm 0,1$ mm.

Whether the transformer is board or chassis mounted, **the core must be earthed.**

Temperature

The operating temperature of the e.h.t. coil should not exceed $+ 85$ °C under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained:

From the e.h.t. coil radially, 10 mm.

From the e.h.t. coil axially, 10 mm.

Sharp edges of conductive parts must have greater distances than given above.

The transformer, leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA

| Scan frequency | | Hz | 15625 (Fig. 3) | | 31250 (Fig. 4) | | 62500 (Fig. 5) | |
|---|----------------------|---------------|----------------|------|----------------|-------|----------------|------|
| E.H.T. supply | I_{eht} | mA | 0,035 | 0,55 | 0,035 | 0,55 | 0,035 | 0,55 |
| | e.h.t. | kV | 17,3 | 16,8 | 17,85 | 17,25 | 17,6 | 16,6 |
| | $R_i(\text{eht})$ | M Ω | 1,1 | | 1,3 | | 2,0 | |
| Power supply | V_B | V | 68,5 | 68,5 | 129 | 129 | 100 | 100 |
| | I_{average} | mA | 385 | 530 | 210 | 285 | 310 | 410 |
| Output transistor | V_{CEM} | V | 560 | | 1120 | | 780 | |
| Deflection | $I_{\text{p-p}}$ | A | 3,95 | 3,95 | 3,75 | 3,75 | 5,80 | 5,80 |
| | t_{flyback} | μs | 11,2 | 11,2 | 5,4 | 5,4 | 3,0 | 3,0 |
| Tuning capacitor | C1 | nF | 20 | | 2,2 | | 1,6 | |
| Auxiliary windings: | | | | | | | | |
| heater voltage (r.m.s.) | V_{4-6} | V | 9,53 | | 9,83 | | 9,92 | |
| voltages (d.c.) * at | | | | | | | | |
| pin 15 (V_{g2} , load 1M Ω) | V_{15} | V | +757 | | +842 | | +773 | |
| pin 1 ** | V_1 | V | +49,7 | | +49,7 | | +55,4 | |
| pin 3 ** | V_3 | V | +38,5 | | +38,5 | | +42,9 | |
| pin 5 ** | V_5 | V | +24,5 | | +24,5 | | +27,3 | |
| pin 2 (V_{g1} , load 10 k Ω) | V_2 | V | -156 | | -166 | | -155 | |
| pin 8 ** | V_8 | V | +10,5 | | +10,5 | | +11,8 | |
| pin 11 ** | V_{11} | V | +6,4 | | +6,4 | | +7,15 | |
| pin 12 ** | V_{12} | V | -6,4 | | -6,4 | | -7,15 | |

* Pins 9 and 10 connected to earth.

** Load 1 k Ω .

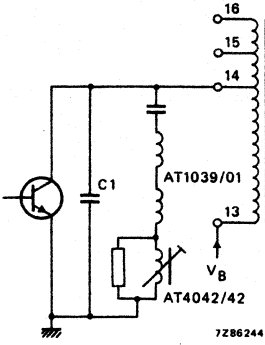


Fig. 3.

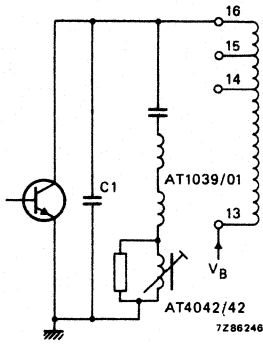


Fig. 4.

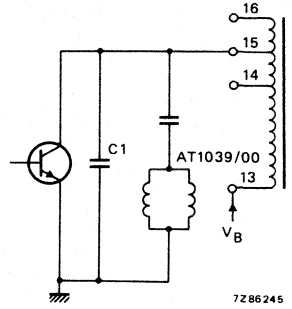


Fig. 5.

DEVELOPMENT | SAMPLE DATA

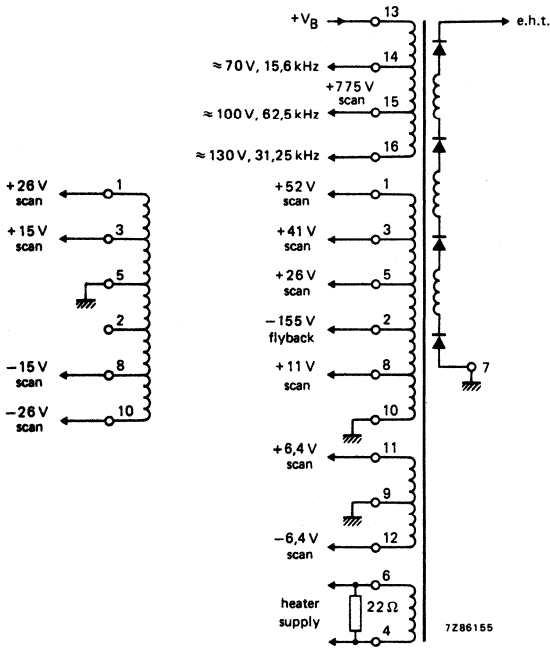


Fig. 6 Application circuit.

ASYNCHRONOUS POWER PACK TRANSFORMER

- For colour Data Graphic Displays
- Mains isolation
- Aluminium foil primary winding and screens

QUICK REFERENCE DATA

| | |
|--------------------------------|--|
| E.H.T. | 25 kV |
| I_{eht} | max. 1,6 mA |
| $R_i(eht)$ | 1 M Ω |
| Supply voltage (d.c.) | + 300 V |
| current ($I_{eht} = 1,5$ mA) | 400 mA |
| Voltages of auxiliary windings | -9 V, + 20 V, + 31 V, + 42 V, + 150 V, + 200 V, + 225 V |

APPLICATION

This transformer has been designed for use as a mains isolated supply transformer in colour monitors. It provides the required stabilized auxiliary voltages including an e.h.t. supply with low internal resistance. The transformer is suitable for 90° and 110° deflection systems using 25 kV e.h.t. It is intended for use in conjunction with:

- mains filter choke AT4043/55;
- mains transformer TS561/2;
- line driver transformer AT4043/87;

and for 110° tubes:

- deflection unit AT1870; AT1860 and AT1850; ←
- line choke AT4043/53;
- linearity control unit AT4042/08A; ←
- line driver transformer AT4043/87 (if separate drive of line output stage is required);

and for 90° tubes:

- deflection unit AT1235/00;
- line choke AT4043/53; ←
- linearity control unit AT4042/04A;

DESCRIPTION

The magnetic circuit of the transformer comprises two Ferroxcube U-cores screwed together. The primary winding of aluminium foil with screens and the e.h.t. winding with incorporated diodes are moulded in flame retarding polyester.

The device is provided with two securing M3 studs. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 3).

MECHANICAL DATA

Dimensions in mm

Outlines

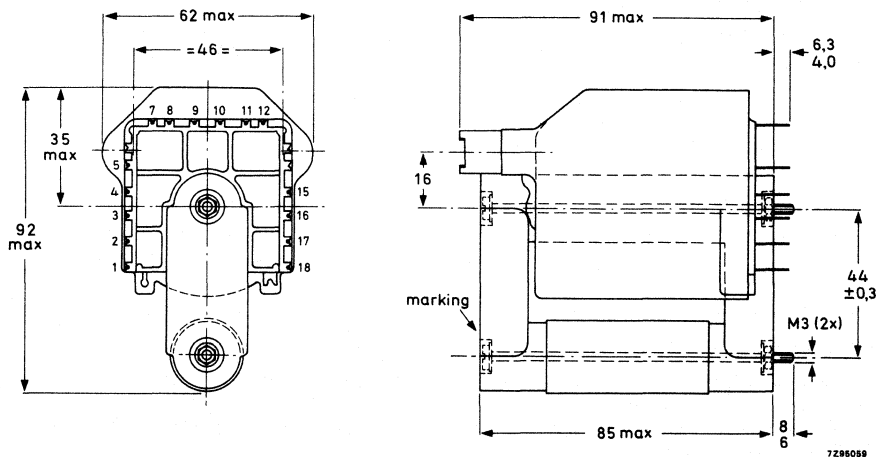


Fig. 1 Transformer AT2076/60.

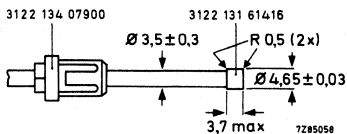


Fig. 2 Plug for connection to e.h.t.

Mass 530 g

Solderability max. 240 °C, max. 2,5 s

Mounting

The transformer may be mounted on either a printed-wiring board or on a metal chassis. Two securing studs (M3) are provided. For mounting on a printed-wiring board, a washer of 20 mm outer diameter has to be used; the tightening torque on the printed-wiring board is 500 ± 100 mNm. The fit of the connecting pins and the studs in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 3.

Whether the transformer is board or chassis mounted, *the core must be earthed*.

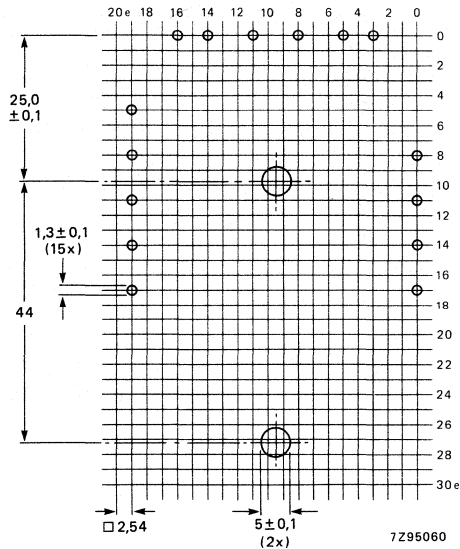


Fig. 3 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The ambient temperature in the set should not exceed $+65$ °C under worst conditions, i.e. taking into account:

- maximum output power;
- maximum supply voltage;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it may be necessary to provide an ample cool air flow around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained (it should be noted that edges of conductive parts must have a greater distance):

from the e.h.t. coil, radially 10 mm, axially 10 mm.

The transformer, and the leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA (measured in circuit of Fig. 4, mains voltage 220 V)

| | | | | |
|---|--|--|------------------|-------------|
| E.H.T. supply | I_{eht} e.h.t. $R_i(\text{eht})$ | mA kV M Ω | 0,1 25 0,9 | 1,6 23,7 |
| Power supply | $\left\{ \begin{array}{l} V_B^* \\ I_{\text{average}} \end{array} \right.$ | V mA | 300 270 | 297 390 |
| Supply transistor (BU208A) | | $\left\{ \begin{array}{l} V_{\text{CEM}} \\ + I_{\text{CM}} \end{array} \right.$ | V A | 1000 1,9 |
| Flyback time | | | μs | 9,5 |
| Auxiliary windings (typical values **): | | | | |
| picture tube heater voltage | V_1 | V | -9 (6,5 W) | |
| drive winding | V_{15-16} | V | +100 | |
| field time base | V_9 | V | +42 (13 W) | |
| line time base | V_{10} | V | +150 (20 W) | |
| | V_4 | V | +200 (22 W) | |
| video output | V_8 | V | +225 (9 W) | |
| audio output | V_2 | V | +31 (5 W) | |
| small signal output | V | V | +20 (10 W) | |

* Stabilization range V_B from 215 V d.c. (165 V mains) to 350 V d.c. (265 V mains).

** Values apply to voltages after rectification, and pins 3, 11 and 12 connected to earth.

SYNCHRONOUS POWER PACK TRANSFORMER

for colour television

- Piggy-back type
- Mains isolation
- Aluminium foil primary winding and screens

QUICK REFERENCE DATA

| | |
|--------------------------------------|---------------------------------------|
| E.H.T. | 25 kV \pm 3% |
| I_{eht} | max. 1,6 mA |
| $R_{i(\text{eht})}$ | 1 M Ω |
| V_x (see Fig. 3) | 6,25 kV \pm 3% |
| Supply | |
| voltage d.c. | + 295 V |
| current ($I_{\text{eht}} = 1,6$ mA) | 450 mA |
| Voltages of auxiliary windings | |
| r.m.s. | 4,3 V, 8 V |
| d.c. | 7,5 V, 18 V, 25 V, 33 V, 150 V, 205 V |

APPLICATION

This transformer has been designed for use as a mains isolated supply transformer in colour television sets. It provides the required stabilized auxiliary voltages including an e.h.t. supply with low internal resistance. The transformer is suitable for 90° and 110° deflection systems using 25 kV e.h.t. It is intended for use in conjunction with:

- mains filter choke AT4043/55;
- mains transformer TS561/2;
- current sensing transformer AT4043/46;
- driver transformer AT4043/45;
- supply choke AT4043/52;

and for 110° 20, 22 and 26 inch tubes:

- deflection unit AT1870, AT1860, and AT1850; ←
- line choke AT4043/53;
- linearity control unit AT4042/08A or AT4042/30; ←
- line driver transformer AT4043/87 (if separate drive of line output stage is required);

and for 90° 20 inch tubes:

- deflection unit AT1235/00;
- line choke AT4043/53;
- linearity control unit AT4042/04A or AT4042/90. ←

DESCRIPTION

The magnetic circuit of the transformer comprises two Ferroxcube U-cores screwed together. The primary winding of aluminium foil with screens and the e.h.t. winding with incorporated diodes are moulded in flame retarding polyester.

The device is provided with two securing M3 studs. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 2).

MECHANICAL DATA

Dimensions in mm

Outlines

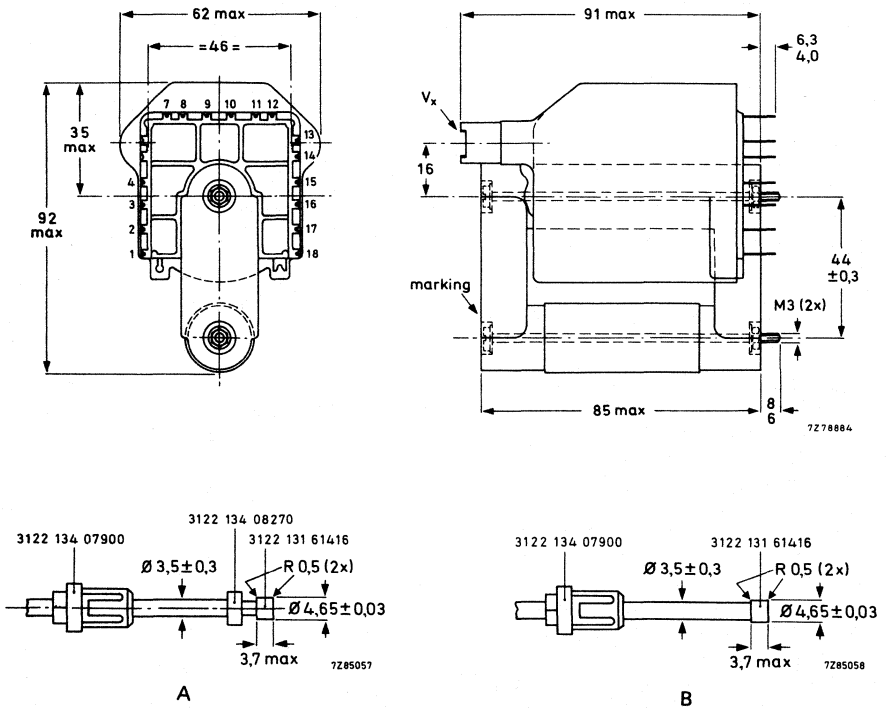


Fig. 1 A is plug for connection to V_x , B is plug for connection to e.h.t.

Mass 540 g

Solderability max. 240 °C, max. 2,5 s

Mounting

The transformer may be mounted on either a printed-wiring board or, on a metal chassis. Two securing studs (M3) are provided. For mounting on a printed-wiring board, a washer of 20 mm outer diameter has to be used. Tightening torque on printed-wiring board $500 + 100$ mNm. The fit of the connecting pins and the studs in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 2.

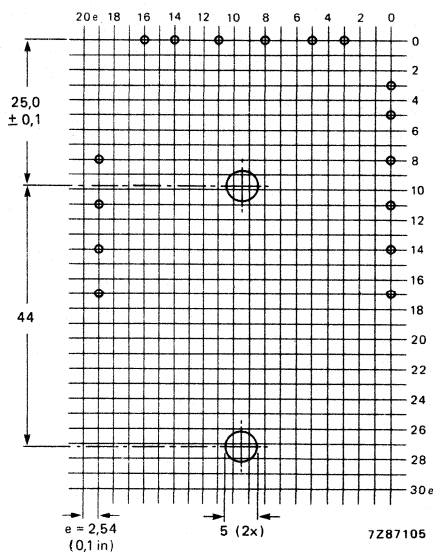


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side). Grid hole diameter $1,3 \pm 0,1$ mm.

Whether the transformer is board or chassis mounted, the core must be earthed.

Temperature

The ambient temperature in the set should not exceed $+65$ °C under worst conditions, i.e. taking into account:

- maximum output power;
- maximum supply voltage;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it may be necessary to provide an ample cool air flow around the transformer.

Distances

The following minimum distances between the transformer and neighbouring **conductive flat surfaces** must be maintained (it should be noted that edges of conductive parts must have a greater distance):

from the e.h.t. coil, radially 10 mm, axially 10 mm.

The transformer, and the leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops etc.

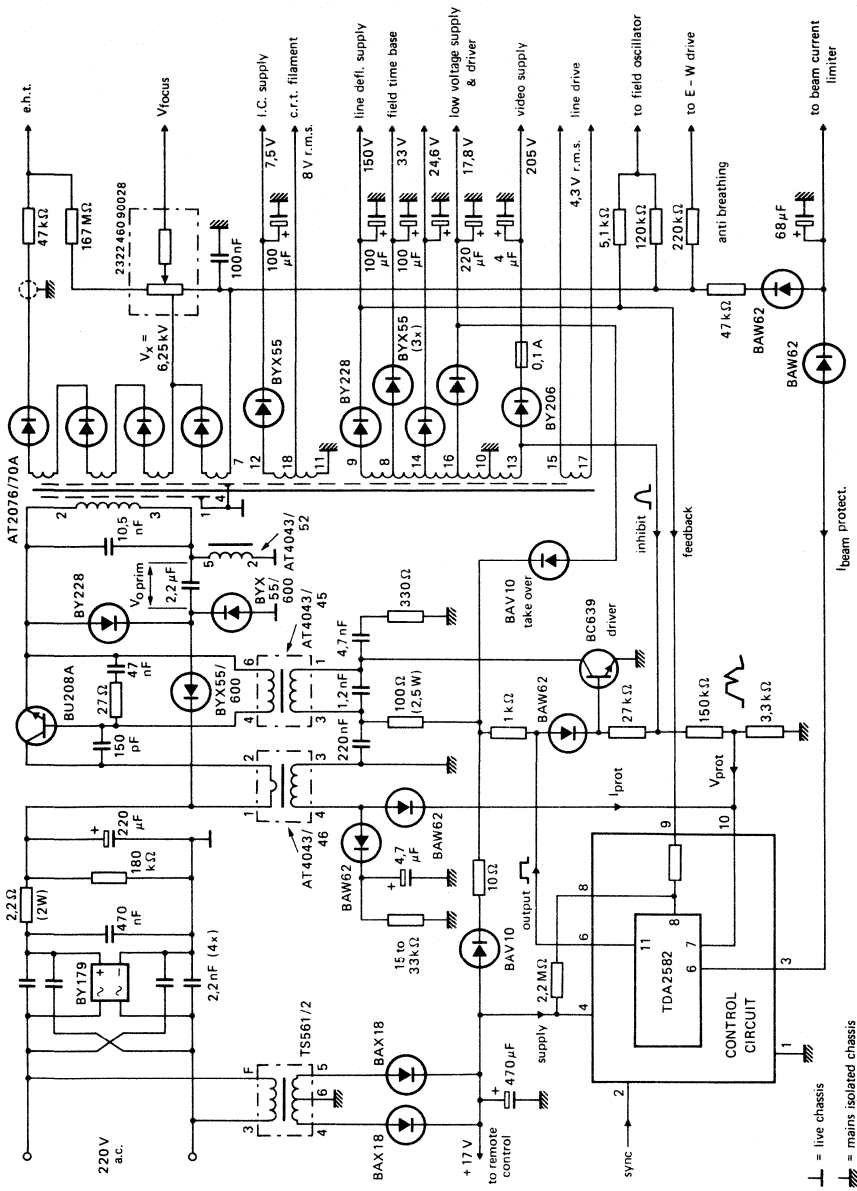
ELECTRICAL DATA (measured in circuit of Fig. 3, mains voltage 220 V)

| | | | | |
|---|--|------------------------|---------------|--------------------|
| E.H.T. supply | I_{eht} e.h.t. $R_{i(\text{eht})}$ | mA kV M Ω | 0,15 25,2 | 1,6 23,7 1,0 |
| Power supply | $\left\{ \begin{array}{l} V_B * \\ I_{\text{average}} \end{array} \right.$ | V mA | 297 230 | 292 450 |
| V_O prim | | V | 150 | 150,5 |
| Supply transistor (BU208A) | $\left\{ \begin{array}{l} V_{\text{CEM}} \\ + I_{\text{CM}} \end{array} \right.$ | V A | 1250 2,8 | 1260 3,1 |
| Flyback time | | μs | 14,8 | 15,0 |
| V_x | | kV | 6,25 | — |
| Auxiliary windings (typical value): | | | | |
| picture tube heater voltage | V_{18} (r.m.s.) | V | 8,0 (730 mA) | |
| drive winding | V_{15-17} (r.m.s.) | V | 4,3 (1 A) | |
| Voltages after rectification, pins 10 and 11 to earth: | | | | |
| field time base | V_8 | V | 33 (325 mA) | |
| line time base | V_9 | V | 150 (125 mA) | |
| | V_{12} | V | 7,5 (1000 mA) | |
| video output | V_{13} | V | 205 (10 mA) | |
| audio output | V_{14} | V | 24,6 (500 mA) | |
| audio output | V_{16} | V | 17,8 (530 mA) | |

Note: The power pack is capable of supplying 45 W extra output power if required, e.g. higher audio output power from pin 14.

* Stabilization range V_B from 215 V d.c. (165 V mains) to 350 V d.c. (265 V mains).

APPLICATION CIRCUIT



7Z79534.A

Fig. 3.

⊥ = live chassis
 ≡ = mains isolated chassis

MINIATURE DIODE-SPLIT LINE OUTPUT TRANSFORMER

- For 90° colour TV and colour monitors
- Three-layer e.h.t. coil, focus tap for hi-bi
- Aluminium foil primary winding
- Simplified synchronous power pack system
- Raster correction free

QUICK REFERENCE DATA

For transistor line output stages; 90° deflection angle

| | | |
|---|---|--|
| I_{eht} | 0 mA | 0,6 mA |
| E.H.T. | 23,0 kV | 21,2 kV |
| $R_i(\text{eht})$ | | 2,6 M Ω |
| $I_{\text{p-p}}$ deflection | 3,2 A | 3,12 A |
| Supply voltage (V_B) | 111 V | 109,6 V |
| Supply current (I_{average}) | 350 mA | 460 mA |
| Auxiliary voltages | 7,9 V(r.m.s.), -210 V(p-p), +28 V(p-p), | -500 V(p-p), -124 V(p-p), +210 V(p-p), |
| | | -420 V(p-p), -14 V(p-p), +440 V(p-p) |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 90° colour picture tubes in transistor or gate turn-off thyristor equipped television receivers presenting 625 lines at 50 fields per second (CCIR) or 525 lines at 60 fields per second (USA). The transformer may also be used in colour monitors.

It is intended for use in conjunction with:

- deflection unit AT1206/20, AT1216/20 or AT1236/20,
- input choke AT4043/81;
- driver transformer AT4043/82;
- sensing transformer AT4043/46;
- line output transistor BU508A;
- screened e.h.t. cable, length 1 m; catalogue number 3122 137 63370;
- focus cable, length 31 cm; catalogue number 3122 131 00732.

Note: Types AT2076/80 and AT2076/80A differ only in manufacturing technique; apart from this the transformers are identical.

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube U-cores, screwed together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The primary winding together with its e.h.t. winding are moulded in flame retarding polyester, meeting the self-extinguishing requirements of IEC 65, para. 14.4 and UL492, para. 280-SE1. The transformer has 2 M3 screw-studs for mounting. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 2).

MECHANICAL DATA

Dimensions in mm

Outlines

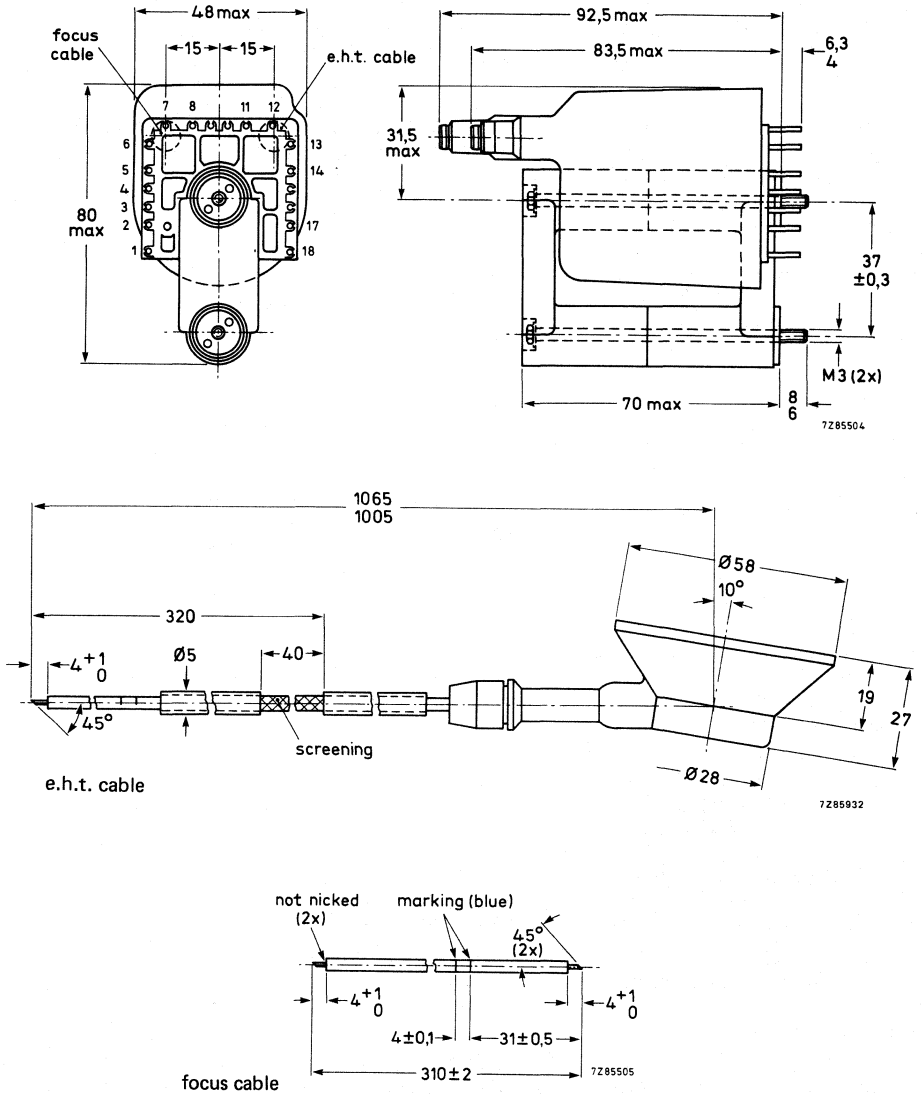


Fig. 1.

Mass 325 g

Solderability in accordance with IEC 68, test T

Mounting

The transformer may be mounted on either a printed-wiring board or, under certain conditions, on a metal chassis. Two securing studs (M3) are provided. For mounting on a printed-wiring board a washer of 20 mm outer diameter has to be used; the tightening torque on the printed-wiring board is 500 ± 100 mNm. The fit of the connecting pins and the studs in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 2.

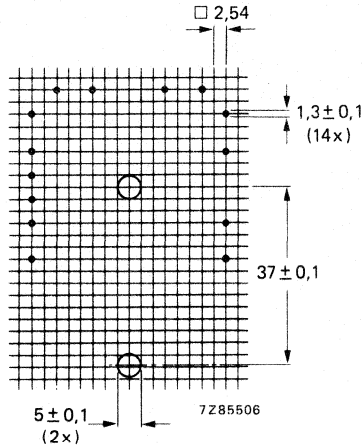


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

Whether the transformer is board or chassis mounted, **the core must be earthed.**

Temperature

The operating temperature of the e.h.t. coil should not exceed $+ 85$ °C under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and **neighbouring conductive flat surfaces** must be maintained:

- From the e.h.t. coil radially, 10 mm
- From the e.h.t. coil axially, 10 mm

Sharp edges of conductive parts must have greater distances than given above.

The transformer, leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops, etc.

ELECTRICAL DATA with 90° COLOUR PICTURE TUBES

| | | | | |
|--|--|----------------|------------------|-------------------|
| E.H.T. supply | I_{eht} e.h.t. $R_{\text{i(eht)}}$ | mA kV MΩ | 0 23,0 2,6 | 0,6 21,2 |
| Power supply | V_{B} I_{average} | V mA | 111 350 | 109,6 460 |
| Output transistor | V_{CEM} $+ I_{\text{CEM}}$ | V A | 1285 2,95 | 1280 2,95 |
| Deflection | $I_{\text{p-p}}$ t_{flyback} Overscan | A μs % | 3,2 12,0 6 | 3,12 12,0 — |
| V_{focus} | | kV | 7,65 | 7,05 |
| Auxiliary windings: | | | | |
| picture tube heater voltage (r.m.s. value) | | V | 7,97 | 7,72 |
| Voltages (peak-to-peak values) at | | | | |
| pin 1 | V_1 | V | +440 | |
| pin 17 | V_{17} | V | -420 | |
| pin 6 | V_6 | V | -500 | |
| pin 2 | V_2 | V | -210 | |
| pin 5 | V_5 | V | -124 | |
| pin 8 | V_8 | V | +28 | |
| pin 4 | V_4 | V | +210 | |
| pin 14 | V_{14} | V | -14 | |

Above measurements using circuit of Fig. 3.

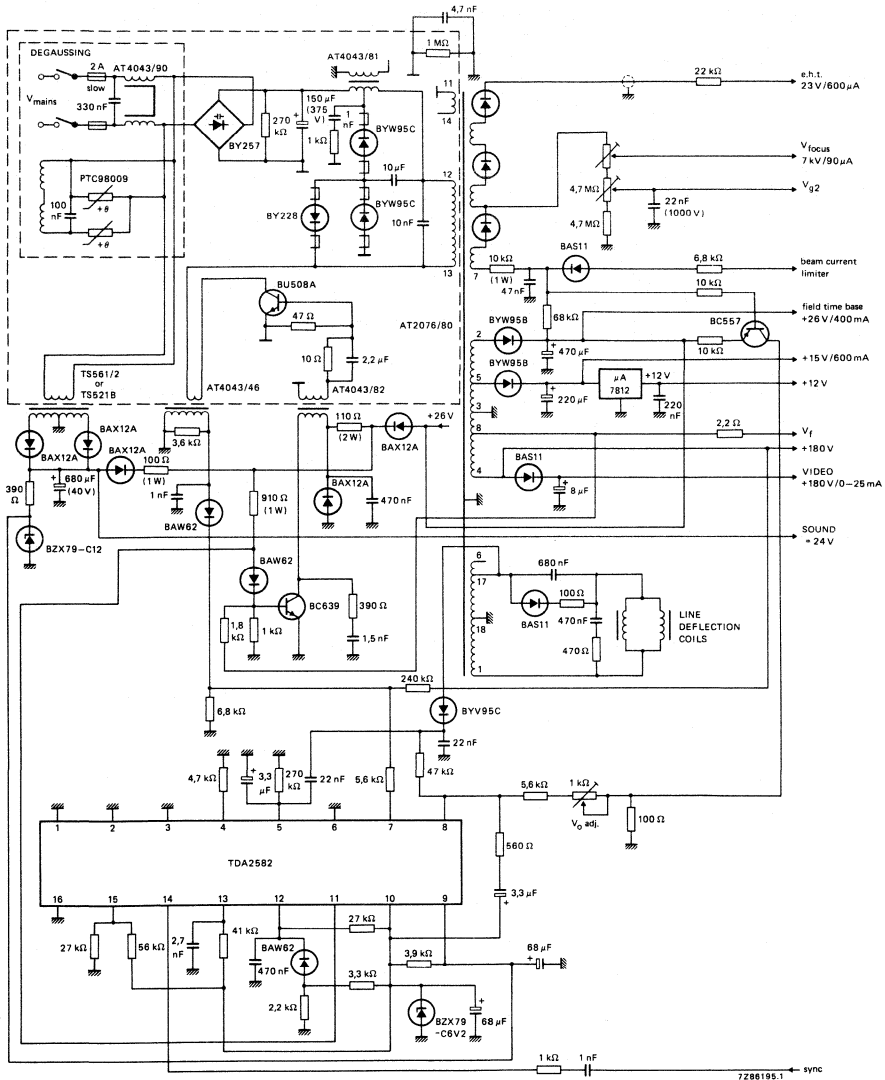


Fig. 3 Application circuit.

MINIATURE DIODE-SPLIT LINE OUTPUT TRANSFORMER

- For 90° and 110° colour TV and colour monitors
- Aluminium foil primary winding
- Three-layer e.h.t. coil, focus tap for hi-bi
- Reduced dimensions, reduced mass

QUICK REFERENCE DATA

For transistor line output stages

| | 110° deflection angle | 90° deflection angle |
|--|--|--|
| I_{eht} | max. 1,5 mA | max. 1 mA |
| E.H.T. | 25 kV | 25 kV |
| $R_i(eht)$ | 1,6 M Ω | 2,9 M Ω |
| I_{p-p} deflection (incl. 6% overscan) | 5,3 A | 2,85 A |
| Supply voltage (V_B') | 150 V | 148,1 V |
| Supply current ($I_{average}$) | 466 mA | 299 mA |
| Voltages of primary windings* | + 98 V_p , + 530 V_p , + 960 V_p , + 1060 V_p | + 100 V_p , + 514 V_p , + 930 V_p , + 1030 V_p , + 1190 V_p |
| Voltages of auxiliary windings | -290 V_p , -230 V_p , -148 V_p , + 62 V_p , + 105 V_p | -270 V_p , -222 V_p , -141 V_p , + 60 V_p , + 105 V_p |

picture tube heater voltage

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 110° and 90° colour picture tubes in transistor or gate turn-off thyristor equipped television receivers presenting 625 lines at 50 fields per second (CCIR) or 525 lines at 60 fields per second (USA). The transformer may also be used in colour monitors and monochrome monitors at 17 kV e.h.t.

It is intended for use in conjunction with:

| | 110° deflection angle | 90° deflection angle |
|---|------------------------|-------------------------|
| - deflection unit | AT1870, AT1860, AT1850 | AT1235/00, AT1235/40 ← |
| - bridge coil | AT4043/68 | AT4043/68 |
| - linearity control unit | AT4042/08A, AT4042/30 | AT4042/04A, AT4042/90 ← |
| - line output transistor | BU508A | BU508A |
| - screened e.h.t. cable, length 1 m; catalogue number 3122 137 63370. | | |
| - focus cable, length 31 cm; catalogue number 3122 131 00732. | | |

Note: Types AT2076/81 and AT2076/81A differ only in manufacturing technique; apart from this the transformers are identical.

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube U-cores, screwed together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The primary winding together with its e.h.t. winding are moulded in flame retarding polyester, meeting the self-extinguishing requirements of IEC 65, para. 14.4 and UL492, para. 280-SE1. The transformer has 2 M3 screw-studs for mounting. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 2).

* D.C. component on these pulses is V_B' (see Fig. 3).

MECHANICAL DATA

Dimensions in mm

Outlines

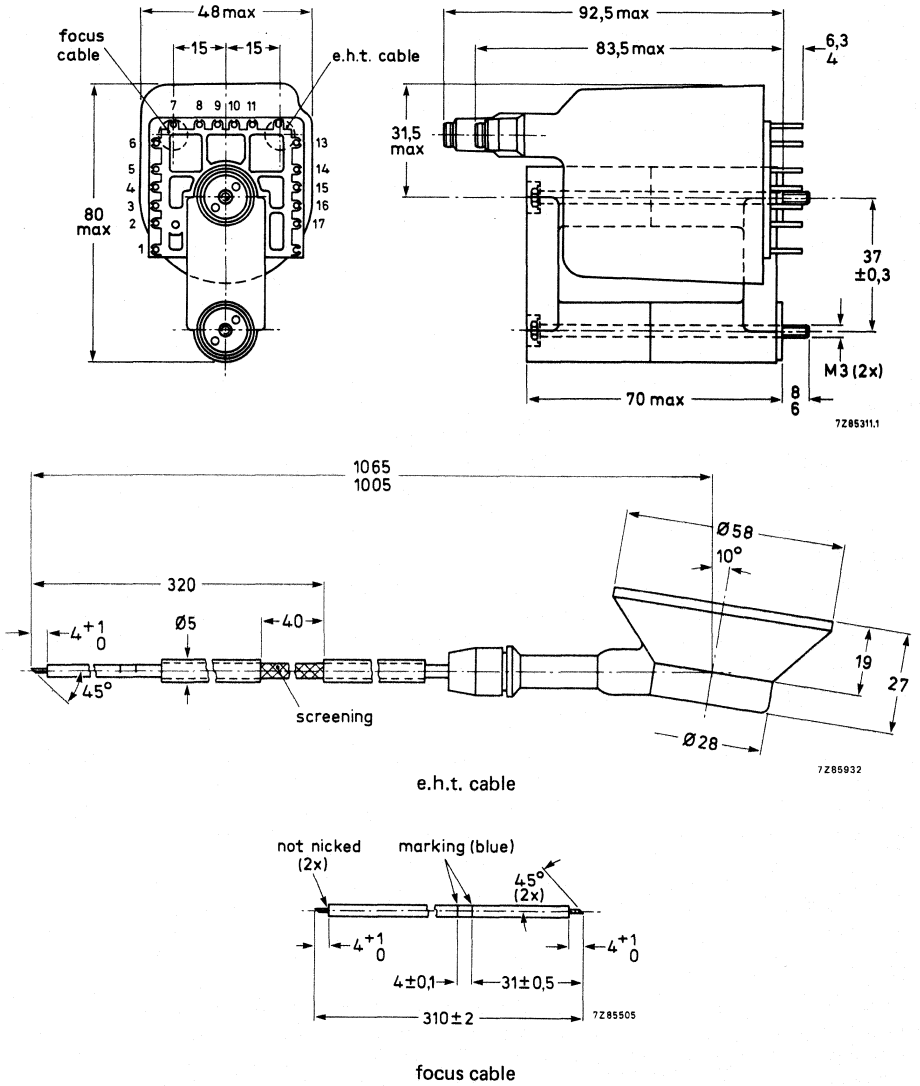


Fig. 1.

Mass 325 g

Solderability in accordance with IEC68, test T

Mounting

The transformer may be mounted on either a printed-wiring board or, under certain conditions, on a metal chassis. Two securing studs (M3) are provided. For mounting on a printed-wiring board a washer of 20 mm outer diameter has to be used; the tightening torque on the printed-wiring board is $500 + 100$ mNm. The fit of the connecting pins and the studs in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 2.

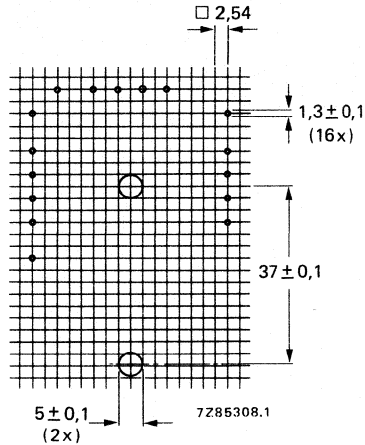


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

Whether the transformer is board or chassis mounted, **the core must be earthed.**

Temperature

The operating temperature of the e.h.t. coil should not exceed $+85$ °C under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and **neighbouring conductive flat surfaces** must be maintained:

From the e.h.t. coil radially, 10 mm

From the e.h.t. coil axially, 10 mm

Sharp edges of conductive parts must have greater distances than given above.

The transformer, leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops, etc.

ELECTRICAL DATA with 110° COLOUR PICTURE TUBES

| E.H.T. supply | I_{eht} e.h.t. $R_{i(\text{eht})}$ | mA kV MΩ | 0,03 25,0 1,6 | 1 23,4 1,6 | 1,5 22,6 1,6 |
|---|---|----------------|---------------------|------------------|--------------------|
| Power supply | V_B | V | 157,8 | 157,8 | 157,8 |
| | $V_{B'}$ | V | 150,2 | 145,7 | 143,3 |
| | I_{average} | mA | 242 | 393 | 466 |
| Output transistor | V_{CEM} | V | 1240 | 1220 | 1200 |
| | + I_{CEM} | A | 3,6 | 3,7 | 3,7 |
| Deflection | $I_{\text{p-p}}$ | A | 5,3 | 5,1 | 5,0 |
| | t_{flyback} | μs | 11,4 | — | — |
| | Overscan | % | 6 | — | — |
| V_{focus} | | kV | 8,1 | 7,9 | 7,8 |
| Auxiliary windings: picture tube heater voltage V_{3-1} (r.m.s.) peak voltages at | | V | 8,3 | 8,0 | 7,8 |
| pin 2 | V_2 | V | -290 | | |
| pin 6 | V_6 | V | -148 | | |
| pin 4 | V_4 | V | +62 | | |
| pin 5 | V_5 | V | -230 | | |
| pin 8 | V_8 | V | +105 | | |
| pin 9 | V_9^* | V | +98 | | |
| pin 14 | V_{14}^* | V | +530 | | |
| pin 17 | V_{17}^* | V | +960 | | |
| pin 16 | V_{16}^* | V | +1060 | | |

Above measurements using circuits of Figs 3, 4a and 4b.

An alternative 3-diode modulator circuit is shown in Fig. 4c.

* D.C. component on these pulses is $V_{B'}$.

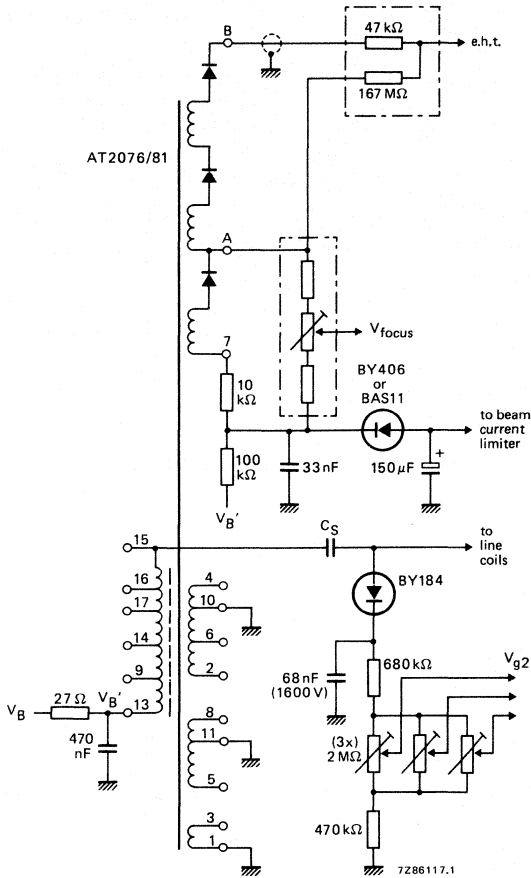


Fig. 3 Circuit diagram of transformer, and e.h.t., focus voltage and V_{g2} circuits.

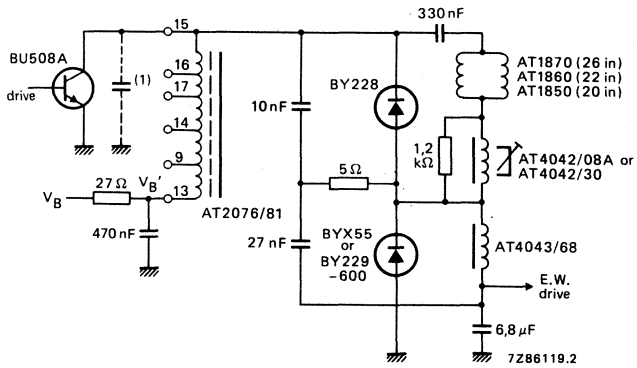


Fig. 4a Diode modulator with split tuning.

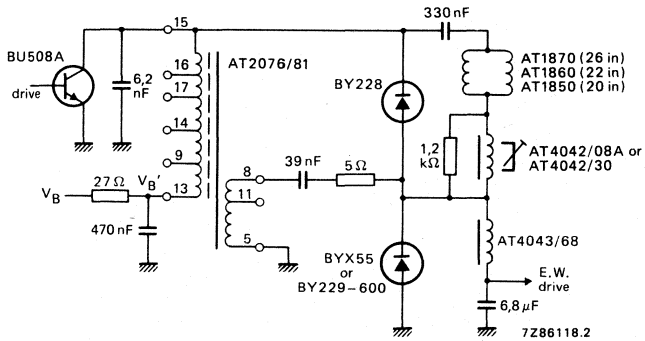


Fig. 4b Diode modulator with tap on transformer.

(1) Transformer stray capacitance.

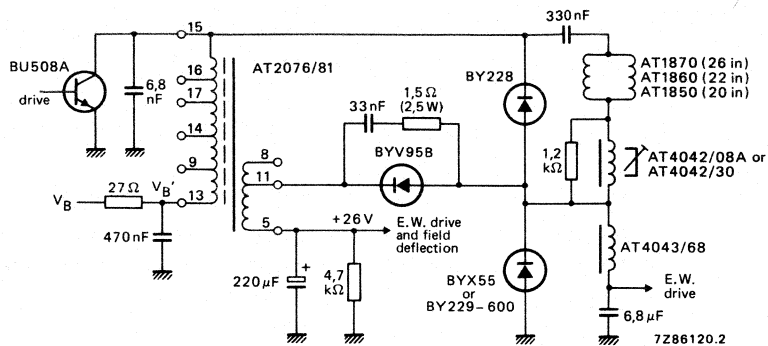


Fig. 4c Three-diode modulator circuit.

ELECTRICAL DATA with 90° COLOUR PICTURE TUBES

| | | | Figs 3 and 5a $V_B = 154,5 \text{ V}$ | | Figs 3 and 5b $V_B = 134,3 \text{ V}$ | |
|---|--|-------------------------|--|---------------------|--|---------------------|
| E.H.T. supply | I_{eht} e.h.t. $R_{\text{f}}(\text{eht})$ | mA kV MΩ | 0,03 25,0 | 1 22,1 2,9 | 0,03 25,0 | 1 22,0 3 |
| Power supply | $V_{B'}$ I_{average} | V mA | 151,5 173 | 148,1 299 | 130,0 245 | 126,1 389 |
| Output transistor | V_{CEM} $+ I_{\text{CEM}}$ | V A | 1220 2,0 | 1150 2,2 | 1060 2,4 | 995 2,6 |
| Deflection | $I_{\text{p-p}}$ t_{flyback} Overscan | A μs % | 2,90 11,45 6 | 2,78 2,78 7,0 | 2,92 11,45 6 | 2,89 2,89 7,0 |
| V_{focus} | | kV | 8,45 | 7,40 | 8,6 | 7,65 |
| Auxiliary windings: picture tube heater voltage V_{3-1} (r.m.s.) peak voltages at | | V | 8,11 | | 8,15 | |
| pin 2 | V_2 | V | -270 | | -274 | |
| pin 6 | V_6 | V | -141 | | -144 | |
| pin 4 | V_4 | V | + 60 | | +61 | |
| pin 5 | V_5 | V | -222 | | -225 | |
| pin 8 | V_8 | V | + 105 | | + 105 | |
| pin 9 | V_9^* | V | + 100 | | + 102 | |
| pin 14 | V_{14}^* | V | + 514 | | + 520 | |
| pin 15 | V_{15}^* | V | + 1190 | | + 1200 | |
| pin 16 | V_{16}^* | V | + 1030 | | + 1040 | |
| pin 17 | V_{17}^* | V | + 930 | | + 940 | |

Above measurements using circuits of Figs 3, 5a and 5b.

* D.C. component on these pulses is $V_{B'}$.

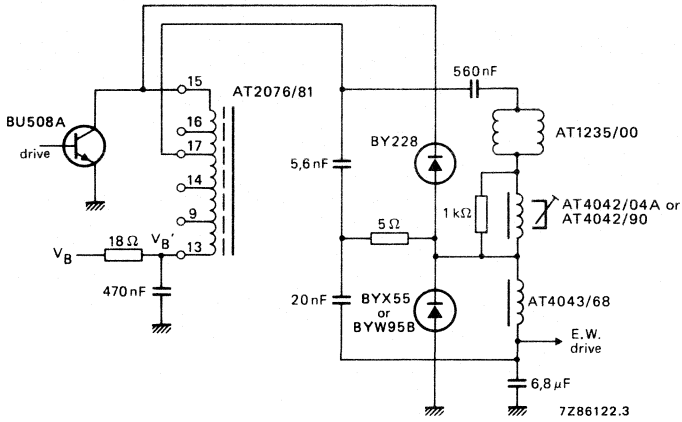


Fig. 5a Diode modulator, $V_B' = 150$ V.

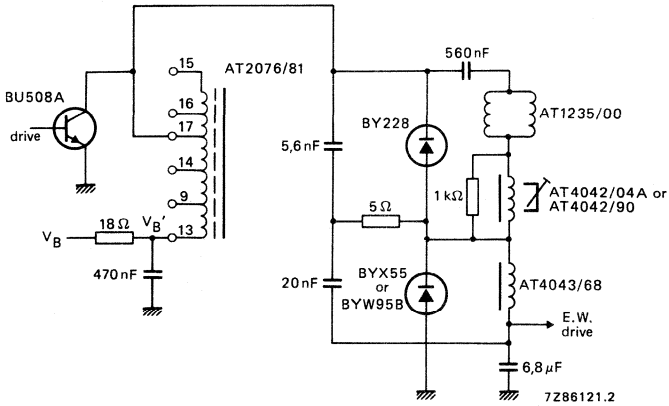


Fig. 5b Diode modulator, $V_B' = 130$ V.

UNIVERSAL DIODE-SPLIT LINE OUTPUT TRANSFORMER

- For monochrome Data Graphic Displays
- Three-layer e.h.t. coil
- Aluminium foil primary winding
- Piggy-back type

QUICK REFERENCE DATA

For transistor line output stages, deflection angle 110°

| | landscape | portrait |
|---------------------------|--|----------------|
| $I_{e.h.t.}$ | max. 0,5 mA | |
| E.H.T. at $I_B = 0$ mA | 17 kV | |
| $R_{i(e.h.t.)}$ | 1,2 M Ω | |
| Flyback time | 4 to 9 μ s | 3 to 8 μ s |
| Line scan frequency range | 15 to 50 kHz | 15 to 70 kHz |
| Primary voltages | + 94 V _(p-p) , + 188 V _(p-p) , + 540 V _(p-p) , + 730 V _(p-p) , + 990 V _(p-p) | |
| Auxiliary voltages | + 85 V _p , -85 V _p , + 24 V _p , + 55 V _p , - 150 V _p , heater voltage | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude and e.h.t. for 110° monochrome data graphic display tubes, at line scan frequencies of 15 to 70 kHz in both landscape and portrait scan mode. A choice can be made from different flyback times.

The transformer is intended for use in conjunction with:

- deflection unit AT1039 series at line scan frequencies of 15 to 70 kHz (portrait scan mode) or of 15 to 50 kHz (landscape scan mode);
- line output transistor BUW12A;
- linearity control unit AT4042/08A or AT4042/33A
- screened e.h.t. cable, length 1 m; catalogue number 3122 137 63370.

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube U-cores, screwed together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The transformer is moulded in flame retarding polyester, meeting the self-extinguishing requirements of IEC 65, para. 14.4 and UL492, para. 280-SE1. The transformer has 2 M3 screw-studs for mounting. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 3).

