

Wideband amplifier module

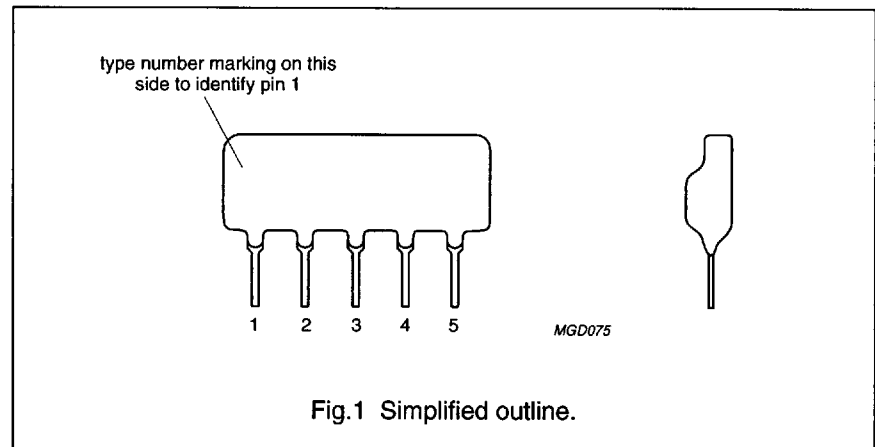
OM2045

DESCRIPTION

A one-stage wideband amplifier in hybrid integrated circuit form on a thin-film substrate. The device is intended as an aerial amplifier in car radios, caravans or RATV and MATV systems.

