

T-74-09-01

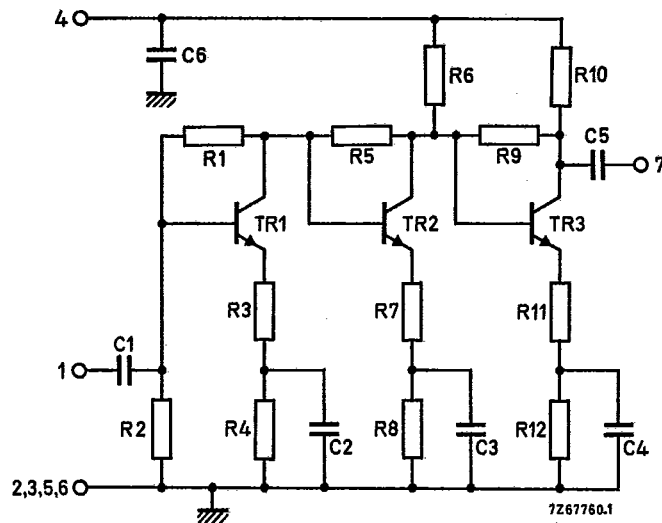
HYBRID VHF/UHF WIDE-BAND AMPLIFIER

Three-stage wide-band amplifier in the hybrid technique, designed for use in mast-head booster-amplifiers, as pre-amplifier in MATV systems, and as general-purpose amplifier for v. h. f. and u. h. f. applications.

QUICK REFERENCE DATA			
Frequency range	f	40 to 860	MHz
Source and load (characteristic) impedance	$R_S = R_L = Z_0$	=	75 Ω
Transducer gain	$G_{tr} = s_f ^2$	typ.	27 dB
Flatness of frequency response	$\pm \Delta s_f ^2$	typ.	1,6 dB
Output voltage at -60 dB intermodulation distortion (DIN45004, 3-tone)	$V_{o(rms)}$	>	98 dB μ V
Noise figure	F	typ.	5,5 dB
D.C. supply voltage	V_B	=	24 V $\pm 10\%$
Operating ambient temperature	T_{amb}	-20 to +70	$^{\circ}$ C

ENCAPSULATION 7-pin, in-line, resin-coated body, see MECHANICAL DATA

CIRCUIT DIAGRAM



RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

Operating ambient temperature	T_{amb}	-20 to +70	°C
Storage temperature	T_{stg}	-40 to +125	°C
D.C. supply voltage	V_B	max. 28	V
Peak voltages on pins 1 and 7	V_{1M}, V_{7M}	max. 28	V
	$-V_{1M}, -V_{7M}$	max. 10	V
Peak incident powers on pins 1 and 7	P_{11M}, P_{17M}	max. 100	mW

CHARACTERISTICS

Measuring conditions

V.H.F. -U.H.F. test socket	catalogue no. 3504 110 01840 *		
Ambient temperature	T_{amb}	= 25	°C
D.C. supply voltage	V_B	= 24	V
Source impedance and load impedance	R_s, R_l	= 75	Ω
Characteristic impedance of h.f. connections	Z_o	= 75	Ω
Frequency range	f	= 40 to 860	MHz

Performance

Supply current	I_B	typ. 35	mA
Transducer gain	$G_{tr} = s_f ^2$	23 to 31	dB
		typ. 27	dB
Flatness of frequency response	$\pm \Delta s_f ^2$	typ. 1,6	dB
Individual maximum v. s. w. r.	input	$VSWR_{(i)}$	typ. 1,9 **
		output	$VSWR_{(o)}$
Back attenuation	$ s_r ^2$	f = 100 MHz	typ. 46 dB
		f = 860 MHz	typ. 40 dB
Output voltage at -60 dB intermodulation distortion (DIN45004, par. 6.3: 3-tone)	$V_{o(rms)}$	> 98	dB μ V
		typ. 101	dB μ V
Noise figure	F	typ. 5,5	dB

s-parameters:	$s_f = s_{21}$	$s_i = s_{11}$
	$s_r = s_{12}$	$s_o = s_{22}$

* This socket can be made available for customer reference purposes.
** Highest value, for a sample, occurring in the frequency range.