MECHANICAL DATA

Outlines

Dimensions in mm

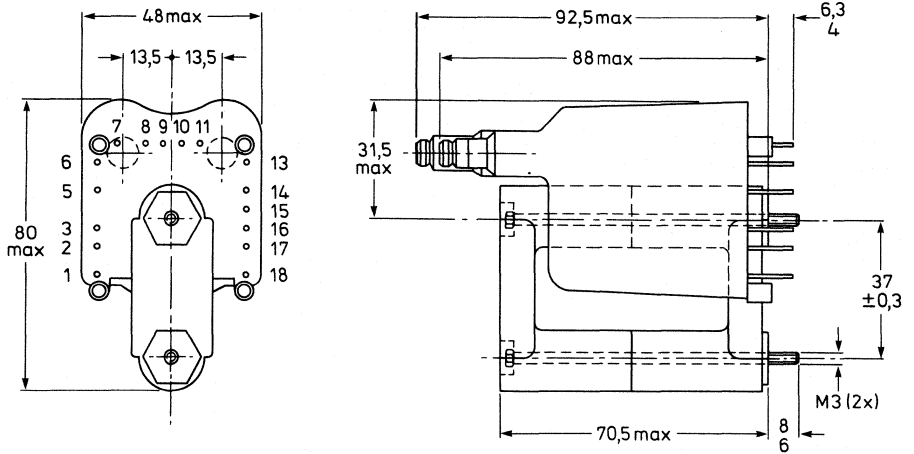


Fig. 1 Line output transformer AT2076/84.

7Z91248.1

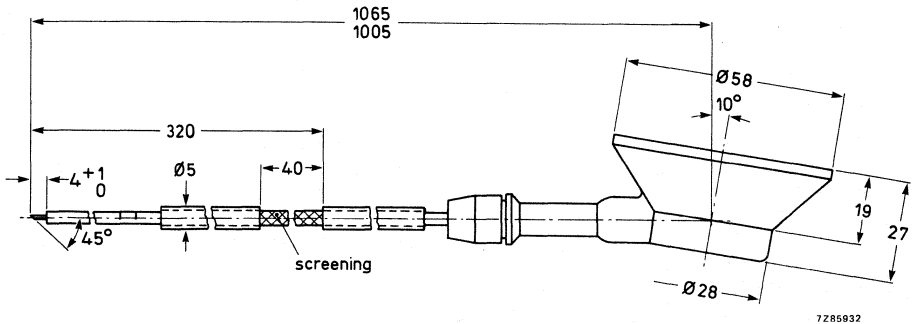


Fig. 2 E.H.T. cable 3122 137 63370.

7Z85932

Mass approx. 325 g

Solderability in accordance with IEC 68-2-20, test Ta.

Mounting

The transformer may be mounted on either a printed-wiring board or, under certain conditions, on a metal chassis. Two securing studs (M3) are provided. For mounting on a printed-wiring board a washer of 20 mm outer diameter has to be used; the tightening torque on the printed-wiring board is $500 + 100$ mNm. The fit of the connecting pins and the studs in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 3.

Whether the transformer is board or chassis mounted, **the core must be earthed.**

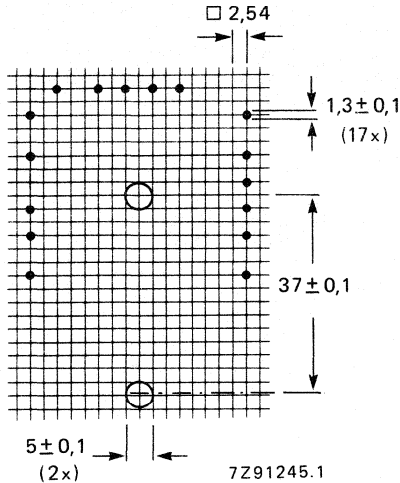


Fig. 3 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the e.h.t. coil should not exceed $+ 65$ °C under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained:

- From the e.h.t. coil radially, 10 mm.
- From the e.h.t. coil axially, 10 mm.

Sharp edges of conductive parts must have greater distances than given above.

The transformer, leads and components carrying high voltage pulses, should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA (see also Figs 4 and 5)**Landscape scan mode**

Line scan frequency range

15 to 50 kHz

| | line deflection coils parallel connected | | | line deflection coils series connected | | |
|---------------------------------------|---|------------------------|------------------------|---|------------------------|------------------------|
| | 13/17 | 14/17 | 15/17 | 15/18 | 13/17 | 14/17 |
| Taps of primary winding to be used | 13/17 | 14/17 | 15/17 | 15/18 | 13/17 | 14/17 |
| Flyback time | 4,0 μ s | 4,8 μ s | 5,9 μ s | 7,0 μ s | 8,0 μ s | 9,0 μ s |
| Flyback capacitor (C1) | 7,5 nF | 10 nF | 18 nF | 7,5 nF | 10 nF | 15 nF |
| Deflection current | 8,4 A _(p-p) | 8,4 A _(p-p) | 8,4 A _(p-p) | 4,2 A _(p-p) | 4,2 A _(p-p) | 4,2 A _(p-p) |
| Deflection voltage | 730 V _(p-p) | 630 V _(p-p) | 540 V _(p-p) | 800 V _(p-p) | 730 V _(p-p) | 630 V _(p-p) |

Portrait scan mode

Line scan frequency range

15 to 70 kHz

| | line deflection coils parallel connected | | | line deflection coils series connected | | |
|---------------------------------------|---|------------------------|------------------------|---|------------------------|------------------------|
| | 13/17 | 14/17 | 15/17 | 15/18 | 13/17 | 14/17 |
| Taps of primary winding to be used | 13/17 | 14/17 | 15/17 | 15/18 | 13/17 | 14/17 |
| Flyback time | 3,1 μ s | 4,2 μ s | 4,9 μ s | 5,9 μ s | 6,6 μ s | 7,9 μ s |
| Flyback capacitor (C1) | 3,3 nF | 6,8 nF | 10 nF | 4,7 nF | 5,6 nF | 10 nF |
| Deflection current | 6,2 A _(p-p) | 6,2 A _(p-p) | 6,2 A _(p-p) | 3,1 A _(p-p) | 3,1 A _(p-p) | 3,1 A _(p-p) |
| Deflection voltage | 730 V _(p-p) | 630 V _(p-p) | 540 V _(p-p) | 800 V _(p-p) | 730 V _(p-p) | 630 V _(p-p) |

Primary voltages (peak-to-peak values)

| | |
|------------|---------|
| Pins 13/14 | + 94 V |
| Pins 13/15 | + 188 V |
| Pins 13/16 | + 540 V |
| Pins 13/17 | + 730 V |
| Pins 13/18 | + 990 V |

Auxiliary voltages (peak values)

| | |
|----------|--------------------------|
| Pins 5/8 | heater voltage |
| Pin 1 | + 55 V (video supply) |
| Pin 2 | - 150 V (V_{g1}) |
| Pin 3 | + 24 V (field time base) |
| Pin 10 | - 85 V |
| Pin 11 | + 85 V |

V_{g2} -circuit supply should be taken from pin 17 or 18 by means of peak rectification.

Note: For detailed information see Technical Publication 115.

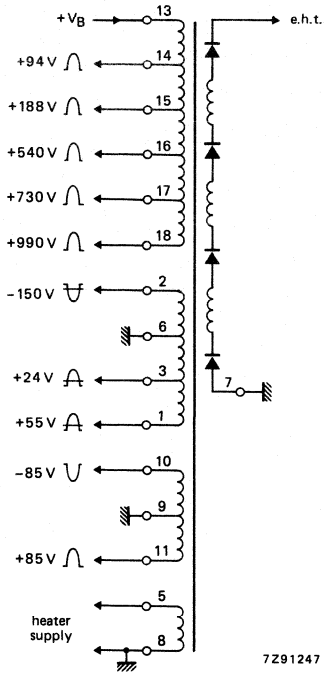


Fig. 4.

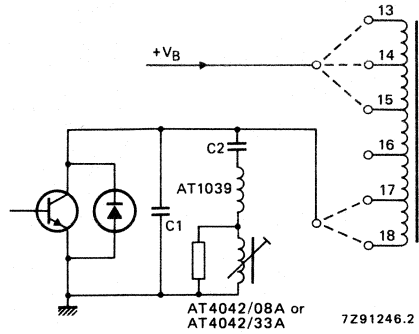


Fig. 5.

DIODE-SPLIT-BOX LINE OUTPUT TRANSFORMER

- For 90° colour TV with single switch power pack system (S²P)
- Three-layer e.h.t. coil
- Aluminium foil primary winding
- Incorporated potentiometers for focusing and V_{g2} adjustment
- Mains insulation

QUICK REFERENCE DATA

For transistor line output stages; 90° deflection angle

| | |
|--|--|
| I_{eht} | 0 mA |
| E.H.T. | 23 kV |
| $R_{i(eht)}$ | $\leq 2,4 \text{ M}\Omega$ |
| I_{p-p} deflection | 3,0 A |
| Supply voltage (V_B) | 112 V |
| Supply current at $I_{eht} = 0,6 \text{ mA}$ | 460 mA |
| Focusing voltage control | 5,1 to 7,6 kV |
| Grid 2 voltage adjustment | 230 to 830 V |
| Auxiliary voltages | 6,3 V (heater supply) 200 V (video supply) 26 V (frame) 16 V (small signal) |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 90° colour picture tubes in transistor equipped television receivers presenting 625 lines at 50 fields per second (CCIR) or 525 lines at 60 fields per second (USA). The transformer may also be used in colour monitors.

It is intended for use in conjunction with:

- input choke AT4043/81;
- driver transformer AT4043/82;
- sensing transformer AT4043/46;
- mains transformer TS561/2 or TS521B;
- mains filter choke AT4043/90;
- linearity corrector AT4042/90 (for narrow neck tubes), or AT4042/91 (for mini neck tubes);
- screened e.h.t. cable, length 1 m; catalogue number 3122 137 63370;
- focus cable, length 31 cm; catalogue number 3122 131 00732.

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube cores, glued together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The primary winding together with its e.h.t. winding and e.h.t. diodes are encapsulated with epoxy resin in a pre-moulded case. The transformer has potentiometers for focusing control and V_{g2} adjustment. The transformer case has 3 holes that enables fixing to a printed-wiring board with self-tapping screws. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 4).

MECHANICAL DATA

Outlines

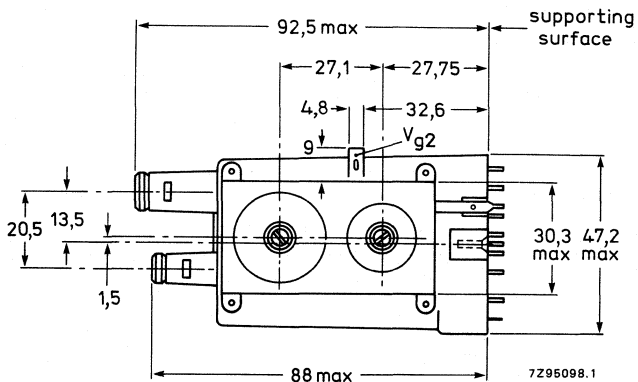
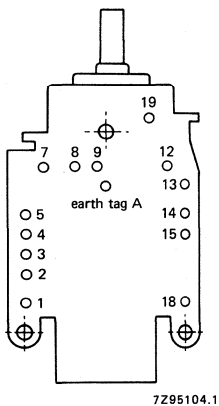
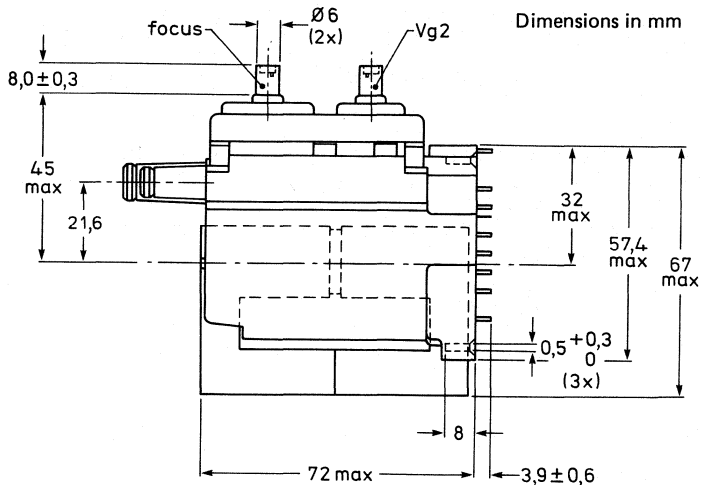


Fig. 1 Line output transformer AT2077/80.

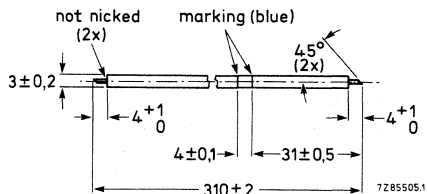


Fig. 2 Focus cable 3122 131 00732.

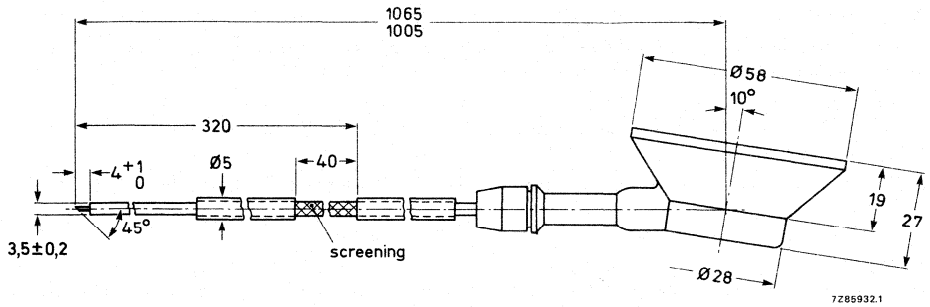


Fig. 3 E.H.T. cable 3122 137 63370.

- Mass** approx. 375 g
- Solderability** in accordance with IEC 68, test T
- Packing** 27 transformers per box
- Mounting**

The transformer may be mounted on a printed-wiring board. It can be secured with 3 self-tapping screws; the tightening torque on the board is $500 + 300$ mNm. The fit of the connecting pins in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 4. The transformer core must be earthed via the earth tag (see Fig. 1).

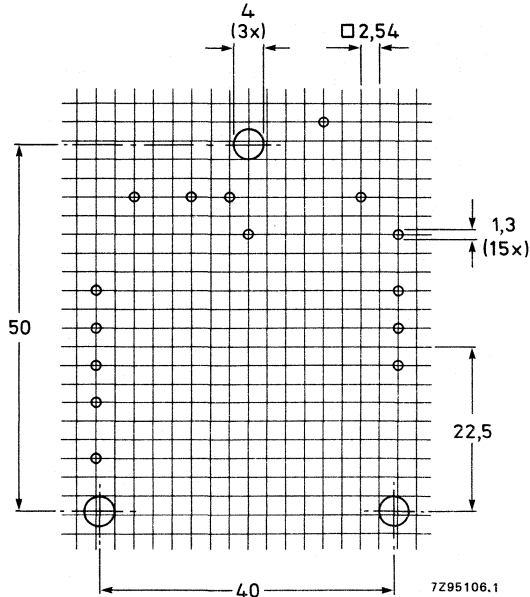


Fig. 4 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the e.h.t. coil should not exceed + 60 °C under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained:

From the e.h.t. coil radially, 10 mm

From the e.h.t. coil axially, 10 mm

Sharp edges of conductive parts must have greater distances than given above.

The transformer leads and components carrying high-voltage pulses, should be kept free from metal particles, solder drops, etc.

ELECTRICAL DATA with 90° colour picture tubes

| | | | | | |
|------------------------------------|--|---|--|--------------------|---------------|
| E.H.T. supply | I_{eht} e.h.t. $R_{\text{i(eht)}}$ | mA kV MΩ | 0 23,0 | 0,1 22,4 2,4 | 0,6 21,2 |
| Power supply | V_{B} I_{average} | V mA | 112 350 | | 108,5 460 |
| Output transistor | V_{CEM} + I_{CEM} | V A | 1285 2,55 | | 1270 2,60 |
| Deflection | deflection current flyback time overscan | A(p-p) μs % | 3,0 11,95 6 | | 2,88 11,95 |
| Focusing voltage | min. max. | kV kV | 5,1 7,6 | | |
| Grid 2 voltage (V_{g2}) | min. max. | V V | 230 830 | | |
| Auxiliary voltages* | heater voltage pin 2 pin 3 pin 4 pin 5 pin 8 pin 9 pin 12 | $V_{\text{(r.m.s.)}}$ $V_{\text{(p-p)}}$ $V_{\text{(p-p)}}$ $V_{\text{(p-p)}}$ $V_{\text{(p-p)}}$ $V_{\text{(p-p)}}$ $V_{\text{(p-p)}}$ $V_{\text{(p-p)}}$ | 8,0 + 190 - 208 + 27,5 - 138 + 845 + 920 + 70 | | 7,7 |

* Pins 1 and 18 connected to earth.

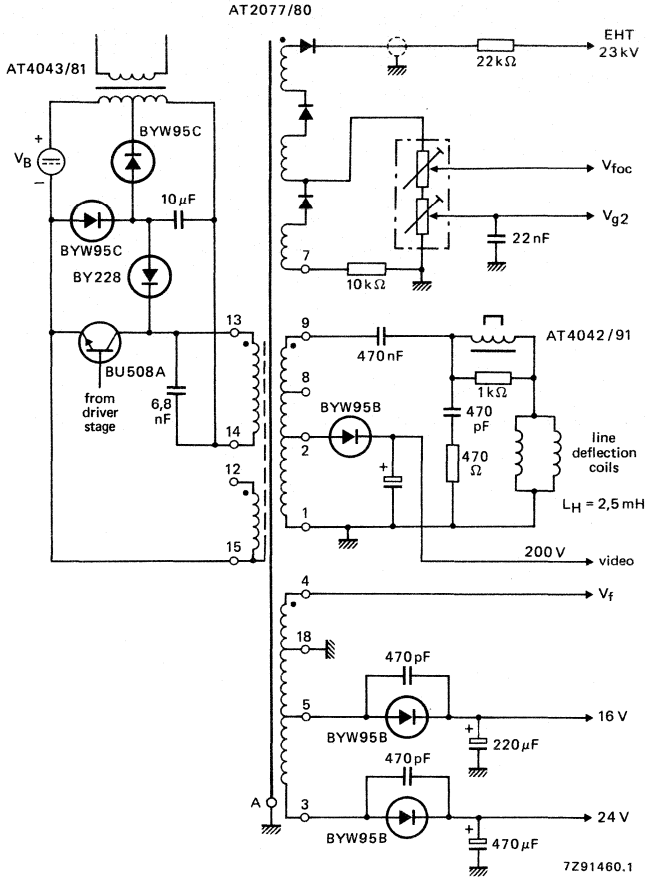


Fig. 5 Application circuit.

DIODE-SPLIT-BOX LINE OUTPUT TRANSFORMER

- For 90° and 110° colour TV and colour monitors with separate power supply
- Three-layer e.h.t. coil
- Aluminium foil primary winding
- Incorporated potentiometers for focusing and V_{g2} adjustment

QUICK REFERENCE DATA

For transistor line output stages; 90° and 110° deflection angle

| | |
|--|--|
| I_{eht} | 0 mA |
| E.H.T. | 25 kV |
| $R_i(eht)$ | $\leq 1,8 \text{ M}\Omega$ |
| I_{p-p} deflection (6% overscan) | 4,4 A |
| Supply voltage (V_B') | 152 V |
| Voltages of primary windings (peak-to-peak values)* | + 110 V, + 524 V, + 960 V, + 1064 V |
| Voltages of auxiliary windings (peak-to-peak values) | -283 V, -226 V, -149 V, + 59 V, + 104 V |
| heater voltage (r.m.s. value) | 8,2 V |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 90° and 110° colour picture tubes in transistor equipped television receivers presenting 625 lines at 50 fields per second (CCIR) or 525 lines at 60 fields per second (USA). The transformer may also be used in colour monitors.

It is intended for use in conjunction with:

- linearity corrector AT4042/90 or /08A;
- bridge coil AT4043/100;
- screened e.h.t. cable, length 1 m; catalogue number 3122 137 63370, or unscreened e.h.t. cable, length 59 cm; catalogue number 3122 137 63260;
- focus cable, length 31 cm; catalogue number 3122 131 00732;
- V_{g2} cable, length 30 cm; catalogue number 3122 137 64570.

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube cores, glued together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The primary winding together with its e.h.t. winding and e.h.t. diodes are encapsulated with epoxy resin in a pre-moulded case. The transformer has potentiometers for focusing control and V_{g2} adjustment. The transformer case has 3 holes that enables fixing to a printed-wiring board with self-tapping screws. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 4).

* D.C. component on these pulses is V_B' (see Fig. 5).

MECHANICAL DATA
Outlines

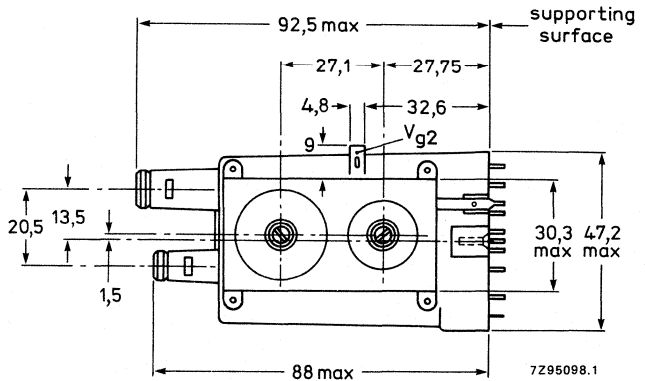
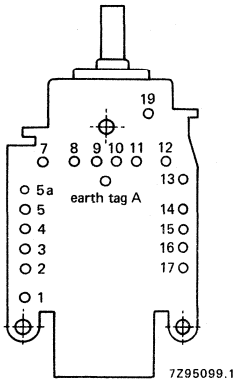
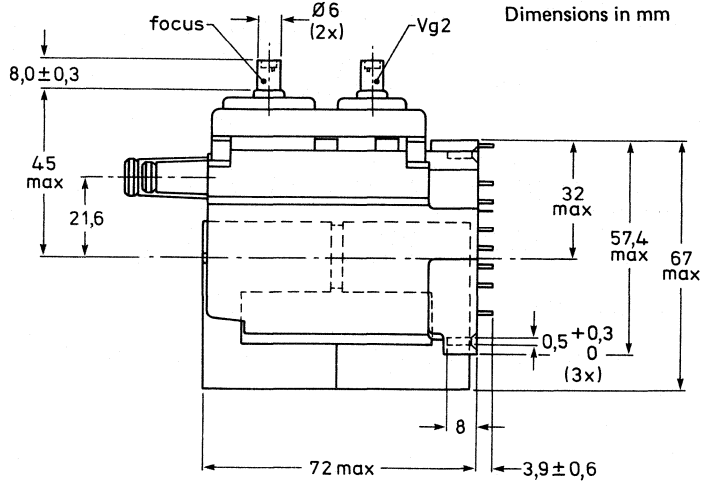


Fig. 1 Line output transformer AT2077/81.

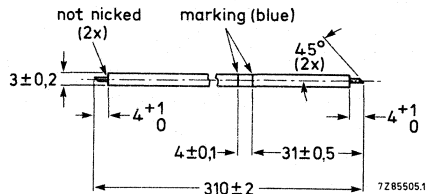


Fig. 2 Focus cable 3122 131 00732.

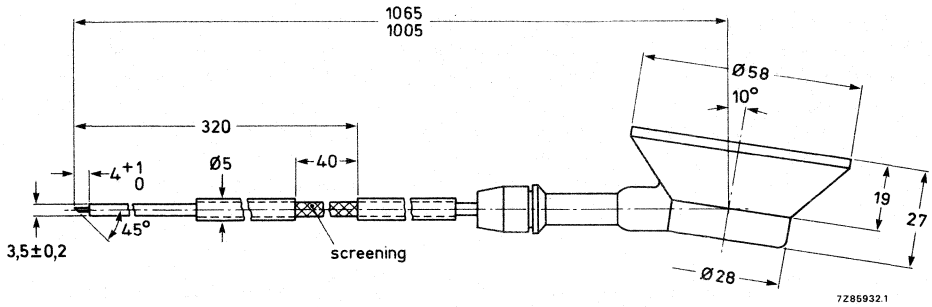


Fig. 3 E.H.T. cable 3122 137 63370.

- Mass** approx. 375 g
- Solderability** in accordance with IEC 68, test T
- Packing** 27 transformers per box

Mounting

The transformer may be mounted on a printed-wiring board. It can be secured with 3 self-tapping screws; the tightening torque on the board is 500 + 300 mNm. The fit of the connecting pins in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 4. The transformer core must be earthed via the earth pin (see Fig. 1).

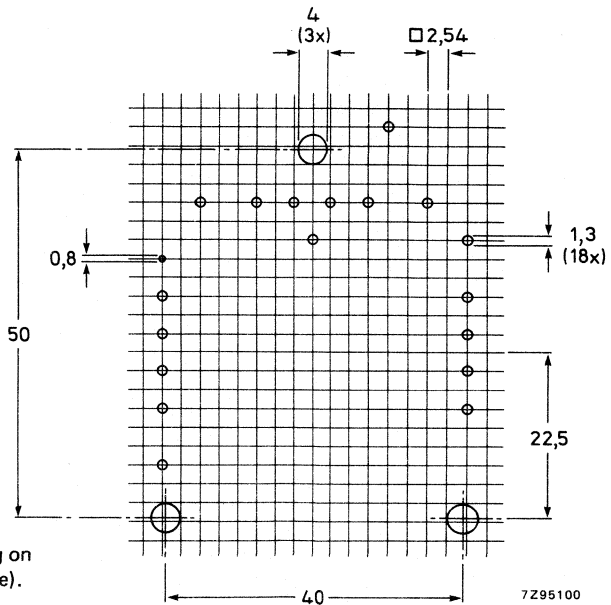


Fig. 4 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the e.h.t. coil should not exceed +60 °C under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and **neighbouring conductive flat surfaces** must be maintained:

From the e.h.t. coil radially, 10 mm

From the e.h.t. coil axially, 10 mm

Sharp edges of conductive parts must have greater distances than given above.

The transformer leads and components carrying high-voltage pulses, should be kept free from metal particles, solder drops, etc.

ELECTRICAL DATA (measured in circuit of Fig. 5)

| | | | | | | |
|-----------------------------|---|------------------------|----------------|-------------|-----------|-------------|
| E.H.T. supply | I_{eht} e.h.t. $R_i(\text{eht})$ | mA kV M Ω | 0 25,6 | 0,5 24,7 | 1 23,8 | 1,5 23,7 |
| Power supply | V_B V_B' I_B | V | 152 | 152 | 152 | 152 |
| | | V | 148 | 146,9 | 144,6 | 142,6 |
| | | mA | 250 | 330 | 435 | 458 |
| Output transistor | V_{CEM} + I_{CEM} | V | 1200 | 1185 | 1180 | 1175 |
| | | A | 3,2 | 3,3 | 3,4 | 3,5 |
| Deflection | deflection current flyback time overscan | A(p-p) | 4,4 | 4,35 | 4,3 | 4,25 |
| | | μs | 11,55 | 11,55 | 11,55 | 11,75 |
| | | % | 6 | | | |
| Focusing voltage | min. max. | kV | 0,24 x e.h.t. | | | |
| | | kV | 0,36 x e.h.t. | | | |
| Grid 2 voltage (V_{g2}) | min. max. | V | 0,014 x e.h.t. | | | |
| | | V | 0,04 x e.h.t. | | | |
| Primary voltages* | pin 9 | $V_{(p-p)}$ | + 110 | | | |
| | pin 14 | $V_{(p-p)}$ | + 524 | | | |
| | pin 16 | $V_{(p-p)}$ | + 1064 | | | |
| | pin 17 | $V_{(p-p)}$ | + 960 | | | |
| Auxiliary voltages | heater voltage (V_{1-3}) | $V_{(r.m.s.)}$ | 8,2 | 8,0 | 7,9 | 7,8 |
| | pin 1 | $V_{(p-p)}$ | + 30 | | | |
| | pin 2 | $V_{(p-p)}$ | -283 | | | |
| | pin 4 | $V_{(p-p)}$ | + 59 | | | |
| | pin 5 | $V_{(p-p)}$ | -226 | | | |
| | pin 7 | $V_{(d.c.)}$ | 1265 | 1240 | 1215 | 1200 |
| | pin 8 | $V_{(p-p)}$ | + 104 | | | |
| | pin 12 | $V_{(p-p)}$ | -149 | | | |

* D.C. component on these pulses is V_B' .

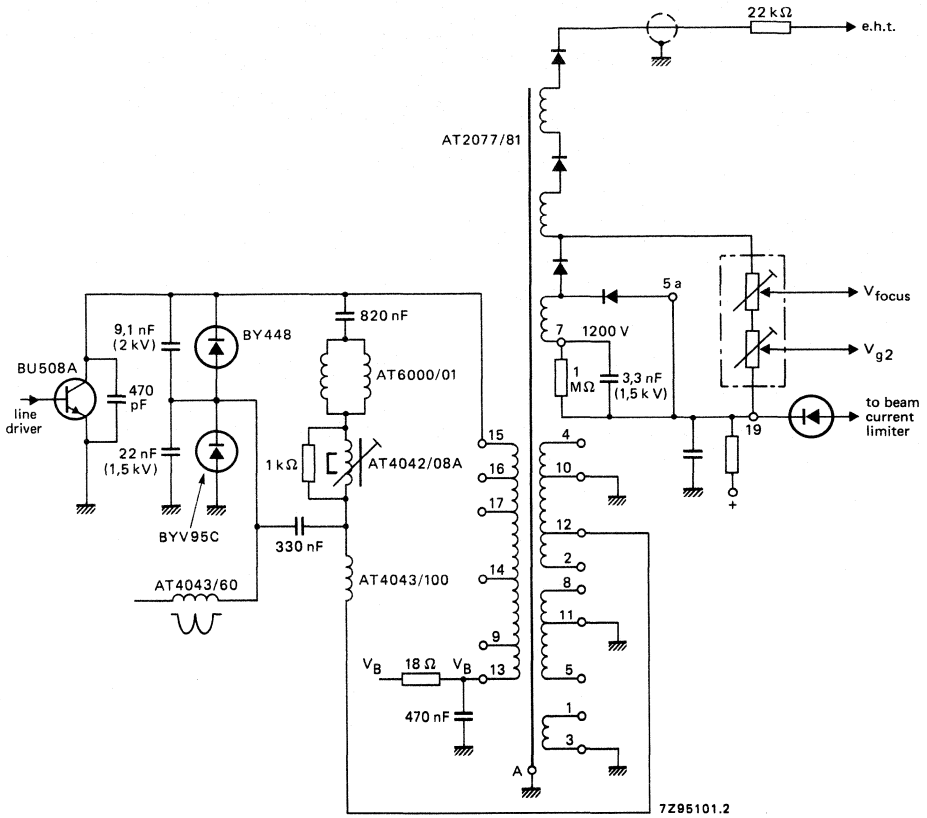


Fig. 5 Application circuit.

DIODE-SPLIT-BOX LINE OUTPUT TRANSFORMER

- For 110° deflection colour TV with twin switch power pack system (TSP²)
- Three-layer e.h.t. coil, with tap for focusing voltage of 26 to 34% of e.h.t. voltage
- Aluminium foil primary winding
- Incorporated focusing potentiometer
- Mains insulation

QUICK REFERENCE DATA

For transistor line output stages; 110° deflection angle

| | |
|---|-----------------------|
| I_{eht} | 0 mA |
| E.H.T. | 25 kV |
| $R_i(\text{eht})$ | ≤ 1 MΩ |
| $I_{\text{p-p}}$ deflection | 5,3 A |
| Supply voltage (V_B) | 100 V |
| Supply current at $I_{\text{eht}} = 1,1$ mA | 850 mA ± 10% |
| Auxiliary voltages | 6,3 V (heater supply) |
| | 210 V (video supply) |
| | 26 V (frame) |
| | 16 V (small signal) |
| | 8 V (teletext) |
| | 150 V (scan voltage) |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 110° colour picture tubes in transistor equipped television receivers presenting 625 lines at 50 fields per second (CCIR) or 525 lines at 60 fields per second (USA). The transformer may also be used in colour monitors.

It is intended for use in conjunction with:

- input choke AT4043/16A;
- driver transformer AT4043/17;
- sensing transformer AT4043/46;
- mains transformer TS561/2 or TS521B;
- mains filter choke AT4043/55;
- audio choke AT4043/96;
- screened e.h.t. cable, length 1 m; catalogue number 3122 137 63370;
- focus cable, length 31 cm; catalogue number 3122 131 00732.

DESCRIPTION

The magnetic circuit of the transformer comprises 2 Ferroxcube cores, glued together. The primary winding of aluminium foil and the secondary windings are situated on one leg of the core. The primary winding together with its e.h.t. winding and e.h.t. diodes are encapsulated with epoxy resin in a pre-moulded case. The transformer is provided with a focusing control potentiometer. The transformer case has 3 holes that enables fixing to a printed-wiring board with self-tapping screws. External circuit connection is made to connecting pins, positioned as indicated in Fig. 1, enabling the unit to be soldered directly into a printed-wiring board (Fig. 2).

MECHANICAL DATA
Outlines

Dimensions in mm

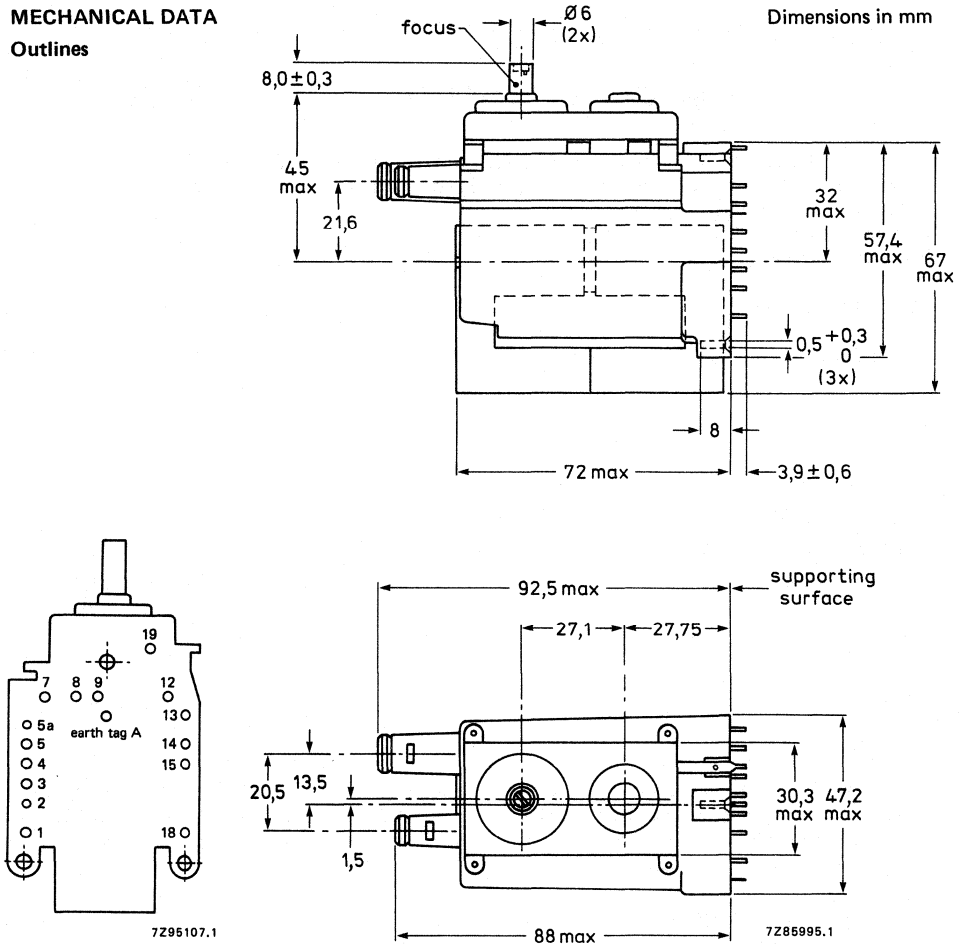


Fig. 1 Line output transformer AT2077/82.

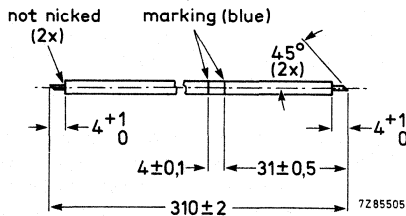


Fig. 2 Focus cable 3122 131 00732.

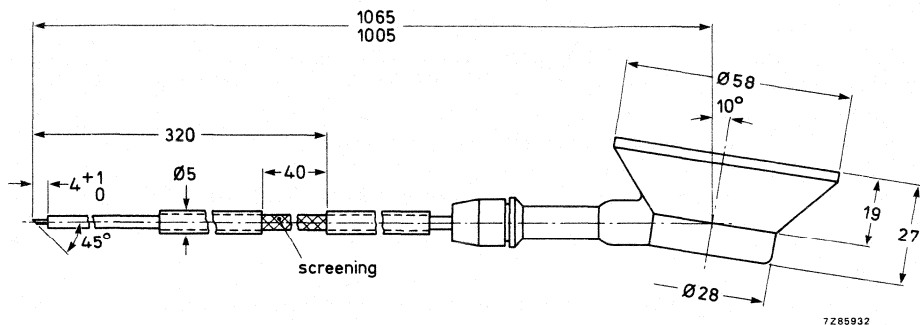


Fig. 3 E.H.T. cable 3122 137 63370.

- Mass** approx. 325 g
- Solderability** in accordance with IEC 68, test T
- Packing** 27 transformers per box
- Mounting**

The transformer may be mounted on a printed-wiring board. It can be secured with 3 self-tapping screws; the tightening torque on the board is $500 + 300$ mNm. The fit of the connecting pins in a printed-wiring grid with a pitch of 2,54 mm is illustrated in Fig. 4. The transformer core must be earthed via the earth pin (see Fig. 1).

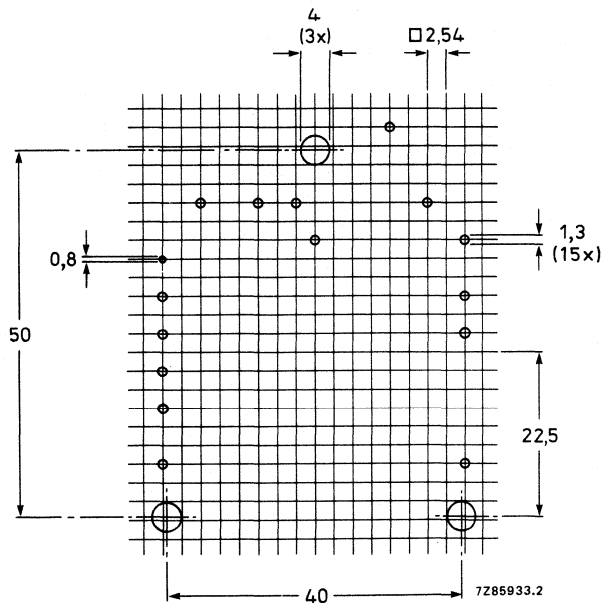


Fig. 4 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the e.h.t. coil should not exceed + 60 °C under worst conditions, i.e. taking into account:

- over-voltage on the coils;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high ambient temperature (up to 45 °C).

To satisfy this requirement it is recommended to provide sufficient flow of cool air around the transformer.

Distances

The following minimum distances between the transformer and **neighbouring conductive flat surfaces** must be maintained:

From the e.h.t. coil radially, 10 mm

From the e.h.t. coil axially, 10 mm

Sharp edges of conductive parts must have greater distances than given above.

The transformer leads and components carrying high-voltage pulses, should be kept free from metal particles, solder drops, etc.

ELECTRICAL DATA with 110⁰ colour picture tubes

| | | | | | |
|---|--------------------|----------------|---------------|------|-------|
| E.H.T. supply | I_{eht} | mA | 0,1 | 1,1 | 1,6 |
| | e.h.t. | kV | 25,0 | 24,1 | 23,65 |
| | $R_{i(eht)}$ | MΩ | | 0,9 | |
| Power supply | V_B | V | 100 | 101 | 101,5 |
| | V_{CEM}^* | V | 1260 | 1270 | 1290 |
| | I_{CEM} | A | 1,7 | 2,1 | 2,15 |
| Deflection | Overscan | % | 6 | | 6 |
| | V_9 | V | 150 | 150 | 150 |
| | Flyback time | μs | 11,5 | 11,5 | 11,5 |
| | V_{CEM} | V | 1220 | 1230 | 1235 |
| | I_{CEM} | A | 3,45 | 3,65 | 3,8 |
| | Deflection current | A (p-p) | 5,3 | 5,25 | 5,2 |
| Focusing voltage | min. | kV | 5,6 | | |
| | max. | | 9,1 | | |
| Auxiliary windings: picture tube heater voltage, V_4 | | $V_{(r.m.s.)}$ | 8,2 | 8,2 | 8,2 |
| Voltages (peak-to-peak values)** at | | | | | |
| pin 1 | V_1 | V (d.c.) | + 1220 | | |
| pin 2 | V_2 | V | + 87 to + 139 | | |
| pin 3 | V_3 | V | -218 | | |
| pin 4 | V_4 | V | + 29 | | |
| pin 5 | V_5 | V | -129 | | |
| pin 7 | V_7 | V | + 1145 | | |
| pin 8 | V_8 | V | -74 | | |
| pin 9 | V_9 | V (d.c.) | + 150 | | |
| pin 15 | V_{15} | $V_{(p-p)}$ | -80 | | |

* At mains voltage 220 V.

** Pin 18 connected to earth.

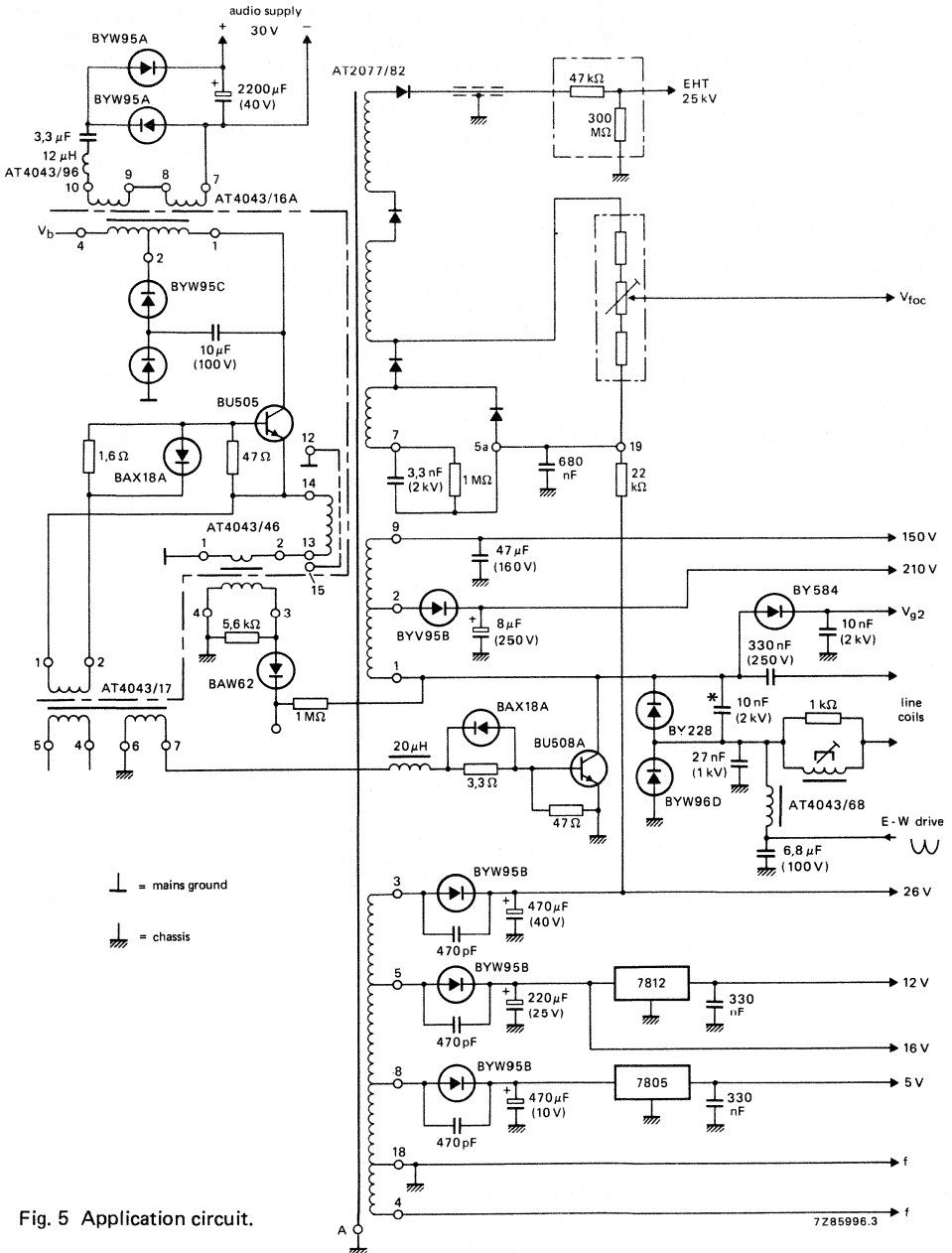


Fig. 5 Application circuit.

* For L_H = 1,5 mH.

LINE OUTPUT TRANSFORMER

- For Monochrome Data Graphic Displays

QUICK REFERENCE DATA

| | used in conjunction with AT1071/03 | | used in conjunction with AT1074/01 | |
|-----------------------------------|--|-------------------|---------------------------------------|-------------------|
| I_{eht} | 0 μA | 100 μA | 0 μA | 100 μA |
| E.H.T. | 14,9 kV | 13,9 kV | 14,7 kV | 13,6 kV |
| $R_{\text{i(eht)}}$ | 10 $\text{M}\Omega$ | | 11 $\text{M}\Omega$ | |
| Supply voltage (V_{B}) | 12 V | 12 V | 12 V | 12 V |
| Supply current (I_{B}) | 1725 mA | 1825 mA | 1700 mA | 1800 mA |
| Deflection current | 8,5 A | 8,4 A | 5,0 A (p-p) | 4,95 A (p-p) |
| Auxiliary voltages | 6,3 V (r.m.s.), 11 V (r.m.s.), 66 V (d.c.), 790 V (d.c.) | | | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 24 cm (9 in) to 31 cm (12 in) 90° monochrome monitor tubes in video display monitors presenting 625 lines at 50 frames per second (CCIR) or 525 lines at 60 frames per second (USA).

It is intended for use in conjunction with the following packages of components:

- deflection unit AT1071/03 or AT1071/07;
- adjustable linearity control unit AT4036/00A;
- line driver transformer AT4043/64;
- deflection unit AT1074/01;
- adjustable linearity control unit AT4042/26A;
- line driver transformer AT4043/56.

DESCRIPTION

The magnetic circuit of the transformer comprises Ferroxcube U and I-cores clamped together with two screws. The primary windings and the auxiliary windings are situated on one leg of the core, the e.h.t. winding and the coupling winding are situated on the other leg. The e.h.t. winding is encapsulated in flame retardant polyester. An e.h.t. rectifier diode is incorporated in the transformer. The whole transformer meets the self-extinguishing and non-dripping properties of the American Underwriters' Laboratories rating mentioned in UL94SE-1.

The transformer is provided with four mounting pins; it can also be screwed to the printed-wiring board. External circuit connection is made to connecting pins, enabling the unit to be soldered directly into a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

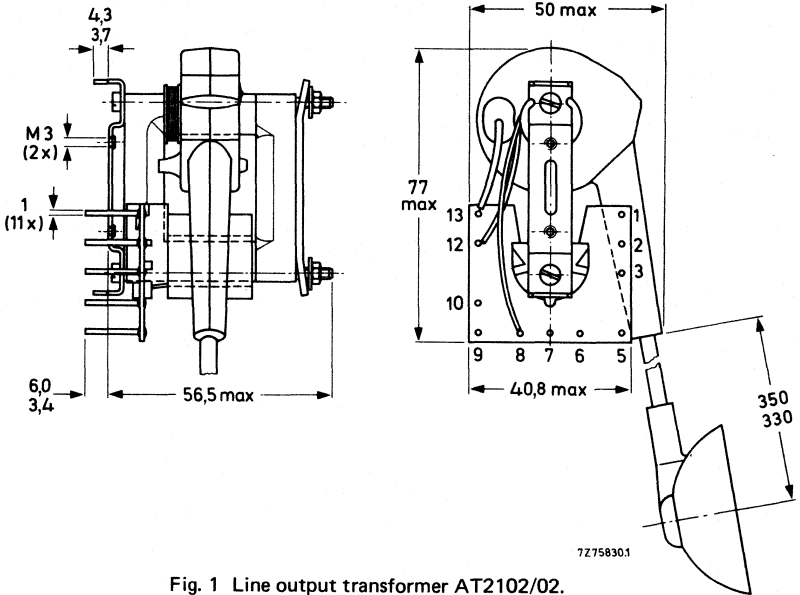


Fig. 1 Line output transformer AT2102/02.

MOUNTING

The transformer may be mounted on a printed-wiring board. The fit of the connecting and mounting pins in a printed-wiring grid with a pitch of 2,54 mm (0,1 in) is illustrated in Fig. 2. The core of the transformer must be earthed.

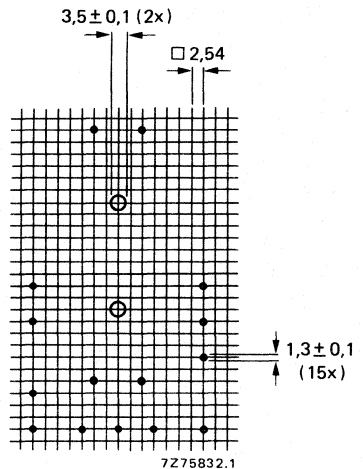


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the core and the coils should not exceed 90 °C, under worst conditions, i.e. taking into account:

- over-voltage on the windings;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high room temperature (up to 45 °C).

To satisfy this requirement it may be desired to provide ample cool air circulation around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained (in proportion to their sharpness protruding parts must have a greater distance):

- a. From the e.h.t. winding, radially 15 mm, axially 10 mm.
- b. From the e.h.t. lead 25 mm.