PINNING

PIN	DESCRIPTION
1	input
2	common
3	common
4	supply (+)
5	output



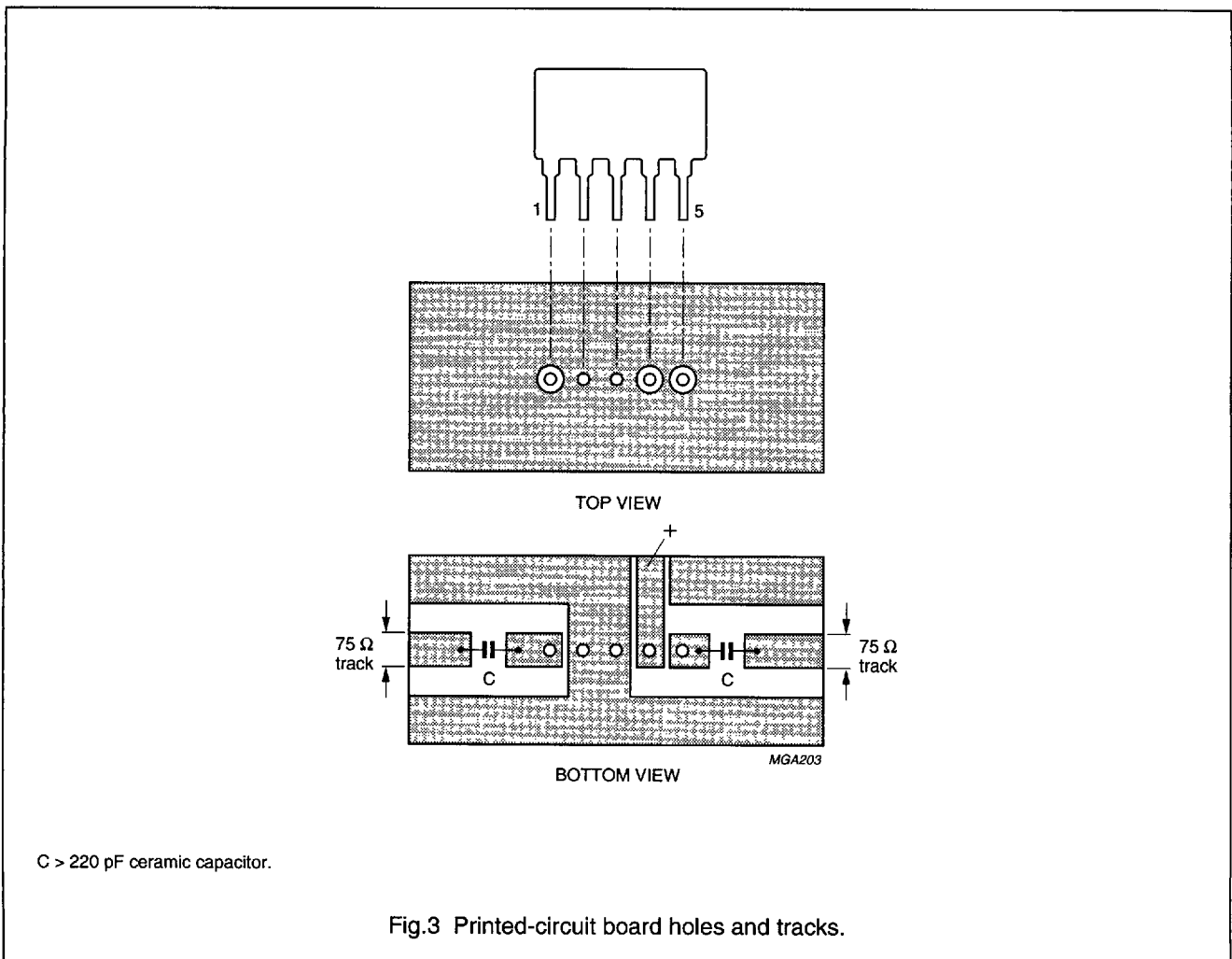
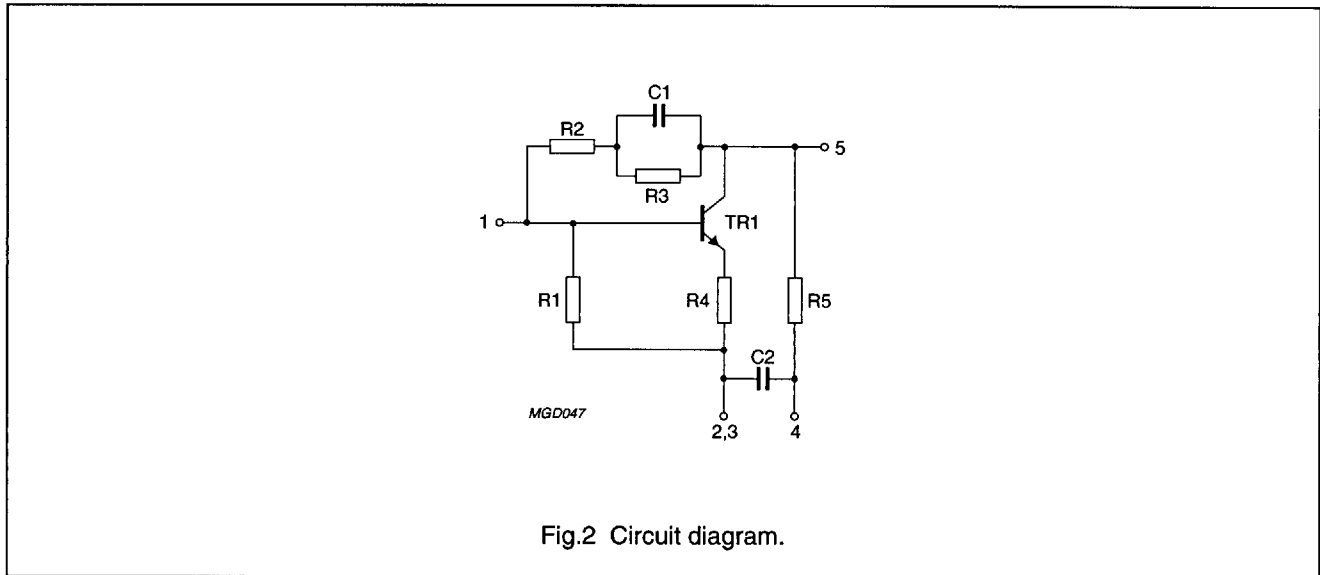
QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
f	frequency range		40	–	860	MHz
Z _S , Z _L	source and load impedance		–	75	–	Ω
G _T	transducer gain = S ₂₁ ²		–	12	–	dB
ΔG _T	flatness of frequency response		–	1	–	dB
V _{o(rms)}	output voltage (RMS value)	d _{im} = –60 dB; 3rd order intermodulation (3-tone)	–	99	–	dBμV
F	noise figure		–	3.6	–	dB
V _B	DC supply voltage		10.8	12	13.2	V
T _{amb}	ambient operating temperature		–20	–	+70	°C