OPERATING CONDITIONS

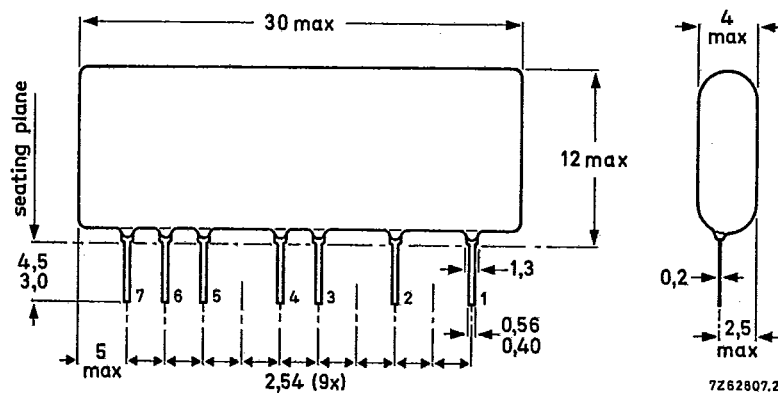
Ambient temperature range	T_{amb}	=	-20 to +70 °C
D. C. supply voltage	V_B	=	24 V ±10%
Frequency range	f	=	40 to 860 MHz
Source impedance and load impedance	R_s, R_l	=	75 Ω

MECHANICAL DATA

Dimensions in mm

Encapsulation

The device is resin coated.



Terminal connections

- 1 = Input
- 2, 3, 5, 6 = Common
- 4 = Supply (+)
- 7 = Output

Soldering recommendations

Hand soldering

Maximum contact time for a soldering-iron temperature of 260 °C; up to seating plane:

5 s

Dip or wave soldering

260 °C is the maximum permissible temperature of the solder; it must not be in contact with the joint for more than 5 seconds. The total contact time of successive solder waves must not exceed 5 seconds.

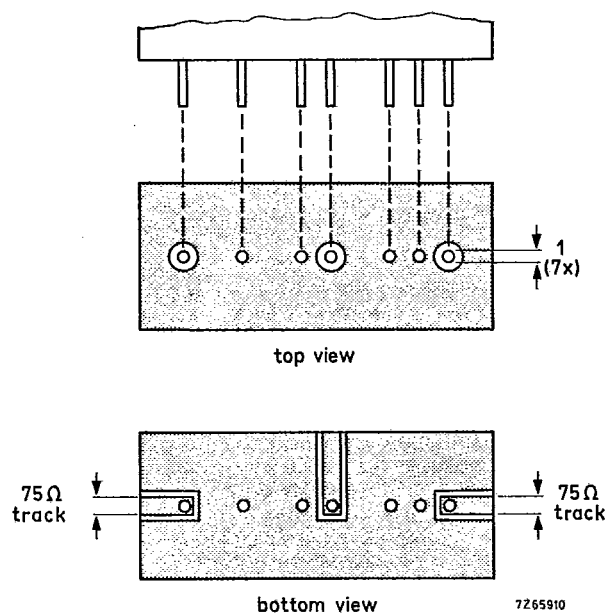
The device may be mounted against the printed-circuit board, but the temperature of the device must not exceed 125 °C. If the printed-circuit board has been pre-heated, forced cooling may be necessary immediately after soldering to keep the temperature below the allowable limit.