The transformer, and the leads and components carrying high-voltage pulses should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA (see also Figs 3 and 4)

| | | AT2102/02 used in conjunction with AT1071/03 | | AT2102/02 used in conjunction with AT1074/01 | |
|-------------------|----------------|---|-------------|---|--------------|
| E.H.T. supply | I_{eht} | 0 μ A | 100 μ A | 0 μ A | 100 μ A |
| | E.H.T. | 14,9 kV | 13,9 kV | 14,7 kV | 13,6 kV |
| | $R_i(eht)$ | 10 M Ω | | 11 M Ω | |
| Power supply | V_B | 12 V | 12 V | 12 V | 12 V |
| | I_{av} | 1725 mA | 1825 mA | 1700 mA | 1800 mA |
| Output transistor | V_{CEM} | 144 V | 144 V | 142 V | 142 V |
| | I_{CM} | 6,4 A | 6,4 A | 6,2 A | 6,2 A |
| Deflection | Current | 8,5 A (p-p) | 8,4 A (p-p) | 5,0 A (p-p) | 4,95 A (p-p) |
| | Flyback time | 9,9 μ s | 9,9 μ s | 10 μ s | 10 μ s |
| | Scan variation | 1,5 % | | 2 % | |

Auxiliary windings

| | |
|---|----------------|
| connection pins 1 and 2 | 6,3 V (r.m.s.) |
| connecting pins 1 and 3 | 11 V (r.m.s.) |
| connecting pin 5 (pin 6 connected to earth) | 790 V (d.c.) |
| connecting pin 7 (pin 6 connected to earth) | 66 V (d.c.) |

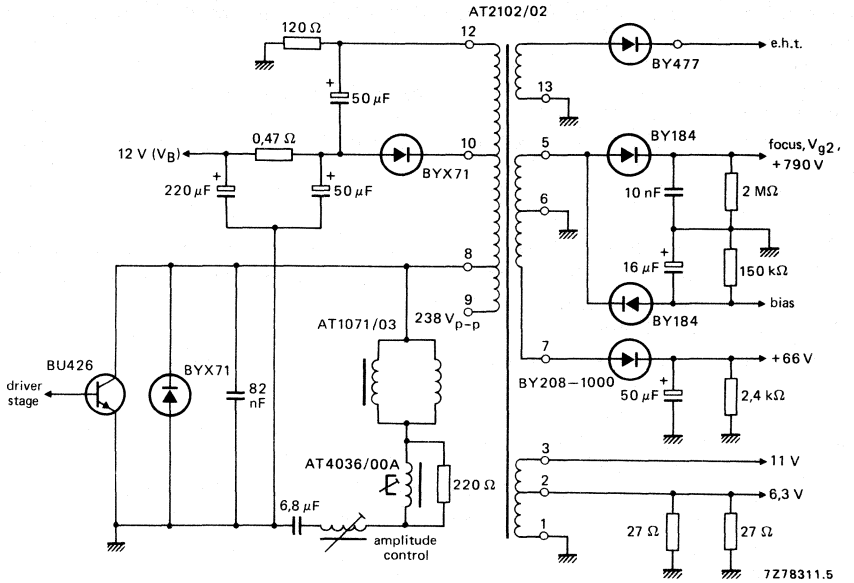


Fig. 3 Application circuit for use with deflection units AT1071/03 and AT1071/07.

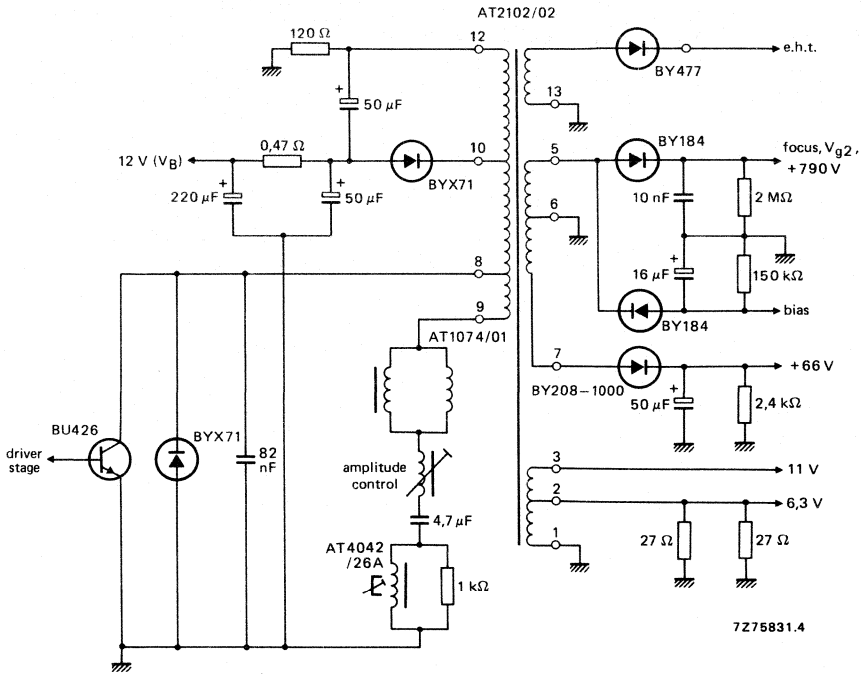


Fig. 4 Application circuit for use with deflection unit AT1074/01.

LINE OUTPUT TRANSFORMER

- For Monochrome Data Graphic Displays

QUICK REFERENCE DATA

| | | |
|-----------------------------------|--|-------------------|
| I_{eht} | 0 μA | 100 μA |
| E.H.T. | 17 kV | 16,35 kV |
| $R_{\text{i(eht)}}$ | 6,5 $\text{M}\Omega$ | |
| Supply voltage (V_{B}) | 24 V | 24 V |
| Supply current (I_{B}) | 820 mA | 910 mA |
| Deflection current | 4,6 A (p-p) | 4,6 A (p-p) |
| Auxiliary voltages | 6,3 V (r.m.s.), 25 V (d.c.), 70 V (d.c.), 800 V (d.c.) | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 31 cm (12 in) to 38 cm (15 in) 110° monochrome monitor tubes with a neck diameter of 28 mm in video display monitors presenting 625 lines at 50 frames per second (CCIR) or 525 lines at 60 frames per second (USA).

It is intended for use in conjunction with:

- deflection unit AT1038/40A;
- adjustable linearity control unit AT4042/08A;
- line driver transformer AT4043/59;
- e.h.t. cable with a length of 450 mm, catalogue number 3111 108 34160 or UL approved e.h.t. cable, catalogue number 3111 108 34740.

DESCRIPTION

The magnetic circuit of the transformer comprises Ferroxcube U and I-cores, clamped together with two screws. The primary windings, the auxiliary windings and the e.h.t. winding are situated on one leg of the core, and are encapsulated in flame retardant polyester. An e.h.t. rectifier diode is incorporated in the transformer. The whole transformer meets the self-extinguishing and non-dripping properties of the American Underwriters' Laboratories rating mentioned in UL94SE-1.

The transformer is provided with four mounting pins; it can also be screwed to the printed-wiring board. External circuit connection is made to connecting pins, enabling the unit to be soldered directly into a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

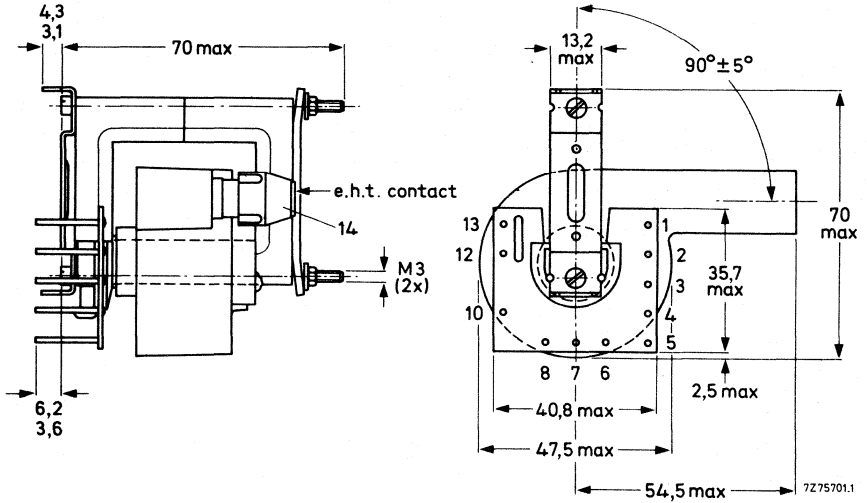


Fig. 1a Line output transformer AT2102/04C.

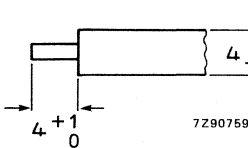


Fig. 1b E.H.T. contact (transformer side).

MOUNTING

The transformer may be mounted on a printed-wiring board. The fit of the connecting and mounting pins in a printed-wiring grid with a pitch of 2,54 mm (0,1 in) is illustrated in Fig. 2. The core of the transformer must be earthed.

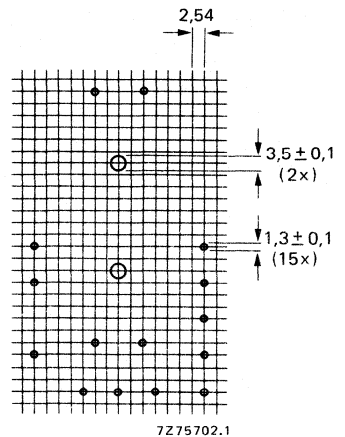


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the core and the coils should not exceed 90 °C, under worst conditions, i.e. taking into account:

- over-voltage on the windings;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high room temperature (up to 45 °C).

To satisfy this requirement it may be desired to provide ample cool air circulation around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained (in proportion to their sharpness protruding parts must have a greater distance):

- a. From the e.h.t. winding, radially 15 mm, axially 10 mm.
- b. From the e.h.t. lead 25 mm.

The transformer, and the leads and components carrying high-voltage pulses should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA (see also Fig. 3)

| | | | |
|-------------------|---|--|-----------------------------------|
| E.H.T. supply | I_{eht} E.H.T. $R_{i(\text{eht})}$ | 0 μA 17 kV 6,5 M Ω | 100 μA 16,35 kV |
| Power supply | V_B I_{av} | 24 V 820 mA | 24 V 910 mA |
| Output transistor | V_{CEM} I_{CM} | 440 V 3,6 A | 440 V 3,6 A |
| Deflection | Current Flyback time Overscan variation | 4,6 A (p-p) 10,5 μs 1,5% | 4,6 A (p-p) 10,5 μs |

Auxiliary windings

- connecting pins 1 and 2 6,3 V (r.m.s.)
- connecting pin 4 (pin 5 connected to earth) 25 V (d.c.)
- connecting pin 3 (pin 5 connected to earth) 70 V (d.c.)
- connecting pin 7 (pin 6 connected to earth) 800 V (d.c.)

LINE OUTPUT TRANSFORMER

- For Monochrome Data Graphic Displays

QUICK REFERENCE DATA

| | | |
|-----------------------------------|--|-------------------|
| I_{eht} | 0 μA | 100 μA |
| E.H.T. | 17,0 kV | 16,2 kV |
| $R_{\text{i(eht)}}$ | 8 $\text{M}\Omega$ | |
| Supply voltage (V_{B}) | 24 V | |
| Supply current (I_{B}) | 955 mA | |
| Deflection current | 4,4 A (p-p) | 4,35 A (p-p) |
| Auxiliary voltages | 6,4 V (r.m.s.), 87,6 V (d.c.), 905 V (d.c.), -144 V (d.c.) | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 31 cm (12 in) to 38 cm (15 in) 110° CRTs with a neck diameter of 28 mm in video display monitors.

The line frequency is set to 21,3 kHz at a fly-back time of 8,0 μs . With a small modification the line frequency can be reduced to 19 kHz. A frame frequency of 50 or 60 Hz is possible without modification.

The transformer is intended for use in conjunction with:

- deflection unit AT1038/40A;
- adjustable linearity control unit AT4042/08A;
- line driver transformer AT4043/59;
- e.h.t. cable with a length of 450 mm (catalogue number 3111 100 34160 or UL approved e.h.t. cable, catalogue number 3111 108 34740.

Note

The transformer was originally developed for data display of 80 characters per row, 28 rows per page, having a 7 x 9 character matrix in a 9 x 14 character cell; dynamic focusing was applied in the line direction to improve picture performance.

DESCRIPTION

The magnetic circuit of the transformer comprises two Ferroxcube U-cores, clamped together with two screws. The primary windings, the auxiliary windings and e.h.t. winding are situated on one leg of the core, and are encapsulated in flame retardant polyester. An e.h.t. rectifier diode is incorporated in the transformer. The whole transformer meets the self-extinguishing and non-dripping properties of the American Underwriters' Laboratories rating mentioned in UL94SE-1.

The transformer is provided with four mounting pins; it can also be screwed to the printed-wiring board. External circuit connection is made to connecting pins, enabling the unit to be soldered directly into a printed-wiring board.

MECHANICAL DATA

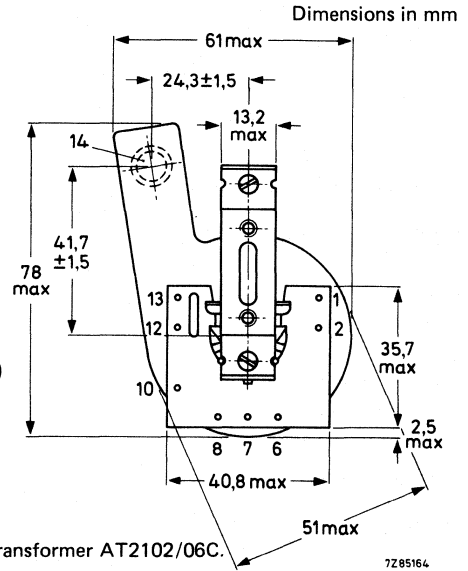
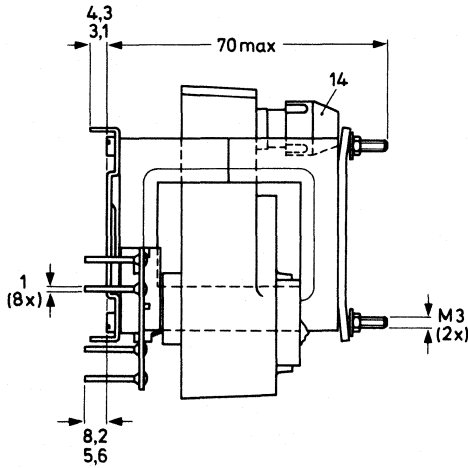


Fig. 1a Line output transformer AT2102/06C.

7Z85164

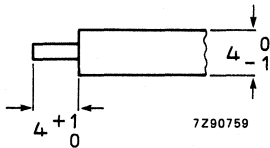


Fig. 1b E.H.T. contact (transformer side).

MOUNTING

The transformer may be mounted on a printed-wiring board. The fit of the connecting and mounting pins in a printed-wiring grid with a pitch of 2,54 mm (0,1 in) is illustrated in Fig. 2. The core of the transformer must be earthed.

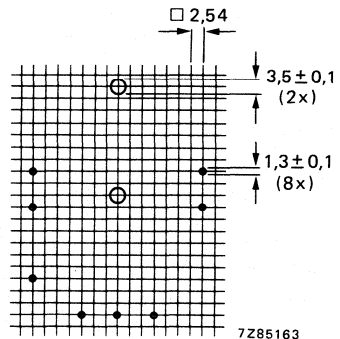


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

7Z85163

Temperature

The operating temperature of the core and the coils should not exceed 90 °C, under worst conditions, i.e. taking into account:

- over-voltage on the windings;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high room temperature (up to 45 °C).

To satisfy this requirement it may be desired to provide ample cool air circulation around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained (in proportion to their sharpness protruding parts must have a greater distance):

- a. From the e.h.t. winding, radially 15 mm, axially 10 mm.
- b. In general such that no corona occurs at 10% over-voltage of e.h.t., at an air pressure of 60 kPa and a relative humidity of 85%.

The transformer, and the leads and components carrying high-voltage pulses should be kept free from metal particles, solder drops etc.

ELECTRICAL DATA (see also Fig. 3)

| | | | |
|-------------------|--|--|------------------------------|
| E.H.T. supply | I_{eht} E.H.T. $R_{\text{i(eht)}}$ | 0 μA 17,0 kV 8 $\text{M}\Omega$ | 100 μA 16,2 kV |
| Power supply | V_{B} I_{B} | 24 V 955 mA | |
| Output transistor | V_{CEM} I_{CM} | 720 V 3,3 A | |
| Deflection | Current Flyback time Overscan variation (edge to edge) | 4,4 A (p-p) 8,0 μs 0,5 % | |

Auxiliary windings

| | |
|--|---------------------------|
| connecting pins 1 and 2; load 300 mA | 6,4 V (r.m.s.) \pm 5,5% |
| connecting pin 12; load 40 mA | 87,6 V (d.c.) |
| connecting pin 7 (pin 6 connected to earth); load 0,7 mA | 905 V (d.c.) \pm 5,5% |
| load 0,3 mA | -144 V (d.c.) \pm 5,5% |

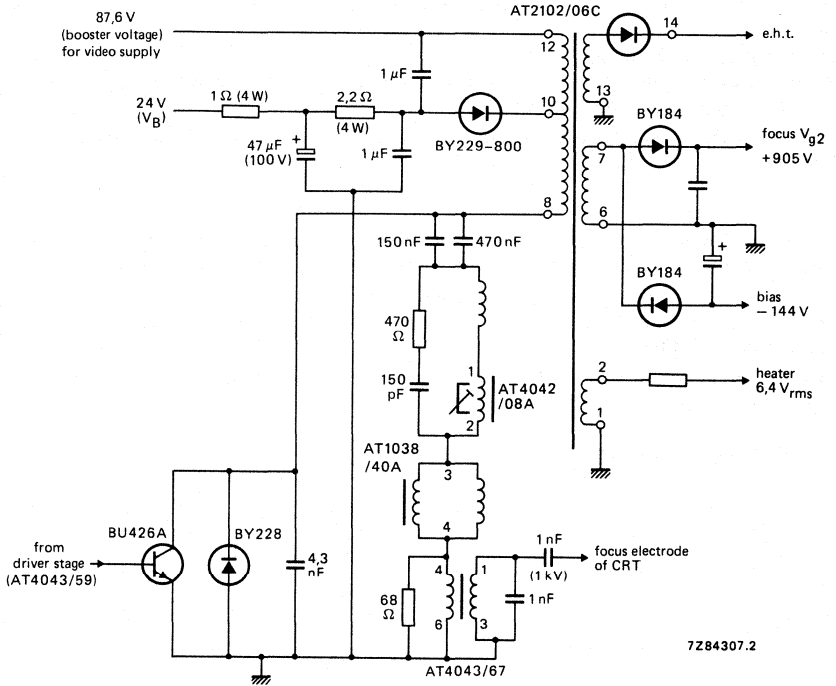


Fig. 3 Application circuit.

TESTS AND REQUIREMENTS

The line output transformer withstands the following tests.

| IEC 68-2 test method | name of test | procedure (quick reference) |
|----------------------|--|--|
| Ua1 | Tensile strength of terminations | |
| Ub (method 1) | Bending of terminations | |
| Fc | Vibration | Frequency range 10-55-10 Hz, amplitude 0,35 mm, 3 directions, 30 min per direction |
| Eb | Bump | 250 bumps in 5 directions, acceleration 25 g. |
| Ea | Shock | Half-sine pulse shape, 11 ms, 490 m/s ² , 6 directions, 3 shocks per direction. |
| Ta (method 1) | Soldering | Solder temp. 230 °C, dwell time 2 s. |
| Bb | Dry heat | 96 h at +100 °C. |
| Db | Damp heat, cyclic | 21 cycles of 24 h at +40 °C, R.H. 95%. |
| Ab | Cold | 96 h at -25 °C. |
| M | Low air pressure | +55 °C, 60 kPa, 30 min. |
| Ca | Damp heat, steady state | 21 days. |
| Na | Rapid change of temperature | 5 cycles of -25 °C/+100 °C. |
| | Flammability of transformer (IEC65-14.4); power test | 10 W, 20 W, 30 W and 40 W successively, for 2 min until encapsulation of e.h.t. coil cracks. |
| | Flammability of materials (UL94, class V1) | Line output transformer is self-extinguishing. |

LINE OUTPUT TRANSFORMER

- For Monochrome Data Graphic Displays

QUICK REFERENCE DATA

| | | |
|-----------------------------------|--|-------------------|
| I_{eht} | 0 μA | 100 μA |
| E.H.T | 10,8 kV | 10,0 kV |
| $R_{i(\text{eht})}$ | 8 $\text{M}\Omega$ | |
| Supply voltage (V_{B}) | 12 V | |
| Supply current (I_{B}) | 390 mA | 590 mA |
| Deflection current | 2,7 A(p-p) | 2,7 A(p-p) |
| Auxiliary voltages | 11 V(r.m.s.), -70 V(d.c.), -165 V(d.c.), + 450 V(d.c.) | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 24 cm (9 in) to 31 cm (12 in) 90° monochrome monitor tubes in video display monitors presenting 625 lines at 50 frames per second (CCIR) or 525 lines at 60 frames per second (USA).

It is intended for use in conjunction with deflection unit AT1077/..., linearity control unit AT4034/05A ← or linearity corrector AT4042/46, and an e.h.t. cable, length 260 mm, catalogue number 3111 100 32250, or the UL approved type, catalogue number 3122 137 63920.

DESCRIPTION

The magnetic circuit of the transformer comprises two Ferroxcube U-cores. The primary windings, the auxiliary windings and e.h.t. winding are situated on one leg of the core, and are encapsulated in flame retardant polyester. An e.h.t. rectifier diode is incorporated in the transformer. The whole transformer meets the self-extinguishing and non-dripping properties of the American Underwriters' Laboratories rating mentioned in UL94SE-1.

External circuit connection is made to connecting pins, enabling the unit to be soldered directly into a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

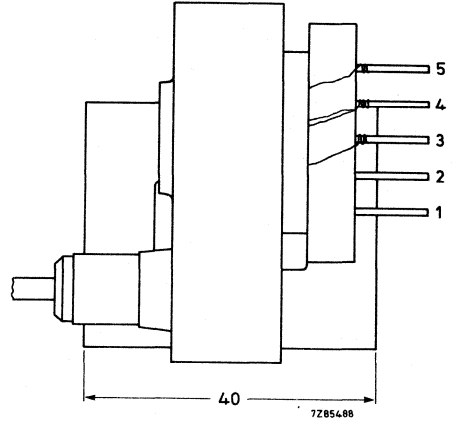
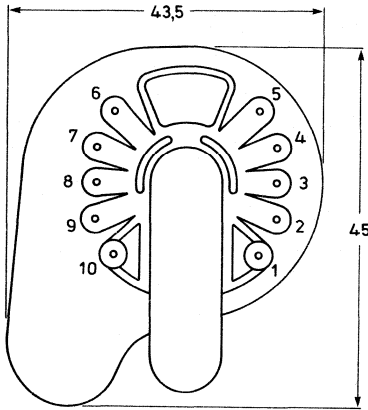


Fig. 1.

MOUNTING

The transformer may be mounted on a printed-wiring wiring board. The fit of the connecting pins in a printed-wiring grid with a pitch of 2,54 mm (0,1 in) is illustrated in Fig. 2.

The core of the transformer must be earthed.

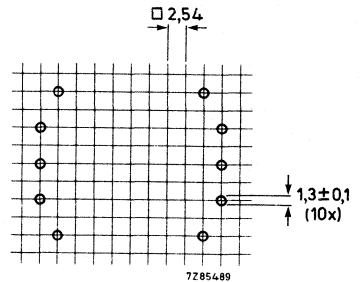


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the core and the coils should not exceed 90 °C, under worst conditions, i.e. taking into account:

- over-voltage on the windings;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high room temperature (up to 45 °C).

To satisfy this requirement it may be desired to provide ample cool air circulation around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained (in proportion to their sharpness protruding parts must have a greater distance):

- from the e.h.t. winding, radially 15 mm, axially 10 mm.

The transformer, and the leads and components carrying high-voltage pulses should be kept free from metal particles, solder drops etc.

The bending radius of the e.h.t. cable must be $\geq 7,5$ mm.

ELECTRICAL DATA (see also Fig. 3)

AT2140/16B used in conjunction with AT1077/05 and AT4042/46.

| | | | |
|---------------------|---------------------|-------------------|-------------------|
| E.H.T. supply | I_{eht} | 0 μA | 100 μA |
| | E.H.T. | 10,8 kV | 10,4 kV |
| | $R_{\text{i(eht)}}$ | 8 M Ω | |
| Power supply | V_{B} | 12 V | |
| | I_{B} | 390 mA | 480 mA |
| Output transistor | V_{CEM} | 265 V | |
| | I_{CM} | 2,3 A | |
| Deflection | Current | 2,7 A(p-p) | |
| | Flyback time | 8,5 μs | |
| Auxiliary windings | | | |
| connecting pin 1 | | -70 V(d.c.) | |
| connecting pin 4 | | -165 V(d.c.) | |
| connecting pins 6/8 | | 11 V(r.m.s.) | |
| connecting pin 10 | | +450 V(d.c.) | |

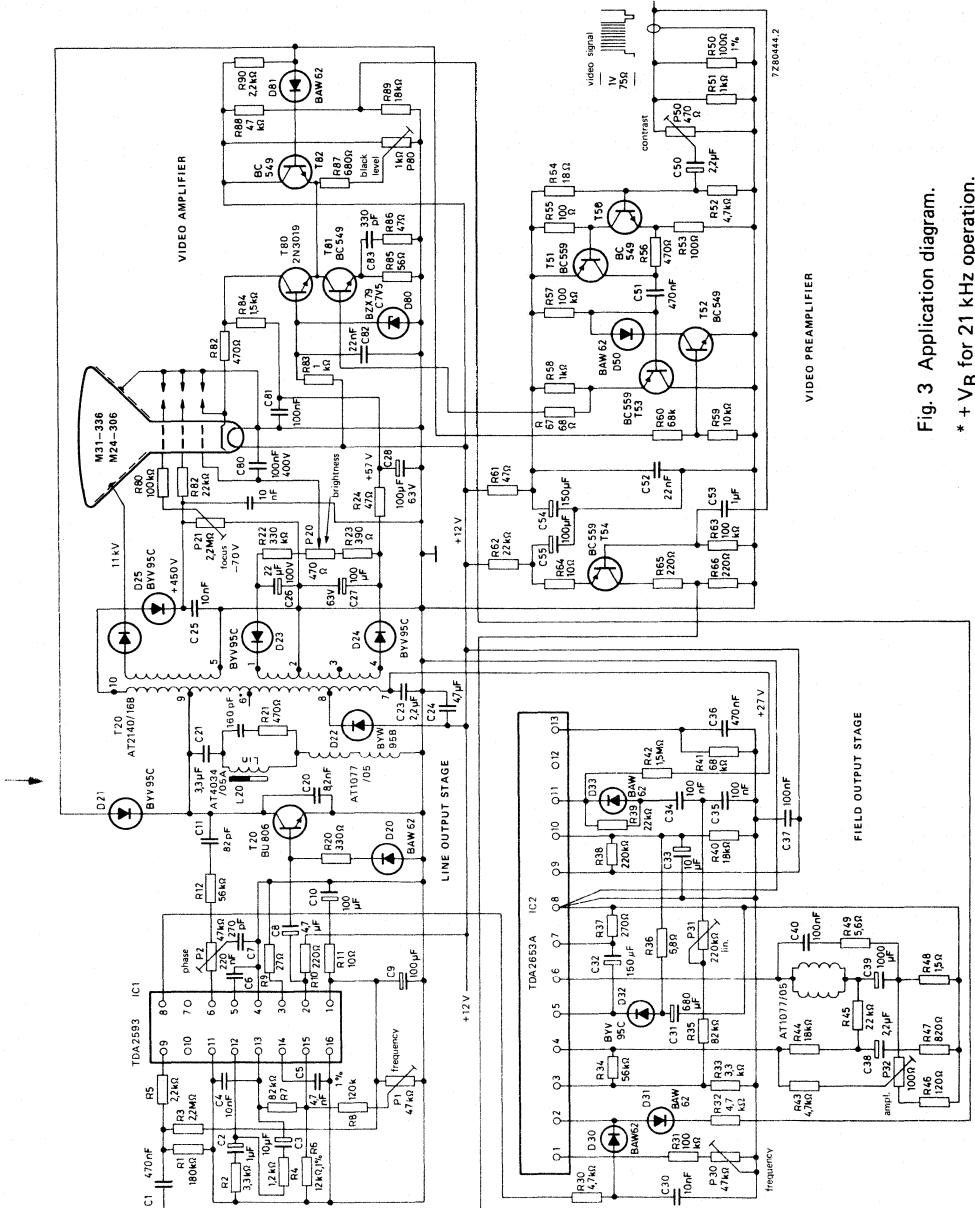


Fig. 3 Application diagram.
* + V_G for 21 kHz operation.

LINE OUTPUT TRANSFORMER

"White box"

- For Monochrome Data Graphic Displays

QUICK REFERENCE DATA

| | | |
|-----------------------------------|--------------------|-------------------|
| I_{eht} | 0 μA | 100 μA |
| E.H.T. | 13 kV | 12 kV |
| $R_{\text{i(eht)}}$ | 7 M Ω | |
| Supply voltage (V_{B}) | 12 V | |
| Supply current (I_{B}) | 600 mA | 700 mA |
| Deflection current | 3,2 A (p-p) | |
| Auxiliary voltages | -54 V, 58 V, 455 V | |

APPLICATION

This transformer has been designed to provide the required scanning amplitude for 24 cm (9 in) to 31 cm (12 in) 90° monochrome monitor tubes in video display monitors presenting 625 lines at 50 frames per second (CCIR) or 525 lines at 60 frames per second (USA).

It is intended for use in conjunction with deflection unit AT1077/05, linearity control unit AT4042/08A ← or linearity corrector AT4042/46, and e.h.t. cable, length 260 mm, catalogue number 3111 100 32250 or UL approved e.h.t. cable, length 250 mm, catalogue number 3122 137 63920.

DESCRIPTION

The magnetic circuit of the transformer comprises two Ferroxcube U-cores. The primary windings, the auxiliary windings and e.h.t. winding are situated on one leg of the core, and are encapsulated in flame retardant epoxy resin. An e.h.t. rectifier diode is incorporated in the transformer. The whole transformer meets the self-extinguishing and non-dripping properties of the American Underwriters' Laboratories rating mentioned in UL94SE-1.

External circuit connection is made to connecting pins, enabling the unit to be soldered directly into a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

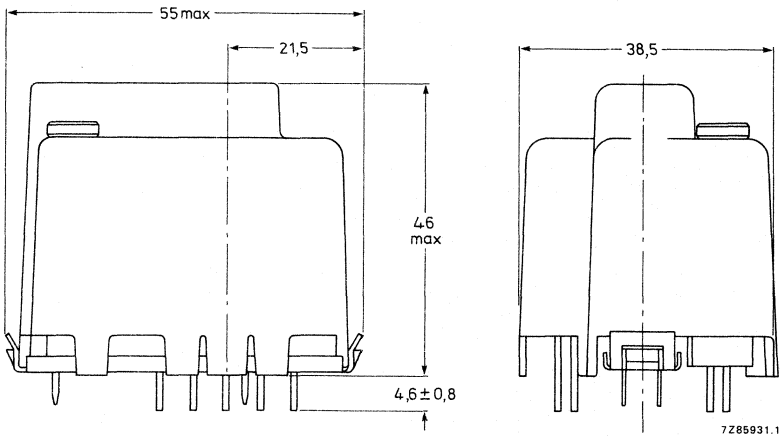
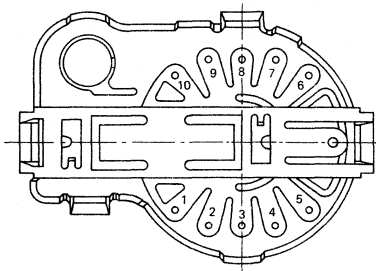


Fig. 1.

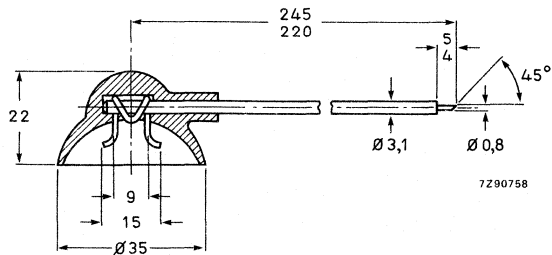
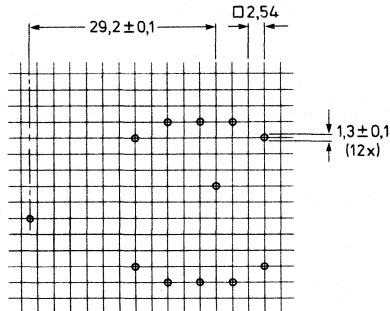


Fig. 2 E.H.T. cable, catalogue number 3122 137 63920.

Mounting

The transformer may be mounted on a printed-wiring board. The fit of the connecting pins in a printed-wiring grid with a pitch of 2,54 mm (0,1 in) is illustrated in Fig. 3.

The core of the transformer must be earthed.



7Z85930

Fig. 3 Hole pattern for mounting on a printed-wiring board (solder side).

Temperature

The operating temperature of the core and the coils should not exceed 90 °C, under worst conditions, i.e. taking into account:

- over-voltage on the windings;
- low atmospheric pressure (at high altitudes) implying bad cooling by convection;
- high room temperature (up to 45 °C).

To satisfy this requirement it may be desired to provide ample cool air circulation around the transformer.

Distances

The following minimum distances between the transformer and neighbouring conductive flat surfaces must be maintained (in proportion to their sharpness protruding parts must have a greater distance):

- from the e.h.t. winding, radially 15 mm, axially 10 mm.

The transformer, and the leads and components carrying high-voltage pulses should be kept free from metal particles, solder drops etc.

The bending radius of the e.h.t. cable must be $\geq 7,5$ mm.

ELECTRICAL DATA

→ AT2240/16 used in conjunction with AT1077/05 and AT4042/08A (see also Fig. 4)

| | | | | | |
|----------------------------------|------------------|------|-------|-------|-------|
| scan frequency | kHz | 15,6 | 20,0 | 15,6 | 20,0 |
| E.H.T. supply | | | | | |
| I_{eht} | μA | 0 | 0 | 100 | 100 |
| E.H.T. | kV | 12,6 | 12,1 | 11,66 | 10,99 |
| $R_{i(\text{eht})}$ | $\text{M}\Omega$ | | | 9,4 | 11,1 |
| Power supply | | | | | |
| V_{B} | V | 11,2 | 11,0 | 11,2 | 11,0 |
| I_{B} | A | 0,56 | 0,68 | 0,66 | 0,78 |
| Output transistor (BU806) | | | | | |
| V_{CEM} | V | 280 | 280 | | |
| I_{CM} | A | 2,3 | 2,3 | | |
| Deflection | | | | | |
| Current | A(p-p) | 2,8 | 2,8 | | |
| Flyback time | μs | 7,95 | 7,95 | | |
| Overscan variation | % | 1,5 | 1,5 | | |
| Flyback capacitor | nF | 8,2 | 8,2 | | |
| Auxiliary voltages | | | | | |
| Pin 1 | V | -51 | -49,5 | | |
| Pin 4 | V | 54 | 52,5 | | |
| Pin 10 | V | 450 | 445 | | |

LINEARITY CORRECTORS

LINEARITY CORRECTOR

- For colour TV

APPLICATION

This linearity corrector is for the line deflection output stage of the 30AX system. It is compatible with linearity control unit AT4042/42 (connections 1 and 2 of the AT4042/42 on the printed-wiring board to be connected to 3 and 4 respectively).

DESCRIPTION

The linearity corrector consists of a coil, mounted on a Ferroxcube rod and a ring-shaped magnet of plastic-bonded Ferroxdure, which is placed around the rod at the bottom.

The corrector has pins for mounting on a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

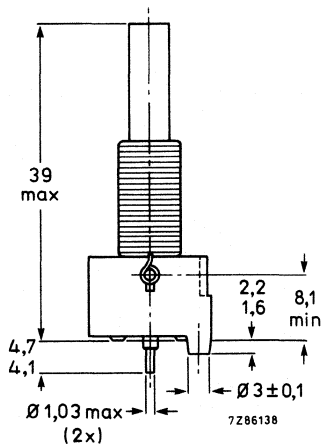
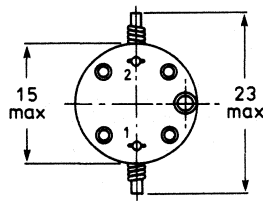


Fig. 1.

The linearity correctors are packed in boxes of 108 pieces.

Mounting

The AT4042/30 can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coil should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

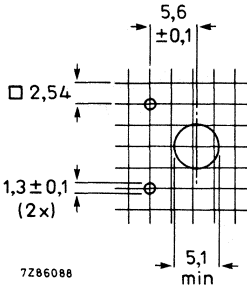


Fig. 2 Hole pattern for mounting on a printed-wiring board.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 5,1 A (p-p), frequency 15 625 Hz, flyback ratio 18%, flows through the linearity corrector, the correction voltage is 11,8 V ± 5,5%.

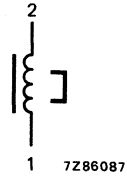


Fig. 3 Circuit diagram.

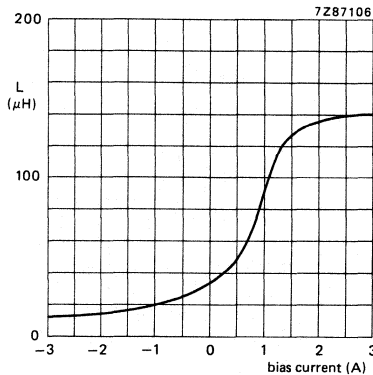


Fig. 4 Inductance as a function of bias current.

ENVIRONMENTAL DATA

| | |
|-----------------------------|----------------------------------|
| Maximum ambient temperature | 70 °C |
| Flammability of assembly | according to IEC 65, clause 14.4 |
| Flammability of materials | according to UL94, category V-1 |

TESTS

The linearity corrector withstands the following tests:

| | |
|-------------------------|---|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions. |
| Soldering | IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s. |
| Cold | IEC 68-2-1, test Aa; 96 h, -25 °C. |
| Dry heat | IEC 68-2-2, test Ba; 96 h, + 100 °C. |
| Damp heat, cyclic | IEC 68-2-30, test Db; 21 days, +40 °C. |
| Damp heat, steady state | IEC 68-2-3, test Ca, 21 days. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, T _A = -25 °C, T _B = + 100 °C. |

LINEARITY CORRECTOR

- For Colour Data Graphic Displays and Colour TV

APPLICATION

This linearity corrector is for the line deflection output stage of 90° colour monitors and TV receivers.

DESCRIPTION

The linearity corrector consists of a coil, mounted on a Ferroxcube rod and a ring-shaped magnet of plastic-bonded Ferroxdure, which is placed around the rod at the bottom. The corrector has pins for mounting on a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

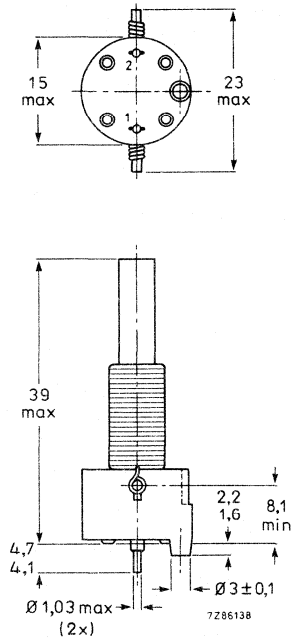


Fig. 1.

The linearity correctors are packed in boxes of 108 pieces.

Mounting.

The AT4042/34 can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coil should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

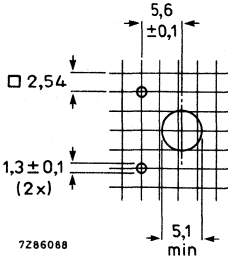


Fig. 2 Hole pattern for mounting on a printed-wiring board.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 3,0 A (p-p), frequency 15 625 Hz, flyback ratio 18%, flows through the linearity corrector, the correction voltage is 15,2 V ± 5,5%.

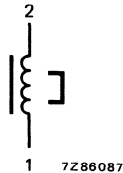


Fig. 3 Circuit diagram.

Reliability

| | |
|---|---------|
| Maximum cumulative percentage catastrophic failures | |
| after 3000 h | ≤ 0,05% |
| after 10 000 h | ≤ 0,2% |
| after 30 000 h | ≤ 5% |

ENVIRONMENTAL DATA

| | |
|-----------------------------|----------------------------------|
| Maximum ambient temperature | 70 °C |
| Flammability of assembly | according to IEC 65, clause 14.4 |
| Flammability of materials | according to UL94, category V-1 |

TESTS

The linearity corrector withstands the following tests:

| | |
|-------------------------|---|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz; amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb; 40 g, 1000 bumps, 3 directions. |
| Soldering | IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s. |
| Cold | IEC 68-2-1, test Aa; 96 h, -25 °C. |
| Dry heat | IEC 68-2-2, test Ba; 96 h, + 100 °C. |
| Damp heat, cyclic | IEC 68-2-30, test Db; 21 days, + 40 °C. |
| Damp heat, steady state | IEC 68-2-3, test Ca, 21 days. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, T _A = -25 °C, T _B = + 100 °C. |

LINEARITY CORRECTOR

- For Colour TV

APPLICATION

This linearity corrector is for the line deflection output stage of colour TV receivers and 90° monitors.

DESCRIPTION

The linearity corrector consists of a coil, mounted on a Ferroxcube rod and a ring-shaped magnet of plastic-bonded Ferroxdure, which is placed around the rod at the bottom.

The corrector has pins for mounting on a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

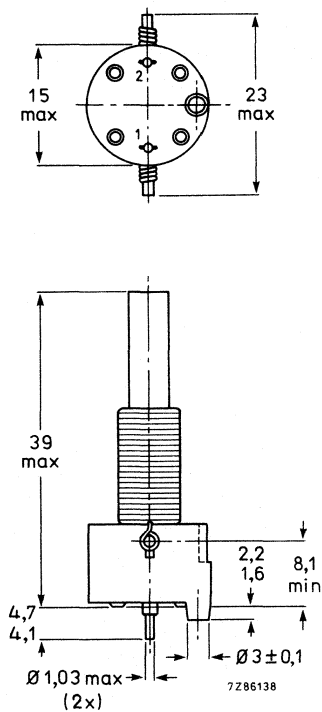


Fig. 1.

The linearity correctors are packed in boxes of 108 pieces.

Mounting

The AT4042/36FS can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coil should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

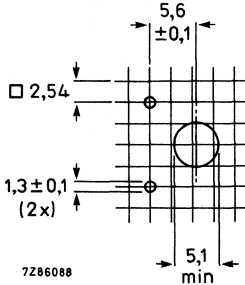


Fig. 2 Hole pattern for mounting on a printed-wiring board.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 1,9 A (p-p), frequency 15 625 Hz, flyback ratio 18%, flows through the linearity corrector, the correction voltage is 17,4 V ± 5,5%.

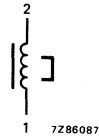


Fig. 3 Circuit diagram.

ENVIRONMENTAL DATA

- Maximum ambient temperature 70 °C
- Flammability of assembly according to IEC 65, clause 14.4
- Flammability of materials according to UL94, category V-1

TESTS

The linearity corrector withstands the following tests:

- Vibration IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min.
- Bump IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions.
- Soldering IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s.
- Cold IEC 68-2-1, test Aa; 96 h, -25 °C.
- Dry heat IEC 68-2-2, test Ba; 96 h, + 100 °C.
- Damp heat, cyclic IEC 68-2-30, test Db; 21 days, + 40 °C.
- Damp heat, steady state IEC 68-2-3, test Ca, 21 days.
- Change of temperature IEC 68-2-14, test Na; 5 cycles, T_A = -25 °C, T_B = + 100 °C.

LINEARITY CORRECTOR

- For Monochrome Data Graphic Displays.

APPLICATION

This linearity corrector is for the line deflection output stage of 90° monitors for data graphic display in conjunction with line output transformer AT2140/16B or AT2240/16, and deflection unit AT1077/05.

DESCRIPTION

The linearity corrector consists of a coil, mounted on a Ferroxcube rod and a ring-shaped magnet of plastic-bonded Ferroxdure, which is placed around the rod at the bottom.

The corrector has pins for mounting on a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

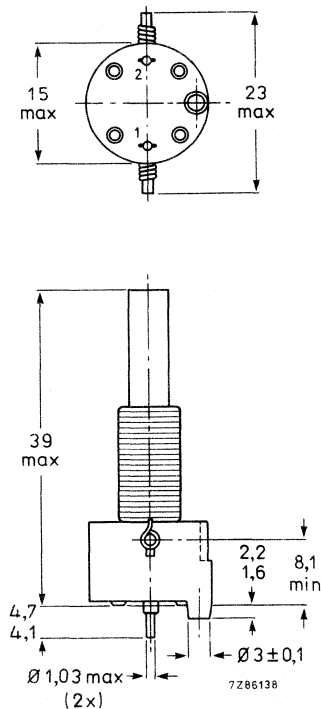


Fig. 1.

Mounting

The AT4042/46 can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coil should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560Ω).

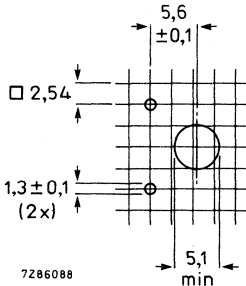


Fig. 2 Hole pattern for mounting on a printed-wiring board.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 3 A (p-p), frequency 15 625 Hz, flyback ratio 18%, flows through the linearity corrector, the correction voltage is $6 \text{ V} \pm 5,5\%$.

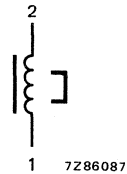


Fig. 3 Circuit diagram.

TESTS

The linearity corrector withstands the following tests:

| | |
|---------------------------|--|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions. |
| Soldering | IEC 68-2-20, test Ta, first part, method 1; $230 \pm 10 \text{ }^\circ\text{C}$, $2 \pm 0,5 \text{ s}$. |
| Cold | IEC 68-2-1, test Aa; 96 h, $-25 \text{ }^\circ\text{C}$. |
| Dry heat | IEC 68-2-2, test Ba; 96 h, $+100 \text{ }^\circ\text{C}$. |
| Damp heat, cyclic | IEC 68-2-30, test Db; 21 days, $+40 \text{ }^\circ\text{C}$. |
| Damp heat, steady state | IEC 68-2-3, test Ca, 21 days. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, $T_A = -25 \text{ }^\circ\text{C}$, $T_B = +100 \text{ }^\circ\text{C}$. |
| Flammability of assembly | IEC 65, clause 14.4. |
| Flammability of materials | UL94, category V1. |

LINEARITY CORRECTOR

- For colour TV

APPLICATION

This linearity corrector is for the line deflection output stage of the 45AX system.

DESCRIPTION

The linearity corrector consists of a coil, mounted on a Ferroxcube rod and a ring-shaped magnet of plastic-bonded Ferroxdure, which is placed around the rod at the bottom. The corrector has pins for mounting on a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

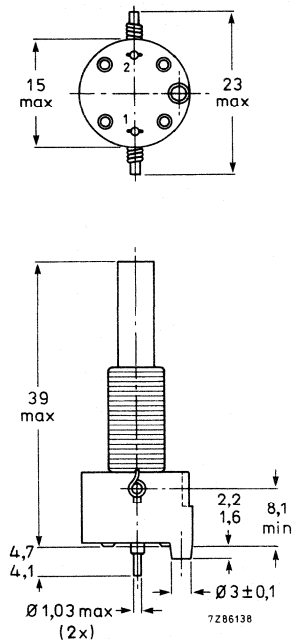


Fig. 1.

The linearity correctors are packed in boxes of 108 pieces.

Mounting

The AT4042/51 can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coil should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

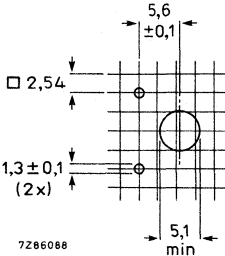


Fig. 2 Hole pattern for mounting on a printed-wiring board.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 3,15 A (p-p), frequency 15 625 Hz, flyback ratio 18%, flows through the linearity corrector, the correction voltage is 12,9 V ± 5,5%.

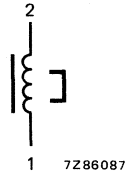


Fig. 3 Circuit diagram.

Reliability

| | |
|---|---------|
| Maximum cumulative percentage catastrophic failures | |
| after 300 h | ≤ 0,05% |
| after 10 000 h | ≤ 0,2% |
| after 30 000 h | ≤ 5% |

ENVIRONMENTAL DATA

| | |
|-----------------------------|----------------------------------|
| Maximum ambient temperature | 70 °C |
| Flammability of assembly | according to IEC 65, clause 14.4 |
| Flammability of materials | according to UL94, category V-1 |

TESTS

The linearity corrector withstands the following tests:

| | |
|-------------------------|---|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions. |
| Soldering | IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s. |
| Cold | IEC 68-2-1, test Aa; 96 h, -25 °C. |
| Dry heat | IEC 68-2-2, test Ba; 96 h, + 100 °C. |
| Damp heat, cyclic | IEC 68-2-30, test Db; 21 days, + 40 °C. |
| Damp heat, steady state | IEC 68-2-3, test Ca, 21 days. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, T _A = -25 °C, T _B = + 100 °C. |

LINEARITY CORRECTOR

- For colour Data Graphic Displays and Colour TV

APPLICATION

This linearity corrector is for the line deflection output stage of 90° monitors and TV receivers.

DESCRIPTION

The linearity corrector consists of a coil, mounted on a Ferroxcube rod and a ring-shaped magnet of plastic-bonded Ferroxdure, which is placed around the rod at the bottom. The corrector has pins for mounting on a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

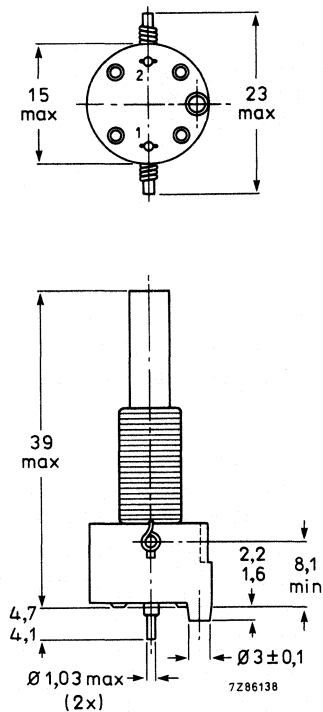


Fig. 1.

The linearity correctors are packed in boxes of 108 pieces.

Mounting

The AT4042/90 can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coil should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

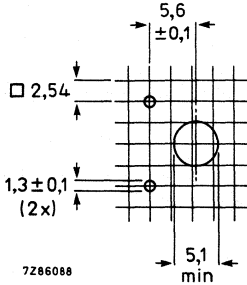


Fig. 2 Hole pattern for mounting on a printed-wiring board.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 2,9 A (p-p), frequency 15 625 Hz, flyback ratio 18%, flows through the linearity corrector, the correction voltage is 9,8 V ± 5,5%.

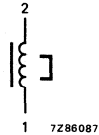


Fig. 3 Circuit diagram.

ENVIRONMENTAL DATA

- Maximum ambient temperature 70 °C
- Flammability of assembly according to IEC 65, clause 14.4
- Flammability of materials according to UL94, category V-1

TESTS

The linearity corrector withstands the following tests:

- Vibration IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min.
- Bump IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions.
- Soldering IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s.
- Cold IEC 68-2-1, test Aa; 96 h, -25 °C.
- Dry heat IEC 68-2-2, test Ba; 96 h, + 100 °C.
- Damp heat, cyclic IEC 68-2-30, test Db; 21 days, + 40 °C.
- Damp heat, steady state IEC 68-2-3, test Ca, 21 days.
- Change of temperature IEC 68-2-14, test Na; 5 cycles, T_A = -25 °C, T_B = + 100 °C.

LINEARITY CORRECTOR

- For colour TV

APPLICATION

This linearity corrector is for 90° minineck applications.

DESCRIPTION

The linearity corrector consists of a coil, mounted on a Ferroxcube rod and a ring-shaped magnet of plastic-bonded Ferroxdure, which is placed around the rod at the bottom. The corrector has pins for mounting on a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

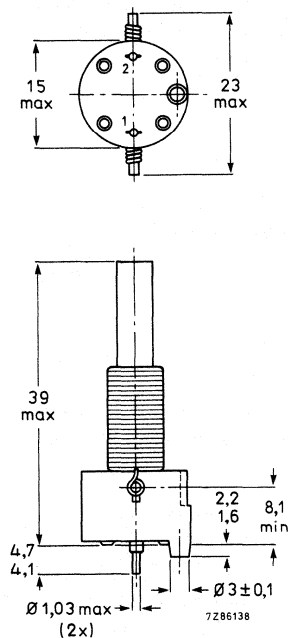


Fig. 1.

The linearity correctors are packed in boxes of 108 pieces.