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CIRCUIT DIAGRAM AND PRINTED-CIRCUIT BOARD



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LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
T_{amb}	ambient operating temperature	-20	+70	°C
T_{stg}	storage temperature	-40	+125	°C
V_B	DC supply voltage	-	15	V
P_{IM}	peak incident powers on pins 1 and 5	-	100	mW

CHARACTERISTICS

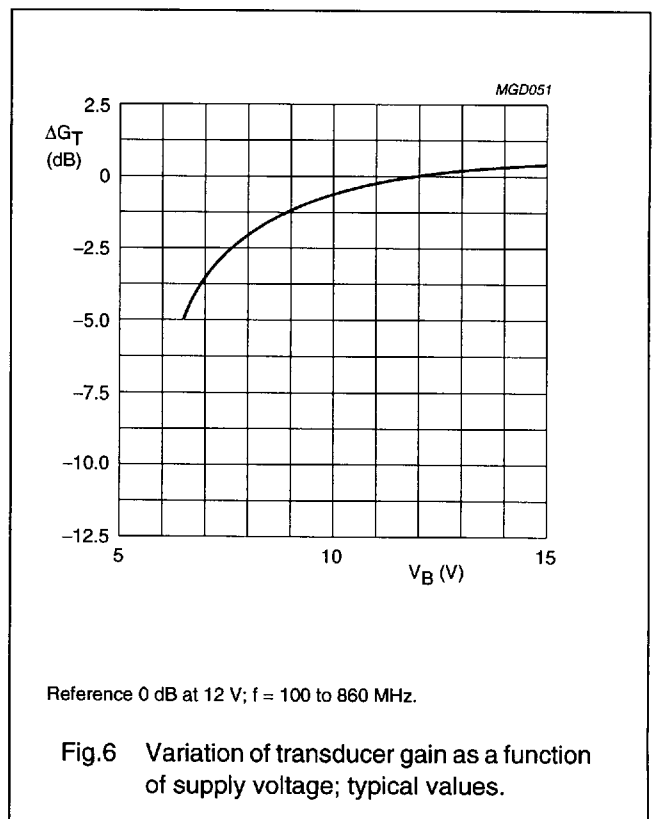
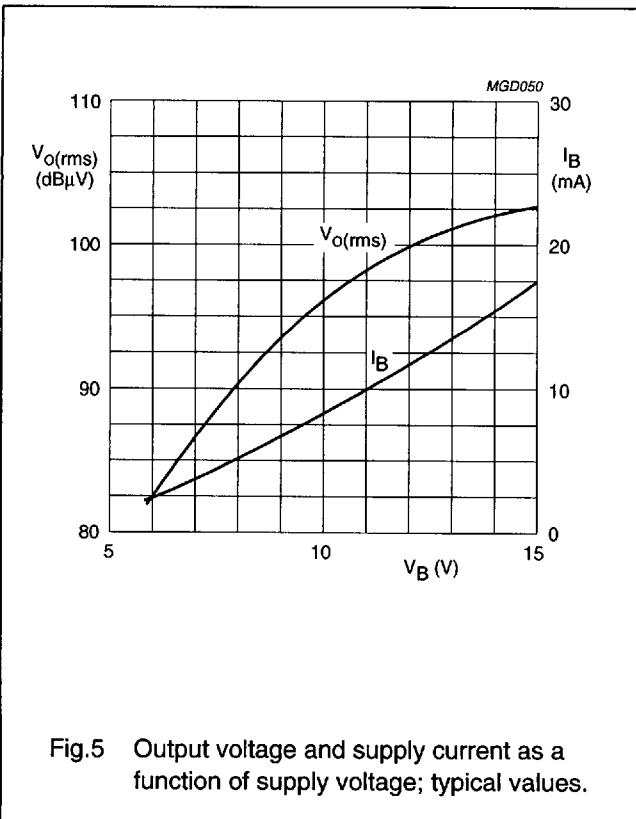
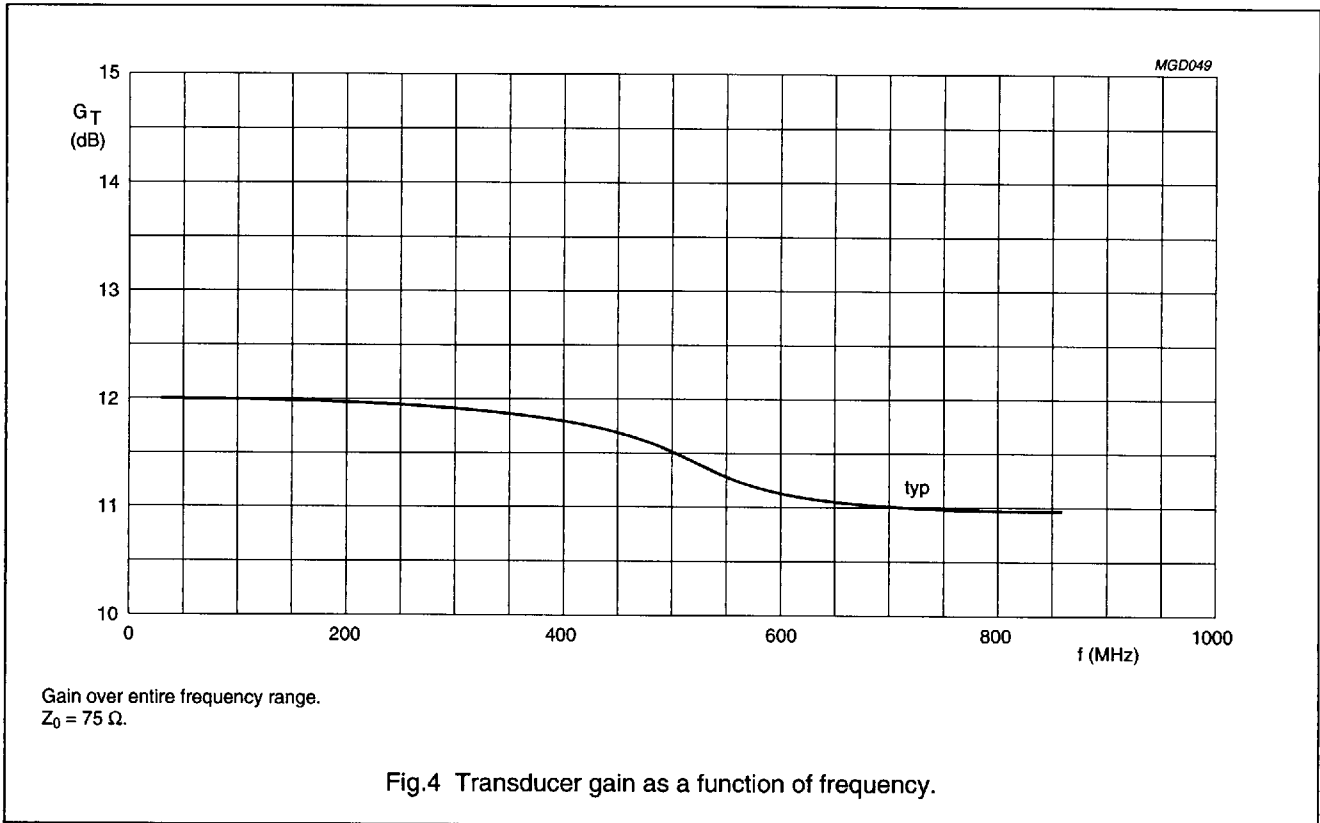
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Measuring conditions						
T_{amb}	ambient operating temperature		-	25	-	°C
V_B	DC supply voltage		-	12	-	V
Z_S	source impedance		-	75	-	Ω
Z_L	load impedance		-	75	-	Ω
Z_0	characteristic impedance of HF connections		-	75	-	Ω
f	frequency range		40	-	860	MHz
Performance						
I_B	supply current		-	11.5	-	mA
G_T	transducer gain = $ S_{21} ^2$		-	12	-	dB
ΔG_T	flatness of frequency response		-	1	-	dB
$VSWR_{in}$	individual maximum VSWR	input; note 1	-	2.0	-	
$VSWR_{out}$	individual maximum VSWR	output; note 1	-	1.4	-	
$ S_{12} ^2$	back attenuation	f = 100 MHz	-	22	-	dB
		f = 860 MHz	-	19	-	dB
$V_{o(rms)}$	output voltage (RMS value)	$d_{im} = -60$ dB; 3rd order intermodulation (3-tone)	-	99	-	dB μ V
F	noise figure		-	3.6	-	dB
Operating conditions						
T_{amb}	ambient operating temperature		-20	-	+70	°C
V_B	DC supply voltage		10.8	12	13.2	V
f	frequency range		40	-	860	MHz
Z_S	source impedance		-	75	-	Ω
Z_L	load impedance		-	75	-	Ω