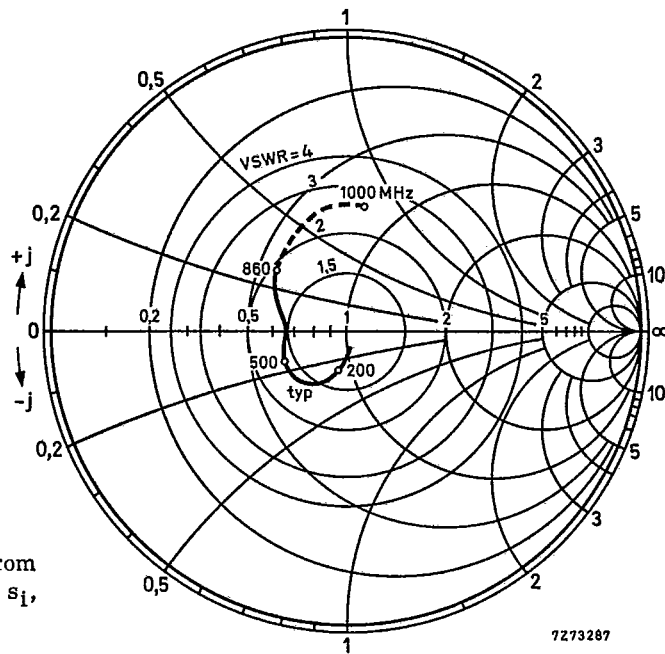
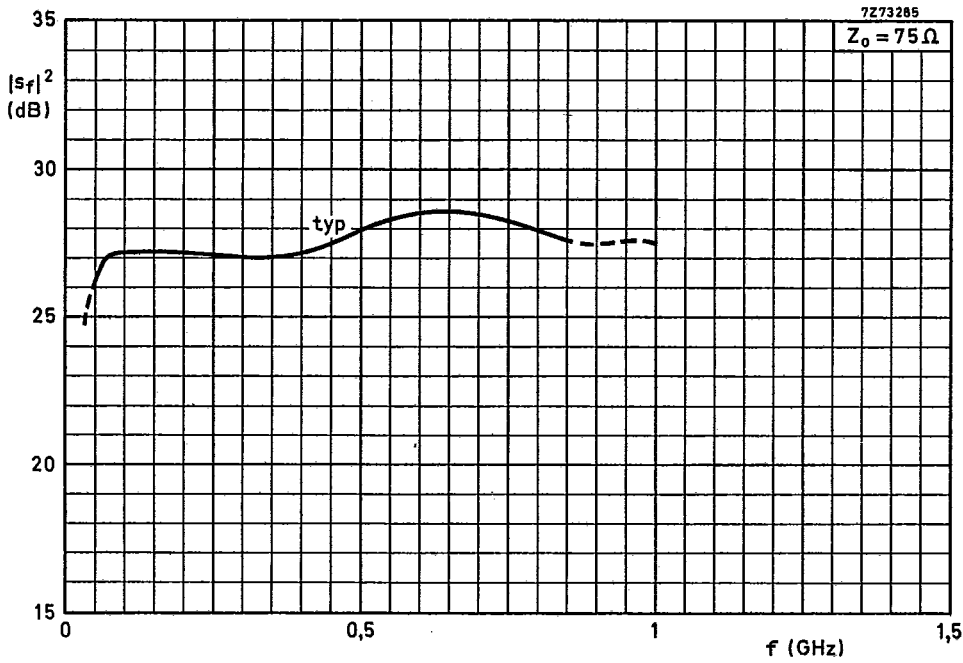
Mounting recommendations

The module should preferably be mounted on double-sided printed-circuit board, see the example shown below.

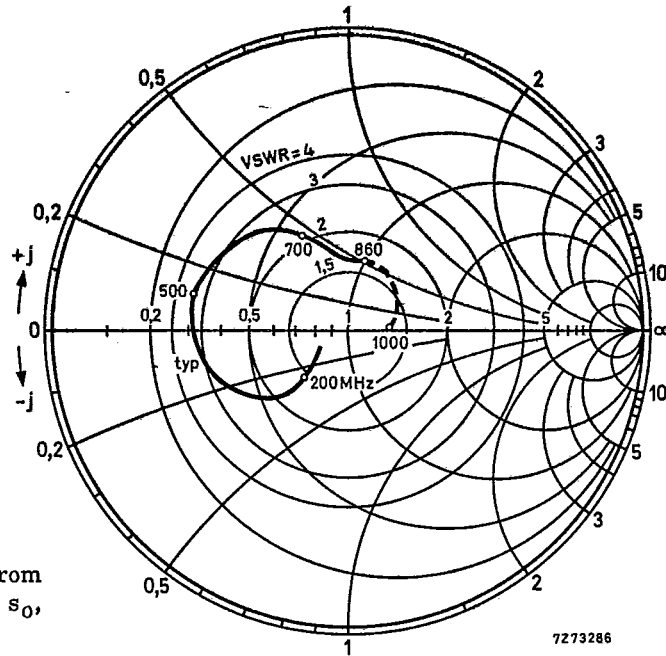
Input and output should be connected to 75 Ω tracks.

The connections to the "common" pins should be as close to the seating plane as possible.





Input impedance derived from
input reflection coefficient s_i ,
co-ordinates in ohm x 75.



Output impedance derived from
output reflection coefficient s_0 ,
co-ordinates in ohm x 75.