Mounting

The AT4042/91 can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coil should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

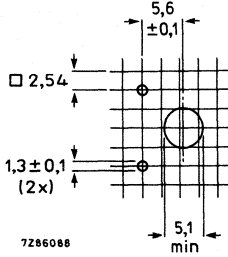


Fig. 2 Hole pattern for mounting on a printed-wiring board.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 2,3 A (p-p), frequency 15 625 Hz, flyback ratio 18%, flows through the linearity corrector, the correction voltage is 17,6 V ± 5%.

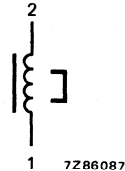


Fig. 3 Circuit diagram.

Reliability

| | |
|---|---------|
| Maximum cumulative percentage catastrophic failures | |
| after 300 h | ≤ 0,05% |
| after 10 000 h | ≤ 0,2% |
| after 30 000 h | ≤ 5% |

ENVIRONMENTAL DATA

| | |
|-----------------------------|----------------------------------|
| Maximum ambient temperature | 70 °C |
| Flammability of assembly | according to IEC 65, clause 14.4 |
| Flammability of materials | according to UL94, category V-1 |

TESTS

The linearity corrector withstands the following tests:

| | |
|-------------------------|---|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions. |
| Soldering | IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s. |
| Cold | IEC 68-2-1, test Aa; 96 h, -25 °C. |
| Dry heat | IEC 68-2-2, test BA; 96 h, + 100 °C. |
| Damp heat, cyclic | IEC 68-2-30, test Db; 21 days, + 40 °C. |
| Damp heat, steady state | IEC 68-2-3, test Ca; 21 days. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, T _A = -25 °C, T _B = + 100 °C. |

LINEARITY CONTROL UNITS

Replaces AT4036

ADJUSTABLE LINEARITY CONTROL UNIT

- For monochrome Data Graphic Displays

APPLICATION

This linearity control unit is for use in monochrome monitors.

DESCRIPTION

The unit consists of a coil, mounted on a Ferroxcube rod, and two Ferroxidure magnets. One ring-shaped magnet is placed around the Ferroxcube rod, at the bottom. The other magnet is positioned against the Ferroxcube rod opposite the bottom magnet and clamped. It is provided with a square hole to facilitate adjustment of the biasing field and, therefore, the linearity of the line deflection.

MECHANICAL DATA; Dimensions in mm

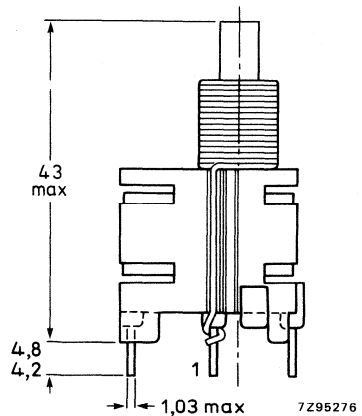
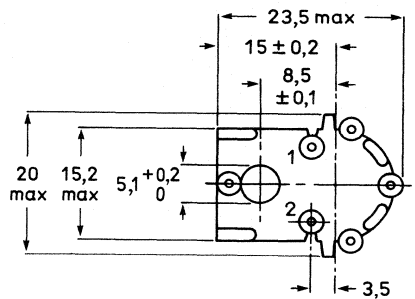
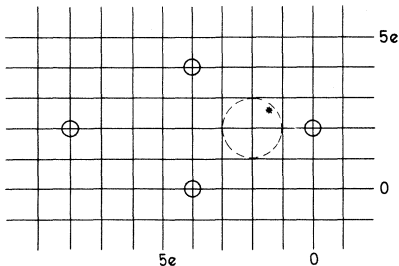


Fig. 1.

The linearity control units are packed in boxes of 300 pieces.

Mounting

The unit can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coils should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).



724.6786

Fig. 2 Hole pattern for mounting on a printed-wiring board. Grid hole diameter = $1,3 \pm 0,1$ mm; $e = 2,54$ mm.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 6,0 A (p-p), frequency 16 kHz, flyback ratio 18%, flows through the linearity control unit, the correction voltage is adjustable between 0,95 and 2,15 V $\pm 10\%$.

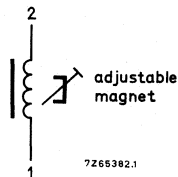


Fig. 3 Circuit diagram.

ENVIRONMENTAL DATA

| | |
|-----------------------------|----------------------------------|
| Maximum ambient temperature | 70 °C |
| Flammability of assembly | according to IEC 65, clause 14.4 |
| Flammability of materials | according to UL94, category V-1 |

TESTS

The linearity control unit withstands the following tests:

| | |
|-------------------------|---|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb; 40 g, 1000 bumps, 3 directions. |
| Soldering | IEC 68-2-20, test Ta, first part, method 1; 230 \pm 10 °C, 2 \pm 0,5 s. |
| Cold | IEC 68-2-1, test Aa; 96 h, -25 °C. |
| Dry heat | IEC 68-2-2, test Ba; 96 h, + 100 °C. |
| Damp heat cyclic | IEC 68-2-30, test Db; 21 days, + 40 °C. |
| Damp heat, steady state | IEC 68-2-3, test Ca, 21 days. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, $T_A = -25$ °C, $T_B = + 100$ °C. |

Replaces AT4042/02
and AT4042/04P

ADJUSTABLE LINEARITY CONTROL UNIT

- For Colour Data Graphic Displays

APPLICATION

This linearity control unit is for use in colour monitors. It can also be used in 90° colour and monochrome television sets.

DESCRIPTION

The unit consists of a coil, mounted on a Ferroxcube rod, and three Ferroxidure magnets. Two ring-shaped magnets are placed around the Ferroxcube rod, one at the top and one at the bottom. The third magnet is positioned against the Ferroxcube rod opposite the bottom magnet and clamped. It is provided with a square hole to facilitate adjustment of the biasing field and, therefore, the linearity of the line deflection.

MECHANICAL DATA; Dimensions in mm

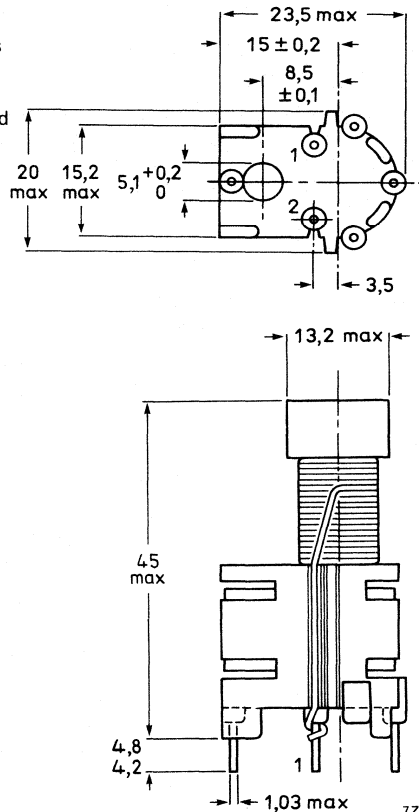


Fig. 1.

7296277

The linearity control units are packed in boxes of 300 pieces.

Mounting

The unit can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coils should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

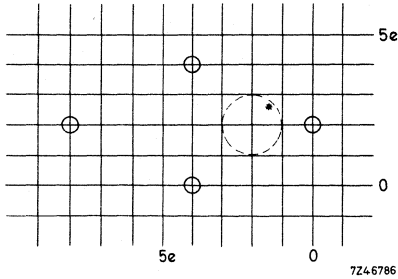


Fig. 2 Hole pattern for mounting on a printed-wiring board. Grid hole diameter = $1,3 \pm 0,1$ mm; $e = 2,54$ mm.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 2,8 A (p-p), frequency 16 kHz, flyback ratio 18%, flows through the linearity control unit, the correction voltage is adjustable between 12,5 and $29 V \pm 10\%$.

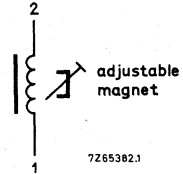


Fig. 3 Circuit diagram.

ENVIRONMENTAL DATA

- Maximum ambient temperature 70 °C
- Flammability of assembly according to IEC 65, clause 14.4
- Flammability of materials according to UL94, category V-1

TESTS

The linearity control unit withstands the following tests:

- Vibration IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min.
- Bump IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions.
- Soldering IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, $2 \pm 0,5$ s.
- Cold IEC 68-2-1, test Aa; 96 h, -25 °C.
- Dry heat IEC 68-2-2, test Ba; 96 h, + 100 °C.
- Damp heat, cyclic IEC 68-2-30, test Db; 21 days, + 40 °C.
- Damp heat, steady state IEC 68-2-3, test Ca, 21 days.
- Change of temperature IEC 68-2-14, test Na; 5 cycles, $T_A = -25$ °C, $T_B = + 100$ °C.

Replaces AT4042/42
and AT4042/08

ADJUSTABLE LINEARITY CONTROL UNIT

- For monochrome Data Graphic Displays

APPLICATION

This linearity control unit is for use in monochrome monitors. It is used in conjunction with a deflection unit of the AT1039 series, with series connected line coils.

DESCRIPTION

The unit consists of a coil, mounted on a Ferroxcube rod, and three Ferroxdure magnets. Two ring-shaped magnets are placed around the Ferroxcube rod, one at the top and one at the bottom. The third magnet is positioned against the Ferroxcube rod opposite the bottom magnet and clamped. It is provided with a square hole to facilitate adjustment of the biasing field and, therefore, the linearity of the line deflection.

MECHANICAL DATA; Dimensions in mm

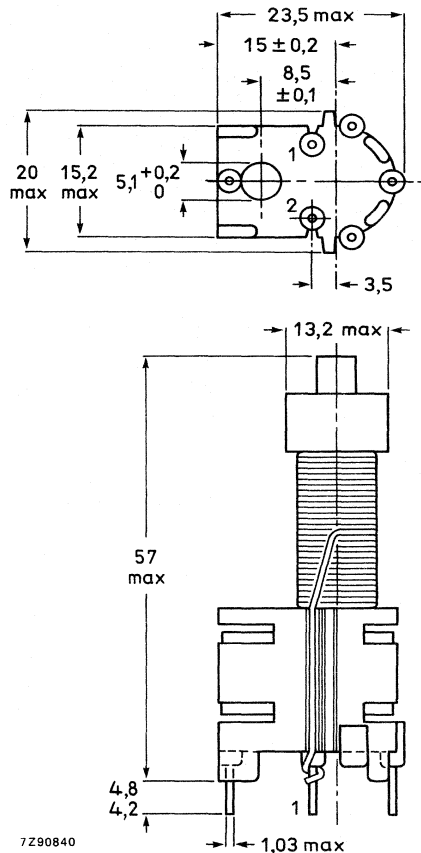


Fig. 1.

7Z90840

The linearity control units are packed in boxes of 300 pieces.

Mounting

The unit can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coils should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

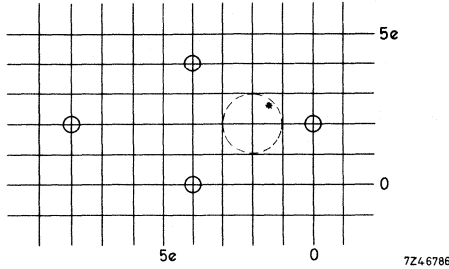


Fig. 2 Hole pattern for mounting on a printed-wiring board. Grid hole diameter = $1,3 \pm 0,1$ mm; $e = 2,54$ mm (0,1 in).

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 6,0 A (p-p), frequency 16 kHz, flyback ratio 18%, flows through the linearity control unit, the correction voltage is adjustable between 15 and 25 V \pm 10%.

Note: With a sawtooth current of 4,65 A (p-p) the correction voltage is adjustable between 8 and 15 V.

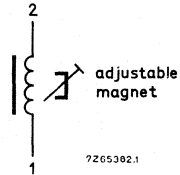


Fig. 3 Circuit diagram.

ENVIRONMENTAL DATA

- Maximum ambient temperature 70 °C
- Flammability of assembly according to IEC 65, clause 14.4
- Flammability of materials according to UL94, category V-1

TESTS

The linearity control unit withstands the following tests:

- Vibration IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min.
- Bump IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions.
- Soldering IEC 68-2-20, test Ta, first part, method 1; 230 \pm 10 °C, 2 \pm 0,5 s.
- Cold IEC 68-2-1, test Aa; 96 h, -25 °C.
- Dry heat IEC 68-2-2, test Ba; 96 h, + 100 °C.
- Damp heat, cyclic IEC 68-2-30, test Db; 21 days, + 40 °C.
- Damp heat, steady state IEC 68-2-3, test Ca, 21 days.
- Change of temperature IEC 68-2-14, test Na; 5 cycles, T_A = 25 °C, T_B = + 100 °C.

ADJUSTABLE LINEARITY CONTROL UNIT

- For Colour Data Graphic Displays

APPLICATION

This linearity control unit is for use in colour monitors.

DESCRIPTION

The unit consists of a coil, mounted on a Ferroxcube rod, and three Ferroxdure magnets. Two ring-shaped magnets are placed around the Ferroxcube rod, one at the top and one at the bottom. The third magnet is positioned against the Ferroxcube rod opposite the bottom magnet and clamped. It is provided with a square hole to facilitate adjustment of the biasing field and, therefore, the linearity of the line deflection.

MECHANICAL DATA

Outlines; Dimensions in mm

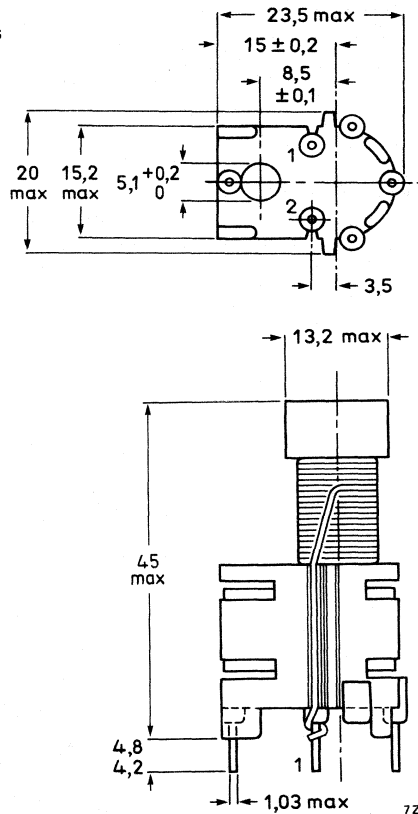


Fig. 1.

The linearity control units are packed in boxes of 300 pieces.

Mounting

The unit can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coils should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).

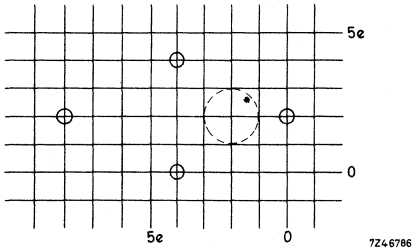


Fig. 2 Hole pattern for mounting on a printed-wiring board ($e = 2,54 \text{ mm}$ (0,1 in)); grid hole diameter $1,3 \pm 0,1 \text{ mm}$.

* Hole for bottom adjustment.

ELECTRICAL DATA

When a sawtooth current (with S-correction) of 4,4 A (p-p), frequency 32 kHz, flyback ratio 18%, flows through the linearity control unit, the correction voltage is adjustable between 0,65 and 3,2 V $\pm 10\%$.

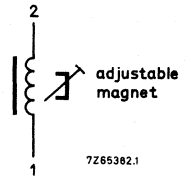


Fig. 3 Circuit diagram.

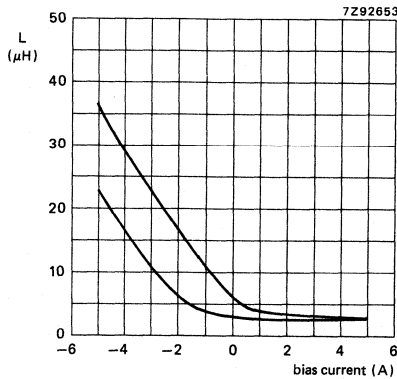


Fig. 4 Inductance as a function of bias current.

ENVIRONMENTAL DATA

| | |
|-----------------------------|----------------------------------|
| Maximum ambient temperature | 70 °C |
| Flammability of assembly | according to IEC 65, clause 14.4 |
| Flammability of materials | according to UL94, category V-1 |

TESTS

The linearity control unit withstands the following tests:

| | |
|-------------------------|---|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb, 40g, 1000 bumps, 3 directions. |
| Soldering | IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s. |
| Cold | IEC 68-2-1, test Aa; 96 h, -25 °C. |
| Dry heat | IEC 68-2-2, test Ba; 96 h, + 100 °C. |
| Damp heat, cyclic | IEC 68-2-30, test Db, test Db; 21 days, + 40 °C. |
| Damp heat, steady state | IEC 68-2-3, test Ca, 21 days. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, T _A = -25 °C, T _B = + 100 °C. |

ADJUSTABLE LINEARITY CONTROL UNIT

- For monochrome Data Graphic Displays

APPLICATION

This linearity control unit is for use in monochrome monitors. It is used in conjunction with a deflection unit of the AT1039 series, and line output transformer AT2076/84.

DESCRIPTION

The unit consists of a coil, mounted on a Ferroxcube rod, and three Ferroxidure magnets. Two ring-shaped magnets are placed around the Ferroxcube rod, one at the top and one at the bottom. The third magnet is positioned against the Ferroxcube rod opposite the bottom magnet and clamped. It is provided with a square hole to facilitate adjustment of the biasing field and, therefore, the linearity of the line deflection.

MECHANICAL DATA; Dimensions in mm

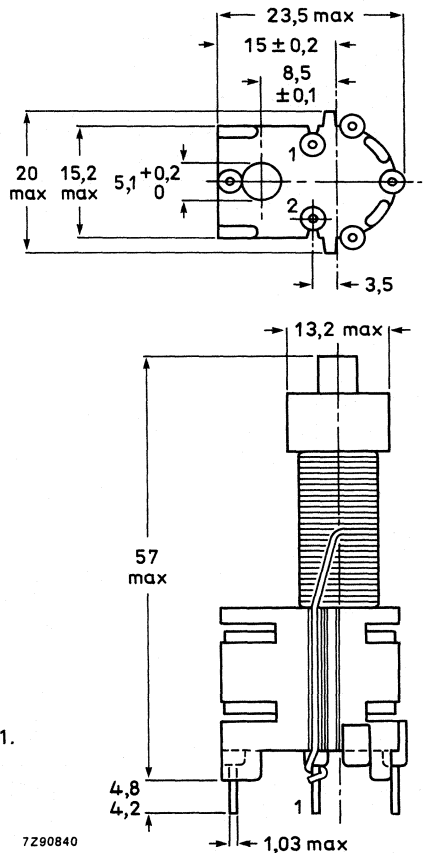


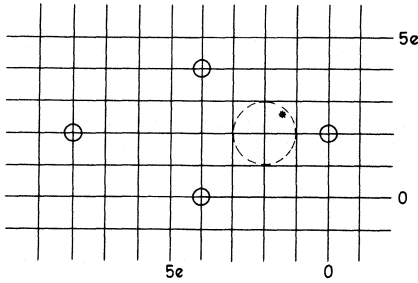
Fig. 1.

The linearity control units are packed in boxes of 300 pieces.

7Z90840

Mounting

The unit can be mounted on printed-wiring boards by means of its two connection pins, see Fig. 2. To prevent distortion of the magnetic field, no magnetic-conductive materials should approach the magnetic parts nearer than 3 mm. The coils should be shunted with a carbon resistor to damp ringing phenomena; the value of the resistor depends on the line output transformer used (typical value 560 Ω).



7Z4-6786

Fig. 2 Hole pattern for mounting on a printed-wiring board; e = 2,54 mm.

ELECTRICAL DATA

When a sawtooth current (without S-correction) of 8,8 A (p-p), frequency 32 kHz, flyback ratio 18%, flows through the linearity control unit, the correction voltage is adjustable between 6 and 10 V.

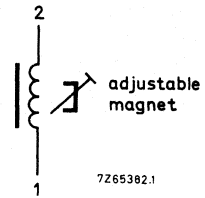


Fig. 3 Circuit diagram.

ENVIRONMENTAL DATA

- Maximum ambient temperature 70 °C
- Flammability of assembly according to IEC 65, clause 14.4
- Flammability of materials according to UL94, category V-1

TESTS

The linearity control unit withstands the following tests:

- Vibration IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min.
- Bump IEC 68-2-29, test Eb; 40g, 1000 bumps, 3 directions.
- Soldering IEC 68-2-20, test Ta, first part, method 1; 230 ± 10 °C, 2 ± 0,5 s.
- Cold IEC 68-2-1, test Aa; 96 h, -25 °C.
- Dry heat IEC 68-2-2, test Ba; 96 h, + 100 °C.
- Damp heat, cyclic IEC 68-2-30, test Db; 21 days, + 40 °C.
- Damp heat, steady state IEC 68-2-3, test Ca, 21 days.
- Change of temperature IEC 68-2-14, test Na; 5 cycles, T_A = -25 °C, T_B = + 100 °C.

AMPLITUDE CONTROLS

AMPLITUDE CONTROL

- For Monochrome Data Graphic Displays (C64 concept)

MECHANICAL DATA

Dimensions in mm

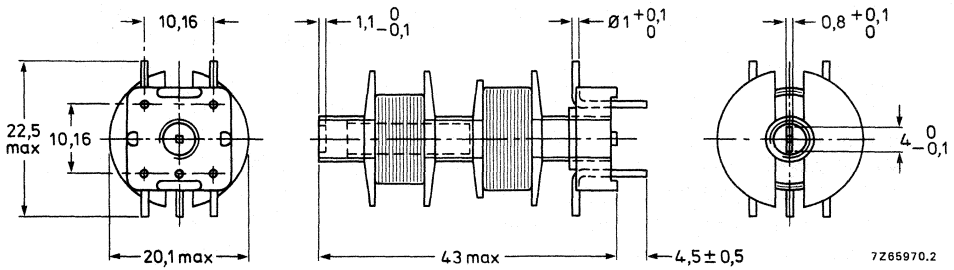


Fig. 1.

The coil has five pins for mounting on a printed-wiring board. It can be adjusted at the top by means of a trimming key.

| | |
|---|---------------------------|
| Torque for adjustment | 3 to 40 mNm |
| Press-through force | ≥ 30 N |
| $\Delta L/L$ per degree of angular rotation of core | typ. $2,5 \times 10^{-4}$ |

Mounting

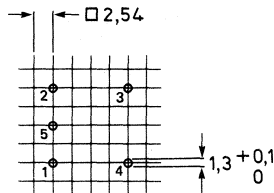


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

ELECTRICAL DATA

Inductance

L1-4

 ≤ 125 to $290 \mu\text{H}^*$

L2-3

 ≤ 65 to $20 \mu\text{H}^{**}$

L2-5

 $16,3 \mu\text{H} \pm 10\%^*$

Resistance (d.c.)

R4-1

 $\leq 0,58 \Omega$

R2-3

 $\leq 0,215 \Omega$

Current

I1-4

 $\leq 2,5 \text{ A (p-p)}$ at 15 kHz $\leq 1,3 \text{ A (p-p)}$ at 64 kHz

I2-5

 $\leq 9 \text{ A (p-p)}$ at ≤ 50 kHz $\leq 7 \text{ A (p-p)}$ at 50 to 70 kHz

I2-3

 $\leq 4,5 \text{ A (p-p)}$ at ≤ 50 kHz $\leq 3,5 \text{ A (p-p)}$ at 50 to 70 kHz

Operating voltage

V1-4 (flyback)

 $\leq 120 \text{ V (p-p)}$

V2-5 and V2-3 (sawtooth)

 $\leq 150 \text{ V (p-p)}$

Maximum voltage between windings 1-4 and 2-3

800 V_p

Operating frequency

15 to 64 kHz

Temperature coefficient at 20 to 100 °C

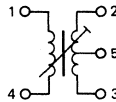
approx. $300 \times 10^{-6} / \text{K}$

Operating temperature range

-25 to +100 °C

Inflammability

according to UL94 V-1



7295279

Fig. 3 Electrical diagram.

ReliabilityMaximum cumulative percentage catastrophic failures, at maximum current, $T_{\text{amb}} = 55 + 5^\circ\text{C}$:

| | |
|----------------|----------------|
| after 300 h | $\leq 0,01\%$ |
| after 1000 h | $\leq 0,013\%$ |
| after 10 000 h | $\leq 0,02\%$ |
| after 30 000 h | $\leq 1\%$ |

* At 250 mV, 1 kHz; minimum value, measured with core in position L2-3 max.

** At 250 mV, 1 kHz; minimum value, measured with core in position L1-4 max.

The coil withstands the following tests:

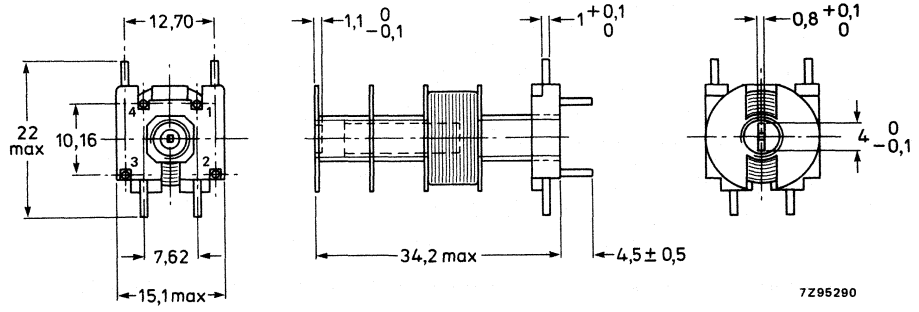
| test | IEC 68 test method | procedure |
|------------------------------|-----------------------------------|--|
| Bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| Vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/directions |
| Shock | Ea | half sine pulse shape, duration 11 ms, acceleration 490 m/s ² , 6 directions, 3 shocks per direction |
| Resistance to soldering heat | Tb | method 1A |
| Solderability | Ta | 230 ± 10 °C, 2 ± 0,5 s |
| Robustness of terminations | U _a and U _b | |
| Cold | Ab | -25 °C, 96 h |
| Dry heat | Bb | + 100 °C, 96 h |
| Damp heat, steady state | Ca | 21 days, + 40 °C, 93% R.H. |
| Damp heat, cyclic | Db | 21 days, + 40 °C |
| Change of temperature | Na | -25 °C, + 100 °C; 5 cycles |

AMPLITUDE CONTROL

- For Monochrome Data Graphic Displays

MECHANICAL DATA

Dimensions in mm



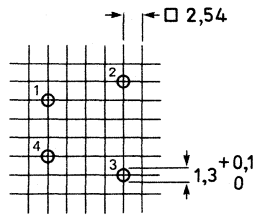
7Z95290

Fig. 1.

The coil has four pins for mounting on a printed-wiring board. It can be adjusted at the top by means of a trimming key.

| | |
|---|-----------------------------|
| Torque for adjustment | 3 to 40 mNm |
| Press-through force | ≥ 30 N |
| ΔL/L per degree of angular rotation of core | typ. 2,5 x 10 ⁻⁴ |

Mounting

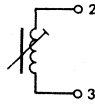


7Z95291.1

Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side)

ELECTRICAL DATA

| | |
|---|--|
| Inductance | 36 to 50 μH^* , typ. 43 μH^* |
| Resistance (d.c.) | < 0,135 Ω |
| Current | $\leq 3,5$ A(p-p) (sawtooth) |
| Maximum voltage | 30 V(p-p) (flyback) |
| Operating frequency | 16 to 25 kHz |
| Temperature coefficient at 20 to 100 $^{\circ}\text{C}$ | approx. $300 \times 10^{-6}/\text{K}$ |
| Operating temperature range | -25 to + 100 $^{\circ}\text{C}$ |
| Inflammability | according to UL94 V-1 |



7Z95292

Fig. 4 Electrical diagram.

Reliability

Maximum cumulative percentage catastrophic failures, at maximum current, $T_{\text{amb}} = 55 + 5$ $^{\circ}\text{C}$:

| | |
|----------------|----------------|
| after 300 h | $\leq 0,01\%$ |
| after 1000 h | $\leq 0,013\%$ |
| after 10 000 h | $\leq 0,02\%$ |
| after 30 000 h | $\leq 1\%$ |

* At 250 mV, 1 kHz.

The amplitude control withstands the following tests:

| test | IEC 68 test method | procedure |
|------------------------------|-----------------------------------|--|
| Bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| Vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/directions |
| Shock | Ea | half sine pulse shape, duration 11 ms, acceleration 490 m/s ² , 6 directions, 3 shocks per direction |
| Resistance to soldering heat | Tb | method 1A |
| Solderability | Ta | 230 ± 10 °C, 2 ± 0,5 s |
| Robustness of terminations | U _a and U _b | |
| Cold | Ab | -25 °C, 96 h |
| Dry heat | Bb | + 100 °C, 96 h |
| Damp heat, steady state | Ca | 21 days, + 40 °C, 93% R.H. |
| Damp heat, cyclic | Db | 21 days, + 40 °C |
| Change of temperature | Na | -25 °C, 100 °C, 5 cycles |

LUMINANCE DELAY LINES

LUMINANCE DELAY LINE**QUICK REFERENCE DATA**

| | |
|--------------------|-----------------|
| Delay | 270 ns |
| Dimensions | 30 x 19 x 14 mm |
| Self-extinguishing | |

APPLICATION

The DL270 is for use in the luminance circuit of colour television receivers.

DESCRIPTION

The delay line consists of two parallel connected coils which are astatically wound to decrease the influence of magnetic fields from other parts of the receiver. The delay line is in a plastic housing. Three pins enable the unit to be soldered directly onto a printed-wiring board.

DL270

MECHANICAL DATA

Outlines

Dimensions in mm

$e = 2,54$ mm

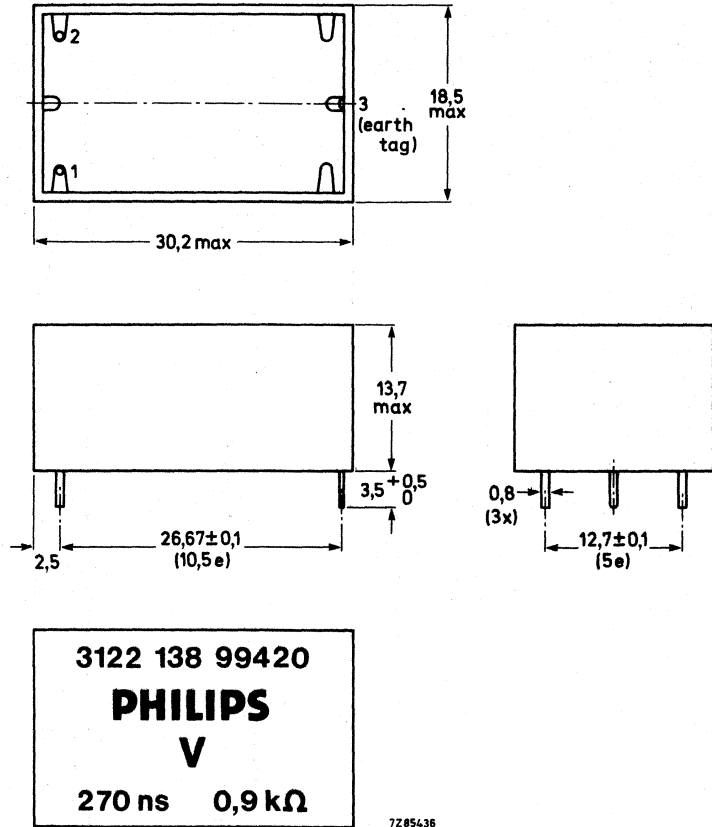


Fig. 1.

Mass 6,5 g

Mounting

The unit can be soldered onto a printed-wiring board pierced with three 1,0 + 0,1 mm diameter holes.

Packaging 108 delay lines per box.

ELECTRICAL DATA (Measured at 25 °C)

| | |
|--|------------------|
| Delay | 270 ns ± 10% |
| Characteristic impedance | 0,9 kΩ ± 10% |
| Group delay (with respect to 0,5 MHz) | |
| at 3,5 MHz | max. 30 ns |
| at 5,0 MHz | max. 60 ns |
| Bandwidth at -3 dB | 5 MHz |
| Ripple with 2τ-pulse on pin 2 | max. 2,5% |
| Breakdown voltage between pins 2 and 3 | min. 50 V (d.c.) |
| Permissible temperature range | -25 to + 70 °C |

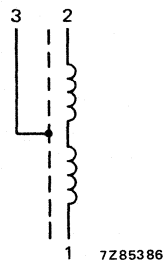


Fig. 2.

The luminance delay line withstands the following tests:

| test | according to IEC 68-2 par. | | procedure |
|------------------------------|----------------------------|----------|--|
| Climatic | | | |
| cold | 1 | Ab | -25 °C, 96 h |
| dry heat | 2 | Bb | + 70 °C, 96 h |
| damp heat cyclic | 30 | Db | + 40 °C, 21 cycles |
| damp heat steady state | 3 | Ca | + 40 °C, 21 days |
| change of temperature | 14 | Na | -25 °C/+ 70 °C, 5 cycles |
| Mechanical | | | |
| vibration sinusoidal | 6 | Fc | 10-55-10 Hz, amplitude 0,35 mm 3 perpendicular directions, 0,5 h each |
| bump | 29 | Eb | 1000 bumps in 6 directions peak acceleration 245 m/s ² |
| shock | 27 | Ea | half-sinewave, 11 ms peak acceleration 490 m/s ² 3 shocks per direction, 6 directions |
| resistance to soldering heat | 20 | Tb | method 1A |
| solderability | 20 | Ta | first part of method 1 230 ± 10 °C, 2 ± 0,5 s |
| robustness of terminations | 21 | Ua Ub | tensile 10 N, thrust 2 N 2 bends, 5 N |

LUMINANCE DELAY LINE

QUICK REFERENCE DATA

| | |
|-------------------------------|-----------------|
| Delay | 330 ns |
| Dimensions | 30 x 19 x 14 mm |
| Self-extinguishing properties | |

APPLICATION

The DL330 is for use in the luminance circuit of colour television receivers.

DESCRIPTION

The delay line consists of two parallel connected coils which are astatically wound to decrease the influence of magnetic fields from other parts of the receiver. The delay line is enclosed in a plastic housing. Three pins enable the unit to be soldered directly onto a printed-wiring board.

DL330

MECHANICAL DATA

Outlines

Dimensions in mm

$e = 2,54$ mm

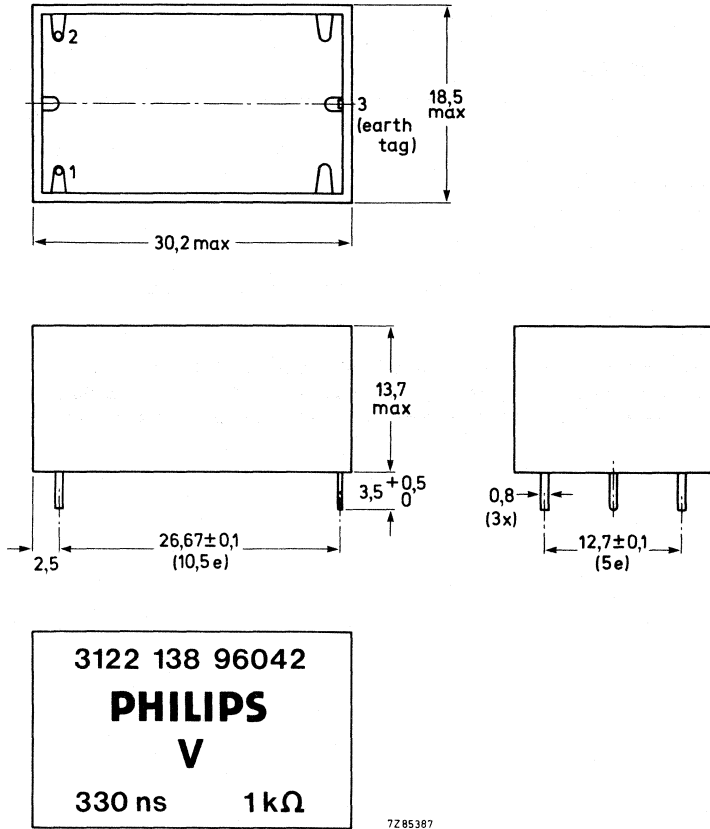


Fig. 1.

Mass 6,5 g

Mounting

The unit can be soldered directly onto a printed-wiring board pierced with three 1,0 + 0,1 mm diameter holes.

Packaging 108 delay lines per box.

ELECTRICAL DATA

Measured at 25 °C

| | |
|--|------------------|
| Delay | 330 ns ± 10% |
| Characteristic impedance | 1 kΩ ± 10% |
| Group delay (with respect to 0,5 MHz) | |
| at 3,5 MHz | max. 30 ns |
| at 5,0 MHz | max. 60 ns |
| Bandwidth at -3 dB | 5 MHz |
| Ripple with 2τ-pulse on pin 2 | max. 2,5% |
| Breakdown voltage between pins 2 and 3 | min. 50 V (d.c.) |
| Permissible temperature range | -25 to +70 °C |

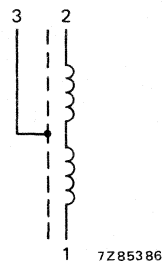


Fig. 2.

The luminance delay line withstands the following tests:

| test | according to IEC 68-2 par. | | procedure |
|------------------------------|----------------------------|----------|--|
| Climatic | | | |
| cold | 1 | Ab | -25 °C, 96 h |
| dry heat | 2 | Bb | +70 °C, 96 h |
| damp heat cyclic | 30 | Db | +40 °C, 21 cycles |
| damp heat steady state | 3 | Ca | +40 °C, 21 days |
| change of temperature | 14 | Na | -25 °C/+70 °C, 5 cycles |
| Mechanical | | | |
| vibration sinusoidal | 6 | Fc | 10-55-10 Hz, amplitude 0,35 mm 3 perpendicular directions, 0,5 h each |
| bump | 29 | Eb | 1000 bumps in 6 directions peak acceleration 245 m/s ² |
| shock | 27 | Ea | half-sinewave, 11 ms peak acceleration 490 m/s ² 3 shocks per direction, 6 directions |
| resistance to soldering heat | 20 | Tb | method 1A |
| solderability | 20 | Ta | first part of method 1 230 ± 10 °C, 2 ± 0,5 s |
| robustness of terminations | 21 | Ua Ub | tensile 10 N, thrust 2 N 2 bends, 5 N |

LUMINANCE DELAY LINE

QUICK REFERENCE DATA

| | |
|-------------------------------|-----------------|
| Delay | 390 ns |
| Dimensions | 30 x 19 x 14 mm |
| Self-extinguishing properties | |

APPLICATION

The DL390 is for use in the luminance circuit of colour television receivers.

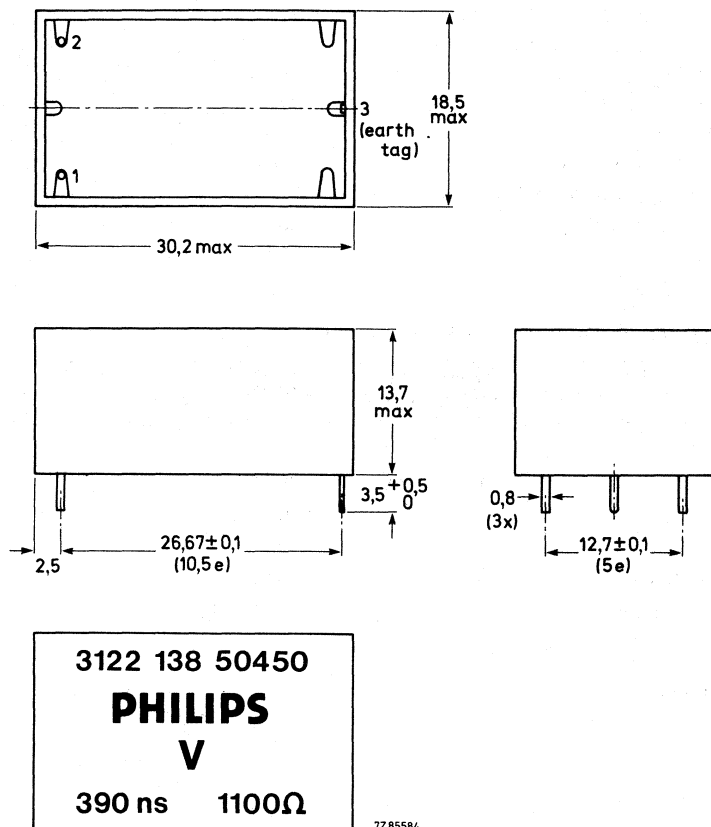
DESCRIPTION

The delay line consists of two parallel connected coils which are astatically wound to decrease the influence of magnetic fields from other parts of the receiver. The delay line is enclosed in a plastic housing. Three pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

Outlines



728558L

Fig. 1.

Mass 6,5 g

Mounting

The unit can be soldered directly onto a printed-wiring board pierced with three 1,0 + 0,1 mm diameter holes.

Packaging 108 delay lines per box.

ELECTRICAL DATA

Measured at 25 °C

| | |
|--|------------------|
| Delay | 390 ns ± 10% |
| Characteristic impedance | 1,1 kΩ ± 10% |
| Group delay (with respect to 0,5 MHz) | |
| at 3,5 MHz | max. 45 ns |
| at 5,0 MHz | max. 60 ns |
| Bandwidth at -3 dB | 5 MHz |
| Ripple with 2τ-pulse on pin 2 | max. 3% |
| Breakdown voltage between pins 2 and 3 | min. 50 V (d.c.) |
| Permissible temperature range | -25 to + 70 °C |

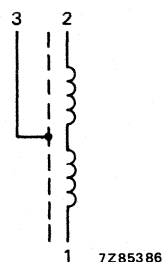


Fig. 2.

The luminance delay line withstands the following tests:

| test | according to IEC 68-2 par. | | procedure |
|------------------------------|----------------------------|----------|--|
| Climatic | | | |
| cold | 1 | Ab | -25 °C, 96 h |
| dry heat | 2 | Bb | + 70 °C, 96 h |
| damp heat cyclic | 30 | Db | + 40 °C, 21 cycles |
| damp heat steady state | 3 | Ca | + 40 °C, 21 days |
| change of temperature | 14 | Na | -25 °C/+ 70 °C, 5 cycles |
| Mechanical | | | |
| vibration sinusoidal | 6 | Fc | 10-55-10 Hz, amplitude 0,35 mm 3 perpendicular directions, 0,5 h each |
| bump | 29 | Eb | 1000 bumps in 6 directions peak acceleration 245 m/s ² |
| shock | 27 | Ea | half-sinewave, 11 ms peak acceleration 490 m/s ² 3 shocks per direction, 6 directions |
| resistance to soldering heat | 20 | Tb | method 1A |
| solderability | 20 | Ta | first part of method 1 230 ± 10 °C, 2 ± 0,5 s |
| robustness of terminations | 21 | Ua Ub | tensile 10 N, thrust 2 N 2 bends, 5 N |

LUMINANCE DELAY LINE

with screening

QUICK REFERENCE DATA

| | |
|--------------------|-----------------|
| Delay | 450 ns |
| Dimensions | 30 x 19 x 14 mm |
| Self-extinguishing | |

APPLICATION

The DL450S is for use in the luminance circuit or transposer circuit of colour television receivers.

DESCRIPTION

The delay line consists of two parallel connected coils which are astatically wound to decrease the influence of magnetic fields from other parts of the receiver. Improvement of magnetic screening has been obtained by a metal foil wrapped around the plastic housing. Three pins enable the delay line to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

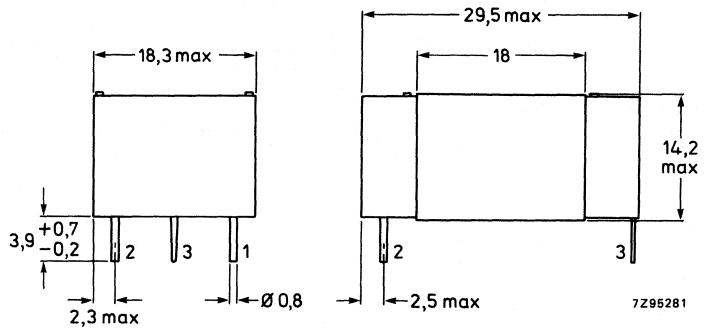
Outlines

Fig. 1.

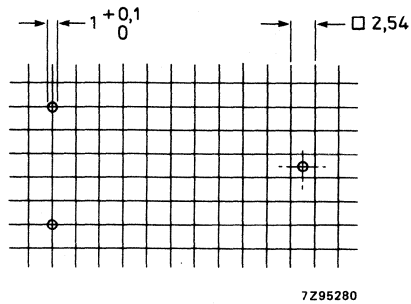
Mass 6,5 g**Mounting**

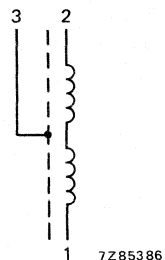
Fig. 2 Hole pattern for mounting on a printed-wiring board.

PACKING

The delay lines are packed in boxes of 168.

ELECTRICAL DATA (Measured at 25 °C)

| | |
|--|-------------------------|
| Delay | 450 ns \pm 10% |
| Characteristic impedance | 1150 Ω \pm 10% |
| Group delay (with respect to 1,0 MHz) | |
| at 3,5 MHz | max. 60 ns |
| at 5,0 MHz | max. 90 ns |
| Bandwidth at -3 dB | 5 MHz |
| Ripple with 2 τ -pulse on pin 2 | max. 3% |
| Breakdown voltage between pins 2 and 3 | min. 50 V (d.c.) |
| Permissible temperature range | -25 to + 70 °C |

**Reliability**

| | |
|--------------|----------------|
| Failure rate | $\leq 10^{-7}$ |
|--------------|----------------|

The luminance delay line withstands the following tests:

| test | according to IEC 68-2 par. | | procedure |
|------------------------------|----------------------------|----------|--|
| Climatic | | | |
| cold | 1 | Ab | -25 °C, 96 h |
| dry heat | 2 | Bb | + 70 °C, 96 h |
| Damp heat cyclic | 30 | Db | + 40 °C, 21 cycles |
| damp heat steady state | 3 | Ca | + 40 °C, 21 days |
| change of temperature | 14 | Na | -25 °C/+ 70 °C, 5 cycles |
| Mechanical | | | |
| vibration sinusoidal | 6 | Fc | 10-55-10 Hz, amplitude 0,35 mm 3 perpendicular directions, 0,5 h each |
| bump | 29 | Eb | 1000 bumps in 6 directions peak acceleration 245 m/s ² |
| shock | 27 | Ea | half-sinewave, 11 ms peak acceleration 490 m/s ² 3 shocks per direction, 6 directions |
| resistance to soldering heat | 20 | Tb | method 1A |
| solderability | 20 | Ta | first part of method 1 230 \pm 10 °C, 2 \pm 0,5 s |
| robustness of terminations | 21 | Ua Ub | tensile 10 N, thrust 2 N 2 bends, 5 N |

LUMINANCE DELAY LINE

QUICK REFERENCE DATA

| | |
|--------------------|-----------------|
| Delay | 470 ns |
| Dimensions | 30 x 19 x 14 mm |
| Self-extinguishing | |

APPLICATION

The DL470 is for use in the luminance circuit or transposer circuit of colour television receivers.

DESCRIPTION

The delay line consists of two parallel connected coils which are astatically wound to decrease the influence of magnetic fields from other parts of the receiver. The delay line is in a plastic housing. Three pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Outlines

Dimensions in mm

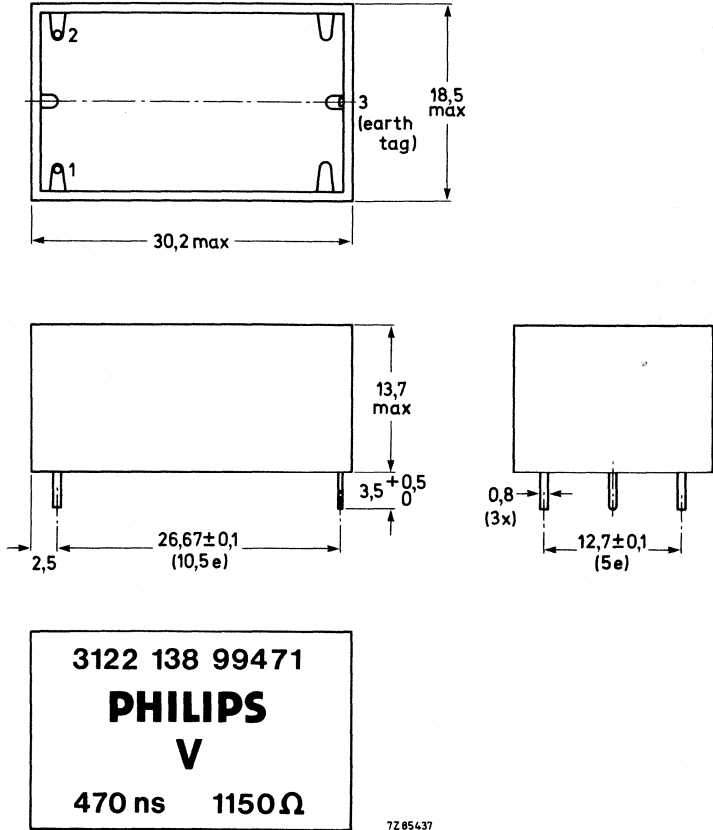
 $e = 2,54 \text{ mm}$ 

Fig. 1.

Mass 6,5 g**Mounting**The unit can be soldered onto a printed-wiring board pierced with three $1,0 + 0,1$ mm diameter holes.**Packaging** 108 delay lines per box.

ELECTRICAL DATA (Measured at 25 °C)

| | |
|--|------------------|
| Delay | 470 ns ± 10% |
| Characteristic impedance | 1150 Ω ± 10% |
| Group delay (with respect to 1,0 MHz) | |
| at 3,5 MHz | max. 45 ns |
| at 5,0 MHz | max. 60 ns |
| Bandwidth at -3 dB | 5 MHz |
| Ripple with 2τ-pulse on pin 2 | max. 3% |
| Breakdown voltage between pins 2 and 3 | min. 50 V (d.c.) |
| Permissible temperature range | -25 to + 70 °C |

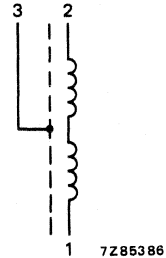


Fig. 2.

The luminance delay line withstands the following tests:

| test | according to IEC 68-2 par. | | procedure |
|------------------------------|----------------------------|----------|--|
| Climatic | | | |
| cold | 1 | Ab | -25 °C, 96 h |
| dry heat | 2 | Bb | + 70 °C, 96 h |
| damp heat cyclic | 30 | Db | + 40 °C, 21 cycles |
| damp heat steady state | 3 | Ca | + 40 °C, 21 days |
| change of temperature | 14 | Na | -25 °C/+ 70 °C, 5 cycles |
| Mechanical | | | |
| vibration sinusoidal | 6 | Fc | 10-55-10 Hz, amplitude 0,35 mm 3 perpendicular directions, 0,5 h each |
| bump | 29 | Eb | 1000 bumps in 6 directions peak acceleration 245 m/s ² |
| shock | 27 | Ea | half-sinewave, 11 ms peak acceleration 490 m/s ² 3 shocks per direction, 6 directions |
| resistance to soldering heat | 20 | Tb | method 1A |
| solderability | 20 | Ta | first part of method 1 230 ± 10 °C, 2 ± 0,5 s |
| robustness of terminations | 21 | Ua Ub | tensile 10 N, thrust 2 N 2 bends, 5 N |

GLASS DELAY LINES AND COMB FILTERS

**This chapter includes our standard range of glass delay lines and comb filters.
Other specifications can be achieved at customer's request.**

DELAY LINE

QUICK REFERENCE DATA

For receivers up to Brazilian PAL-M standard

| | |
|-------------------------------|--------------------|
| Nominal frequency | 3,575611 MHz |
| Phase delay time | 63,486 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The DL63 is intended for use in decoder circuits of colour television receivers.