Note

1. Highest value (for sample) occurring in the frequency range.

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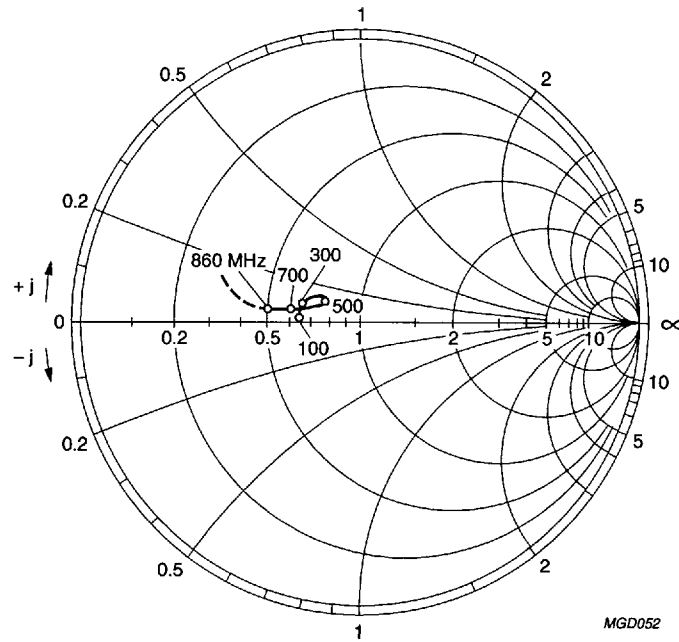


Fig.7 Input impedance derived from input reflection coefficient (S_{11}), co-ordinates in ohms \times 75; typical values.

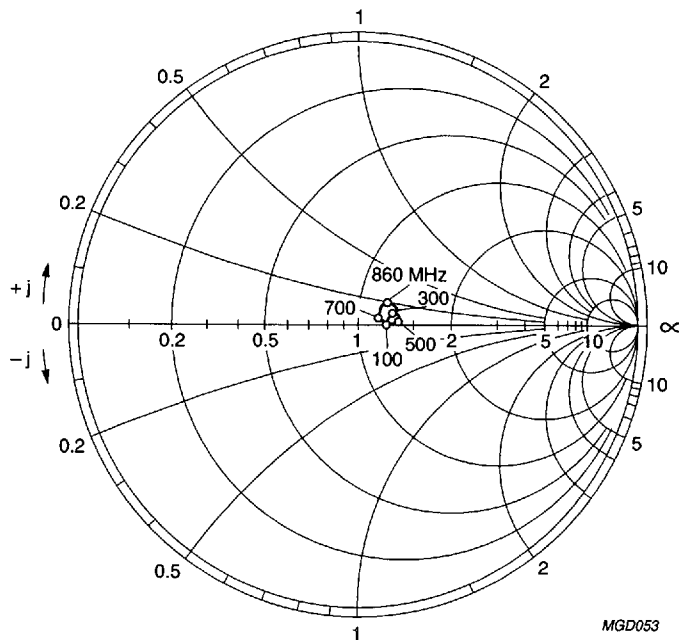


Fig.8 Output impedance derived from output reflection coefficient (S_{22}), co-ordinates in ohms \times 75; typical values.

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MOUNTING

The module should preferably be mounted on a double-sided printed-circuit board, see Fig.3. Input and output should be connected to 75 Ω tracks. The connection to the common pins should be as close to the seating plane as possible.

SOLDERING

Hand soldering

The maximum contact time for a soldering iron temperature of 260 °C up to the seating plane is 5 s.

Dip or wave soldering

The maximum permissible temperature for the solder is 260 °C. It must not be in contact with the joint for more than 5 s.

The total contact time of successive solder waves must not exceed 5 s.

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.

PACKAGE OUTLINE

