

CATV Amplifier Module

BGN504/01

FEATURES

- Excellent linearity
- Extremely low noise
- Silicon nitride glass barrier
- Rugged construction
- TiPtAu metallized crystals ensure optimal reliability.

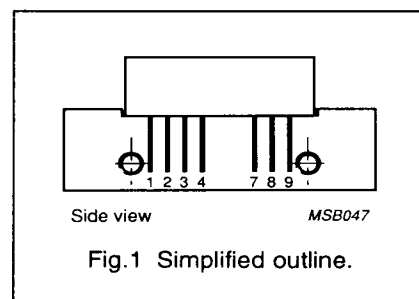
DESCRIPTION

Hybrid amplifier module for CATV systems operating with a negative voltage supply of -27 V DC at frequencies up to 450 MHz.

PINNING - SOT115E

PIN	DESCRIPTION
1	input
2	common
3	common
4	$-V_B$
7	common
8	common
9	output

PIN CONFIGURATION



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	at 50 MHz	19.5	20.5	dB
		at 450 MHz	20	22	dB
I_{tot}	total current consumption	DC value; $V_B = -27\text{ V}$	—	435	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_i	RF input voltage	—	65	dBmV
T_{stg}	storage temperature range	-40	100	°C
T_{mb}	mounting base operating temperature range	-20	100	°C

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CHARACTERISTICS

 $T_{\text{case}} = 35\text{ }^{\circ}\text{C}$; $Z_S = Z_L = 75\text{ }\Omega$.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	at 50 MHz	19.5	20.5	dB
		at 450 MHz	20	22	dB
SL	slope cable equivalent	$f = 40$ to 450 MHz	0	1.2	dB
FL	flatness of frequency response	$f = 40$ to 450 MHz	–	± 0.3	dB
S_{11}	input return losses	$f = 40$ to 450 MHz	18	–	dB
S_{22}	output return losses	$f = 40$ to 450 MHz	18	–	dB
CTB	composite triple beat	60 chs flat; $V_o = 46\text{ dBmV}$ measured at 445.25 MHz	–	–67	dB
X_{mod}	cross modulation	60 chs flat; $V_o = 46\text{ dBmV}$ measured at 55.25 MHz	–	–66	dB
CSO	composite second order distortion	60 chs flat; $V_o = 46\text{ dBmV}$ measured at 446.5 MHz	–	–63	dB
d_2	second order beat	note 1	–	–70	dB
F	noise figure	$f = 450\text{ MHz}$	–	6.5	dB
I_{tot}	total current consumption	DC value; $V_B = -27\text{ V}$ note 2	–	435	mA

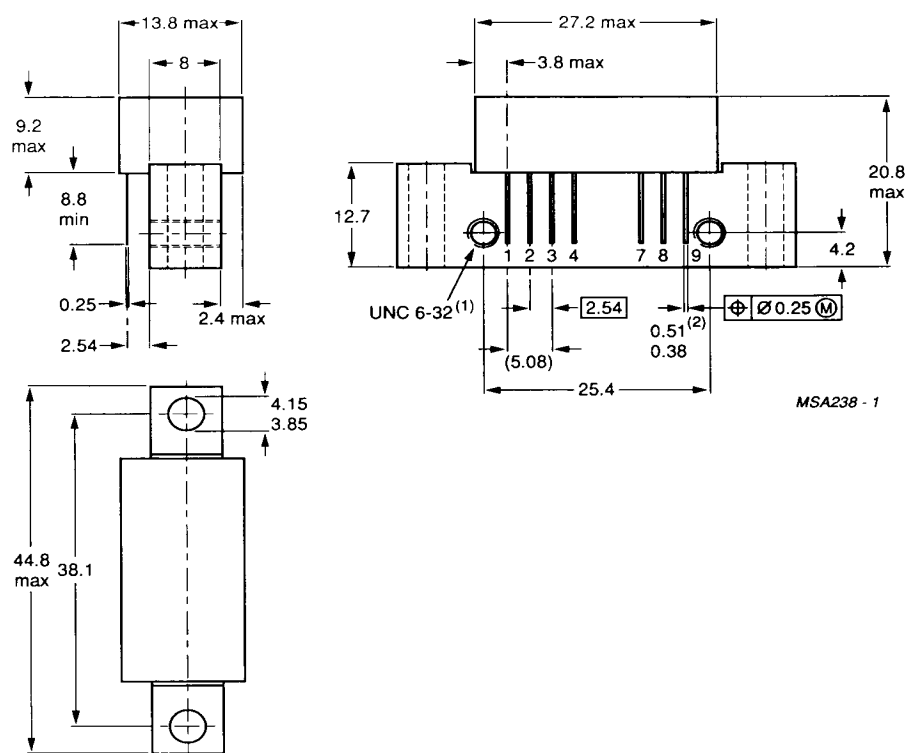
Notes

- $V_p = 46\text{ dBmV}$ at $f_p = 55.25\text{ MHz}$;
 $V_q = 46\text{ dBmV}$ at $f_q = 391.25\text{ MHz}$;
measured at $f_p + f_q = 446.5\text{ MHz}$. (ch.H22)
- The module normally operates at $V_B = -27\text{ V}$, but is able to withstand supply transients up to -33 V .

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PACKAGE OUTLINE



Dimensions in mm.

- (1) Screw 6-32UNC-2A available on request.
- (2) Leads gold-plated.

Fig.2 SOT115E.

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RECOMMENDATIONS FOR MOUNTING AND SOLDERING CATV HYBRID MODULES**Mounting**

The heatsink surface must be flat, free of burrs and oxidation and parallel to the mounting surface.

The heatsink, mounting base and ground leads should be properly RF grounded.

Heatsink compound should be applied sparingly and evenly on the

mounting base. Suitable heatsink compounds are:

- DOW CORNING 340
- ECCOTHERM TC-5 (E and C)
- WAKEFIELD 120.

When mounting CATV hybrid components, the UNC screws must first be finger tight. The screws should then be tightened to within the tolerance of minimum 0.5 Nm to maximum 0.7 Nm.

Soldering

Devices may be soldered directly into a circuit, using a soldering iron with a maximum temperature of 260 °C for not more than 3 s when the soldered joints are a minimum of 3 mm from the module.

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	

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