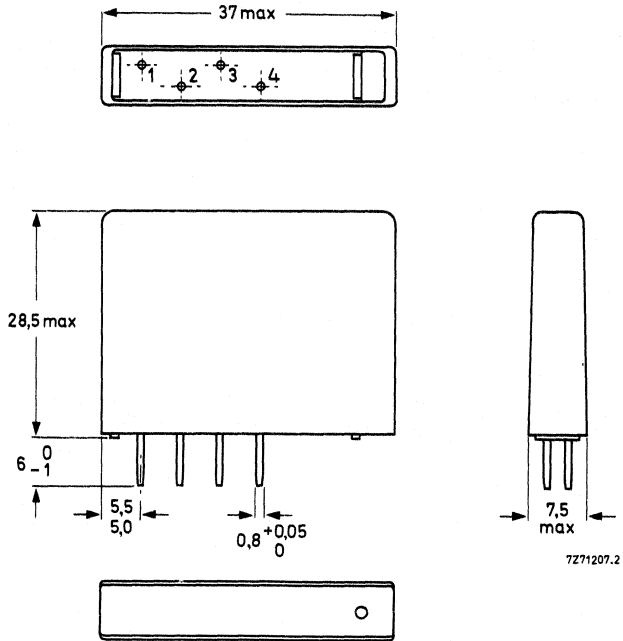
DESCRIPTION

A very thin slab of zero TC glass provided with two transducers is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

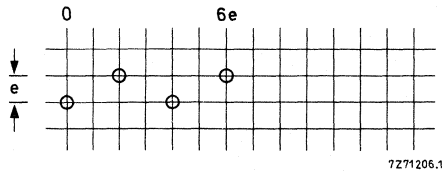
Outlines



Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.



ELECTRICAL DATA

Measured with the circuit of Fig. 3 at 25 °C and f_0 (unless otherwise specified)

| | |
|--|---|
| Nominal frequency (f_0) | 3,575611 MHz |
| Phase delay time (τ) | $63,486 \pm 0,005 \mu\text{s}$ |
| Bandwidth at -3 dB | from $\leq 2,8$ to $\geq 4,5$ MHz |
| Insertion loss | 9 ± 3 dB |
| Drift of phase delay from + 10 to + 60 °C (relative to + 25 °C) | typ. 5 ns |
| Maximum input voltage (p-p) | 10 V |
| Spurious signals | |
| 3 τ signals | ≤ -22 dB with respect to 1 τ signal |
| other signals | ≤ -30 dB with respect to 1 τ signal |
| Phase relation $\varphi_{4.3} - \varphi_{2.1}$ | 0° |
| Storage temperature range | -40 to $+70$ °C |

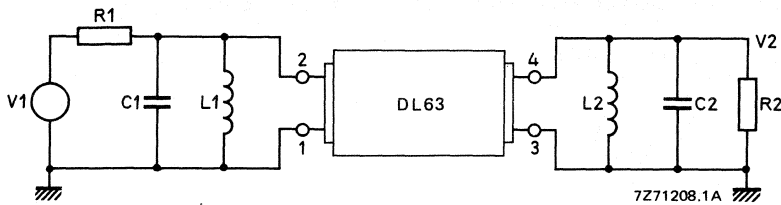


Fig. 3.

Terminations

$R1 = R2 = 560 \Omega$

$C1 = 20 \text{ pF}$

$C2 = 30 \text{ pF}$

$L1 = 15,2 \mu\text{H}$

$L2 = 14,1 \mu\text{H}$

} total capacitance of test jig without delay line i.e. wiring capacitance,
capacitance of coil and extra trimming capacitor.

Application circuit

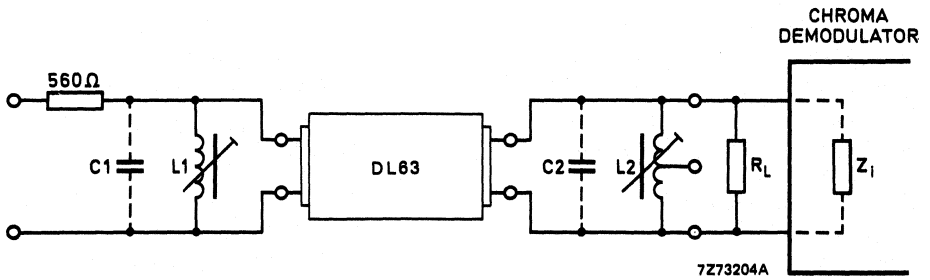


Fig. 4.

$$(R_L // Z_i) = 560 \Omega$$

C1, C2 < 30 pF (wiring capacitance and capacitance of the coil)

L1, L2 nominal values depend on values of C1 and C2 to produce the reactances:

$$X1 = \frac{\omega_0 L1}{1 - \omega_0^2 L1 C1} = 405 \Omega$$

$$X2 = \frac{\omega_0 L2}{1 - \omega_0^2 L2 C2} = 405 \Omega$$

$$f_0 = 3,575611 \text{ MHz.}$$

Maximum bandwidth is obtained at minimum C1 and C2.

Recommended adjustment range of the coils -19 to +36%.

DELAY LINE

QUICK REFERENCE DATA

| | |
|-------------------------------|--------------------|
| Nominal frequency | 7,5 MHz |
| Phase delay time | 64,4 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The DL680 is for use in video long play equipment.

DESCRIPTION

A very thin slab of zero TC glass provided with two transducers is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

Outlines

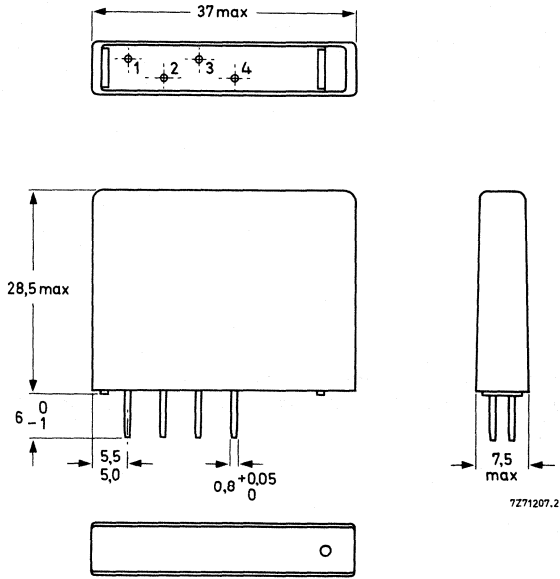


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

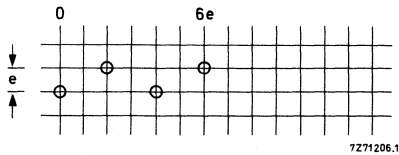


Fig. 2 Recommended hole pattern for mounting on a printed-wiring board: $e = 2,54$ mm. The tolerance on the distances of the different holes to the 0-line is $\pm 0,1$ mm. Hole diameter is $1,0 + 0,1$ mm.

ELECTRICAL DATA

Measured with the circuit of Fig. 3 at 25 °C and f_0 (unless otherwise specified)

| | |
|---|---|
| Nominal frequency (f_0) | 7,5 MHz |
| Phase delay time (τ) | $64,4 \pm 0,05 \mu s$ |
| Bandwidth at -3 dB | from $\leq 5,5$ to $\geq 8,5$ MHz |
| Insertion loss | ≤ 17 dB |
| Drift of phase delay from +10 to +60 °C (relative to +25 °C) | ≤ 10 ns |
| Maximum input voltage (p-p) | 5 V |
| Spurious signals | |
| 3 τ signals | ≤ -20 dB with respect to 1 τ signal |
| other signals | ≤ -30 dB with respect to 1 τ signal |
| Storage temperature range | -40 to +70 °C |

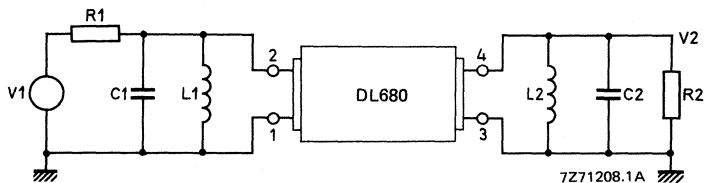


Fig. 3.

Terminations

$R1 = R2 = 150 \Omega$

$C1 = 20 \text{ pF}$ } total capacitance of test jig without delay-line i.e. wiring capacitance, capacitance of coil
 $C2 = 20 \text{ pF}$ } and extra trimming capacitor.

$L1 = 2,0 \mu H$

$L2 = 2,0 \mu H$

DELAY LINE

QUICK REFERENCE DATA

For receivers up to European PAL standard

| | |
|-------------------------------|--------------------|
| Nominal frequency | 4,433619 MHz |
| Phase delay time | 63,943 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The DL701 is intended for use in decoder circuits of colour television receivers, or in drop-out circuits of video cassette recorders.

DESCRIPTION

A very thin slab of zero TC glass provided with two transducers is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

Outlines

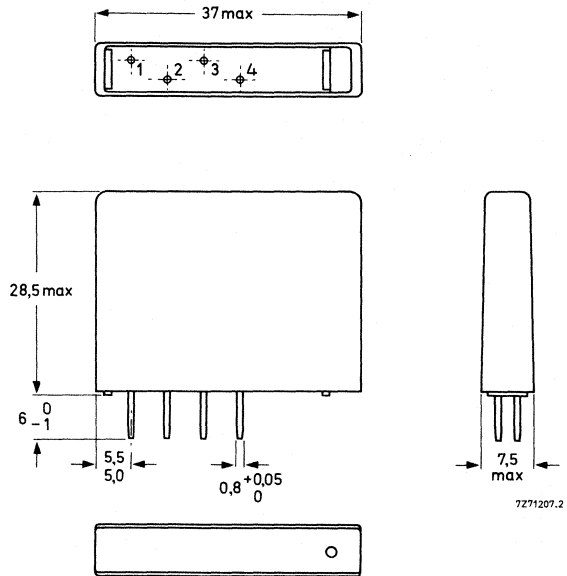


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

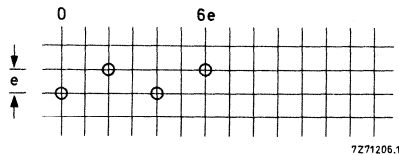


Fig. 2 Recommended hole pattern for mounting on a printed-wiring board: $e = 2,54$ mm. The tolerance on the distances of the different holes to the 0-line is $\pm 0,1$ mm. Hole diameter is $1,0 + 0,1$ mm.

ELECTRICAL DATA

| | |
|---|---|
| Measured with the circuit of Fig. 3 at 25 °C and f_0 (unless otherwise specified) | |
| Nominal frequency (f_0) | 4,433619 MHz |
| Phase delay time (τ) | $63,943 \pm 0,005 \mu\text{s}$ |
| Bandwidth at -3 dB | from $\leq 3,43$ to $\geq 5,23$ MHz |
| Insertion loss | 9 ± 3 dB |
| Drift of phase delay from + 10 to + 60 °C (relative to + 25 °C) | max. 5 ns, typ. 3 ns |
| Maximum input voltage (p-p) | 10 V |
| Spurious signals | |
| 3 τ signals | ≤ -25 dB with respect to 1 τ signal |
| other signals | ≤ -33 dB with respect to 1 τ signal |
| Phase relation $\varphi_{4-3} - \varphi_{2-1}$ | 180° |
| Storage temperature range | -40 to $+70$ °C |

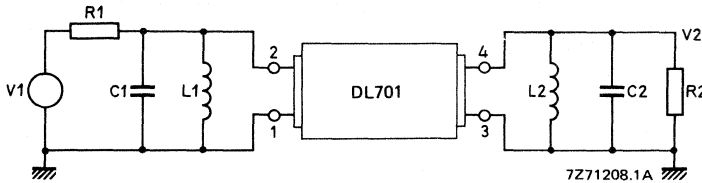


Fig. 3.

Terminations

- R1 = R2 = 390 Ω
 - C1 = 20 pF
 - C2 = 30 pF
 - L1 = 8,64 μH
 - L2 = 8,10 μH
- } total capacitance of test jig without delay-line i.e. wiring capacitance, capacitance of coil and extra trimming capacitor.

Application circuit

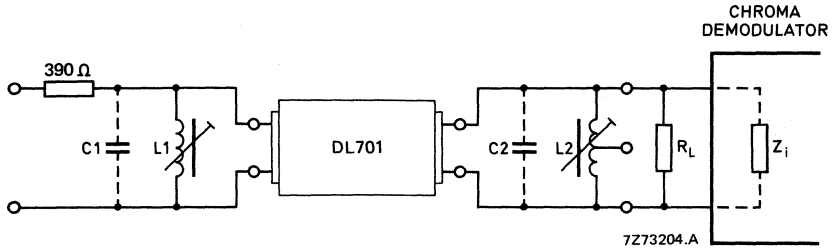


Fig. 4.

$$(R_L // Z_i) = 390 \Omega$$

$C1, C2 < 30 \text{ pF}$ (wiring capacitance and capacitance of the coil)

$L1, L2$ nominal values depend on values of $C1$ and $C2$ to produce the reactances:

$$X1 = \frac{\omega_0 L1}{1 - \omega_0^2 L1 C1} = 278 \Omega$$

$$X2 = \frac{\omega_0 L2}{1 - \omega_0^2 L2 C2} = 278 \Omega$$

$$f_0 = 4,433619 \text{ MHz}$$

Maximum bandwidth is obtained at minimum $C1$ and $C2$.

Recommended adjustment range of the coils -19 to $+36\%$.

DELAY LINE

QUICK REFERENCE DATA

For video recorders to European PAL standard

| | |
|-------------------------------|--------------------|
| Nominal frequency | 4,433619 MHz |
| Phase delay time | 63,935 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The DL703 is intended for use in dropout circuits of PAL video recorders. It has been designed to have a wider bandwidth at both the -3 dB and -10 dB points.

DESCRIPTION

A very thin slab of zero TC glass provided with two transducers is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

Outlines

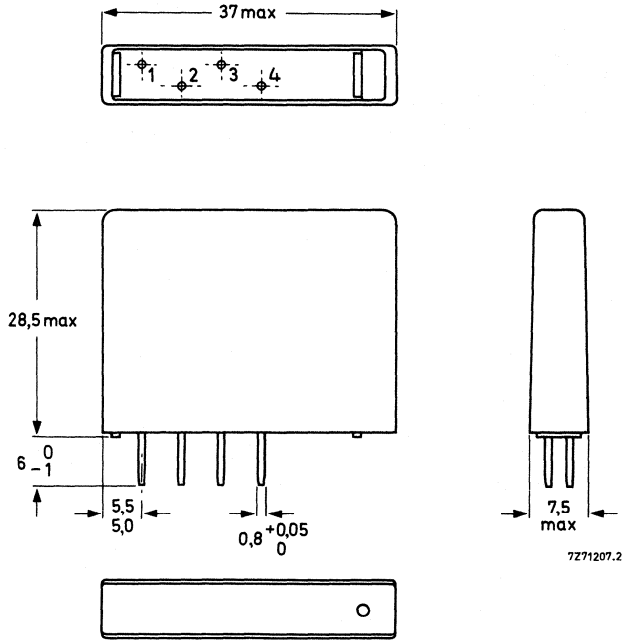


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

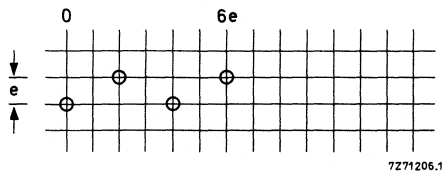


Fig. 2 Recommended hole pattern for mounting on a printed-wiring board: $e = 2,54$ mm. The tolerance on the distances of the different holes to the 0-line is $\pm 0,1$ mm. Hole diameter is $1,0 + 0,1$ mm.

ELECTRICAL DATA

Measured with the circuit of Fig. 3 at 25 °C and f_0 (unless otherwise specified)

| | |
|--|--|
| Nominal frequency (f_0) | 4,433619 MHz |
| Phase delay time (τ) | 63,935 ± 0,005 μ s |
| Bandwidth at -3 dB | from ≤ 3,03 to ≥ 5,43 MHz |
| Bandwidth at -10 dB | from ≤ 2,63 to ≥ 6,23 MHz |
| Insertion loss | 9 ± 3 dB |
| Drift of phase delay from + 10 to + 60 °C (relative to + 25 °C) | max. 5 ns, typ. 3 ns |
| Maximum input voltage (p-p) | 15 V |
| Spurious signals | |
| 3 τ signals | ≤ -28 dB with respect to 1 τ signal |
| other signals | ≤ -26 dB with respect to 1 τ signal |
| Phase relation $\varphi_{4-3} - \varphi_{2-1}$ | 180° |
| Storage temperature range | -40 to + 70 °C |

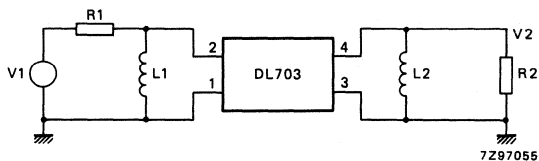


Fig. 3.

Terminations

R1 = R2 = 390 Ω

L1 = L2 = 18,0 μ H

DELAY LINE

QUICK REFERENCE DATA

For receivers up to European PAL and SECAM standard

| | |
|-------------------------------|--------------------|
| Nominal frequency | 4,433619 MHz |
| Phase delay time | 63,943 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The DL711 is intended for use in decoder circuits of colour television receivers.

DESCRIPTION

A very thin slab of zero TC glass provided with two transducers is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA
Outlines

Dimensions in mm

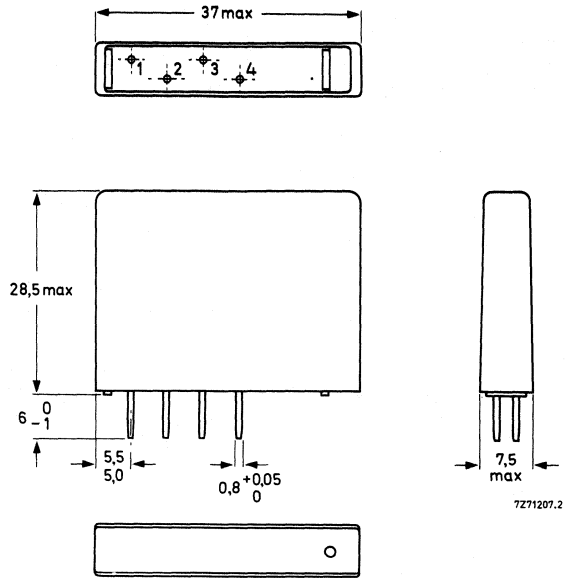


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

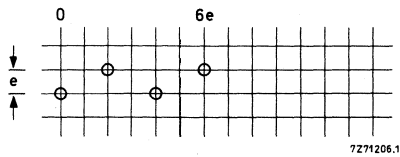


Fig. 2. Recommended hole pattern for mounting on a printed-wiring board: $e = 2,54 \text{ mm}$. The tolerance on the distances of the different holes to the 0-line is $\pm 0,1 \text{ mm}$. Hole diameter is $1,0 \pm 0,1 \text{ mm}$.

ELECTRICAL DATA

Measured with the circuit of Fig. 3 at 25 °C and f_0 (unless otherwise specified)

| | |
|--|--|
| Nominal frequency (f_0) | 4,433619 MHz |
| Phase delay time (τ) | 63,943 ± 0,005 μ s |
| Bandwidth at -3 dB | from ≤ 3,43 to ≥ 5,23 MHz |
| Insertion loss | 9 ± 3 dB |
| Drift of phase delay from + 10 to + 60 °C (relative to + 25 °C) | max. 5 ns, typ. 3 ns |
| Maximum input voltage (p-p) | 10 V |
| Spurious signals* | |
| 3 τ signals | ≤ -33 dB with respect to 1 τ signal |
| other signals | ≤ -33 dB with respect to 1 τ signal |
| Phase relation $\varphi_{4.3} - \varphi_{2.1}$ | 180° |
| Storage temperature range | -40 to + 70 °C |

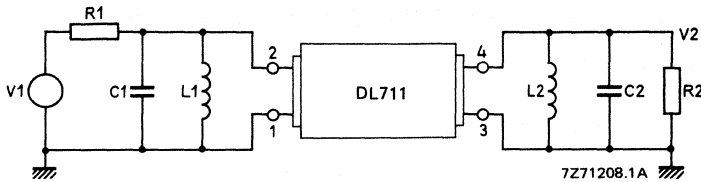


Fig. 3.

Terminations

R1 = R2 = 390 Ω

C1 = 20 pF

C2 = 30 pF

L1 = 8,64 μ H

L2 = 8,10 μ H

} total capacitance of test jig without delay-line i.e. wiring capacitance,
} capacitance of coil and extra trimming capacitor.

* Measured in frequency range 3,9 to 4,75 MHz.

Application circuit

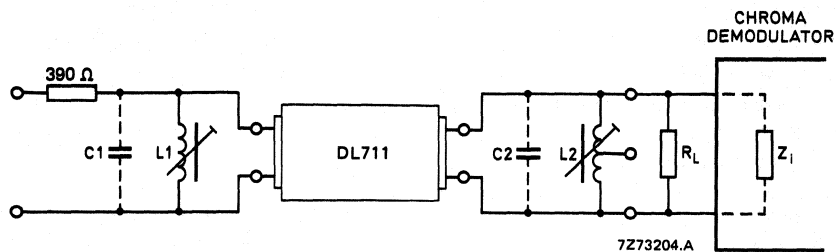


Fig. 4.

$$(R_L // Z_i) = 390 \Omega$$

$C1, C2 < 30 \text{ pF}$ (wiring capacitance and capacitance of the coil)

$L1, L2$ nominal values depend on values of $C1$ and $C2$ to produce the reactances:

$$X1 = \frac{\omega_0 L1}{1 - \omega_0^2 L1 C1} = 278 \Omega$$

$$X2 = \frac{\omega_0 L2}{1 - \omega_0^2 L2 C2} = 278 \Omega$$

$$f_0 = 4,433619 \text{ MHz}$$

Maximum bandwidth is obtained at minimum $C1$ and $C2$.

Recommended adjustment range of the coils -19 to $+36\%$.

DELAY LINES

QUICK REFERENCE DATA

For receivers up to Argentina PAL-N standard

| | |
|-------------------------------|--------------------|
| Nominal frequency | 3,582056 MHz |
| Phase delay time | |
| DL720 | 63,929 μ s |
| DL721 | 64,069 μ s |
| DL722 | 64,069 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

These delay lines are for use in decoder circuits of colour television receivers.

DESCRIPTION

A very thin slab of zero TC glass provided with two transducers is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA
Outlines

Dimensions in mm

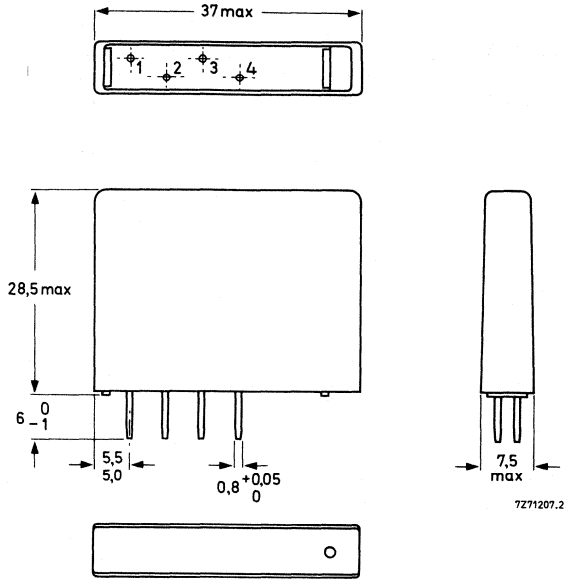


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

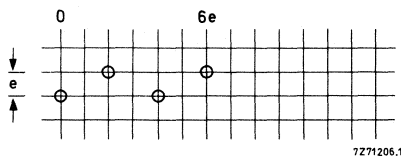


Fig. 2 Recommended hole pattern for mounting on a printed-wiring board: $e = 2,54$ mm. The tolerance on the distances of the different holes to the 0-line is $\pm 0,1$ mm. Hole diameter is $1,0 \pm 0,1$ mm.

ELECTRICAL DATA

Measured with the circuit of Fig. 3 at 25 °C and f_0 (unless otherwise specified)

| | |
|--|---|
| Nominal frequency (f_0) | 3,582056 MHz |
| Phase delay time (τ) | |
| DL720 | 63,929 ± 0,005 μ s |
| DL721 and DL722 | 64,069 ± 0,005 μ s |
| Bandwidth at -3 dB | from $\leq 2,8$ to $\geq 4,5$ MHz |
| Insertion loss | 9 ± 3 dB |
| Drift of phase delay from + 10 to + 60 °C (relative to + 25 °C) | max. 5 ns, typ. 3 ns |
| Maximum input voltage (p-p) | 10 V |
| Spurious signals | |
| 3 τ signals | ≤ -22 dB with respect to 1 τ signal |
| other signals | ≤ -28 dB with respect to 1 τ signal |
| Phase relation $\varphi_{4-3} - \varphi_{2-1}$ | |
| DL720 | 0° |
| DL721 and DL722 | 180° |
| Storage temperature range | -40 to + 70 °C |

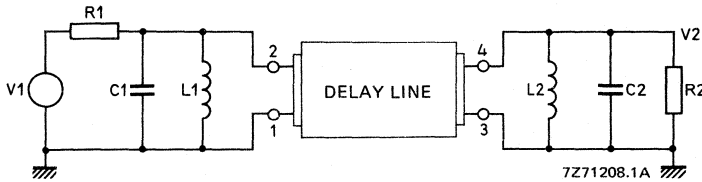


Fig. 3.

Terminations

R1 = R2 = 560 Ω for DL720 and DL721; R1 = R2 = 390 Ω for DL722.

C1 = 20 pF } total capacitance of test jig without delay-line i.e. wiring capacitance,

C2 = 30 pF } capacitance of coil and extra trimming capacitor.

L1 = 15,2 μ H for DL720; L1 = 8,64 μ H for DL722.

L2 = 14,1 μ H for DL721; L2 = 8,10 μ H for DL722.

Application circuit

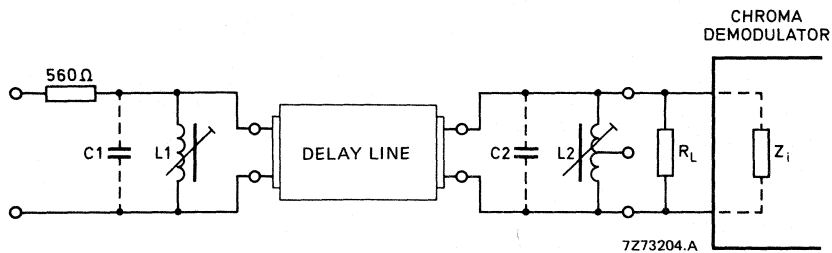


Fig. 4.

$(R_L // Z_i) = 560 \Omega$ for DL720 and DL721; $(R_L // Z_i) = 390 \Omega$ for DL722.

$C1, C2 < 30 \text{ pF}$ (wiring capacitance and capacitance of the coil)

$L1, L2$ nominal values depend on values of $C1$ and $C2$ to produce the reactances:

$$X1 = \frac{\omega_0 L1}{1 - \omega_0^2 L1 C1} = 405 \Omega \text{ for DL720 and DL721; } X1 = 278 \Omega \text{ for DL722.}$$

$$X2 = \frac{\omega_0 L2}{1 - \omega_0^2 L2 C2} = 405 \Omega \text{ for DL720 and DL721; } X2 = 278 \Omega \text{ for DL722.}$$

$$f_0 = 3,582056 \text{ MHz.}$$

Maximum bandwidth is obtained at minimum $C1$ and $C2$.

Recommended adjustment range of the coils -19 to $+36\%$.

DELAY LINE

QUICK REFERENCE DATA

| | |
|-------------------------------|--------------------|
| Nominal frequency | 3,579545 MHz |
| Phase delay time | 63,555 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The DL750 is intended for use as a comb filter in colour television receivers to NTSC standard.

DESCRIPTION

A very thin slab of zero TC glass provided with two transducers is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

Outlines

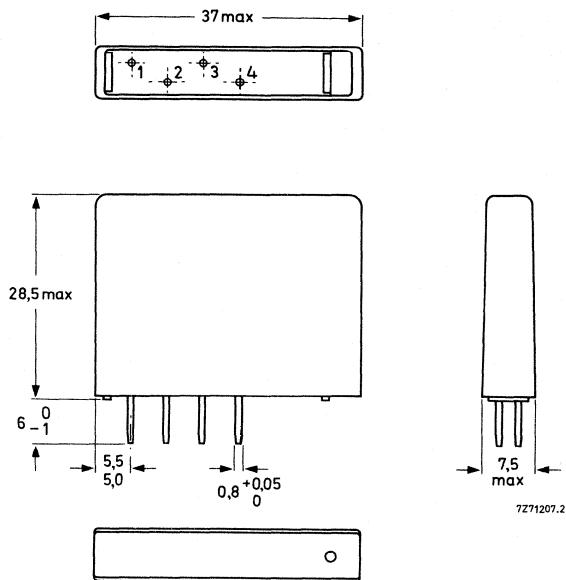


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

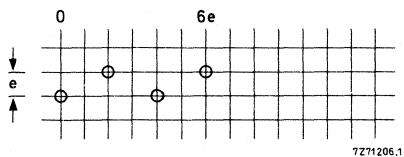


Fig. 2 Recommended hole pattern for mounting on a printed-wiring board: $e = 2,54$ mm. The tolerance on the distances of the different holes to the 0-line is $\pm 0,1$ mm. Hole diameter is $1,0 + 0,1$ mm.

ELECTRICAL DATA

Measured with the circuit of Fig. 3 at 25 °C and f_0 (unless otherwise specified)

| | |
|---|---|
| Nominal frequency (f_0) | 3,579545 MHz |
| Phase delay time (τ) | 63,555 ± 0,005 μ s |
| Bandwidth at -3 dB | from $\leq 2,8$ to $\geq 4,5$ MHz |
| Insertion loss | 9 ± 3 dB |
| Drift of phase delay from +10 to +60 °C (relative to +25 °C) | typ. 5 ns |
| Maximum input voltage (p-p) | 10 V |
| Spurious signals | |
| 3 τ signals | ≤ -30 dB with respect to 1 τ signal |
| other signals | ≤ -28 dB with respect to 1 τ signal |
| Phase relation $\varphi_{4-3} - \varphi_{2-1}$ | 180° |
| Storage temperature range | -40 to +70 °C |

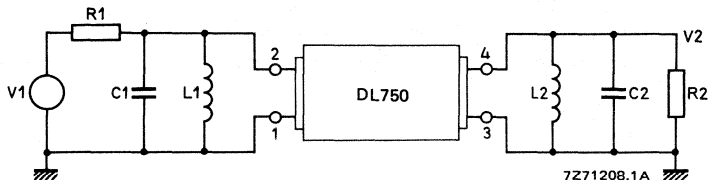


Fig. 3.

Terminations

R1 = R2 = 560 Ω

C1 = 20 pF } total capacitance of test jig without delay-line i.e. wiring capacitance,
 C2 = 30 pF } capacitance of coil and extra trimming capacitor.

L1 = 15,2 μ H

L2 = 14,1 μ H

Application circuit

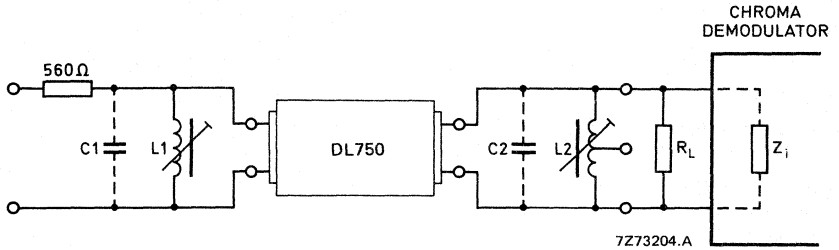


Fig. 4.

$$(R_L // Z_i) = 560 \Omega$$

C1, C2 < 30 pF (wiring capacitance and capacitance of the coil)

L1, L2 nominal values depend on values of C1 and C2 to produce the reactances:

$$X1 = \frac{\omega_0 L1}{1 - \omega_0^2 L1 C1} = 405 \Omega$$

$$X2 = \frac{\omega_0 L2}{1 - \omega_0^2 L2 C2} = 405 \Omega$$

$$f_0 = 3,579545 \text{ MHz.}$$

Maximum bandwidth is obtained at minimum C1 and C2.

Recommended adjustment range of the coils -19 to +36%.

DELAY LINE

QUICK REFERENCE DATA

For video recorders to European PAL standard

| | |
|-------------------------------|--------------------|
| Nominal frequency | 4,433619 MHz |
| Phase delay time | 128 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The DL872 is for use in comb filter circuits of PAL video recorders.

DESCRIPTION

A very thin slab of zero TC glass provided with a split transducer is shock-proof mounted in a housing with self-extinguishing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA

Dimensions in mm

Outlines

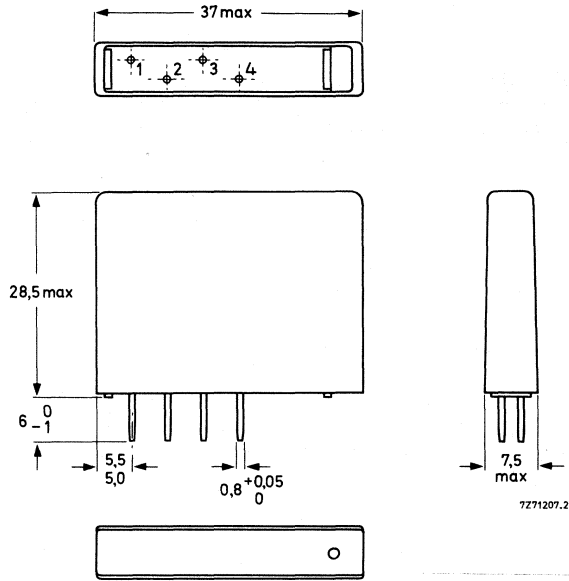


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

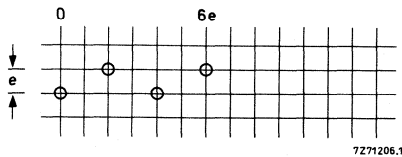


Fig. 2 Recommended hole pattern for mounting on a printed-wiring board;
 $e = 2,54$ mm. The tolerance on the distances of the different holes to the
 0-line is $\pm 0,1$ mm. Hole diameter is $1,0 + 0,1$ mm.

ELECTRICAL DATA

Measured with the circuit of Fig. 3 at $25 \pm 5 \text{ }^\circ\text{C}$, R.H. = 40 to 60%.

| | |
|--|--|
| Nominal frequency (f_0) | 4,433619 MHz |
| Central comb frequency (f_1) | 4,42971 MHz |
| Lower comb frequency (f_-) | 3,92971 MHz |
| Upper comb frequency (f_+) | 4,92971 MHz |
| Transducer attenuation at f_0 | $18 \pm 3 \text{ dB}$ |
| Comb depth at f_1 with respect to f_0^* | $\geq 20 \text{ dB}$ |
| Comb depth at f_- and f_+ with respect to f_0 | $\geq 10 \text{ dB}$ |
| Phase delay time (τ) | $128 \text{ } \mu\text{s}$ |
| Bandwidth (-3 dB), measured with switch S open | $f_0 \pm 0,5 \text{ MHz}$ |
| Maximum input voltage (p-p) | 10 V |
| Spurious signals at the output, at f_0^{**} | |
| 2τ signals with respect to 1τ signal | $\leq -12 \text{ dB}$ |
| other signals with respect to 1τ signal | $\leq -23 \text{ dB}$ |
| Operating temperature range▲ | $+ 10 \text{ to } + 60 \text{ }^\circ\text{C}$ |

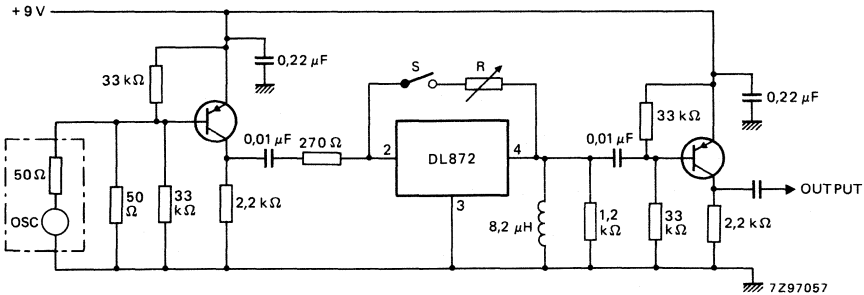


Fig. 3 Test circuit.

* Comb depth is adjusted to a maximum at f_1 by varying direct path resistor R (1,0 to 2,4 k Ω).
 ** Reflections are measured using a $5 \text{ } \mu\text{s}$ long input pulse.
 ▲ Over the whole temperature range the comb depth at f_1 is $\geq 15 \text{ dB}$, and at f_+ and $f_- \geq 8 \text{ dB}$.

COMB FILTER

QUICK REFERENCE DATA

For video recorders to European PAL standard

| | |
|-------------------------------|--------------------|
| Nominal frequency | 4,433619 MHz |
| Phase delay time | 128 μ s |
| Dimensions | 37 x 7,5 x 28,5 mm |
| Self-extinguishing properties | |

APPLICATION

The CF873 is for use in comb filter circuits of PAL video recorders.

DESCRIPTION

A very thin slab of zero TC glass provided with a split transducer is shock-proof mounted in a housing with self-extinguishing properties. The filter incorporates a direct path resistor matched to the glass delay line which gives optimum combing properties. Four pins enable the unit to be soldered directly onto a printed-wiring board.

MECHANICAL DATA
Outlines

Dimensions in mm

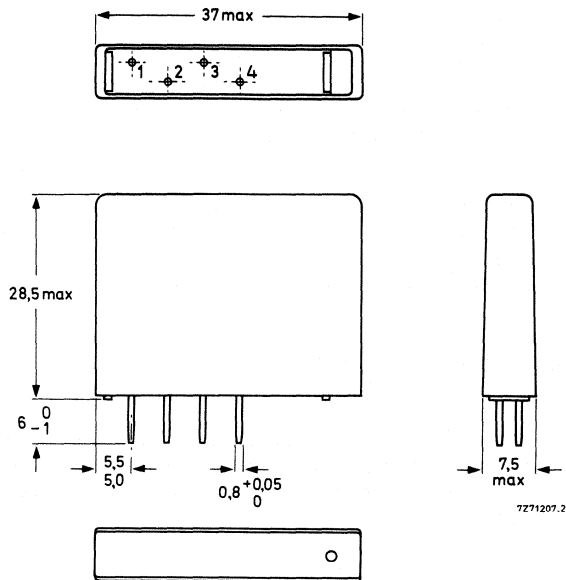


Fig. 1.

Mass 7 g

Mounting

The unit can be soldered directly onto a printed-wiring board.

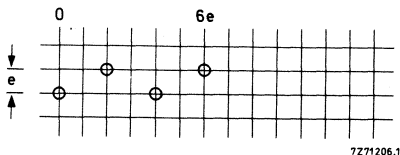


Fig. 2 Recommended hole pattern for mounting on a printed-wiring board; $e = 2,54$ mm. The tolerance on the distances of the different holes to the 0-line is $\pm 0,1$ mm. Hole diameter is $1,0 + 0,1$ mm.

ELECTRICAL DATA

Measured with the circuit of Fig. 3 at $25 \pm 5 \text{ }^\circ\text{C}$, R.H. = 40 to 60%.

| | |
|---|--|
| Nominal frequency (f_0) | 4,433619 MHz |
| Central comb frequency (f_1) | 4,42971 MHz |
| Lower comb frequency (f_-) | 3,92971 MHz |
| Upper comb frequency (f_+) | 4,92971 MHz |
| Transducer attenuation at f_0 | $18 \pm 3 \text{ dB}$ |
| Comb depth at f_1 with respect to f_0 | $\geq 20 \text{ dB}$ |
| Comb depth at f_- and f_+ with respect to f_0 | $\geq 12 \text{ dB}$ |
| Phase delay time (τ) | $128 \mu\text{s}$ |
| Bandwidth (-3 dB), measured with pin 4 disconnected | $f_0 \pm 0,5 \text{ MHz}$ |
| Maximum input voltage (p-p) | 10 V |
| Spurious signals at the output, at f_0 * | |
| 2τ signals with respect to 1τ signal | $\leq -18 \text{ dB}$ |
| other signals with respect to 1τ signal | $\leq -23 \text{ dB}$ |
| Operating temperature range ** | $+10 \text{ to } +60 \text{ }^\circ\text{C}$ |

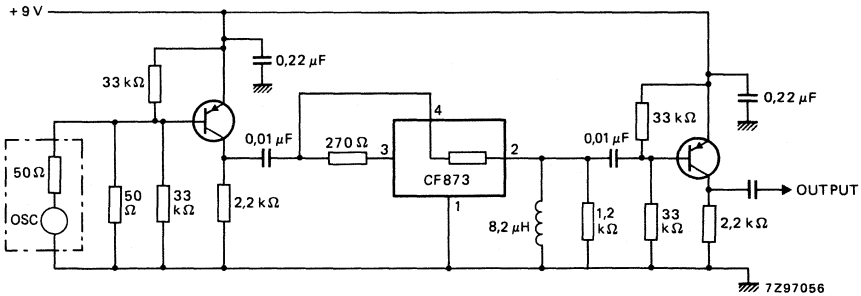


Fig. 3 Test circuit.

* Reflections are measured using a $5 \mu\text{s}$ long input pulse.

** Over the whole temperature range the comb depth at f_1 is $\geq 15 \text{ dB}$, and at f_+ and f_- $\geq 8 \text{ dB}$.

DEGAUSSING COILS

DEGAUSSING COILS

- For 220/240 V mains voltage
- Single insulation

APPLICATION

For 14 in and 16 in, 90° colour picture tubes and high resolution data graphic display tubes. One coil asymmetrically mounted on the top and bottom of the cone of the tube, in conjunction with PTC thermistor 2322 662 98009, produces a decaying alternating field.

Degaussing coil 3122 138 50560 to be used with 14 in tubes, degaussing coil 3122 138 50290 to be used with 16 in tubes.

MECHANICAL DATA

The coils of aluminium wire are completely sleeved with a flame-retardant foil; the coil ends are connected to pins in a holder. For connecting the coils to the circuit, a plug has to be used (see Figs 2 and 3).

Outlines

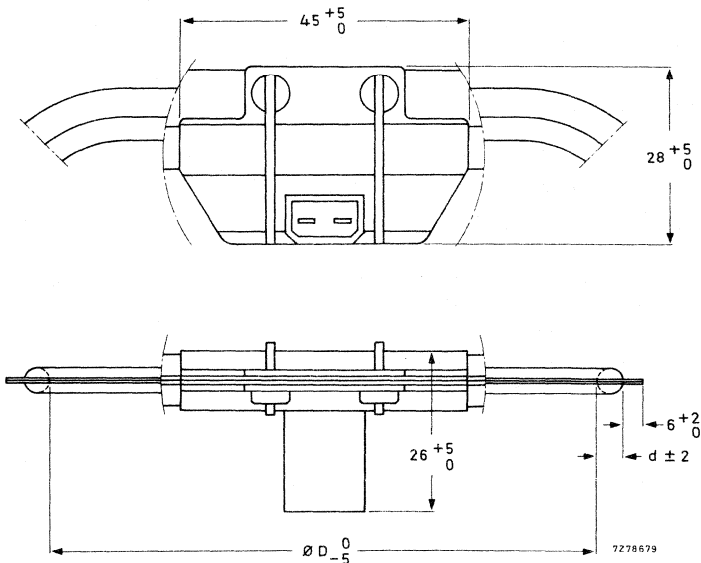


Fig. 1.

| degaussing coil catalogue no. | D mm | d mm |
|-------------------------------|------|------|
| 3122 138 50560 for 14 in tube | 300 | 8 |
| 3122 138 50290 for 16 in tube | 330 | 8 |

Dimensions of plug

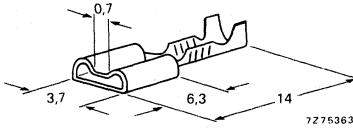


Fig. 2 Receptacle (3122 128 70931).

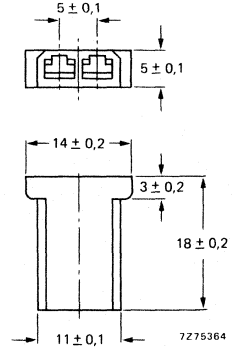


Fig. 3 Housing (3122 128 70921) for two receptacles.

Insertion force max. 50 N
 Withdrawal force min. 10 N

ELECTRICAL DATA

| | |
|---|------------|
| Coil resistance | |
| coil 3122 138 50560 (14 in) | 22 Ω ± 10% |
| coil 3122 138 50290 (16 in) | 23 Ω ± 10% |
| Number of turns | 120 |
| Test voltage (d.c.) | |
| between interconnected pins and insulation foil | 6000 V |
| between interconnected pins and holder | 6000 V |
| Maximum working temperature | 70 °C |

16 inch

14 inch

3122 138 51850

3122 138 51860

DEGAUSSING COILS

- For 220/240 V mains voltage
- Double insulation

APPLICATION

For 14 in and 16 in, 90° colour picture tubes and high resolution data graphic display tubes. One coil asymmetrically mounted on the top and bottom of the cone of the tube, in conjunction with PTC thermistor 2322 662 98009, produces a decaying alternating field.

Degaussing coil 3122 138 51860 to be used with 14 in tubes, degaussing coil 3122 138 51850 to be used with 16 in tubes.

MECHANICAL DATA

Dimensions in mm

The coils of aluminium wire are completely sleeved with a flame-retardant foil; the coil ends are connected to pins in a holder. For connecting the coils to the circuit, a cable, length 40 cm, catalogue number 8222 289 36971 is available to special order.

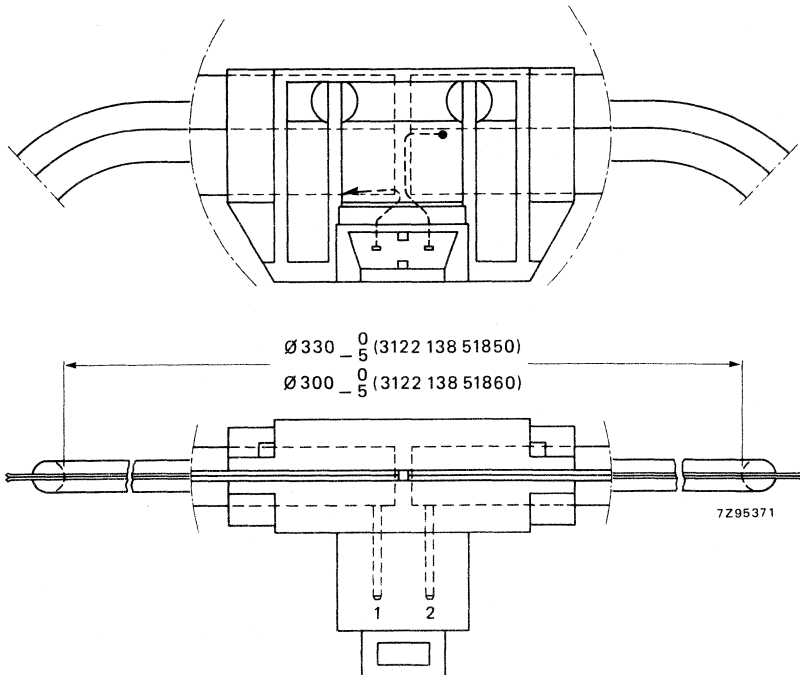


Fig. 1.

3122 138 51850
3122 138 51860

ELECTRICAL DATA

| | |
|---|-------------------------|
| Coil resistance | |
| coil 3122 138 51850 (16 in) | 26,3 Ω \pm 10% |
| coil 3122 138 51860 (14 in) | 21,7 Ω \pm 10% |
| Number of turns | |
| coil 3122 138 51850 (16 in) | 107 |
| coil 3122 138 51860 (14 in) | 97 |
| Test voltage (d.c.) | |
| between interconnected pins and insulation foil | 6000 V |
| between interconnected pins and holder | 6000 V |
| Maximum working temperature | 70 °C |

DEGAUSSING COILS

- Single insulation

APPLICATION

For 26 in, 22 in and 20 in, 110° colour picture tubes. Two coils mounted on the top and bottom of the cone of the picture tube produce in conjunction with PTC thermistor 2322 662 98009 a decaying alternating field. The coils have to be connected in such a way that they operate magnetically in series, producing flux lines which flow from the top coil through the picture tube into the bottom coil or vice versa.

MECHANICAL DATA

Dimensions in mm

The coils are completely double sleeved with a flame-retardent foil; to guarantee mains isolation the coil ends are connected to a holder. For connecting the coils to the circuit, a cable, length 40 cm, catalogue number 8222 289 36971, is available to special order.

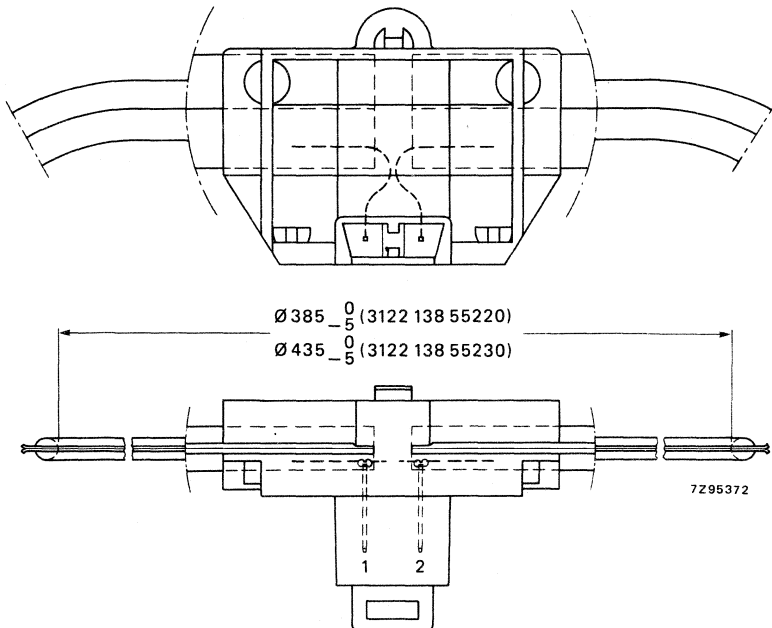


Fig. 1.

3122 138 55220
3122 138 55230

ELECTRICAL DATA

Coil resistance

coil 3122 138 55220 (20, 22 in)
coil 3122 138 55230 (26 in)

11,5 Ω \pm 10%
8,6 Ω \pm 10%

Number of turns

coil 3122 138 55220 (20, 22 in)
coil 3122 138 55230 (26 in)

49
52

Safety

according to IEC 65.10
and UL1410

Maximum working temperature

70 °C

DEGAUSSING COIL

- For 117 V and 220/240 V mains voltage
- Single coil
- Single insulation

APPLICATION

For 14 in, 90° colour picture tubes and high resolution data graphic display tubes. One coil asymmetrically mounted on the top and bottom of the cone of the tube, in conjunction with PTC thermistor 2322 662 98009, produces a decaying alternating field.

MECHANICAL DATA

Dimensions in mm

The coil of aluminium wire is completely sleeved with a flame-retardant foil; the coil ends are connected to pins in a holder. For connecting the coils to the circuit, a cable, length 40 cm, catalogue number 8222 289 36971 is available to special order.

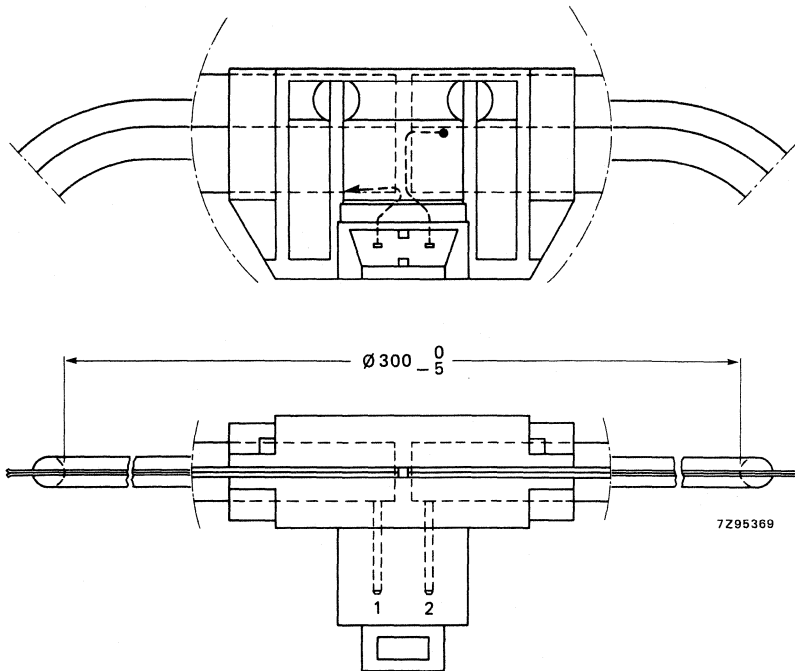


Fig. 1.

ELECTRICAL DATA

| | |
|---|-----------------------|
| Coil resistance | 14 Ω \pm 10% |
| Number of turns | 134 |
| Test voltage (d.c.) | |
| between interconnected pins and insulation foil | 6000 V |
| between interconnected pins and holder | 6000 V |
| Maximum working temperature | 70 °C |

DEGAUSSING COIL

- For 110 V and 220/240 V mains voltage
- Double insulation

APPLICATION

For 20 in, 90° colour picture tubes and high resolution data graphic display tubes. Two coils mounted on the top and bottom of the cone of the tube, in conjunction with PTC thermistor 2322 662 98009, produce a decaying alternating field.

MECHANICAL DATA

Dimensions in mm

The coil of aluminium wire is completely sleeved with a flame-retardant foil; the coil ends are connected to pins in a holder. For connecting the coils to the circuit, a cable, length 40 cm, catalogue number 8222 289 36971 is available to special order.

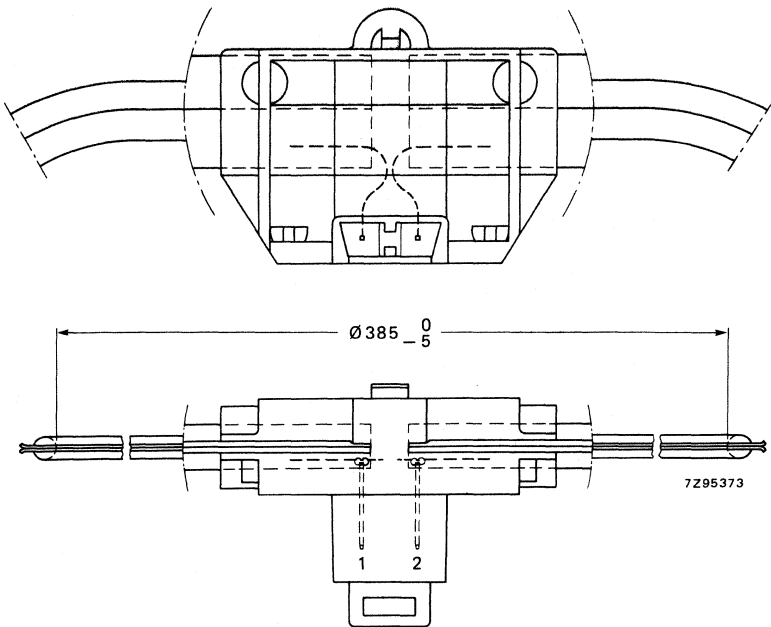


Fig. 1.

ELECTRICAL DATA

| | |
|--|---------------------------------------|
| Coil resistance | 11,4 Ω \pm 10% |
| Number of turns | 65 |
| Test voltage (d.c.) between interconnected pins and insulation foil between interconnected pins and holder | 6000 V 6000 V |
| Safety | according to IEC 65.10 and UL 1410 |
| Maximum working temperature | 70 °C |

DEGAUSSING COILS

- For 220/240 V mains voltage
- Coil 3122 138 56070 with single insulation,
coil 3122 138 56170 with double insulation

APPLICATION

For 20 in, 90° colour picture tubes and high resolution data graphic display tubes. One coil asymmetrically mounted on the top and bottom of the cone of the tube, in conjunction with PTC thermistor 2322 662 98009, produces a decaying alternating field.

MECHANICAL DATA

Dimensions in mm

The coils of aluminium wire are completely sleeved with a flame-retardent foil; the coil ends are connected to pins in a holder. For connecting the coils to the circuit, a cable, length 40 cm, catalogue number 8222 289 36971 is available to special order.

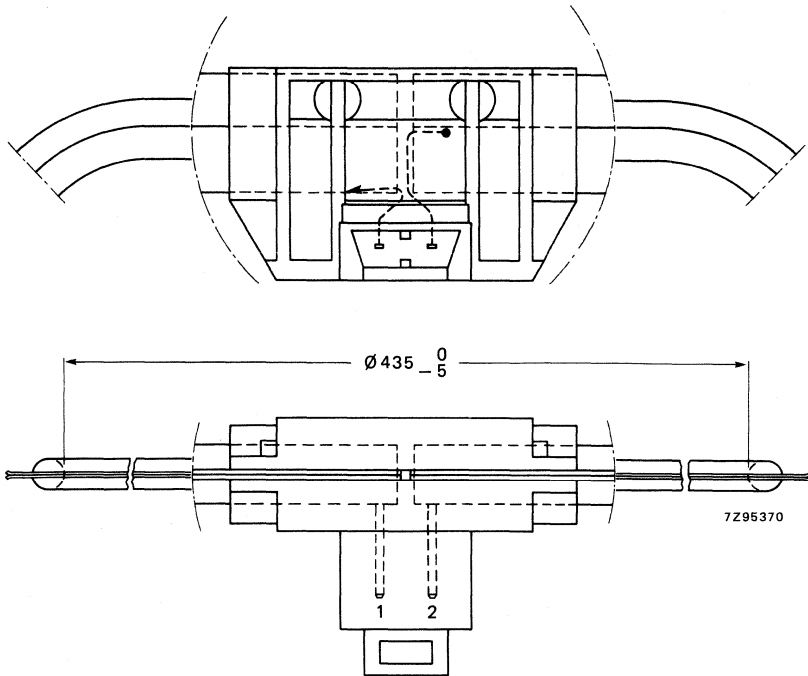


Fig. 1.

3122 138 56070
3122 138 56170

ELECTRICAL DATA

| | |
|---|-------------------------|
| Coil resistance | 19,5 Ω \pm 10% |
| Number of turns | 120 |
| Test voltage (d.c.) | |
| between interconnected pins and insulation foil | 6000 V |
| between interconnected pins and holder | 6000 V |
| Maximum working temperature | 70 °C |

DEGAUSSING COILS

- Double insulation

APPLICATION

For 26 in, 22 in and 20 in, 110° colour picture tubes. Two coils mounted on the top and bottom of the cone of the picture tube produce in conjunction with PTC thermistor 2322 662 98009 a decaying alternating field. The coils have to be connected in such a way that they operate magnetically in series, producing flux lines which flow from the top coil through the picture tube into the bottom coil or vice versa.

MECHANICAL DATA

Dimensions in mm

The coils are completely double sleeved with a flame-retardent foil; to guarantee mains isolation the coil ends are connected to a holder. For connecting the coils to the circuit, a cable, length 40 cm, catalogue number 8222 289 36971, is available to special order.

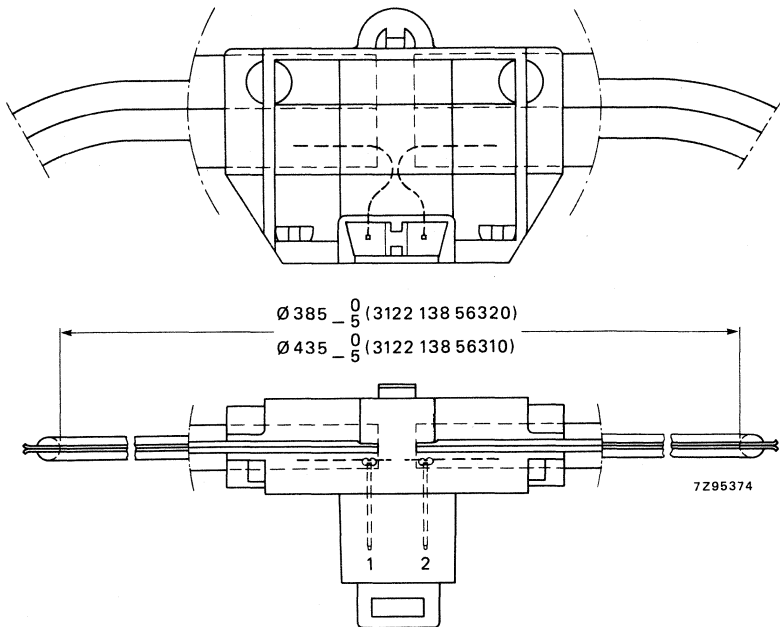


Fig. 1.

3122 138 56310
3122 138 56320

ELECTRICAL DATA

Coil resistance

coil 3122 138 56310 (26 in)

8,6 Ω \pm 10%

coil 3122 138 56320 (20, 22 in)

11,5 Ω \pm 10%

Number of turns

coil 3122 138 56310 (26 in)

52

coil 3122 138 56320 (20, 22 in)

49

Safety

according to IEC 65.10
and UL1410

Maximum working temperature

70 °C

DEGAUSSING COILS for 110° picture tubes with mains isolation

APPLICATION

Two coils mounted on the top and bottom of the cone of the picture tube produce in conjunction with PTC thermistor 2322 662 98009 a decaying alternating field. The coils have to be connected in such a way that they operate magnetically in series, producing flux lines which flow from the top coil through the picture tube into the bottom coil or vice versa.

MECHANICAL DATA

The coils are completely sleeved with a flame-retardent foil; to guarantee mains isolation the coil ends are connected to a holder. For connecting the coils to the circuit a special plug has to be used.

Outlines

Dimensions in mm

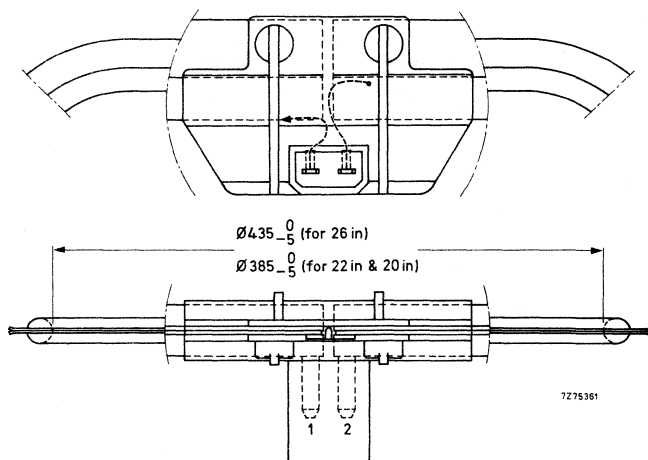


Fig. 1.

3122 138 75581
 3122 138 75941

Dimensions of plug
 Housing 3122 128 70921
 Receptacle 3122 128 70931

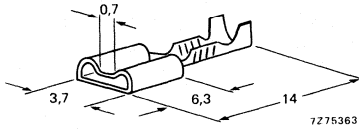
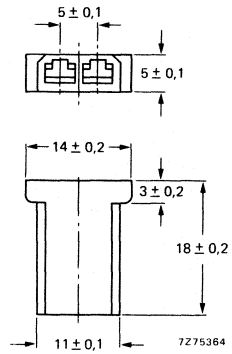


Fig.2



ELECTRICAL DATA

Coil resistance

26 inch

catalogue no. 3122 138 75581

$8,6 \Omega \pm 10\%$

22 and 20 inch

catalogue no. 3122 138 75941

$11,5 \Omega \pm 10\%$

Number of turns

26 inch

52

22 and 20 inch

49

Mains isolation

acc. to IEC 65

Maximum working temperature

70 °C

DEGAUSSING COILS with double insulation

APPLICATION

For 26 in, 22 in and 20 in, 110° colour picture tubes. Two coils mounted on the top and bottom of the cone of the picture tube produce in conjunction with PTC thermistor 2322 662 98009 a decaying alternating field. The coils have to be connected in such a way that they operate magnetically in series, producing flux lines which flow from the top coil through the picture tube into the bottom coil or vice versa.

MECHANICAL DATA

The coils are completely double sleeved with a flame-retardent foil; to guarantee mains isolation the coil ends are connected to a holder. For connecting the coils to the circuit a special plug has to be used (see Figs 2 and 3).

Outlines

Dimensions in mm

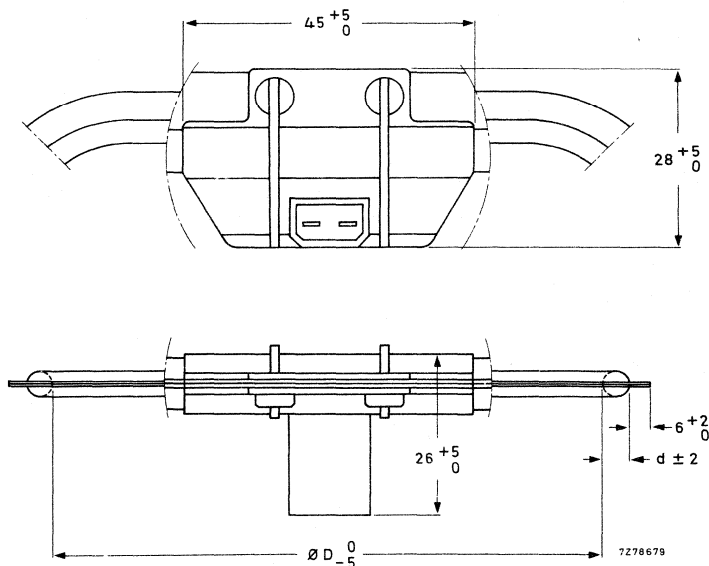


Fig. 1.

| degaussing coil catalogue no. | D mm | d mm |
|---|------|------|
| 3122 138 94350 for 26 in tube | 435 | 8 |
| 3122 138 94380 for 22 in and 20 in tube | 385 | 5 |

Dimensions of plug

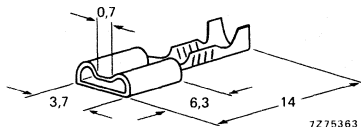


Fig. 2 Receptacle (3122 128 70931).

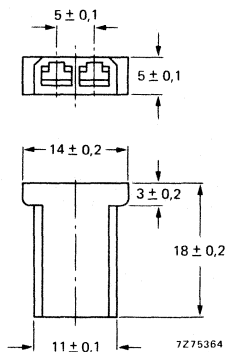


Fig. 3 Housing (3122 128 70921)
for two receptacles.

Insertion force max. 50 N
Withdrawal force min. 10 N

ELECTRICAL DATA

Coil resistance

| | | |
|---------------------|--------------------------------|--------------|
| 26 inch type | (catalogue no. 3122 138 94350) | 8,6 Ω ± 10% |
| 22 and 20 inch type | (catalogue no. 3122 138 94380) | 11,5 Ω ± 10% |

Number of turns

| | |
|---------------------|----|
| 26 inch type | 52 |
| 22 and 20 inch type | 49 |

Safety

acc. to IEC 65.10 and UL1410

Maximum working temperature

70 °C

14 inch
16 inch

3122 138 99840
3122 138 99850

DEGAUSSING COILS

- For 220/240 V mains voltage
- Single insulation

APPLICATION

For 14 in and 16 in, 90° colour picture tubes and high resolution data graphic display tubes. One coil asymmetrically mounted on the top and bottom of the cone of the tube, in conjunction with PTC thermistor 2322 662 98009, produces a decaying alternating field.

Degaussing coil 3122 138 99840 to be used with 14 in tubes, degaussing coil 3122 138 99850, to be used with 16 in tubes.

MECHANICAL DATA

Dimensions in mm

The coils of aluminium wire are completely sleeved with a flame-retardant foil; the coil ends are connected to pins in a holder. For connecting the coils to the circuit, a cable, length 40 cm, catalogue number 8222 289 36971, is available to special order.

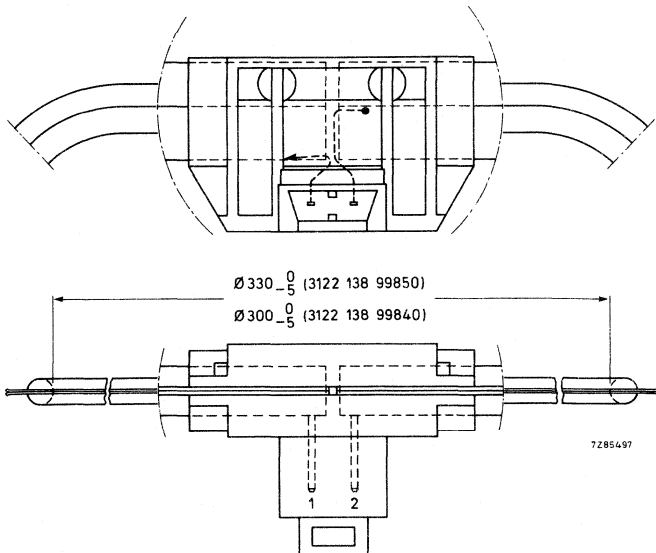


Fig. 1.

3122 138 99840
3122 138 99850

→ ELECTRICAL DATA

Coil resistance

coil 3122 138 99840 (14 in)

21,7 Ω \pm 10%

coil 3122 138 99850 (16 in)

26,3 Ω \pm 10%

Number of turns

coil 3122 138 99840 (14 in)

97

coil 3122 138 99850 (16 in)

107

Test voltage (d.c.)

between interconnected pins and insulation foil

6000 V

between interconnected pins and holder

6000 V

Maximum working temperature

70 °C

TRANSFORMERS, CHOKES AND COILS

SWITCHED-MODE TRANSFORMER

- without mains isolation

APPLICATION

The AT2097/01 has been designed for use as a switched-mode transformer for 90° colour television receivers without mains isolation, in conjunction with the switched-mode driver transformer AT4043/58.

MECHANICAL DATA

The magnetic circuit of the transformer comprises two Ferroxcube U25-cores. The item is provided with eight pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

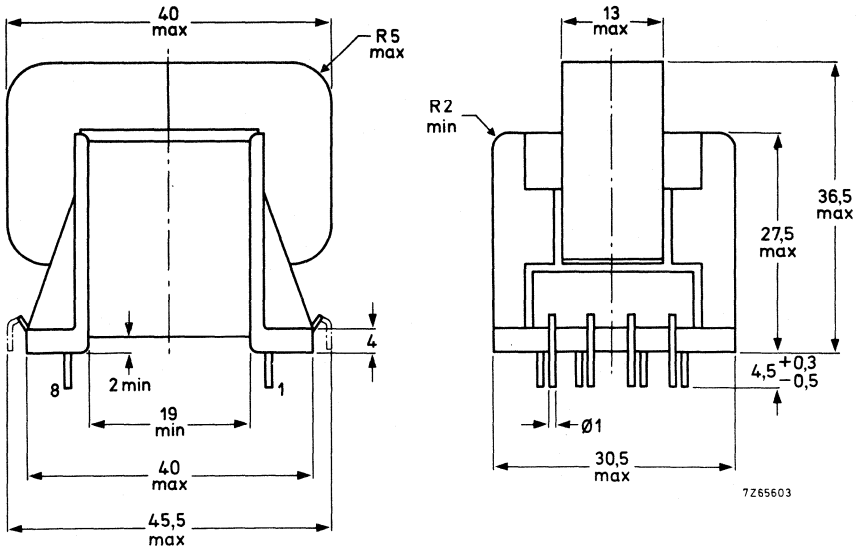


Fig. 1.

Mounting

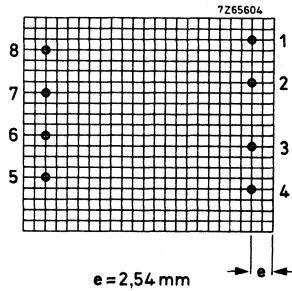


Fig. 2 Hole pattern (viewed from solder side) for mounting on a printed-wiring board, hole diameter 1,3 + 0,1 mm.

ELECTRICAL DATA

| | |
|-----------------------------------|--------------|
| Inductance primary (8-6) * | 16 mH ± 10% |
| Resistance primary (8-6) at 25 °C | 3,2 Ω ± 12% |
| Resistance secondary at 25 °C | |
| (7-5) | 0,14 Ω ± 12% |
| (4-3) | 0,57 Ω ± 12% |
| Leakage inductance (7-5) ** | ≤ 1,5 μH |
| Transformation ratio | |
| 8-6/7-5 | 36,5 |
| 8-6/4-3 | 6,5 |
| Maximum working temperature | 115 °C |

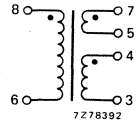


Fig. 3.

* Measuring conditions: E = 1,6 V; f = 1000 Hz.

** Measuring conditions: primary (8-6) short-circuited; E = 250 mV; 1,7 MHz ≤ f ≤ 2,2 MHz.

DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

DT2097/02
replaces AT2097/01

SWITCHED-MODE TRANSFORMER

- Without mains isolation

APPLICATION

The DT2097/02 is for use as a series switched-mode transformer for colour television receivers without mains isolation.

MECHANICAL DATA

This transformer comprises two Ferroxcube U25 cores and a standard U25 coil former with 10 pins for mounting on a printed-wiring board.

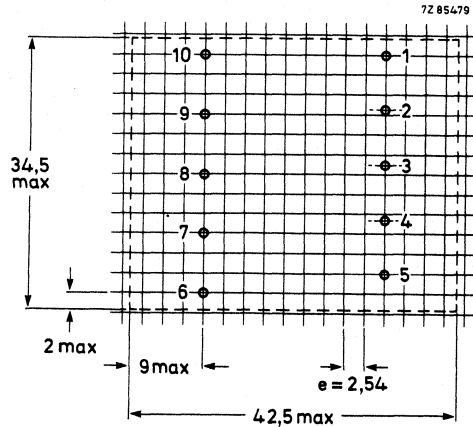
Dimensions of the transformer

| | |
|---------------------------|--------------|
| length | max. 42,5 mm |
| width | max. 34,5 mm |
| height | max. 36 mm |
| length of connecting pins | 4,5 ± 0,5 mm |

Note: This transformer is not pin-compatible with the AT2097/01.

Mounting

Fig. 1 Hole pattern (viewed from solder side) for mounting on a printed-wiring board, hole diameter $1,3 \pm 0,1$ mm.



ELECTRICAL DATA

Inductance primary (9-7)*

16 mH \pm 10%

Resistance primary (9-7) at 25 °C

3,2 Ω \pm 12%

Resistance secondary at 25 °C

(8-6)

0,14 Ω \pm 12%

(4-3)

0,57 Ω \pm 12%

Leakage inductance (8-6)**

\leq 1,5 μ H

Transformation ratio

9-7/8-6

36,5

9-7/4-3

6,5

Maximum working temperature

115 °C

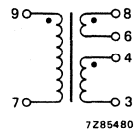


Fig. 2.

* Measuring conditions: E = 1,6 V; f = 1000 Hz.

** Measuring conditions: primary (9-7) short-circuited; E = 250 mV; $1,7 \text{ MHz} \leq f \leq 2,2 \text{ MHz}$.

LINE DRIVER TRANSFORMER

- For Colour Data Graphic Displays

APPLICATION

For drive of 1500 V transistors in line deflection and power supply circuits.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube U15 cores, grade 3C8. The transformer has four pins for mounting on a printed-wiring board, and a reference pin.

Outlines

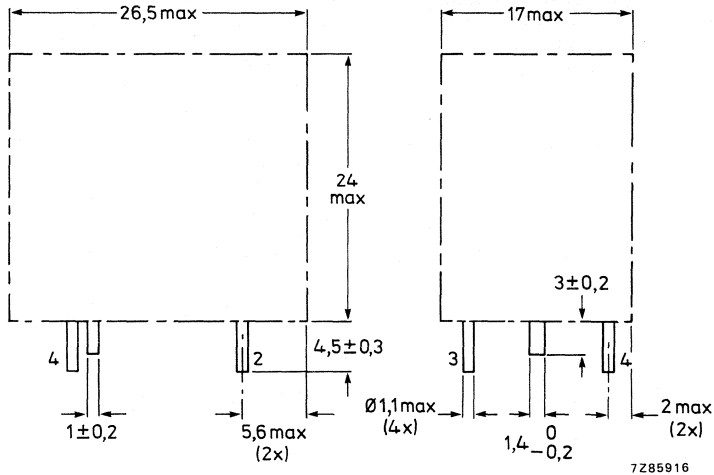


Fig. 1.

Mounting

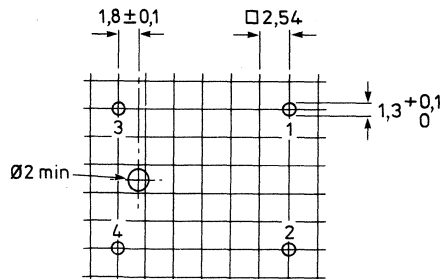


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side).

7Z85916

7Z85991.2

ELECTRICAL DATA

| | |
|--|-------------------------|
| Inductance, L_{2-1} | 140 mH \pm 15%* |
| Resistance, R_{2-1} , at 25 °C | 26,5 Ω \pm 12% |
| Leakage inductance, L_{3-4} | 7,8 μ H** |
| Maximum permissible current, I_{2-1} (peak value) | 40 mA |
| Resistance, R_{4-3} , at 25 °C | 0,29 Ω \pm 12% |
| Voltage ratio, V_{2-1}/V_{4-3} , at $V_{2-1} = 1$ V, 1 kHz | 15 \pm 5% |
| Test voltage (d.c.) between the windings, and between windings and core | 2000 V |
| Ambient temperature range operating | -25 to +100 °C |
| storage | -40 to +115 °C |
| Inflammability | according to UL94 V-1 |

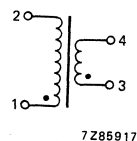


Fig. 3.

The transformer withstands the following tests:

| test | IEC 68 test method | procedure |
|----------------------------|-----------------------|---|
| bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C, 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, +100 °C; 5 cycles |
| dry heat | Bb | 96 h, +100 °C |
| solderability | Ta | 230 \pm 10 °C, 2 \pm 0,5 s |

Reliability

| | |
|--|--------------|
| Maximum cumulative percentage catastrophic failures after 300 h | \leq 0,01% |
| after 10 000 h | \leq 0,02% |
| after 30 000 h | \leq 1% |

* Measured at 9 V, 1 kHz.

** Primary 2-1 short-circuited.

EAST/WEST CHOKE

- For Colour Data Graphic Displays

APPLICATION

The AT4043/08A is for use as an east/west choke in colour monitors.

MECHANICAL DATA

The magnetic circuit of the choke comprises two Ferroxcube U20 cores. The choke has four pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

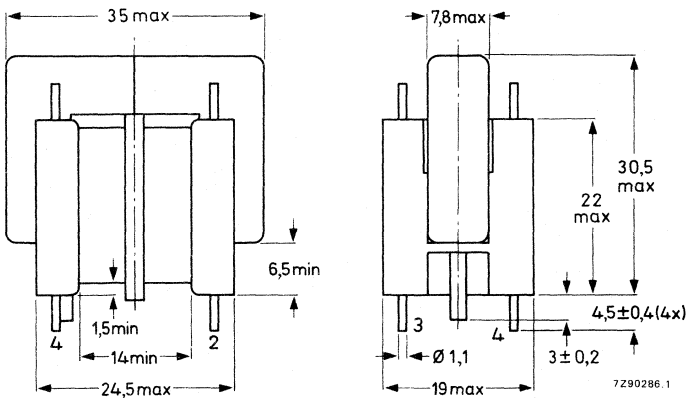


Fig. 1.

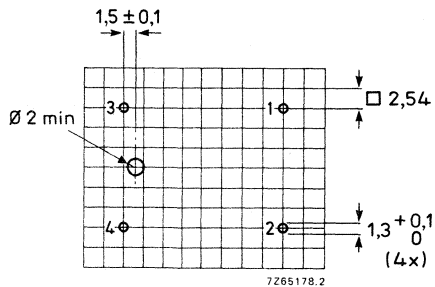


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side).

ELECTRICAL DATA

| | |
|------------------------------------|--------------------------|
| Inductance, L_{2-3}^* | ≥ 2 mH; typ. 2,6 mH |
| Resistance, R_{2-3}^* , at 25 °C | 0,5 Ω |
| Maximum current (peak value) | 0,7 A |
| Maximum working temperature | 115 °C |

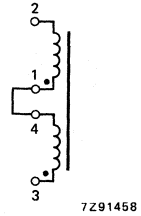


Fig. 3.

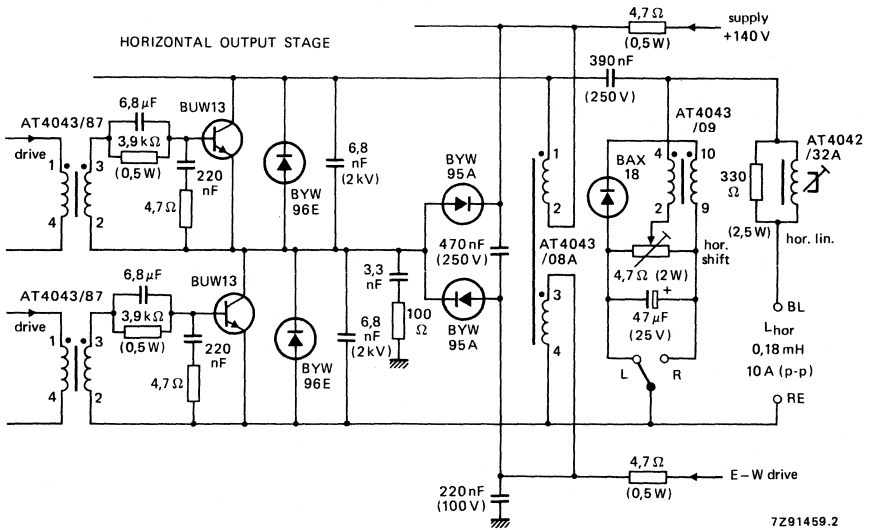


Fig. 4 Application circuit.

* Terminals 1 and 4 interconnected.

The choke withstands the following tests:

| test | IEC 68 test method | procedure |
|----------------------------|-----------------------|---|
| bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30/min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C; 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, + 100 °C; 5 cycles |
| dry heat | Bb | 96 h, + 100 °C |
| solderability | Ta | 230 ± 10 °C, 2 ± 0,5 s |

Reliability

Maximum cumulative percentage catastrophic failures

| | |
|----------------|---------|
| after 300 h | ≤ 0,01% |
| after 10 000 h | ≤ 0,02% |
| after 30 000 h | ≤ 1% |

UNIVERSAL HORIZONTAL SHIFT TRANSFORMER

- For Colour Data Graphic Displays

APPLICATION

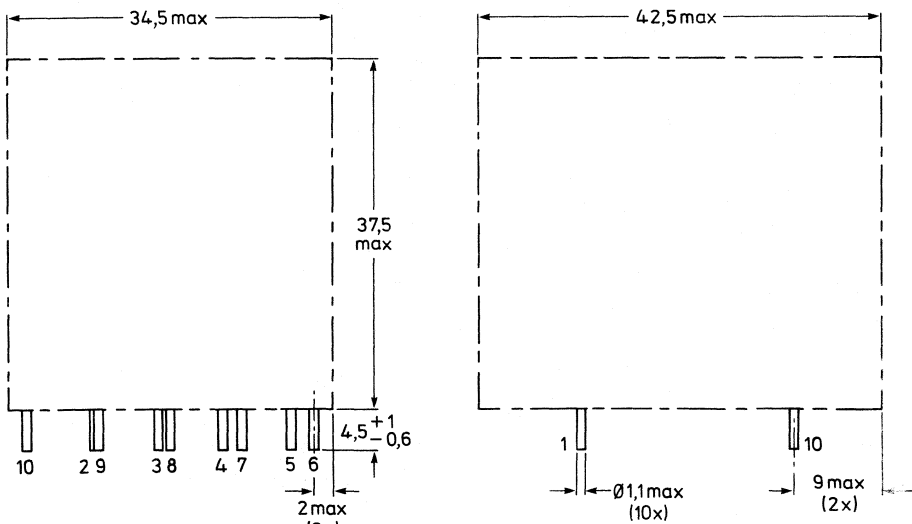
This shift transformer is for use in colour data graphic display monitors.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube U25 cores, grade 3C8. The transformer has 10 pins for mounting on a printed-wiring board.

Outlines

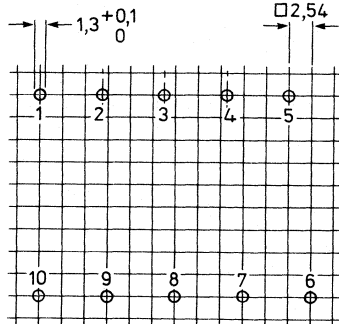


7285919

Fig. 1.

Mounting

Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).



ELECTRICAL DATA

Inductance, L_{5-1}^*

Resistance, R_{5-1} , at 25 °C

Resistance, R_{10-6} , at 25 °C

Voltage ratio*

V_{5-1}/V_{2-1}

V_{5-1}/V_{3-1}

V_{5-1}/V_{4-1}

V_{5-1}/V_{7-6}

V_{5-1}/V_{8-6}

V_{5-1}/V_{9-6}

V_{5-1}/V_{10-6}

Test voltage (d.c.) of winding 1-5 to winding 6-10 and core, for 1 min

Test voltage (d.c.) between winding 6-10 and core, for 1 min

Ambient temperature range

operating

storage

Inflammability

150 mH \pm 15%

7,8 Ω \pm 10%

0,23 Ω \pm 10%

3,2 \pm 5%

2,1 \pm 5%

1,5 \pm 5%

515 \pm 5%

128,8 \pm 5%

73,6 \pm 5%

57,2 \pm 5%

2000 V

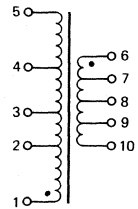
2000 V

-25 to + 100 °C

-40 to + 115 °C

according to UL94 V-1

7Z85920



7Z85918

Fig. 3.

The transformer withstands the following tests:

| test | IEC 68 test method | procedure |
|-------------------------|--------------------|--|
| bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C, 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, + 100 °C; 5 cycles |
| dry heat | Bb | 96 h, + 100 °C |
| solderability | Ta | 230 \pm 10 °C, 2 \pm 0,5 s |

Reliability

Maximum cumulative percentage catastrophic failures

after 300 h \leq 0,01%

after 10 000 h \leq 0,02%

after 30 000 h \leq 1%

* Measured at $V_{5-1} = 5$ V, 1 kHz.

INPUT CHOKE

- For 110° deflection colour TV in twin switch power pack system
- For 30 V/2 A audio power
- Mains insulation

APPLICATION

The AT4043/16A is for use as a supply choke in the twin switch power pack system (TSP²) for 110° colour TV receivers and colour monitors. It is used in conjunction with mains transformer TS561/2 or TS521B, mains filter choke AT4043/55, current sensing transformer AT4043/46, driver transformer AT4043/17 and diode-split line output transformer AT2077/82.

The secondary winding of the choke can be used for generating the stereo audio power in 110° colour TV receivers, up to 2 x 15 W.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube E42 cores, grade 3C8. The choke has 11 pins for mounting on a printed-wiring board.

Outlines

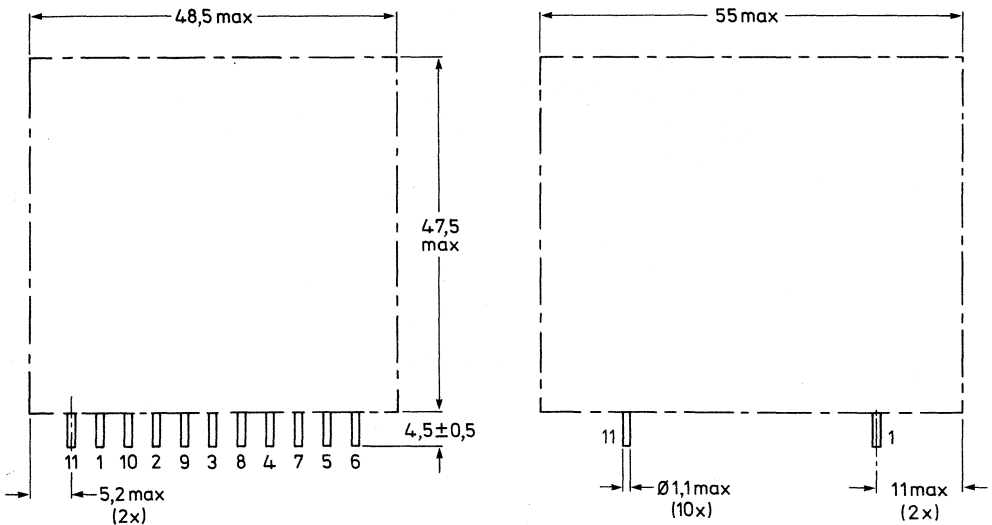


Fig. 1.

7285915

Mounting

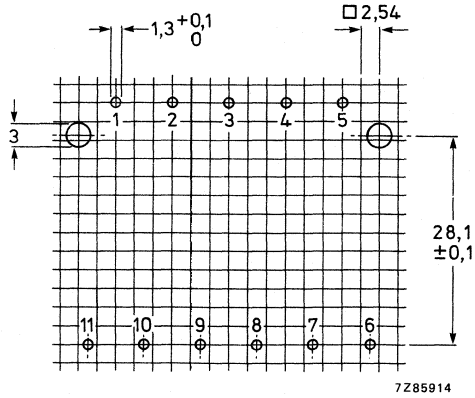


Fig. 2 Hole pattern for mounting on a printed-wiring board (solder side).

ELECTRICAL DATA

| | |
|---|-----------------------|
| Inductance, L ₁₋₄ * | 14 mH ± 10% |
| Resistance, R ₁₋₂ | 0,44 Ω ± 12% |
| Resistance, R ₂₋₄ | 0,98 Ω ± 12% |
| Resistance, R ₇₋₈ | 68 mΩ ± 12% |
| Resistance, R ₉₋₁₀ | 68 mΩ ± 12% |
| Turns ratio 1-4/7-8 | 27,7 ± 5% |
| Turns ratio 1-4/9-10 | 27,7 ± 5% |
| Test voltage (d.c.) of winding 1-4 to winding 7-10 and core for 1 min | 5600 V |
| Test voltage (d.c.) of winding 7-10 to core for 1 min | 500 V |
| Maximum operating temperature | 115 °C |
| Inflammability | according to UL94 V-1 |

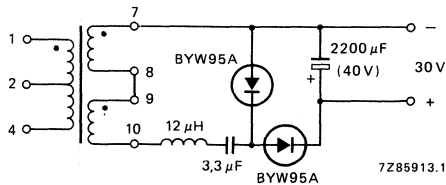


Fig. 3.

* Measured at 17,2 V, 1 kHz.

The choke withstands the following tests:

| test | IEC 68 test method | procedure |
|-------------------------|-----------------------|---|
| bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C, 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, + 100 °C; 5 cycles |
| dry heat | Bb | 96 h, + 100 °C |
| solderability | Ta | 230 ± 10 °C, 2 ± 0,5 s |

Reliability

Maximum cumulative percentage catastrophic failures

| | |
|----------------|---------|
| after 300 h | ≤ 0,01% |
| after 10 000 h | ≤ 0,02% |
| after 30 000 h | ≤ 1% |

DRIVER TRANSFORMER

- For 110° deflection colour TV in twin single switch power pack system
- Mains insulation

APPLICATION

The AT4043/17 is for use as a power supply and line driver transformer in the twin switch power pack system (TSP²) for 110° colour TV receivers and colour monitors. It is used in conjunction with mains transformer TS561/2 or TS5621B, mains filter choke AT4043/55, current sensing transformer AT4043/46, input choke AT4043/16A and diode-split line output transformer AT2077/82.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube U20 cores, grade 3C8. The primary and secondary windings are wound in a two-part coil former with large creepage distances and clearances, which ensure safe insulation between the mains and control circuits. The transformer has six pins for mounting on a printed-wiring board, and one lead (connecting point 7).

Outlines

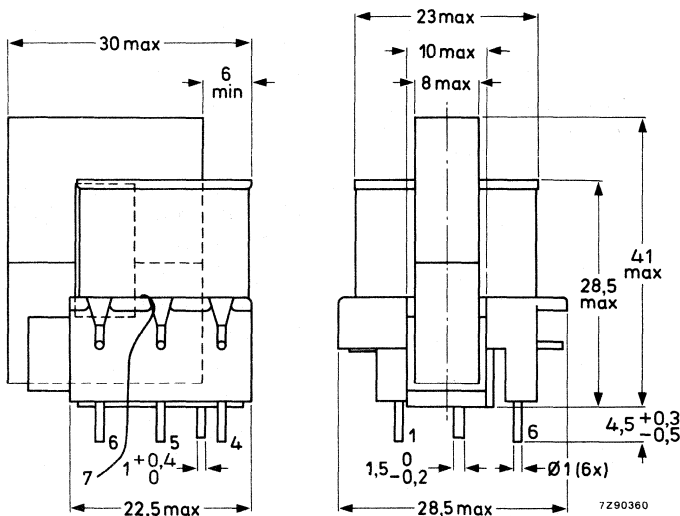
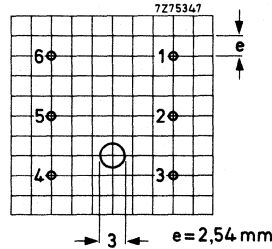


Fig. 1.

Mounting

Fig. 2 Hole pattern for mounting on a printed-wiring board (component side); hole diameter is $1,3 \pm 0,1$ mm.



ELECTRICAL DATA

| | |
|--|------------------------|
| Inductance, L_{5-4} | ≥ 11 mH* |
| Resistance, R_{5-4} , at 25 °C | $0,21 \Omega \pm 12\%$ |
| Resistance, R_{1-2} , at 25 °C | $0,17 \Omega \pm 12\%$ |
| Resistance, R_{6-7} , at 25 °C | $7,0 \Omega \pm 12\%$ |
| Turns ratio 1-2/5-4 | 0,17 |
| Turns ratio 1-2/6-7 | 1,0 |
| Maximum primary current (peak value) | 240 mA |
| Test voltage (d.c.) of winding 1-2 to winding 5-4 and core for 1 min | 5600 V |
| Test voltage (d.c.) of winding 5-4 to core for 1 min | 500 V |
| Ambient temperature range | |
| operating | -25 to +80 °C |
| storage | -40 to +100 °C |
| Inflammability | according to UL94 V-1 |

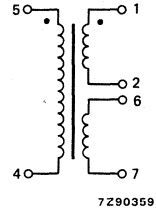


Fig. 3.

The transformer withstands the following tests:

| test | IEC 68 test method | procedure |
|-------------------------|--------------------|---|
| bump | Eb | 1000 bumps, acceleration 400 m/s^2 , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C, 93%, R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, +85 °C; 5 cycles |
| dry heat | Bb | 96 h, +100 °C |
| Solderability | Ta | 230 ± 10 °C, $2 \pm 0,5$ s |

Reliability

| | |
|---|---------------|
| Maximum cumulative percentage catastrophic failures | |
| after 300 h | $\leq 0,01\%$ |
| after 10 000 h | $\leq 0,02\%$ |
| after 30 000 h | $\leq 1\%$ |

* Measured at 4,4 V, 1 kHz.

LINE DRIVER/D.C. SHIFT TRANSFORMER

APPLICATION

This line driver, or d.c. shift, transformer, is for all transistor colour television receivers and monochrome data graphic display monitors.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube U20 cores, grade 3C8. The transformer has four connecting pins and a location pin for mounting on a printed-wiring board.

Outlines

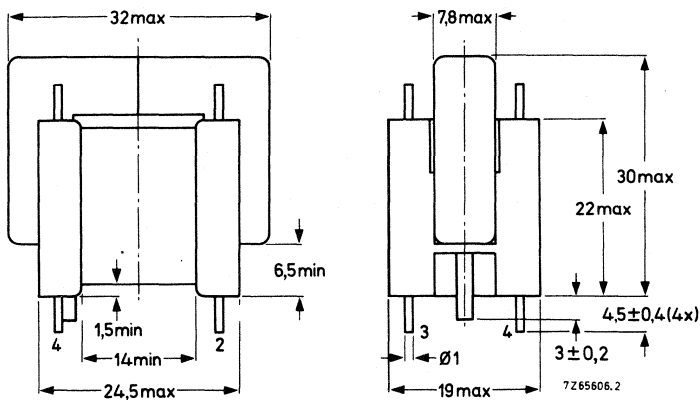


Fig. 1.

Mounting

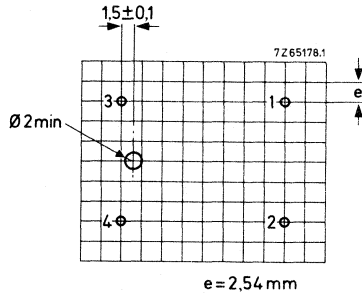


Fig. 2 Hole pattern for mounting on a printed-wiring board, hole diameter $1,3 + 0,1$ mm.

ELECTRICAL DATA

Inductance primary (1-4)

370 mH \pm 12%

Leakage inductance secondary (2-3)*

14 μ H \pm 20%

Resistance secondary (2-3) at 25 °C

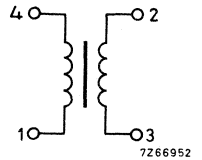
0,35 Ω

Transformation ratio 4-1/2-3

31 : 1

Maximum working temperature

100 °C



* Primary short circuited.

SWITCHED-MODE DRIVER TRANSFORMER with mains isolation

APPLICATION

The transformer AT4043/45 has been designed for use as a driver transformer in the synchronous power pack system for colour tv receivers with mains isolation. It is used in conjunction with current sensing transformer AT4043/46 and mains transformer TS561/2.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U20-cores. Two separate coil formers guarantee the required isolation between primary and secondary. The transformer is provided with 6 pins for mounting on a printed-wiring board.

Outlines

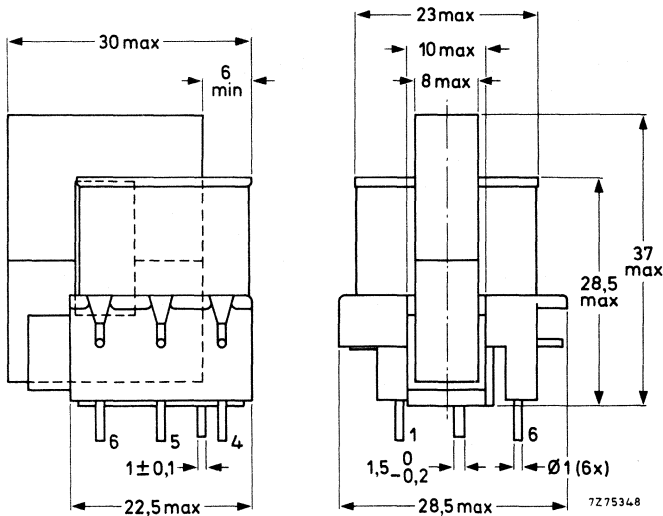
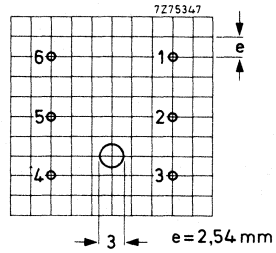


Fig. 1.

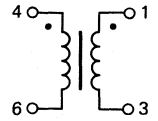
Mounting

Fig.2 Hole pattern for mounting on a printed-wiring board; hole diameter $1,3 \pm 0,1$ mm. Viewed from the component side.



ELECTRICAL DATA

| | | |
|-------------------------------|---------|---------------------------|
| Inductance, primary | (4 – 6) | ≥ 16 mH * |
| Resistance at 25 °C | (4 – 6) | $2 \Omega \pm 12\%$ |
| Leakage inductance, secondary | (1 – 3) | $\leq 6 \mu\text{H}^{**}$ |
| Resistance at 25 °C | (1 – 3) | $0,05 \Omega \pm 12\%$ |
| Turns ratio | | 5 : 1 |
| Mains isolation | | acc. to IEC 65 |
| Maximum working temperature | | 115 °C |



7275346.1

Fig. 3.

* Measuring condition: $E = 8$ V, $f = 1$ kHz.

** Measuring condition (primary short-circuited): $E \leq 250$ mV, $0,9$ MHz $\leq f \leq 1,1$ MHz.

CURRENT SENSING TRANSFORMER with mains isolation

APPLICATION

The transformer AT4043/46 has been designed for use as a sensing transformer in switched-mode power supply circuits.

MECHANICAL DATA

The magnetic circuit of the transformer comprises two Ferroxcube U15-cores. The primary turn is potted in the coil former to guarantee the required isolation. The transformer is provided with 4 pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

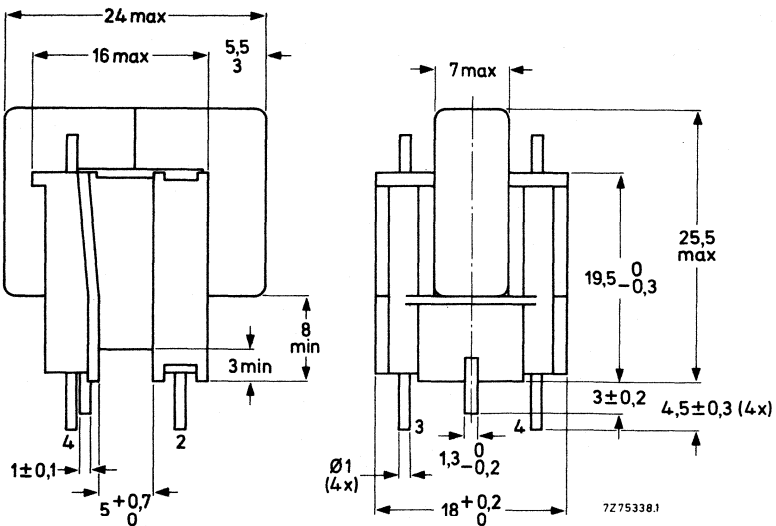
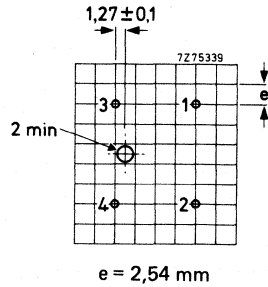


Fig.1

Mounting

Fig.2 Hole pattern for mounting on a printed-wiring board; hole diameter $1,3 + 0,1$ mm. Viewed from the component side.



ELECTRICAL DATA

| | | |
|---------------------------------|---------|----------------------|
| Inductance, secondary | (3 - 4) | ≥ 700 mH * |
| Resistance, secondary, at 25 °C | (3 - 4) | $65 \Omega \pm 12\%$ |
| Turns ratio | | 1 : 800 |
| Mains isolation | | acc. to IEC 65 |
| Maximum working temperature | | 115 °C |

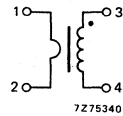


Fig.3

APPLICATION CIRCUIT

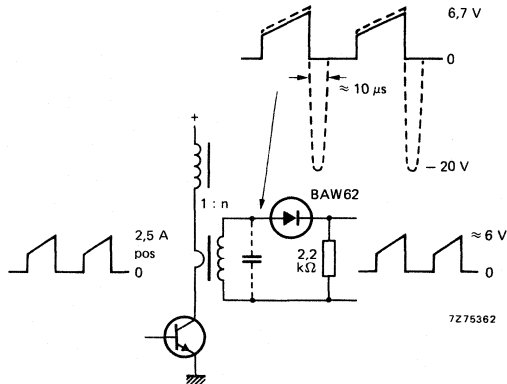


Fig. 4.

* Measuring condition: E = 10 V, f = 1 kHz.

CURRENT SENSING TRANSFORMER with mains isolation

APPLICATION

The AT4043/47 is a current sensing transformer in professional switched-mode power supply circuits. It can also be used as a measuring device in many applications.

MECHANICAL DATA

Dimensions in mm

The ungapped magnetic circuit of the transformer comprises two Ferroxcube U15-cores in grade 3C8. The primary turn is potted in the coil former to guarantee the required isolation. The transformer is provided with 4 pins for mounting on a printed-wiring board.

Outlines

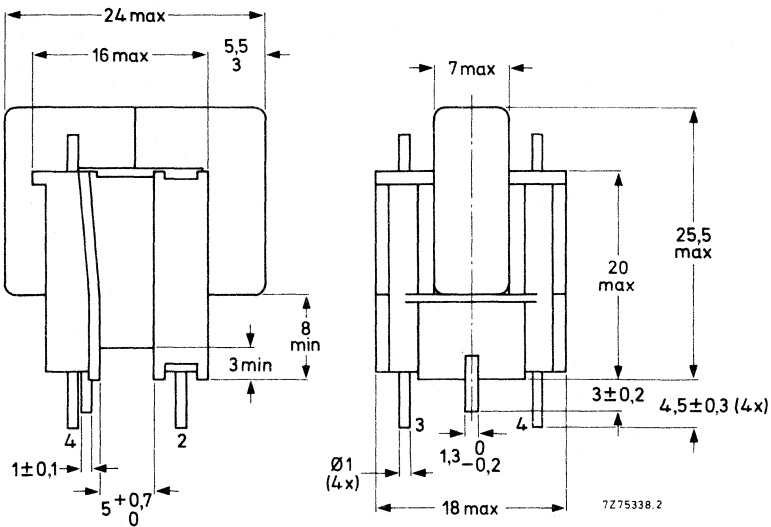
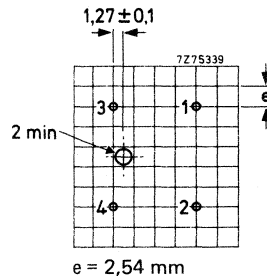


Fig. 1.

Mounting

Fig. 2 Hole pattern for mounting on a printed-wiring board; hole diameter $1,3 + 0,1$ mm. Viewed from the component side.



ELECTRICAL DATA

| | | |
|---------------------------------|---------|--------------------------|
| Inductance, secondary | (4 - 3) | $\geq 12,5 \text{ mH}^*$ |
| Resistance, secondary, at 25 °C | (4 - 3) | $1 \Omega \pm 12\%$ |
| Number of turns | | 1 prim., 100 sec. |
| Mains isolation at 5600 V d.c. | | acc. to IEC 435 |
| Maximum working temperature | | 115 °C |
| Inflammability | | acc. to UL94V-1 |

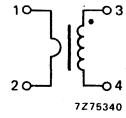
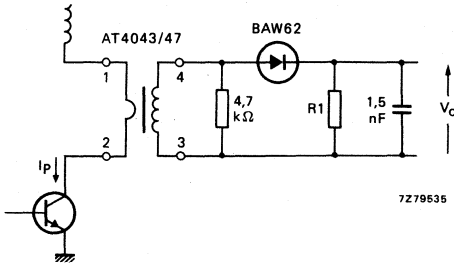


Fig. 3.

APPLICATION CIRCUIT



| typical values | | | | | |
|----------------|-------|----------|---------------|-------|--|
| I_p | V_o | R_1 | t_p | droop | |
| A | V | Ω | μs | % | |
| 10 | 1 | 10 | 20 | 3 | |
| 5 | 1 | 22 | 20 | 5 | |
| 2,5 | 1 | 39 | 20 | 10 | |
| 2,5 | 1 | 39 | 10 | 5 | |

Fig. 4.

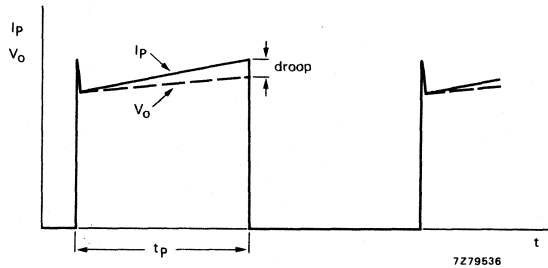


Fig. 5.

* Measuring condition: $E = 1,3 \text{ V}; f = 1 \text{ kHz}$.

The transformer withstands the following tests:

| test | IEC68 test method | procedure |
|----------------------------|----------------------|---|
| bump | Eb | 1000 bumps, acceleration 40g, 6 directions |
| vibration | Fc | freq. 10-55-10 Hz, ampl. 0,75 mm, 6 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days 40 °C; 93% R.H. |
| damp heat, cyclic | Db | 21 days 40 °C |
| change of temperature | Na. | -25 °C, +125 °C; 5 cycles |
| dry heat | Bb | 16 h + 125 °C |
| solderability | T | 230 ± 10 °C, 2 ± 0,5 s |

THYRISTOR TRIGGER AND TRANSISTOR DRIVER TRANSFORMERS

- Mains isolation

APPLICATION

These transformers have been designed for use as thyristor and triac trigger transformers in professional applications where highly reliable primary to secondary voltage isolation is required, and as transistor driver transformers typically for use in switched-mode power supplies.

MECHANICAL DATA

Dimensions in mm

The magnetic circuits of the transformers comprise two Ferroxcube U20 cores in grade 3C8. Type AT4043/48 is ungapped, type AT4043/63 has two $60\ \mu\text{m}$ gap spacers. The primary and secondary windings are wound on a two-part coil former with large creepage and clearance distances which ensure very safe isolation between mains and control circuits. The transformers are provided with pins for mounting on a printed-wiring board.

Outlines

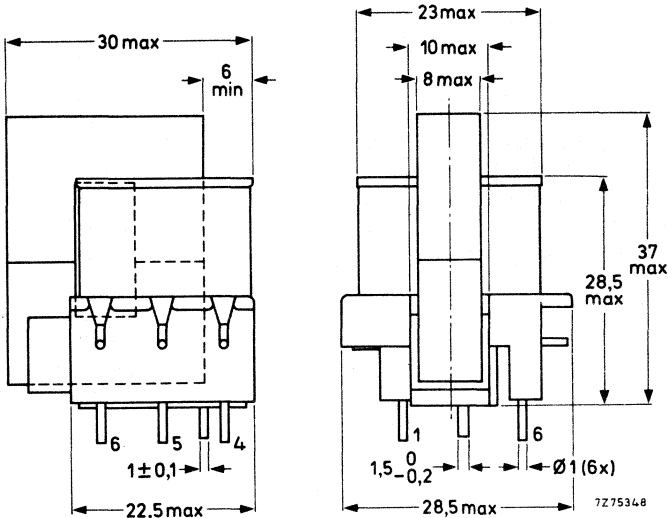


Fig. 1.

Mounting

Fig. 2 Hole pattern for mounting on a printed-wiring board; hole diameter $1,3 + 0,1$ mm. Viewed from the component side.

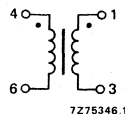
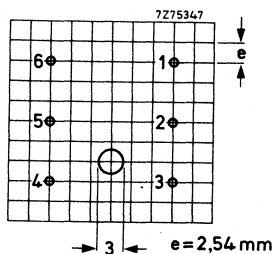


Fig. 3.

ELECTRICAL DATA (see Fig. 3)

| | AT4043/48 | AT4043/63 |
|--|------------------------|------------------------|
| Inductance primary * (4 - 6) | ≥ 6 mH | $\geq 1,9$ mH |
| Resistance at 25 °C (4 - 6) | $0,9 \Omega \pm 12\%$ | $0,9 \Omega \pm 12\%$ |
| Inductance, secondary (1 - 3) | 0,66 mH | 0,22 mH |
| Resistance at 25 °C (1 - 3) | $0,05 \Omega \pm 12\%$ | $0,05 \Omega \pm 12\%$ |
| Leakage inductance primary, secondary short-circuited ** | $\leq 60 \mu\text{H}$ | |
| Leakage inductance secondary, primary short-circuited ** | $\leq 6 \mu\text{H}$ | |
| Turns ratio 4-6/3-1 | 3/1 | |
| Maximum Et product | 1 mWb | |
| Maximum primary current (r.m.s.) for non-simultaneous switching | 1 A | |
| Test voltage (d.c.) of winding 1-3 to winding 4-6 and core for 1 min | 5600 V | |
| Test voltage (d.c.) of winding 4-6 to core for 1 min | 500 V | |
| Ambient temperature range operating | -25 to +80 °C | |
| storage | -40 to +100 °C | |
| Inflammability | acc. to UL94 V-1 | |

* Measuring condition: $E = 1,5$ V, $f = 1$ kHz.

** Measuring condition: $E \leq 250$ mV; $0,8$ MHz $\leq f \leq 1$ MHz.

Environmental tests

The transformers withstand the following tests:

| test | IEC68 test method | procedure |
|-------------------------|-------------------|---|
| bump | Eb | 1000 bumps, acceleration 40g, 6 directions |
| vibration | Fc | freq. 10-55-10 Hz, ampl. 0,75 mm 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C, 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, +125 °C, 5 cycles |
| dry heat | Bb | 16 h, +125 °C |
| solderability | T | 230 ± 10 °C, 2 ± 0,5 s |

APPLICATION CIRCUITS

Type AT4043/48 used as a thyristor trigger transformer. This transformer is suitable for triggering all our thyristors and triacs.

Typical operating conditions:

| | |
|----------------------|----------|
| Rise time | ≤ 0,5 μs |
| Pulse duration | 15 μs |
| Duty factor | 0,25 |
| Trigger peak current | 750 mA |

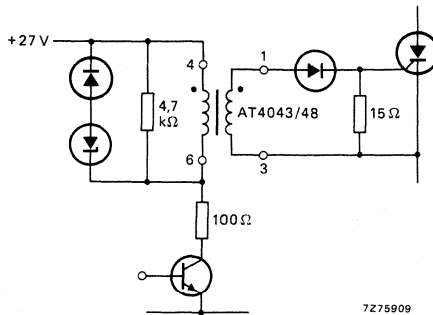


Fig. 4 Typical circuit.

Type AT4043/48 or type AT4043/63 as a transistor driver transformer.

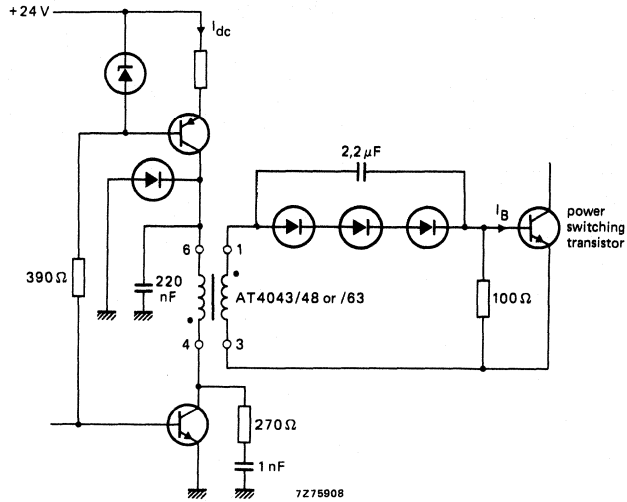


Fig. 5 Typical circuit.

Typical operating conditions:

AT4043/48

| frequency kHz | I_{dc} mA | I_{B1} A | I_{B2} A |
|------------------|----------------|---------------|---------------|
| 20 | 160 | 0,9 | 0,4 |
| 50 | 230 | 1,0 | 0,7 |

AT4043/63

| frequency kHz | I_{dc} mA | I_{B1} A | I_{B2} A |
|------------------|----------------|---------------|---------------|
| 20 | 310 | 1,5 | 1,0 |
| 50 | 290 | 1,2 | 1,0 |

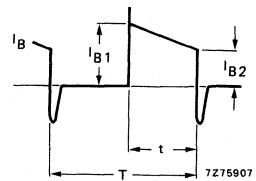


Fig. 6 $\frac{t}{T} = 0,4$.

POWER PACK SYSTEM SUPPLY CHOKE

- For Colour Television

APPLICATION

The DT4043/52A is for use as a supply choke in a power pack system for colour TV receivers. It is used in conjunction with mains transformer TS61/2, mains filter choke AT4043/55, current sensing transformer AT4043/46, line choke AT4043/53 and synchronous power pack transformer AT2076/70A.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube U25 cores, grade 3C8. The choke has 10 pins ($\phi 1 + 0,1$ mm, length $4,5 \pm 0,5$ mm) for mounting on a printed-wiring board. The maximum height of the choke is 36 mm.

Mounting

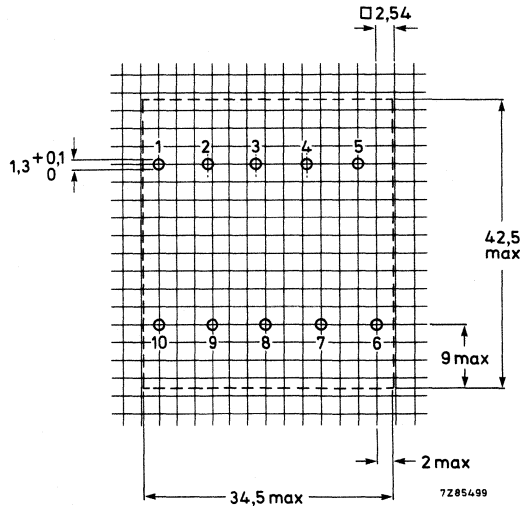


Fig. 1 Hole pattern for mounting on a printed-wiring board, viewed from the solder side.

ELECTRICAL DATA

| | |
|-----------------------------|------------------------------------|
| Inductance, L_{g-2} | 9 mH \pm 10% |
| Resistance, R_{g-2} | 2,3 Ω \pm 12% |
| Maximum peak current | 1,4 A |
| Maximum working temperature | 115 °C |
| Flammability | according to UL94, category V-1 |

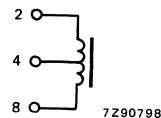


Fig. 2.

POWER PACK SYSTEM LINE CHOKE

for colour television

APPLICATION

The AT4043/53 has been designed for use as a line choke in a power pack system in conjunction with mains transformer TS561/2, power pack transformer AT2076/70A, etc. (see data on relevant transformer).

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the line choke comprises two Ferroxcube U-cores. The unit is provided with pins for mounting on a printed-wiring board.

Outlines

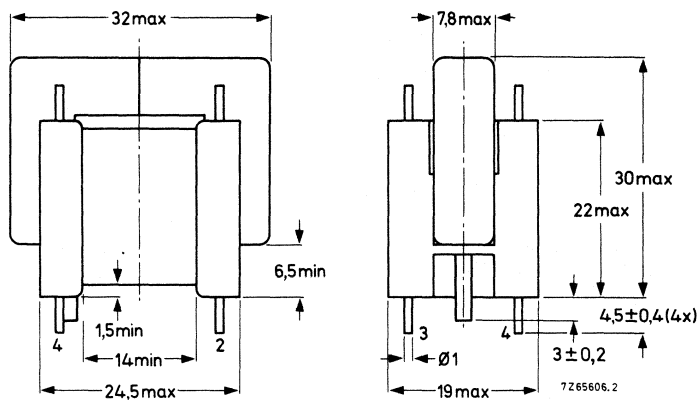


Fig. 1.

Mounting

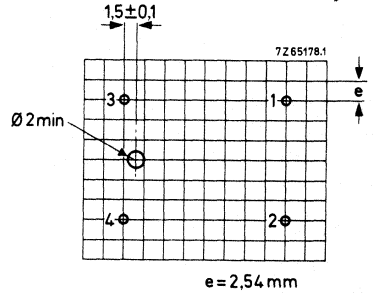


Fig. 2 Hole pattern for mounting on a printed-wiring board, viewed from component side. Hole diameter $1,3 \pm 0,1$ mm.

ELECTRICAL DATA

| | |
|-------------------------------|------------------------|
| Inductance (1-2)* | 12 mH \pm 10% |
| Resistance (1-2) | 9,2 Ω \pm 10% |
| Maximum peak current (1-2) | 525 mA |
| Turns ratio 1-3/1-2 | 0,32 |
| Maximum working temperature | 115 °C |
| Inflammability | UL94V-1 |
| Corona test voltage at 70 kHz | 1700 V peak |

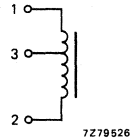


Fig. 3.

With the choke connected in the line timebase circuit with deflection unit AT1270, AT1260 or AT1250:

| | |
|------------------------|--------------|
| Deflection current p-p | 5,35 A |
| Flyback time | 11,5 μ s |
| BU208A | |
| V _{CEM} | 1150 V |
| I _C | 3,1 A |

With deflection unit AT1035/00:

| | |
|------------------------|--------------|
| Deflection current p-p | 2,85 A |
| Flyback time | 11,6 μ s |
| BU205 or BU208A | |
| V _{CEM} | 1000 V |
| I _C | 1,7 A |

* Measuring condition: E = 1 V, f = 1 kHz.

APPLICATION CIRCUITS

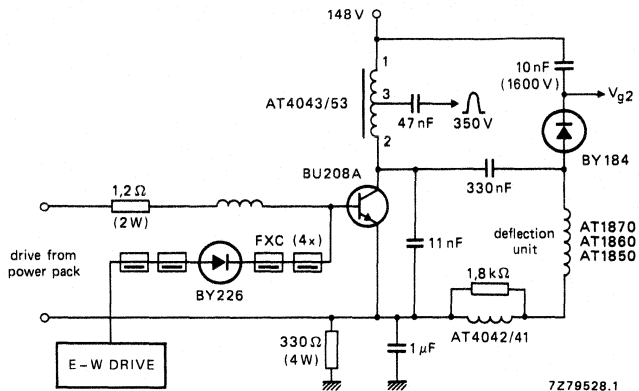


Fig. 4 Circuit for 110° deflection.

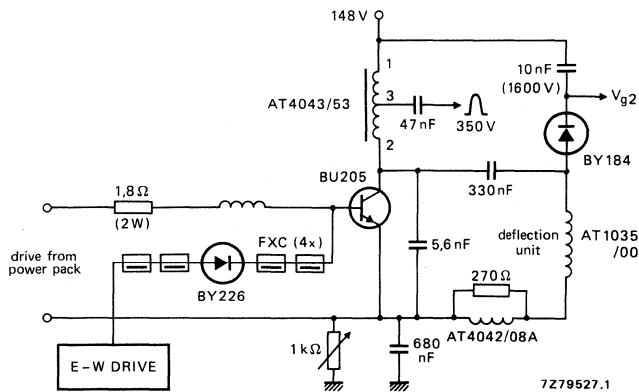


Fig. 5 Circuit for 90° deflection.



MAINS FILTER CHOKE FOR 1,5 A rms

APPLICATION

The AT4043/55 has been designed for use in consumer and professional equipment as part of the filter network in the power supply.

MECHANICAL DATA

The magnetic circuit of the filter choke comprises two Ferroxcube U25 cores. The unit is provided with four pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

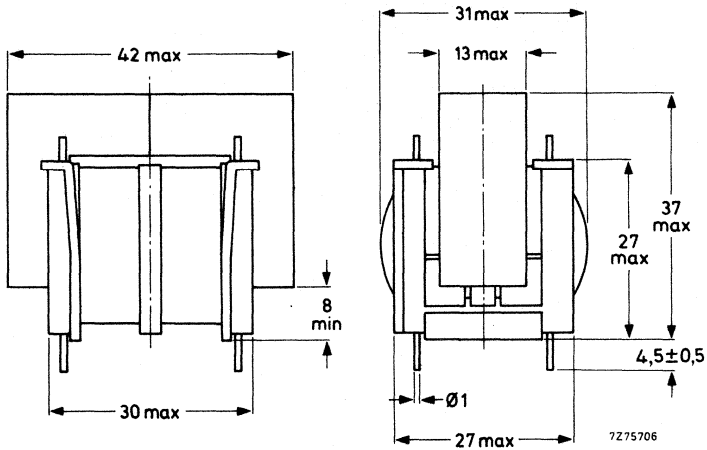
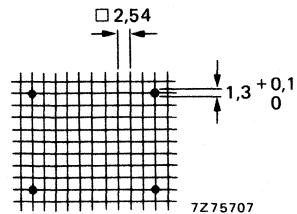


Fig. 1.

Fig. 2 Hole pattern for mounting on a printed-wiring board. Viewed from the solder side. The windings may be interchanged because the coil is symmetrical.



Marking

The catalogue number is printed on the Ferroxcube core.

ELECTRICAL DATA

| | |
|--|--------------|
| Inductance, $L_{1-2} = L_{3-4}$ | ≥ 25 mH |
| Resistance, $R_{1-2} = R_{3-4}$, at 25 °C | 0,5 Ω |
| Leakage inductance | |
| $L_s(1-2)$, L_{3-4} short-circuited | 0,65 mH |
| $L_s(3-4)$, L_{1-2} short-circuited | 0,65 mH |
| Capacitance | 37 pF |
| Maximum current (r.m.s.) | 2 A |
| Maximum working temperature | 115 °C |

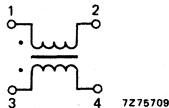


Fig. 3.

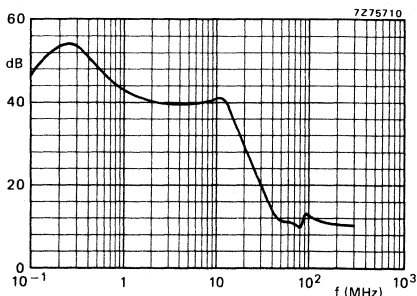


Fig. 4 Insertion loss measured in the 60 Ω circuit of Fig. 5.

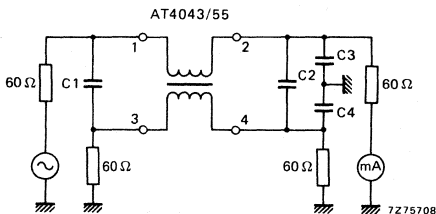


Fig. 5
 $C1 = C3 = C4 = 2200$ pF, 250 V.
 $C2 = 0,47$ μ F, 250 V.

LINE DRIVER TRANSFORMER

- For Monochrome Data Graphic Displays

APPLICATION

This transformer has been designed for use in monochrome monitors. The required supply voltage is 12 V. The transformer is used in conjunction with deflection unit AT1071/03 or AT1074, line-output transformer AT2102/02, and linearity control unit AT4036/00A.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U-cores. The unit is provided with pins for mounting on a printed-wiring board.

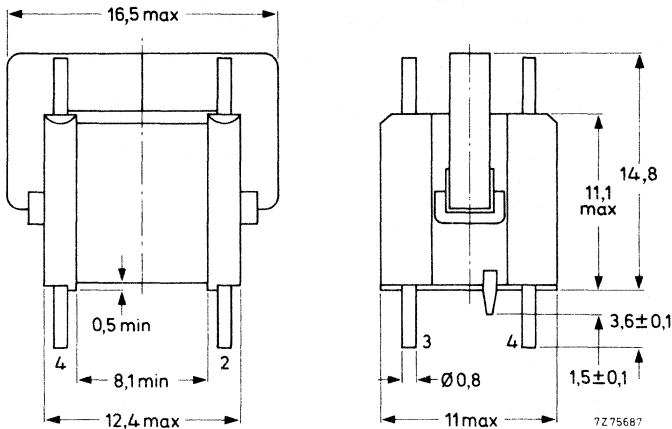
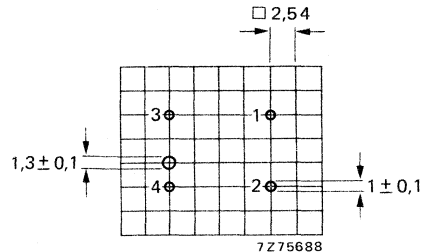


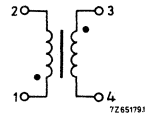
Fig. 1 Line driver transformer AT4043/56.

Fig. 2 Hole pattern for mounting on a printed-wiring board (component side).



ELECTRICAL DATA

| | |
|-------------------------------|--------------|
| Inductance (primary, 1-2) | 5,8 mH ± 15% |
| Inductance (secondary) | ≤ 10 μH |
| Transformation ratio | 4 : 1 |
| Maximum operating temperature | 95 °C |



Application circuit

Fig. 3 Circuit diagram.

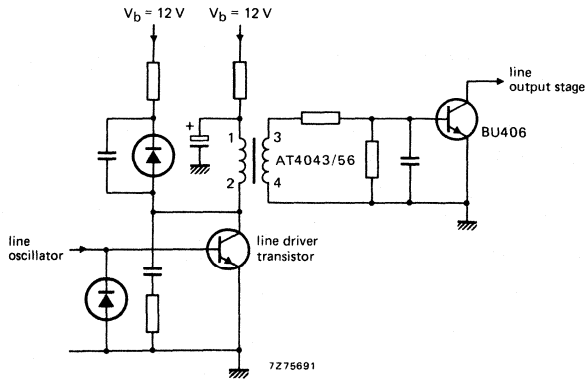


Fig. 4.

SWITCHED-MODE DRIVER TRANSFORMER

APPLICATION

The AT4043/58 driver transformer has been designed for use in switched-mode power supply circuits for 90° colour television receivers, in conjunction with the switched-mode transformer AT2097/01 or DT2097/02.

MECHANICAL DATA

The magnetic circuit of the transformer comprises two Ferroxcube U15-cores. The item is provided with four pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

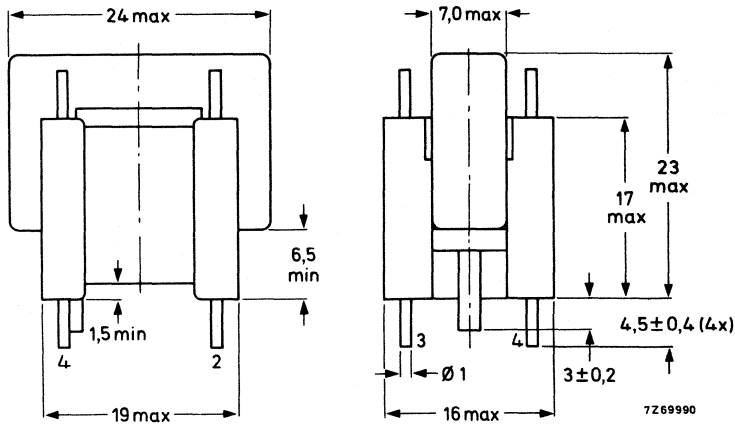


Fig. 1.

Mounting

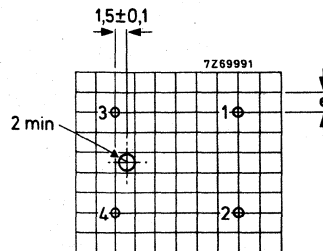


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side). Hole diameter $1,3 \pm 0,1$ mm. $e = 2,54$ mm (0,1 in).

ELECTRICAL DATA

| | |
|--------------------------------------|------------------|
| Inductance primary (1-2) * | ≥ 220 mH |
| Resistance primary (1-2) | 17,5 Ω |
| Resistance secondary (3-4) | 0,27 Ω |
| Leakage inductance secondary (3-4)** | ≤ 5 μ H |
| Transformation ratio 1-2/3-4 | 10 |
| Maximum working temperature | 115 $^{\circ}$ C |

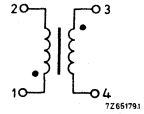


Fig. 3.

* Measuring conditions: E = 6 V; f = 1000 Hz.

** Measuring conditions: primary short-circuited; E = 250 mV; $1,1 \geq f \geq 0,9$ MHz.

LINE DRIVER TRANSFORMER

- For Monochrome Data Graphic Displays

APPLICATION

This transformer has been designed for use in monochrome monitors. The required supply voltage is 24 V. The transformer is used in conjunction with deflection unit AT1038/40A, line-output transformer AT2102/04C and linearity control unit AT4042/08A.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U-cores. The unit is provided with pins for mounting on a printed-wiring board.

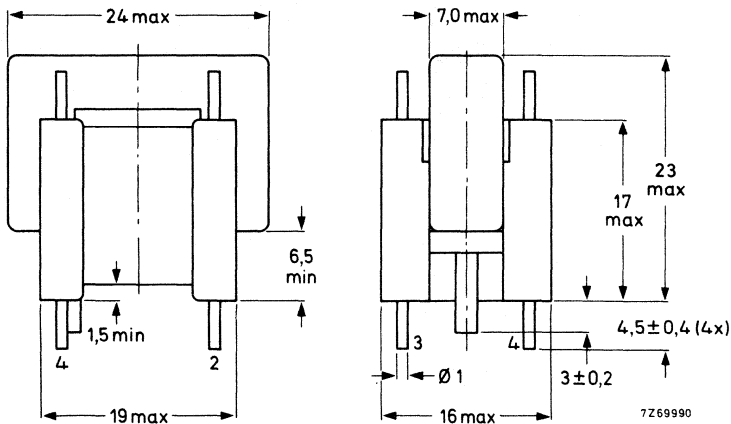


Fig. 1 Line driver transformer AT4043/59.

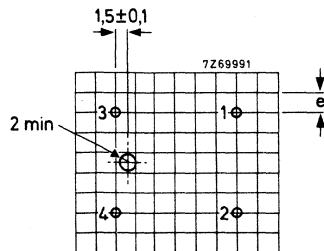


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side). Hole diameter $1,3 \pm 0,1$ mm. $e = 2,54$ mm (0,1 in).

ELECTRICAL DATA

| | |
|--------------------------------|----------------------|
| Inductance (primary, 1-2) | 6,1 mH |
| Leakage inductance (secondary) | 12 μ H \pm 15% |
| Transformation ratio | 4,18 : 1 |
| Maximum operating temperature | 95 $^{\circ}$ C |

Application circuit

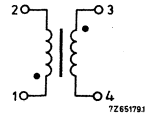


Fig. 3 Circuit diagram.

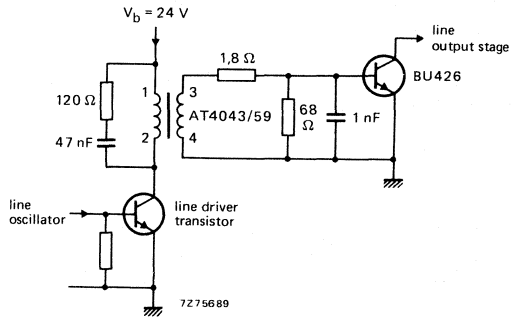


Fig. 4.

E/W INJECTION COIL

- For colour Television

APPLICATION

This injection coil is for the line deflection output stage of the 45AX system.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the injection coil comprises two Ferroxcube U15-cores. The coil has four pins for mounting on a printed-wiring board.

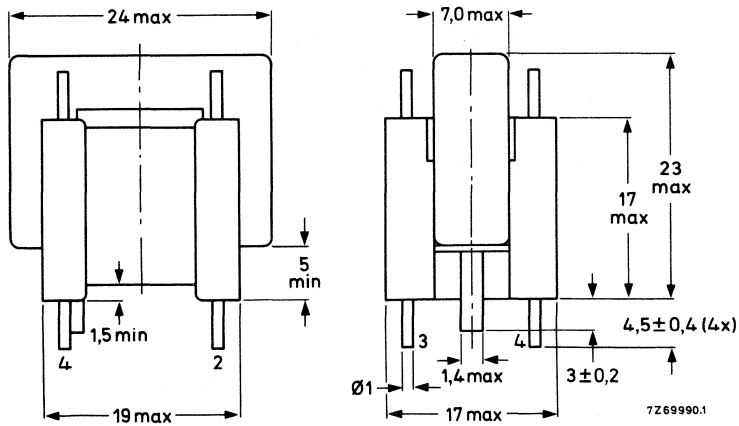
Outlines

Fig. 1.

Mounting

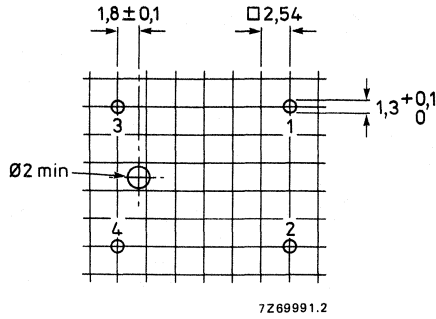


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side).

ELECTRICAL DATA

| | |
|--------------------------------|-------------|
| Inductance * | 15 mH ± 12% |
| Resistance | max. 3 Ω |
| Maximum current (r.m.s. value) | 1,2 A |
| Maximum working temperature | 100 °C |

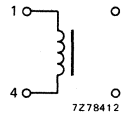


Fig. 3.

* Measuring conditions: E = 3,3 V; f = 1000 Hz.

LINE DRIVER TRANSFORMER

- For Monochrome Data Graphic Displays

APPLICATION

This transformer has been designed for use in monochrome monitors. The required supply voltage is 12 V. The transformer is used in conjunction with deflection unit AT1071/03, line-output transformer AT2102/02, and linearity control unit AT4036/00A.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U-cores. The unit is provided with pins for mounting on a printed-wiring board.

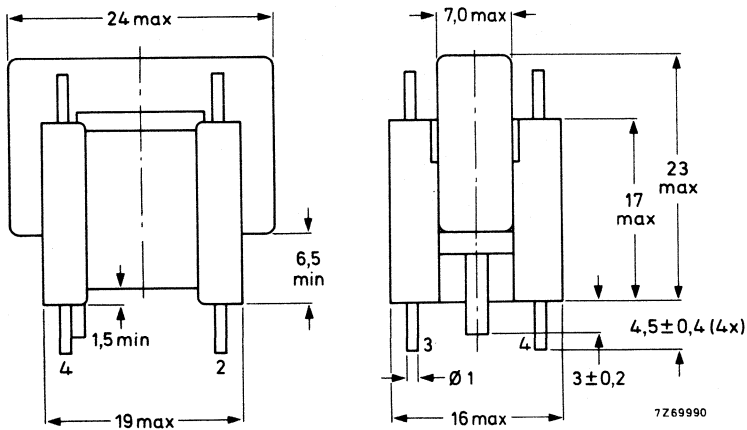


Fig. 1 Line driver transformer AT4043/64.

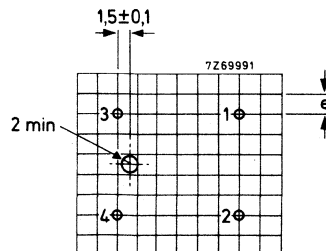


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side). Hole diameter $1,3 \pm 0,1$ mm. $e = 2,54$ mm (0,1 in).

ELECTRICAL DATA

| | |
|--------------------------------|---------------------|
| Inductance (primary, 1-2) | 1,2 mH |
| Leakage inductance (secondary) | 5 μ H \pm 10% |
| Transformation ratio | 2 : 1 |
| Maximum operating temperature | 95 $^{\circ}$ C |

Application circuit

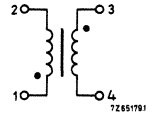


Fig. 3 Circuit diagram.

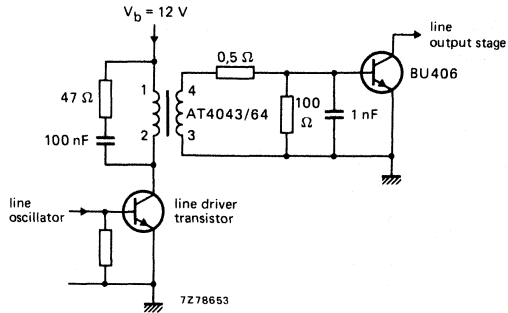


Fig. 4.

DYNAMIC FOCUSING TRANSFORMER

- For Monochrome Data Graphic Displays

APPLICATION

This transformer has been designed to improve the overall picture sharpness of the CRT. It is applied in series with the line coils of the deflection unit to generate a voltage which is fed to the focus electrode.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U20-cores, grade 3C8. The primary and secondary windings are wound on a two-part coil former.

The transformer is provided with 6 pins for mounting on a printed-wiring board.

Outlines

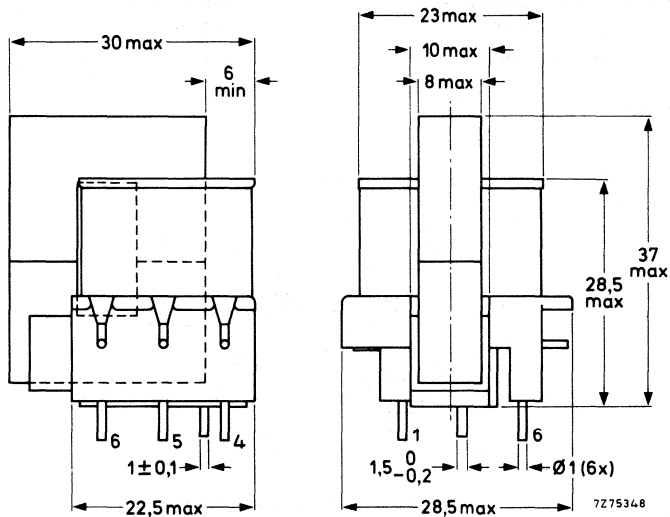
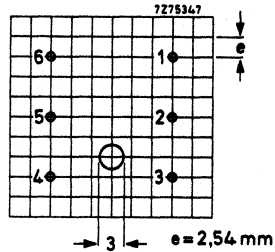


Fig. 1.

Mounting

Fig. 2 Hole pattern for mounting on a printed-wiring board; hole diameter $1,3 \pm 0,1$ mm. Viewed from the component side.



ELECTRICAL DATA

| | |
|---|----------------------|
| Inductance, secondary (1-3)* | ≥ 1 H |
| Resistance, primary (4-6), at 23 °C | $\leq 0,05$ Ω |
| Resistance, secondary (1-3), at 23 °C | ≤ 44 Ω |
| Voltage ratio E_{1-3}/E_{4-6} ** | $60,75 \pm 5\%$ |
| Maximum permissible current (r.m.s. value) | |
| primary (4-6) | 3 A |
| secondary (1-3) | 0,125 A |
| Mains isolation | according to IEC 65 |
| Breakdown voltage | |
| between winding 1-3 and winding 4-6 or core | ≥ 5600 V (d.c.) |
| between winding 4-6 and core | ≥ 500 V (d.c.) |
| Maximum working temperature | 115 °C |

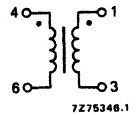


Fig. 3.

Application circuit

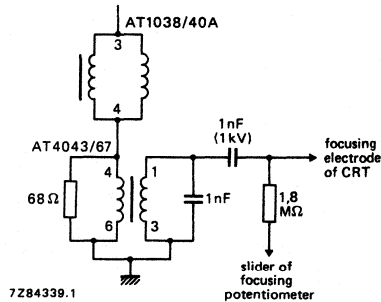


Fig. 4 Application circuit for use with deflection unit AT1038/40A.

* Measuring condition: $E = 20$ V, $f = 1$ kHz.
 ** Measuring condition: $E_{1-3} = 5$ V, $f = 1$ kHz.

TESTS AND REQUIREMENTS

The dynamic focusing transformer withstands the following tests.

| IEC 68-2 test method | name of test | procedure (quick reference) |
|----------------------|----------------------------------|---|
| Ua1 | Tensile strength of terminations | |
| Ub (method 1) | Bending of terminations | |
| Fc | Vibration | Frequency range 10-55-10 Hz, amplitude 0,35 mm, 3 directions, 30 min per direction. |
| Eb | Bump | 1000 bumps in 6 directions, acceleration 25 g. |
| Ea | Shock | Half-sine pulse shape, 11 ms, 50g, 6 directions, 3 shocks per direction. |
| Ta (method 1) | Soldering | Solder temp. 230 °C, dwell time 2 s. |
| Tb (method 1A) | Resistance to soldering heat | |
| Bb | Dry heat | 96 h at + 100 °C. |
| Db | Damp heat, cyclic | 21 cycles of 24 h at + 40 °C, R.H. 95%. |
| Ab | Cold | 96 h at -40 °C. |
| Ca | Damp heat, steady state | 21 days. |
| Na | Rapid change of temperature | 5 cycles of -25 °C/+ 100 °C. |
| | Flammability | UAN-L1082, class b. |

BRIDGE COIL

APPLICATION

The AT4043/68 is designed for the horizontal deflection output stage of 110° and 90° colour deflection systems. It is used in conjunction with the three-layer diode-split line output transformer AT2076/51, AT2076/81 or AT2077/81.

MECHANICAL DATA (Dimensions in mm)

The coil is wound on a combination of two Ferroxcube U15-cores. It has four termination pins for mounting through a printed-wiring board.

Outlines

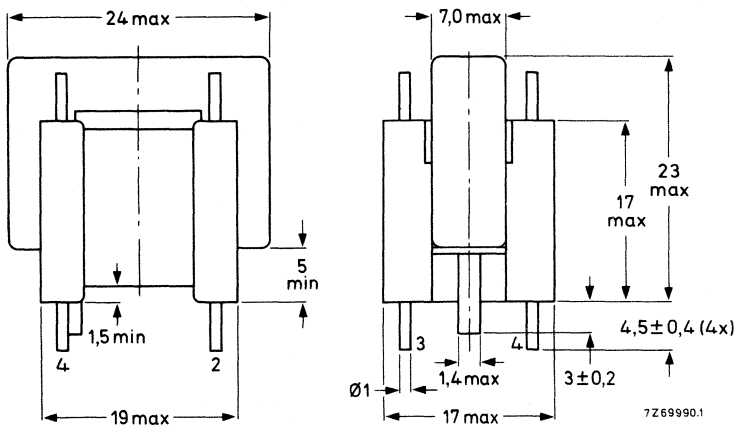


Fig. 1.

Mounting

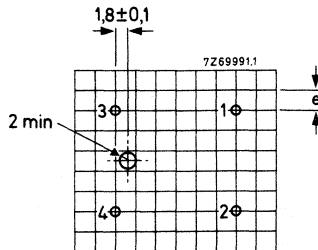


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side). Hole diameter $1,3 \pm 0,1$ mm. $e = 2,54$ mm (0,1 in).

ELECTRICAL DATA

| | |
|------------------------------|-------------------|
| Inductance* | 0,52 mH \pm 10% |
| Resistance | max. 0,6 Ω |
| Maximum peak-to-peak voltage | 800 V |
| Maximum peak-to-peak current | 2,9 A |
| Maximum working temperature | 100 $^{\circ}$ C |

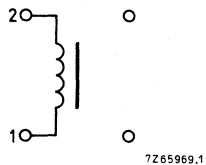


Fig. 3.

* Measuring conditions: E = 0,3 V; f = 1000 Hz.

BRIDGE COIL

- For Colour Data Graphic Displays

APPLICATION

The AT4043/69 is for the horizontal deflection output stage of 90° colour deflection systems. It is used in conjunction with the three-layer diode-split line output transformer AT2076/81 or AT2076/51, driver transformer AT4043/01, shift transformer AT4043/09 and dynamic focusing transformer AT4043/67.

MECHANICAL DATA

The coil is wound on a Ferroxcube I-15 core. It has four termination pins for mounting on a printed-wiring board.

Outlines

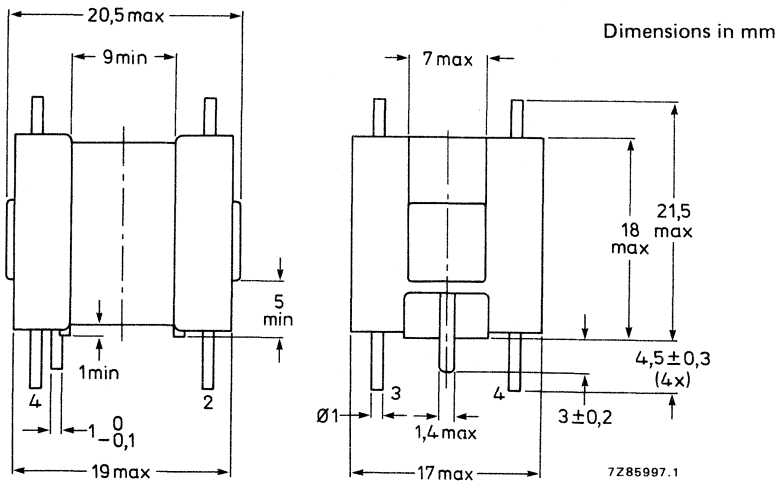


Fig. 1.

Mounting

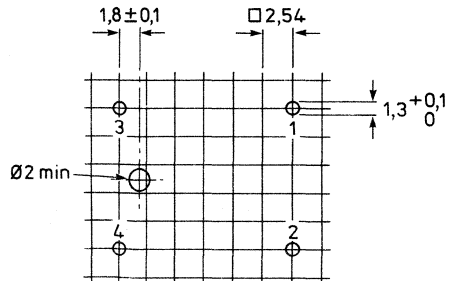


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side).

7269991.2

ELECTRICAL DATA

| | |
|-----------------------------|--------------------|
| Inductance * | 1,0 mH \pm 10% |
| Resistance | max. 1,07 Ω |
| Maximum working temperature | 100 °C |

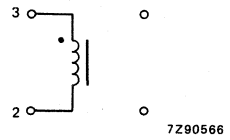


Fig. 3.

* Measuring conditions: E = 2,7 V; f = 1000 Hz.

INPUT CHOKE

- For single switch power pack system

APPLICATION

The AT4043/81 is for use as a supply choke in the single switch power pack system (S²P²) for colour TV receivers. It is used in conjunction with mains transformer TS561/2 or TS521B, mains filter choke AT4043/55, current sensing transformer AT4043/46, driver transformer AT4043/82 and diode-split line output transformer AT2076/80.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube U25 cores, grade 3C8. The choke has 10 pins ($\phi 1 + 0,1$ mm, length $4,5 \pm 0,5$ mm) for mounting on a printed-wiring board. The maximum height of the choke is 36 mm.

Mounting

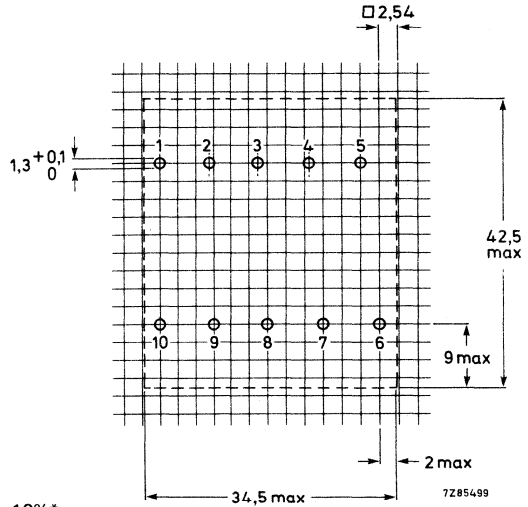


Fig. 1 Hole pattern for mounting on a printed-wiring board, viewed from the solder side.

ELECTRICAL DATA

| | |
|-----------------------------|---------------------------------|
| Inductance (1-7) | 25 mH $\pm 10\%^*$ |
| Resistance (1-4) | 1,45 $\Omega \pm 10\%$ |
| Resistance (4-7) | 1,85 $\Omega \pm 10\%$ |
| Resistance (10-3) | 28 $\Omega \pm 10\%$ |
| Maximum peak current (1-7) | 0,55 A |
| Maximum peak current (1-4) | 1,1 A |
| Maximum working temperature | 115 °C |
| Flammability | according to UL94, category V1. |

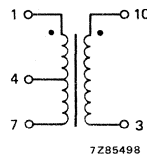


Fig. 2.

* Measuring conditions: E = 20 V, f = 1 kHz.

DRIVER TRANSFORMER

- For single switch power pack system
- Mains insulation

APPLICATION

The AT4043/82 is for use as a transistor driver transformer in the single switch power pack system (S²P²) for colour TV receivers. It is used in conjunction with mains transformer TS561/2 or TS521B, mains filter choke AT4043/90, current sensing transformer AT4043/46, input choke AT4043/81 and diode-split line output transformer AT2076/80 or AT2077/80.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit comprises two Ferroxcube U20 cores, grade 3C8. The primary and secondary windings are wound on a two-part coil former with large creepage distances and clearances, which ensure safe insulation between the mains and control circuits. The transformer has six pins for mounting on a printed-wiring board.

Outlines

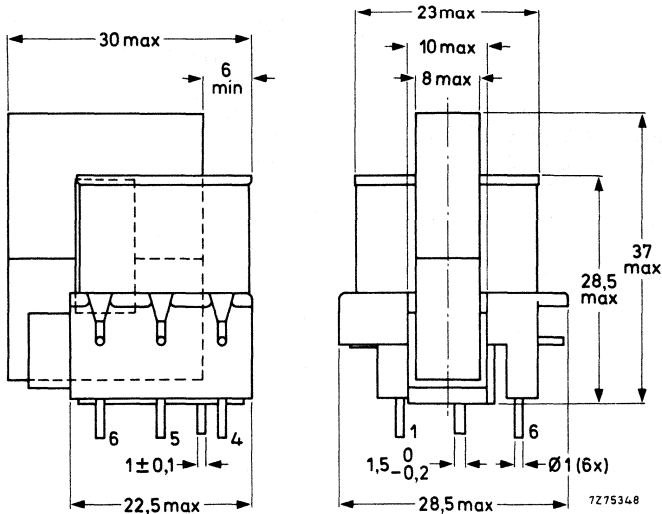
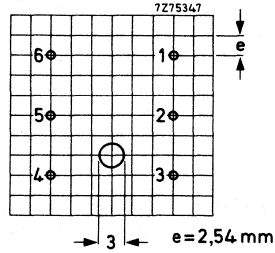


Fig. 1.

Mounting

Fig. 2 Hole pattern for mounting on a printed-wiring board; hole diameter 1,3 + 0,1 mm. Viewed from the component side.



ELECTRICAL DATA

| | |
|---|--------------------------------|
| Inductance, primary (4-6) | $\geq 6,8 \text{ mH}^*$ |
| Resistance, primary (4-6), at 25 °C | $2,6 \Omega \pm 10\%$ |
| Leakage inductance, secondary (1-3) | $17 \mu\text{H} \pm 10\%^{**}$ |
| Resistance, secondary (1-3) | $0,11 \Omega \pm 10\%$ |
| Transformation ratio | 3,24 |
| Permissible current (r.m.s. value) | |
| primary (4-6) | 200 mA |
| secondary (1-3) | 500 mA |
| Mains isolation | according to IEC65 |
| Breakdown voltage (d.c.) | |
| between secondary (1-3) and primary (4-6) or core | $\geq 5600 \text{ V}$ |
| between primary (4-6) and core | $\geq 500 \text{ V}$ |
| Maximum working temperature | 115 °C |

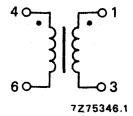


Fig. 3.

* Measuring condition: $E = 3 \text{ V}$, $f = 1 \text{ kHz}$.

** Measuring condition (primary short-circuited): $E \leq 250 \text{ mV}$, $500 \text{ kHz} \leq f \leq 600 \text{ kHz}$.

LINE DRIVER TRANSFORMER

- For Monochrome Data Graphic Displays

APPLICATION

This transformer is for use in monochrome monitors. The required supply voltage is 70 V. The transformer is used in conjunction with deflection unit AT1039/01, line-output transformer AT2076/53 and linearity control unit AT4036/00A.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U20-cores. The unit has pins for mounting on a printed-wiring board.

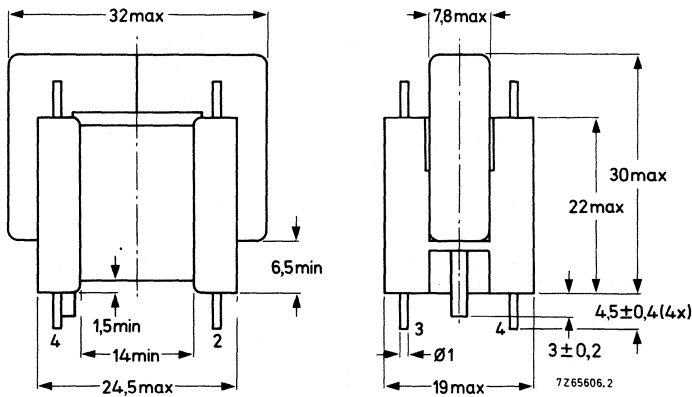


Fig. 1 Line driver transformer AT4043/83.

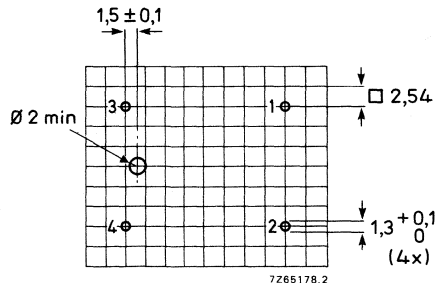


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side). Hole diameter $1,3 + 0,1$ mm; $e = 2,54$ mm (0,1 in).

ELECTRICAL DATA

| | |
|--------------------------------|---------------------|
| Inductance (primary, 1 - 4) | 80 mH \pm 12% |
| Leakage inductance (secondary) | 6 μ H \pm 15% |
| Transformation ratio | 12,1 : 1 |
| Maximum operating temperature | 95 $^{\circ}$ C |

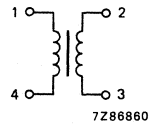


Fig. 3 Circuit diagram.

Application circuit

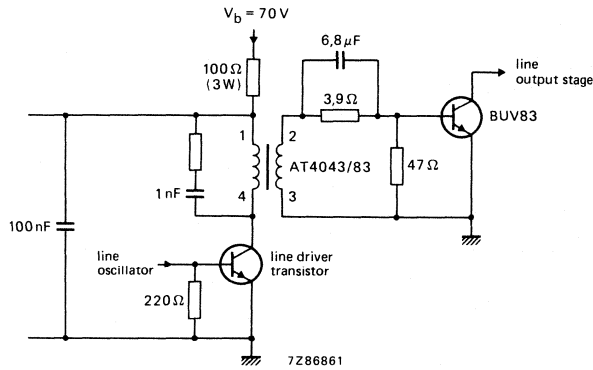


Fig. 4.

Note: Complete description is given in Technical Publication 058: "A full-page data graphic display unit (C62) operating at a line frequency of 32 kHz".

LINE DRIVER TRANSFORMER

APPLICATION

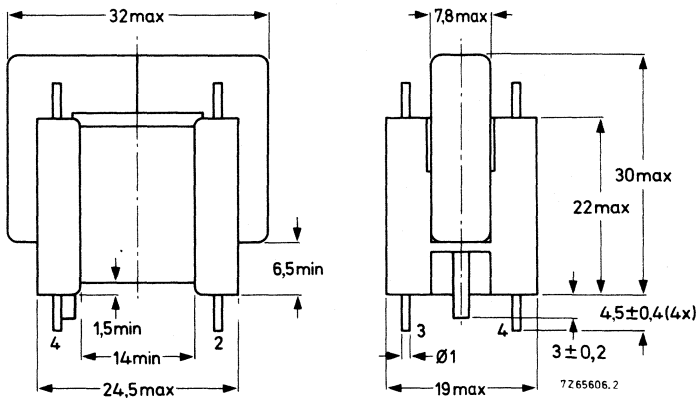
The transformer AT4043/87 has been designed for all-transistor black/white and colour television sets. In black and white television sets it can be used in the single-transistor (BU205) line-output circuit in conjunction with the line-output transformer AT2048/12; in colour television sets it can be used in the single-transistor (BU208A) line-output circuit in conjunction with the line-output transformer AT2076/30.

MECHANICAL DATA

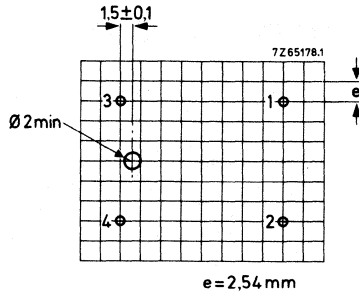
Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U-cores. The unit is provided with pins for mounting on a printed-wiring board.

Outlines



Mounting



Hole pattern for mounting on a printed-wiring board; hole diameter $1,3 + 0,1$ mm.

ELECTRICAL DATA

Inductance (primary, 1-4)

$76 \text{ mH} \pm 12\%$

Leakage inductance (secondary)*

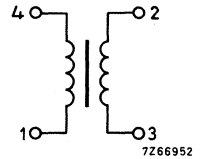
$\leq 2,0 \mu\text{H}$

Transformation ratio 4-1/2-3

29 : 1

Maximum working temperature

100 °C



* Primary short circuited.

LINE DRIVER TRANSFORMER

- For colour TV ("Two Chip Design")

APPLICATION

This transformer is for use in economic colour TV receivers with 14 or 16 in 90° picture tubes, in conjunction with line-output transformer AT2078/06 and linearity corrector AT4042/90 or AT4042/91.

MECHANICAL DATA

Dimensions in mm

The magnetic circuit of the transformer comprises two Ferroxcube U10-cores. The unit has pins for mounting on a printed-wiring board.

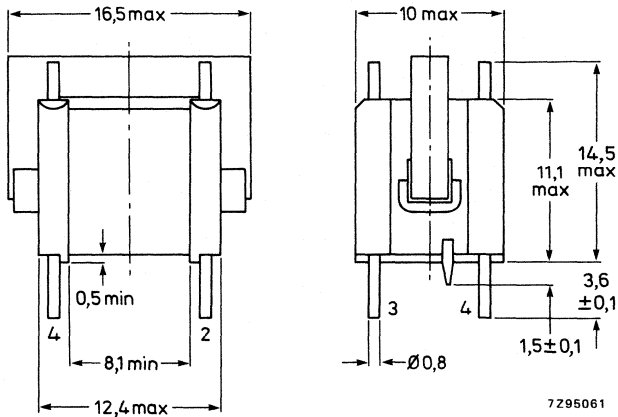


Fig. 1 Line driver transformer AT4043/89.

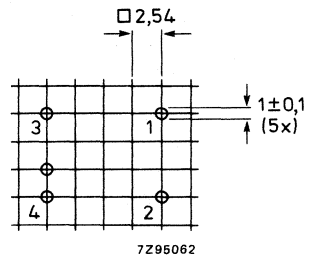


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side).

ELECTRICAL DATA

Inductance (primary, 1 – 2)
Transformation ratio
Maximum operating temperature

3,85 mH \pm 15%
5:1
95 °C

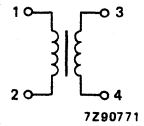


Fig. 3 Circuit diagram.

MAINS FILTER CHOKE FOR 1,0 A rms

APPLICATION

The AT4043/90 is for use in consumer and professional equipment as a part of the filter network in the power supply.

MECHANICAL DATA

The magnetic circuit of the filter choke comprises two Ferroxcube U20 cores. The choke has four pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

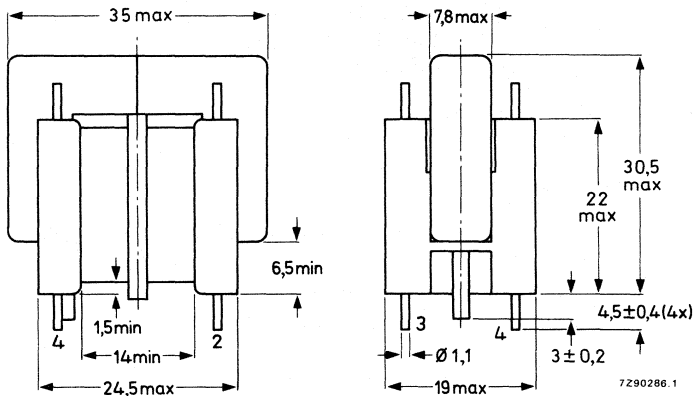
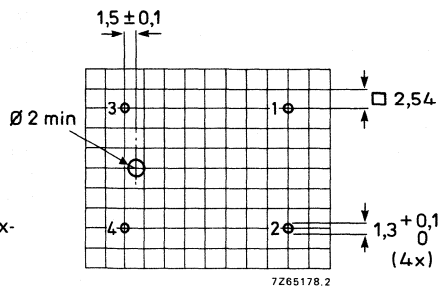


Fig. 1.

Fig. 2 Hole pattern for mounting on a printed-wiring board (component side). The windings may be interchangeable because the coil is symmetrical.

Marking

The 12-digit catalogue number is printed on the Ferroxcube cores.



ELECTRICAL DATA

| | |
|--|------------------------|
| Inductance, $L_{1-2} = L_{3-4}$ | $\geq 28 \text{ mH}^*$ |
| Resistance, $R_{1-2} = R_{3-4}$, at 25 °C | 1,0 Ω |
| Leakage inductance | |
| $L_s(1-2)$, L_{3-4} short-circuited | 0,75 mH |
| $L_s(3-4)$, L_{1-2} short-circuited | 0,75 mH |
| Maximum current (r.m.s.) | 1,0 A |
| Maximum working temperature | 115 °C |

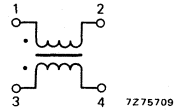


Fig. 3.

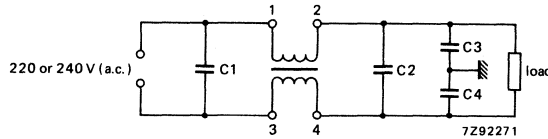


Fig. 4 Application circuit.
 $C1 = C3 = C4 = 3300 \text{ pF}$, 250 V;
 $C2 = 0,47 \text{ }\mu\text{F}$, 250 V.

The choke withstands the following tests:

| test | IEC 68 test method | procedure |
|-------------------------|--------------------|--|
| bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C; 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, + 100 °C; 5 cycles |
| dry heat | Bb | 96 h, + 100 °C |
| solderability | Ta | 230 ± 10 °C, 2 ± 0,5 s |

Reliability

| | |
|---|---------------|
| Maximum cumulative percentage catastrophic failures | |
| after 300 h | $\leq 0,01\%$ |
| after 10 000 h | $\leq 0,02\%$ |
| after 30 000 h | $\leq 1\%$ |

* Measured at 1 V, 1 kHz.

MAINS FILTER CHOKE FOR 0,25 A rms

APPLICATION

The AT4043/91A is for use in consumer and professional equipment as a part of the filter network in the power supply.

MECHANICAL DATA

The magnetic circuit of the filter choke comprises two Ferroxcube U15 cores. The choke has four pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

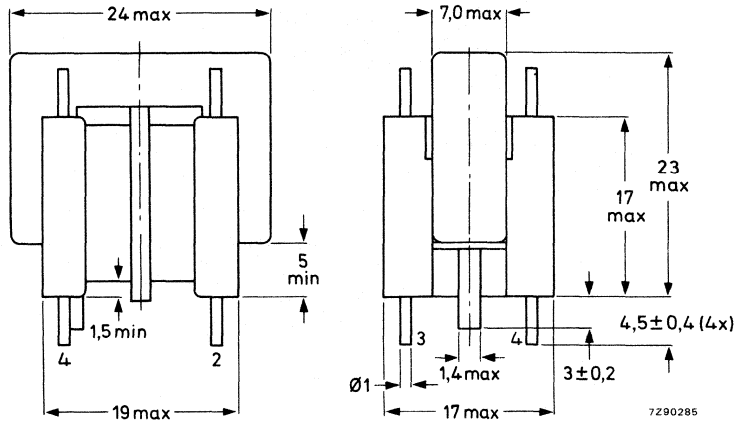
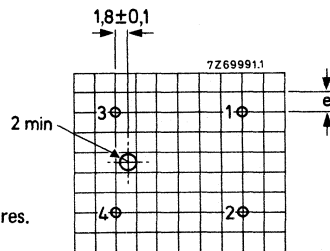


Fig. 1.

Fig. 2 Hole pattern for mounting on a printed-wiring board (component side); $e = 2,54$ mm; hole diameter is $1,3 + 0,1$ mm. The windings may be interchanged because the coil is symmetrical.

Marking

The 12-digit catalogue number is printed on the Ferroxcube cores.



ELECTRICAL DATA

| | |
|--|------------------------|
| Inductance, $L_{1-2} = L_{3-4}$ | $\geq 40 \text{ mH}^*$ |
| Resistance, $R_{1-2} = R_{3-4}$, at 25 °C | $5,0 \Omega \pm 12\%$ |
| Leakage inductance | |
| $L_s(1-2)$, L_{3-4} short-circuited | 1,5 mH |
| $L_s(3-4)$, L_{1-2} short-circuited | 1,5 mH |
| Maximum current (r.m.s.) | 0,25 A |
| Maximum working temperature | 115 °C |

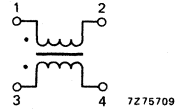


Fig. 3.

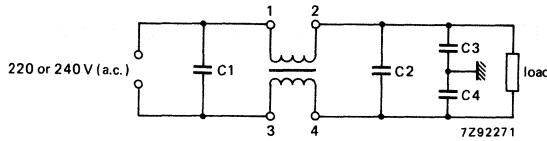


Fig. 4 Application circuit.
 $C1 = C3 = C4 = 3300 \text{ pF}$; 250 V;
 $C2 = 0,47 \mu\text{F}$, 250 V.

The choke withstands the following tests:

| test | IEC 68 test method | procedure |
|--------------------------|--------------------|---|
| bump | Eb | 1000 bumps, acceleration 245 m/s^2 , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/direction |
| damp, heat, steady state | Ca | 21 days, 40 °C; 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, + 100 °C; 5 cycles |
| dry heat | Bb | 96 h, + 100 °C |
| solderability | Ta | $230 \pm 10 \text{ }^\circ\text{C}$; $2 \pm 0,5 \text{ s}$ |

Reliability

| | |
|---|---------------|
| Maximum cumulative percentage catastrophic failures | |
| after 300 h | $\leq 0,01\%$ |
| after 10 000 h | $\leq 0,02\%$ |
| after 30 000 h | $\leq 1\%$ |

* Measured at 1 V, 1 kHz.

MAINS FILTER CHOKE FOR 0,5 A rms

APPLICATION

The AT4043/92 is for use in consumer and professional equipment as a part of the filter network in the power supply.

MECHANICAL DATA

The magnetic circuit of the filter choke comprises two Ferroxcube U15 cores. The choke has four pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

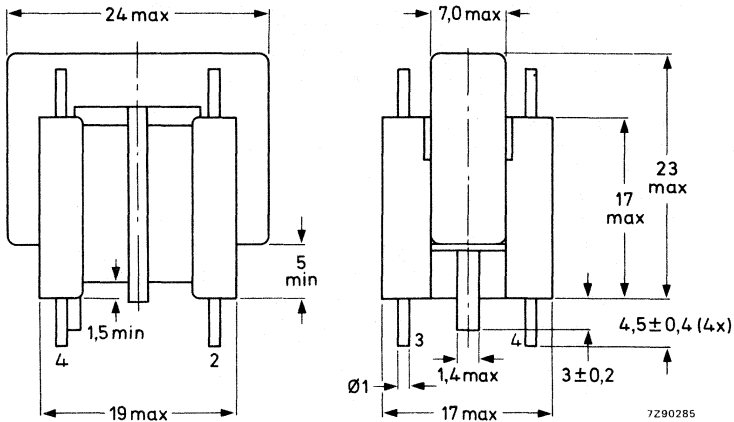
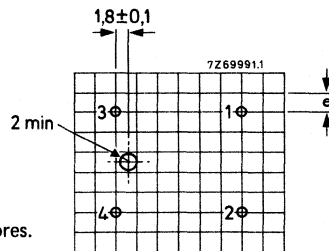


Fig. 1.

Fig. 2 Hole pattern for mounting on a printed-wiring board (component side); $e = 2,54$ mm; hole diameter is $1,3 + 0,1$ mm. The windings may be interchanged because the coil is symmetrical.

Marking

The 12-digit catalogue number is printed on the Ferroxcube cores.



ELECTRICAL DATA

| | |
|--|------------------------|
| Inductance, $L_{1-2} = L_{3-4}$ | $\geq 15 \text{ mH}^*$ |
| Resistance, $R_{1-2} = R_{3-4}$, at 25 °C | 2,0 Ω |
| Leakage inductance | |
| $L_s(1-2)$, L_{3-4} short-circuited | 0,7 mH |
| $L_s(3-4)$, L_{1-2} short-circuited | 0,7 mH |
| Maximum current (r.m.s.) | 0,5 A |
| Maximum working temperature | 115 °C |

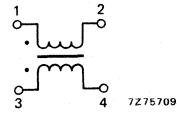


Fig. 3.

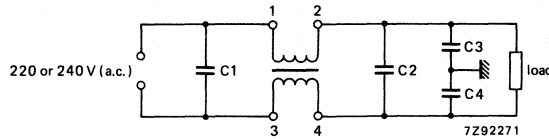


Fig. 4 Application circuit.
 $C1 = C3 = C4 = 3300 \text{ pF}$, 250 V;
 $C2 = 0,47 \mu\text{F}$, 250 V.

The choke withstands the following tests:

| test | IEC 68 test method | procedure |
|-------------------------|--------------------|--|
| bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C; 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, + 100 °C; 5 cycles |
| dry heat | Bb | 96 h, + 100 °C |
| solderability | Ta | 230 ± 10 °C, 2 ± 0,5 s |

Reliability

| | |
|---|---------------|
| Maximum cumulative percentage catastrophic failures | |
| after 300 h | $\leq 0,01\%$ |
| after 10 000 h | $\leq 0,02\%$ |
| after 30 000 h | $\leq 1\%$ |

* Measured at 1,6 V, 1 kHz.

MAINS FILTER CHOKE FOR 1,5 A rms

APPLICATION

The AT4043/93 is for use in consumer and professional equipment as a part of the filter network in the power supply.

MECHANICAL DATA

The magnetic circuit of the filter choke comprises two Ferroxcube U20 cores. The choke has four pins for mounting on a printed-wiring board.

Outlines

Dimensions in mm

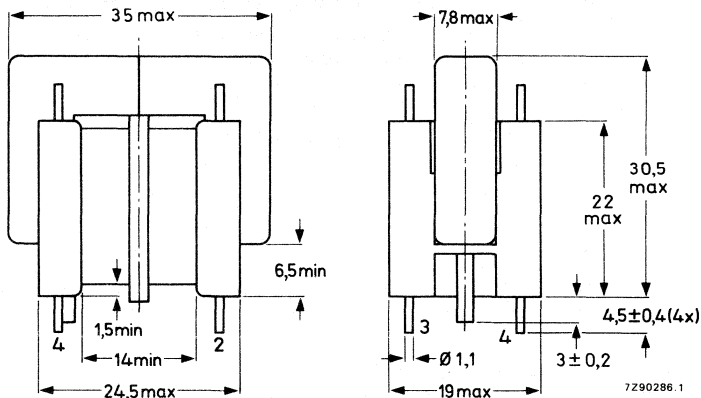
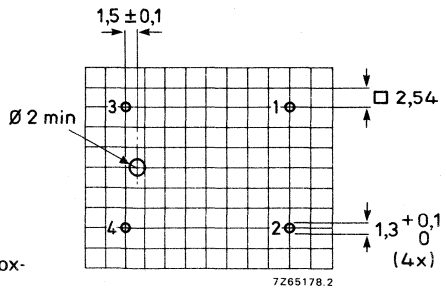


Fig. 1.

Fig. 2 Hole pattern for mounting on a printed-wiring board (component side). The windings may be interchangeable because the coil is symmetrical.



Marking

The 12-digit catalogue number is printed on the Ferroxcube cores.

ELECTRICAL DATA

| | |
|--|------------------------|
| Inductance, $L_{1-2} = L_{3-4}$ | $\geq 12 \text{ mH}^*$ |
| Resistance, $R_{1-2} = R_{3-4}$, at 25 °C | $0,4 \Omega \pm 10\%$ |
| Leakage inductance | |
| $L_s(1-2)$, L_{3-4} short-circuited | 0,5 mH |
| $L_s(3-4)$, L_{1-2} short-circuited | 0,5 mH |
| Maximum current (r.m.s.) | 1,5 A |
| Test voltage (d.c.) between the windings, and between windings and core | 2000 V |
| Maximum working temperature | 115 °C |

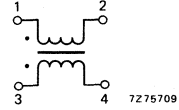


Fig. 3.

The choke withstands the following tests:

| test | IEC 68 test method | procedure |
|----------------------------|-----------------------|---|
| bump | Eb | 1000 bumps, acceleration 245 m/s ² , 6 directions |
| vibration | Fc | 10-55-10 Hz, ampl. 0,35 mm, 3 directions, 30 min/direction |
| damp heat, steady state | Ca | 21 days, 40 °C, 93% R.H. |
| damp heat, cyclic | Db | 21 days, 40 °C |
| change of temperature | Na | -25 °C, + 100 °C; 5 cycles |
| dry heat | Bb | 96 h, + 100 °C |
| solderability | Ta | 230 ± 10 °C, 2 ± 0,5 s |

Reliability

| | |
|---|---------------|
| Maximum cumulative percentage catastrophic failures | |
| after 300 h | $\leq 0,01\%$ |
| after 10 000 h | $\leq 0,02\%$ |
| after 30 000 h | $\leq 1\%$ |

* Measured at 2,2 V, 1 kHz.

Mounting

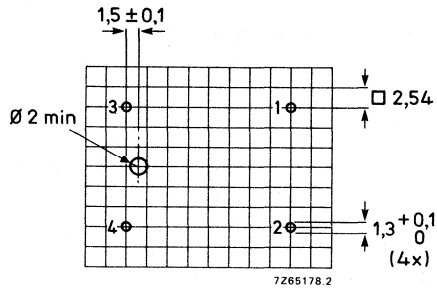


Fig. 2 Hole pattern for mounting on a printed-wiring board (component side).

ELECTRICAL DATA

| | |
|----------------------------------|--------------------------|
| Inductance (1-4) | 1 mH \pm 12% |
| Resistance (1-4) at 25 °C | 0,125 Ω \pm 12% |
| Maximum permissible peak current | 1,3 A |
| Maximum working temperature | 100 °C |

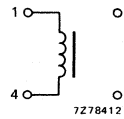


Fig. 3.

MAINS TRANSFORMERS

MAINS TRANSFORMER

- For single switch power pack system
- 8 VA output power

APPLICATION

The TS521B is a supply transformer for colour television receivers with the single switch power pack (S²P²) system. It is also suitable in many semi-professional applications.

MECHANICAL DATA

Dimensions in mm

The transformer has a laminated iron core with a stacking height of max. 18,7 mm. It has 3 primary pins and 4 secondary pins for mounting on a printed-wiring board. Mounting facility with 4 self-tapping screws is provided.

Outlines

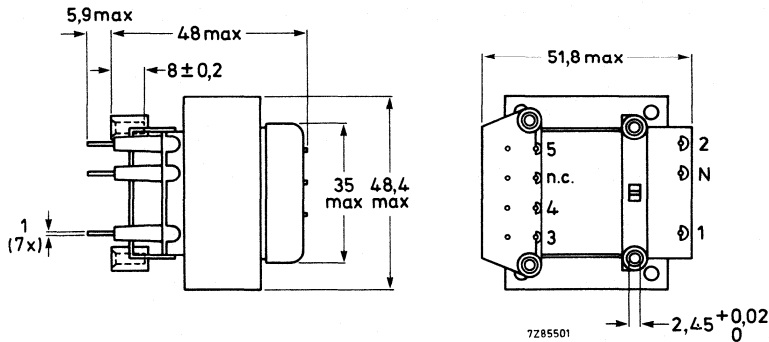


Fig. 1.

Mounting

The transformer is secured by means of four self-tapping screws 4 N x 5/16.

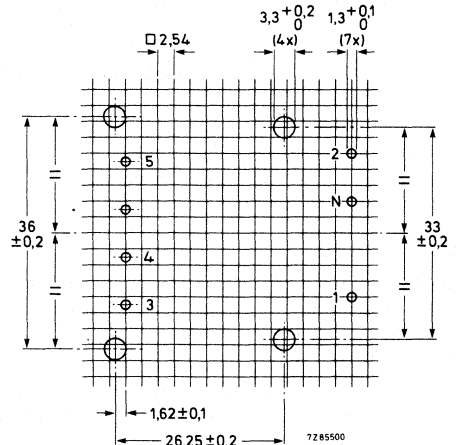


Fig. 2 Hole pattern for mounting on a printed-wiring board, viewed from solder side.

ELECTRICAL DATA

| | | |
|--|-------------|--|
| Input power at T = 115 °C (T _{amb} = 60 °C) | | 12 VA |
| Output power at T = 115 °C (T _{amb} = 60 °C) | | 8 VA |
| Note: for over-temperature protection a built-in temperature fuse (123 °C) is used; connection N (Fig. 1). | | |
| Primary voltage | (N-2) | 220/240 V |
| Primary resistance at T _{amb} = 25 °C | (N-2) | 400 Ω |
| Secondary voltage | (3-4 = 4-5) | 25,2 V |
| Secondary resistance at T _{amb} = 25 °C | (3-5) | 28 Ω |
| Test voltage (d.c.) | | |
| between primary and secondary | | 5600 V |
| between primary and core | | 5600 V |
| between secondary and core | | 500 V |
| Insulation resistance | | |
| between primary and secondary | | > 60 MΩ |
| between primary and core | | > 60 MΩ |
| Mains insulation | | according to IEC 65, class 2, and VDE 0860 |

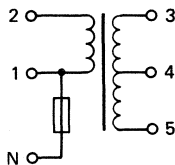


Fig. 3 Diagram.

7285502

TESTS

The mains transformer withstands the following tests:

| | |
|-------------------------|--|
| Vibration | IEC 68-2-6, test Fc, procedure B4; 10-55-10 Hz, amplitude 0,35 mm, 3 x 30 min. |
| Bump | IEC 68-2-29, test Eb; 40g, 4000 bumps, 3 directions. |
| Dry heat | IEC 68-2-2, test Ba; 16 h, +125 °C. |
| Damp heat, steady state | IEC 68-2-3, test Ca, 21 days, R.H. 95%. |
| Damp heat, accelerated | IEC 68-2-4, test D, +55 °C, R.H. 95 to 100%. |
| Change of temperature | IEC 68-2-14, test Na; 5 cycles, T _A = -25 °C, T _B = +125 °C. |
| Flammability | UL94, category V2. |

MAINS TRANSFORMER

APPLICATION

The TS561/2 is a supply transformer for colour television receivers with the power pack system. It is also suitable in many semi-professional and professional applications.

MECHANICAL DATA

The transformer has a laminated iron core with a stacking height of max. 19,5 mm. The item is provided with 4 primary pins and 3 secondary pins for mounting on a printed-wiring board. Mounting facility with 4 self-tapping screws is provided.

Outlines

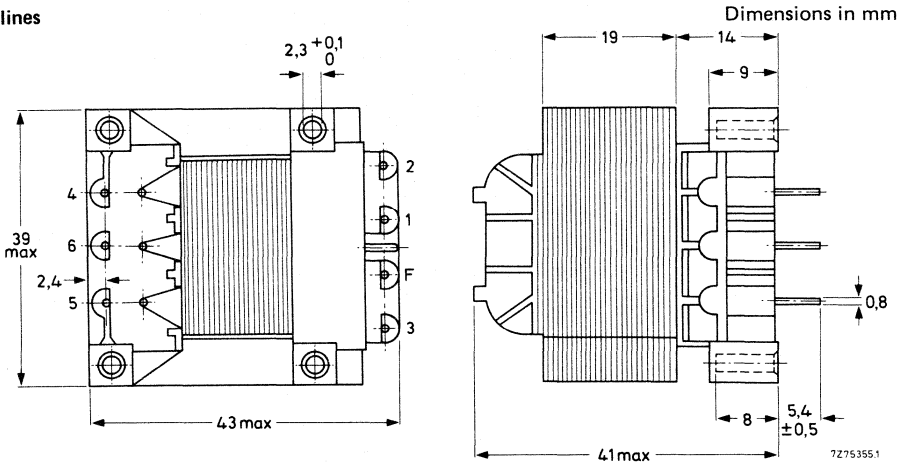


Fig. 1.

Mass 160 g

Mounting

The transformer is secured by means of four self-tapping screws of 3 mm.

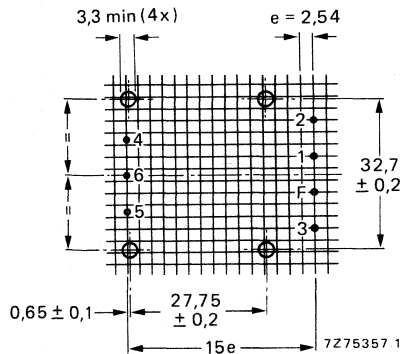


Fig. 2 Hole pattern for mounting on a printed-wiring board; hole diameter $1 + 0,1$ mm. Viewed from the solder side.

ELECTRICAL DATA

| | |
|--|--------------------|
| Input power at $T = 115\text{ }^{\circ}\text{C}$ ($T_{\text{amb}} = 60\text{ }^{\circ}\text{C}$) | 6,5 VA |
| Output power at $T = 115\text{ }^{\circ}\text{C}$ ($T_{\text{amb}} = 60\text{ }^{\circ}\text{C}$) | 3,22 W |
| Note: for over-temperature protection a built-in temperature fuse ($123\text{ }^{\circ}\text{C}$) is used; connection F. | |
| Primary voltage, | (2 - F) 110 V |
| | (3 - F) 220 V |
| Primary resistance at $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$ (3 - F) | 1140 Ω |
| Secondary voltage V_o at $I_o = 80\text{ mA}$ (4 - 6 = 6 - 5) | 17,4 V, see Fig. 4 |
| Secondary resistance at $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$ | 19 Ω |
| Test voltage between primary and case (d.c.) | 5600 V |
| Test voltage between secondary and case (d.c.) | 500 V |
| Mains isolation | acc. to IEC 65 |

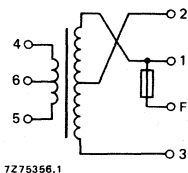


Fig. 3 Diagram and connections.

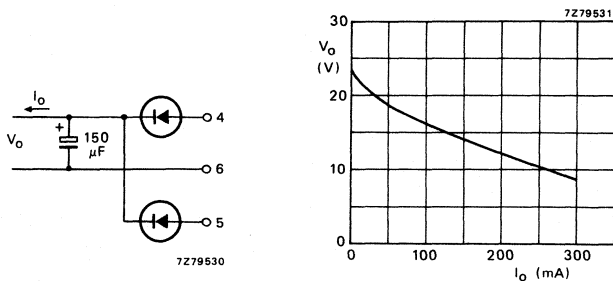


Fig. 4 Output voltage V_o as a function of the load current I_o .

INDEX OF TYPE NUMBERS
CONVERSION LIST

INDEX OF TYPE NUMBERS

| type number | description | catalogue number | page |
|-------------|---|------------------|------|
| AT2076/51 | diode-split line output transformer | 3122 138 35990 | 15 |
| AT2076/53 | diode-split line output transformer | 3122 138 36230 | 25 |
| AT2076/60 | asynchronous power pack transformer | 3122 138 35840 | 41 |
| AT2076/70A | synchronous power pack transformer | 3122 138 36440 | 47 |
| AT2076/80 | miniature diode-split line output transformer | 3122 138 36290 | 53 |
| AT2076/80A | miniature diode-split line output transformer | 3122 138 36200 | 53 |
| AT2076/81 | miniature diode-split line output transformer | 3122 138 36300 | 59 |
| AT2076/81A | miniature diode-split line output transformer | 3122 138 36240 | 59 |
| AT2076/84 | universal diode-split line output transformer | 3122 138 36660 | 69 |
| AT2077/80 | diode-split-box line output transformer | 3122 138 36560 | 75 |
| AT2077/81 | diode-split-box line output transformer | 3122 138 36570 | 81 |
| AT2077/82 | diode-split-box line output transformer | 3122 138 36580 | 87 |
| AT2097/01 | switched-mode transformer | 3122 138 91930 | 245 |
| AT2102/02 | line output transformer | 3122 138 35610 | 93 |
| AT2102/04C | line output transformer | 3111 108 34030 | 99 |
| AT2102/06C | line output transformer | 3111 108 34040 | 103 |
| AT2140/16B | line output transformer | 3111 108 34450 | 109 |
| AT2240/16 | line output transformer | 3122 138 36520 | 113 |
| AT4036/00A | adjustable linearity control unit | 3122 138 57030 | 139 |
| AT4042/04A | adjustable linearity control unit | 3122 138 57050 | 141 |
| AT4042/08A | adjustable linearity control unit | 3122 138 56491 | 143 |
| AT4042/30 | linearity corrector | 3122 138 97750 | 121 |
| AT4042/32A | adjustable linearity control unit | 3122 138 57080 | 145 |
| AT4042/33A | adjustable linearity control unit | 3122 138 57090 | 149 |
| AT4042/34 | linearity corrector | 3122 138 55310 | 125 |
| AT4042/36FS | linearity corrector | 3122 138 57760 | 127 |
| AT4042/46 | linearity corrector | 3122 138 98990 | 129 |
| AT4042/51 | linearity corrector | 3122 138 56330 | 131 |
| AT4042/90 | linearity corrector | 3122 138 54000 | 133 |
| AT4042/91 | linearity corrector | 3122 138 56660 | 135 |
| AT4043/01 | line driver transformer | 3112 338 30140 | 251 |
| AT4043/08A | east/west choke | 3112 338 30700 | 253 |
| AT4043/09 | universal horizontal shift transformer | 3112 338 30230 | 257 |
| AT4043/16A | input choke | 3112 338 30320 | 259 |
| AT4043/17 | driver transformer | 3112 338 30330 | 263 |
| AT4043/29 | line driver/d.c. shift transformer | 3122 138 73740 | 265 |
| AT4043/45 | switched-mode driver transformer | 3122 138 90290 | 267 |
| AT4043/46 | current sensing transformer | 3122 138 90300 | 269 |
| AT4043/47 | current sensing transformer | 3122 138 93390 | 271 |
| AT4043/48 | thyristor trigger and transistor driver transformer | 3122 138 90580 | 275 |

TYPE NUMBER INDEX

| type number | description | catalogue number | page |
|-------------|---|------------------|------|
| AT4043/52A | power pack system supply choke | 3112 338 30660 | 279 |
| AT4043/53 | power pack system line choke | 3122 138 93420 | 281 |
| AT4043/55 | mains filter choke | 3122 138 93240 | 285 |
| AT4043/56 | line driver transformer | 3111 108 32290 | 287 |
| AT4043/58 | switched-mode driver transformer | 3122 138 91940 | 289 |
| AT4043/59 | line driver transformer | 3122 138 93520 | 291 |
| AT4043/60 | east/west injection coil | 3122 138 93870 | 293 |
| AT4043/63 | thyristor trigger and transistor driver transformer | 3122 138 93400 | 275 |
| AT4043/64 | line driver transformer | 8222 279 52121 | 295 |
| AT4043/67 | dynamic focusing transformer | 3122 138 96570 | 297 |
| AT4043/68 | bridge coil | 3122 138 96550 | 301 |
| AT4043/69 | bridge coil | 3122 138 71800 | 303 |
| AT4043/81 | input choke | 3122 138 50000 | 305 |
| AT4043/82 | driver transformer | 3122 138 50240 | 307 |
| AT4043/83 | line driver transformer | 3112 338 30160 | 309 |
| AT4043/87 | line driver transformer | 3122 138 26060 | 311 |
| AT4043/89 | line driver transformer | 3122 138 90070 | 313 |
| AT4043/90 | mains filter choke | 3111 108 33100 | 315 |
| AT4043/91A | mains filter choke | 3112 338 30640 | 317 |
| AT4043/92 | mains filter choke | 3122 138 52860 | 319 |
| AT4043/93 | mains filter choke | 3122 138 53860 | 321 |
| AT4043/100 | bridge coil | 3112 338 30830 | 323 |
| AT4044/35 | amplitude control | 3122 138 56441 | 153 |
| AT4044/39D | amplitude control | 3122 138 57021 | 157 |
| CF873 | comb filter | 4322 027 84581 | 217 |
| DL63 | glass delay line | 4322 027 84630 | 185 |
| DL270 | luminance delay line | 3122 138 99420 | 163 |
| DL330 | luminance delay line | 3122 138 96042 | 167 |
| DL390 | luminance delay line | 3122 138 50450 | 171 |
| DL450S | luminance delay line | 3122 138 56161 | 175 |
| DL470 | luminance delay line | 3122 138 99471 | 179 |
| DL680 | glass delay line | 4322 027 84661 | 189 |
| DL701 | glass delay line | 4322 027 84771 | 193 |
| DL703 | glass delay line | 4322 027 84831 | 197 |
| DL711 | glass delay line | 4322 027 84781 | 201 |
| DL720 | glass delay line | 4322 027 84721 | 205 |
| DL721 | glass delay line | 4322 027 84731 | 205 |
| DL722 | glass delay line | 4322 027 84741 | 205 |
| DL750 | glass delay line | 4322 027 84751 | 209 |
| DL872 | glass delay line | 4322 027 84841 | 213 |
| DT2076/54 | universal diode-split line output transformer | 8222 289 30212 | 35 |
| DT2097/02 | switched-mode transformer | 8222 289 30101 | 249 |
| TS521B | mains transformer | 3112 318 35733 | 327 |
| TS561/2 | mains transformer | 3112 318 36191 | 331 |

CONVERSION LIST

Conversion of catalogue number to type number.

| catalogue number | description | type number | page |
|------------------|---|-------------|------|
| 3111 108 32290 | line driver transformer | AT4043/56 | 287 |
| 33100 | mains filter choke | AT4043/90 | 315 |
| 34030 | line output transformer | AT2102/04C | 99 |
| 34040 | line output transformer | AT2102/06C | 103 |
| 34450 | line output transformer | AT2140/16B | 109 |
| 3112 318 35733 | mains transformer | TS521B | 327 |
| 36191 | mains transformer | TS561/2 | 331 |
| 3112 338 30140 | line driver transformer | AT4043/01 | 251 |
| 30160 | line driver transformer | AT4043/83 | 309 |
| 30230 | universal horizontal shift transformer | AT4043/09 | 257 |
| 30320 | input choke | AT4043/16A | 259 |
| 30330 | driver transformer | AT4043/17 | 263 |
| 30640 | mains filter choke | AT4043/91A | 317 |
| 30660 | power pack system supply choke | AT4043/52A | 279 |
| 30700 | east/west choke | AT4043/08A | 253 |
| 30830 | bridge coil | AT4043/100 | 323 |
| 3122 138 26060 | line driver transformer | AT4043/87 | 311 |
| 35610 | line output transformer | AT2102/02 | 93 |
| 35840 | asynchronous power pack transformer | AT2076/60 | 41 |
| 35990 | diode-split line output transformer | AT2076/51 | 15 |
| 36200 | miniature diode-split line output transformer | AT2076/80A | 53 |
| 36230 | diode-split line output transformer | AT2076/53 | 25 |
| 36240 | miniature diode-split line output transformer | AT2076/81A | 59 |
| 36290 | miniature diode-split line output transformer | AT2076/80 | 53 |
| 36300 | miniature diode-split line output transformer | AT2076/81 | 59 |
| 36440 | synchronous power pack transformer | AT2076/70A | 47 |
| 36520 | line output transformer | AT2240/16 | 113 |
| 36560 | diode-split-box line output transformer | AT2077/80 | 75 |
| 36570 | diode-split-box line output transformer | AT2077/81 | 81 |
| 36580 | diode-split-box line output transformer | AT2077/82 | 87 |
| 36660 | universal diode-split line output transformer | AT2076/84 | 69 |
| 50000 | input choke | AT4043/81 | 305 |
| 50240 | drive transformer | AT4043/82 | 307 |
| 50290 | degaussing coil | | 223 |
| 50450 | luminance delay line | DL390 | 171 |
| 50560 | degaussing coil | | 223 |

| catalogue number | description | type number | page |
|------------------|---|-------------|------|
| 3122 138 51850 | degaussing coil | | 225 |
| 51860 | degaussing coil | | 225 |
| 52860 | mains filter choke | AT4043/92 | 319 |
| 53860 | mains filter choke | AT4043/93 | 321 |
| 54000 | linearity corrector | AT4042/90 | 133 |
| 55220 | degaussing coil | | 227 |
| 55230 | degaussing coil | | 227 |
| 55260 | degaussing coil | | 229 |
| 55310 | linearity corrector | AT4042/34 | 125 |
| 55920 | degaussing coil | | 231 |
| 56070 | degaussing coil | | 233 |
| 56161 | luminance delay line | DL450S | 175 |
| 56170 | degaussing coil | | 233 |
| 56310 | degaussing coil | | 235 |
| 56320 | degaussing coil | | 235 |
| 56330 | linearity corrector | AT4042/51 | 131 |
| 56441 | amplitude control | AT4044/35 | 153 |
| 56491 | adjustable linearity control unit | AT4042/08A | 143 |
| 56660 | linearity corrector | AT4042/91 | 135 |
| 57021 | amplitude control | AT4044/39D | 157 |
| 57030 | adjustable linearity control unit | AT4036/00A | 139 |
| 57050 | adjustable linearity control unit | AT4042/04A | 141 |
| 57080 | adjustable linearity control unit | AT4042/32A | 145 |
| 57090 | adjustable linearity control unit | AT4042/33A | 149 |
| 57760 | linearity corrector | AT4042/36FS | 127 |
| 71800 | bridge coil | AT4043/69 | 303 |
| 73740 | line driver/d.c. shift transformer | AT4043/29 | 265 |
| 75581 | degaussing coil | | 237 |
| 75941 | degaussing coil | | 237 |
| 90070 | line driver transformer | AT4043/89 | 313 |
| 90290 | switched-mode driver transformer | AT4043/45 | 267 |
| 90300 | current sensin transformer | AT4043/46 | 269 |
| 90580 | thyristor trigger and transistor drive transformer | AT4043/48 | 275 |
| 91930 | switched-mode transformer | AT2097/01 | 245 |
| 91940 | switched-mode driver transformer | AT4043/58 | 289 |
| 93240 | mains filter choke | AT4043/55 | 285 |
| 93390 | current sensing transformer | AT4043/47 | 271 |
| 93400 | thyristor trigger and transistor driver transformer | AT4043/63 | 275 |
| 93420 | power pack system line choke | AT4043/53 | 281 |
| 93520 | line driver transformer | AT4043/59 | 291 |
| 93870 | east/west injection coil | AT4043/60 | 293 |
| 94350 | degaussing coil | | 239 |
| 94380 | degaussing coil | | 239 |
| 96042 | luminance delay line | DL330 | 167 |
| 96550 | bridge coil | AT4043/68 | 301 |

CONVERSION LIST

| catalogue number | description | type number | page |
|------------------|---|-------------|------|
| 96570 | dynamic focusing transformer | AT4043/67 | 279 |
| 97750 | linearity corrector | AT4042/30 | 121 |
| 98990 | linearity corrector | AT4042/46 | 129 |
| 99420 | luminance delay line | DL270 | 163 |
| 99471 | luminance delay line | DL470 | 179 |
| 99840 | degaussing coil | | 241 |
| 99850 | degaussing coil | | 241 |
| 4322 027 84581 | comb filter | CF873 | 217 |
| 84630 | glass delay line | DL63 | 185 |
| 84661 | glass delay line | DL680 | 189 |
| 84721 | glass delay line | DL720 | 205 |
| 84731 | glass delay line | DL721 | 205 |
| 84741 | glass delay line | DL722 | 205 |
| 84751 | glass delay line | DL750 | 209 |
| 84771 | glass delay line | DL701 | 193 |
| 84781 | glass delay line | DL711 | 201 |
| 84831 | glass delay line | DL703 | 197 |
| 84841 | glass delay line | DL872 | 213 |
| 8222 279 52121 | line driver transformer | AT4043/64 | 295 |
| 8222 289 30101 | switched-mode transformer | DT2097/02 | 249 |
| 30212 | universal diode-split line output transformer | DT2076/54 | 35 |

Argentina: PHILIPS ARGENTINA S.A., Div. Elcoma, Vedia 3892, 1430 BUENOS AIRES, Tel. 541-7141/7242/7343/7444/7545.
Australia: PHILIPS INDUSTRIES HOLDINGS LTD., Elcoma Division, 11 Waltham Street, ARTARMON, N.S.W. 2064, Tel. (02)439 3322.
Austria: ÖSTERREICHISCHE PHILIPS BAUELEMENTE INDUSTRIE G.m.b.H., Triester Str. 64, A-1101 WIEN, Tel. 6291 11.
Belgium: N.V. PHILIPS & MBL ASSOCIATED, 9 rue du Pavillon, B-1030 BRUXELLES, Tel. (02) 242 7400.
Brazil: IBRAPE, Caixa Postal 7383, Av. Brigadeiro Faria Lima, 1735 SAO PAULO, SP, Tel. (011) 211-2600.
Canada: PHILIPS ELECTRONICS LTD., Elcoma Division, 601 Milner Ave., SCARBOROUGH, Ontario, M1B 1M8, Tel. 292-5161.
Chile: PHILIPS CHILENA S.A., Av. Santa Maria 0760, SANTIAGO, Tel. 39-4001.
Colombia: IND. PHILIPS DE COLOMBIA S.A., c/o IPRELENCO LTD., Calle 17, No. 9-21, Of. 202, BOGOTA, D.E., Tel. 57-2347493.
Denmark: MINIWATT A/S, Strandlodsvej 2, P.O. Box 1919, DK 2300 COPENHAGEN S, Tel. (01) 54 11 33.
Finland: OY PHILIPS AB, Elcoma Division, Kaivokatu 8, SF-00100 HELSINKI 10, Tel. 1 72 71.
France: R.T.C. LA RADIOTECHNIQUE-COMPELEC, 130 Avenue Ledru Rollin, F-75540 PARIS 11, Tel. 338 80-00.
Germany (Fed. Republic): VALVO, UB Bauelemente der Philips G.m.b.H., Valvo Haus, Burchardstrasse 19, D-2 HAMBURG 1, Tel. (040) 3296-0.
Greece: PHILIPS S.A. HELLENIQUE, Elcoma Division, 52, Av. Syngrou, ATHENS, Tel. 9215111.
Hong Kong: PHILIPS HONG KONG LTD., Elcoma Div., 15/F Philips Ind. Bldg., 24-28 Kung Yip St., KWAI CHUNG, Tel. (0)-2451 21.
India: PEICO ELECTRONICS & ELECTRICALS LTD., Elcoma Dept., Band Box Building, 254-D Dr. Annie Besant Rd., BOMBAY - 400 025, Tel. 4220387/4220311.
Indonesia: P.T. PHILIPS-RALIN ELECTRONICS, Elcoma Div., Panim Bank Building, 2nd Fl., Jl. Jend. Sudirman, P.O. Box 223, JAKARTA, Tel. 716 131.
Ireland: PHILIPS ELECTRICAL (IRELAND) LTD., Newstead, Clonskeagh, DUBLIN 14, Tel. 693355.
Italy: PHILIPS S.p.A., Sezione Elcoma, Piazza IV Novembre 3, I-20124 MILANO, Tel. 2-6752.1.
Japan: NIHON PHILIPS CORP., Shuwa Shinagawa Bldg., 26-33 Takanawa 3-chome, Minato-ku, TOKYO (108), Tel. 448-5611.
 (IC Products) SIGNETICS JAPAN LTD., 8-7 Sanbancho Chiyoda-ku, TOKYO 102, Tel. (03) 230-1521.
Korea (Republic of): PHILIPS ELECTRONICS (KOREA) LTD., Elcoma Div., Philips House, 260-199 Itaewon-dong, Yongsan-ku, SEOUL, Tel. 794-4202.
Malaysia: PHILIPS MALAYSIA SDN. BERHAD, No. 4 Perstarian Barat, Petaling Jaya, P.O.B. 2163, KUALA LUMPUR, Selangor, Tel. 77 44 11.
Mexico: ELECTRONICA, S.A. de C.V., Carr. México-Toluca km. 62.5, TOLUCA, Edo. de México 50140, Tel. Toluca 91 (721) 613-00.
Netherlands: PHILIPS NEDERLAND, Marktgroep Elenco, Postbus 90050, 5600 PB EINDHOVEN, Tel. (040) 793333.
New Zealand: PHILIPS NEW ZEALAND LTD., Elcoma Division, 110 Mt. Eden Road, C.P.O. Box 1041, AUCKLAND, Tel. 605-914.
Norway: NORSK A/S PHILIPS, Electronica Dept., Sandstuveien 70, OSLO 6, Tel. 68 02 00.
Peru: CADESA, Av. Alfonso Ugarte 1268, LIMA 5, Tel. 326070.
Philippines: PHILIPS INDUSTRIAL DEV. INC., 2246 Pasong Tamo, P.O. Box 911, Makati Comm. Centre, MAKATI-RIZAL 3116, Tel. 86-89-51 to 59.
Portugal: PHILIPS PORTUGUESA S.A.R.L., Av. Eng. Duarte Pacheco 6, 1009 LISBOA Codex, Tel. 68 31 21.
Singapore: PHILIPS PROJECT DEV. (Singapore) PTE LTD., Elcoma Div., Lorong 1, Toa Payoh, SINGAPORE 1231, Tel. 35 02 000.
South Africa: EDAC (PTY.) LTD., 3rd Floor Rainer House, Upper Railway Rd. & Ove St., New Doornfontein, JOHANNESBURG 2001, Tel. 614-2362/9.
Spain: MINIWATT S.A., Balmes 22, BARCELONA 7, Tel. 301 63 12.
Sweden: PHILIPS KOMPONENTER A.B., Lidingövägen 50, S-11584 STOCKHOLM 27, Tel. 08/77821000.
Switzerland: PHILIPS A.G., Elcoma Dept., Allmendstrasse 140-142, CH-8027 ZÜRICH, Tel. 01-48822 11.
Taiwan: PHILIPS TAIWAN LTD., 3rd Fl., San Min Building, 57-1, Chung Shan N. Rd, Section 2, P.O. Box 22978, TAIPEI, Tel. (02)-5631717.
Thailand: PHILIPS ELECTRICAL CO. OF THAILAND LTD., 283 Sitom Road, P.O. Box 961, BANGKOK, Tel. 233-6330-9.
Turkey: TÜRK PHILIPS TICARET A.S., Elcoma Department, İnönü Cad. No. 78-80, ISTANBUL, Tel. 43 59 10.
United Kingdom: MULLARD LTD., Mullard House, Torrington Place, LONDON WC1E 7HD, Tel. 01-5806633.
United States: (Active Devices & Materials) AMPEREX SALES CORP., Providence Pike, SLATERSVILLE, R.I. 02876, Tel. (401) 762-9000.
 (Passive Devices) MEPCO/ELECTRA INC., Columbia Rd., MORRISTOWN, N.J. 07960, Tel. (201) 539-2000.
 (Passive Devices & Electromechanical Devices) CENTRALAB INC., 5855 N. Glen Park Rd., MILWAUKEE, WI 53201, Tel. (414)228-7380.
 (IC Products) SIGNETICS CORPORATION, 811 East Arques Avenue, SUNNYVALE, California 94086, Tel. (408) 739-7700.
Uruguay: LUZIELECTRON S.A., Avda Uruguay 1287, P.O. Box 907, MONTEVIDEO, Tel. 91 43 21.
Venezuela: IND. VENEZOLANAS PHILIPS S.A., Elcoma Dept., A. Ppal de los Ruices, Edif. Centro Colgate, CARACAS, Tel. 36 05 11

For all other countries apply to: Philips Electronic Components and Materials Division, International Business Relations, Building BAE, P.O. Box 218, 5600 MD EINDHOVEN, The Netherlands, Tel. +31 40 72 33 04, Telex 35000 phctnl