DATA SHEET

BGY588
CATV amplifier module

Product specification
Supersedes data of February 1995
File under Discrete Semiconductors, SC16

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Philips
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CATV amplifier module BGY588

FEATURES

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

DESCRIPTION

Hybrid amplifier module for CATV systems operating over a frequency range of 40 to 550 MHz at a voltage supply of +24 V (DC) and intended for use as a line-extender.

PINNING - SOT115J

PIN	DESCRIPTION
1	input
2	common
3	common
5	$+V_B$
7	common
8	common
9	output

PIN CONFIGURATION

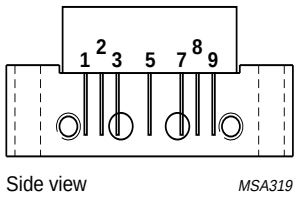


Fig.1 Simplified outline.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 50 MHz	33.5	–	35.5	dB
		f = 550 MHz	35	–	37	dB
I_{tot}	total current consumption (DC)	V_B = +24 V	–	320	340	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_i	RF input voltage	–	55	dBmV
T_{stg}	storage temperature	–40	+100	°C
T_{mb}	mounting base operating temperature	–20	+100	°C

CHARACTERISTICS

Table 1 Bandwidth 40 to 550 MHz; T_{case} = 30 °C; $Z_S = Z_L$ = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 50 MHz	33.5	–	35.5	dB
		f = 550 MHz	35	–	37	dB
SL	slope cable equivalent	f = 40 to 550 MHz	0	–	2.5	dB
FL	flatness of frequency response	f = 40 to 550 MHz	–	–	±0.4	dB
S_{11}	input return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	19	–	–	dB
		f = 160 to 550 MHz	18	–	–	dB
S_{22}	output return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	19	–	–	dB
		f = 160 to 550 MHz	18	–	–	dB
CTB	composite triple beat	77 channels flat; V_o = 44 dBmV; measured at 547.25 MHz	–	–	–57	dB
X_{mod}	cross modulation	77 channels flat; V_o = 44 dBmV; measured at 55.25 MHz	–	–	–59	dB
CSO	composite second order distortion	77 channels flat; V_o = 44 dBmV; measured at 548.5 MHz	–	–	–57	dB
d_2	second order distortion	note 1	–	–	–68	dB
V_o	output voltage	d_{im} = –60 dB; note 2	61	–	–	dBmV
F	noise figure	f = 550 MHz	–	–	6.5	dB
I_{tot}	total current consumption	DC value; V_B = +24 V; note 3	–	320	340	mA

Notes

1. f_p = 55.25 MHz; V_p = 44 dBmV;
   f_q = 493.25 MHz; V_q = 44 dBmV;
   measured at $f_p + f_q$ = 548.5 MHz.
2. Measured according to DIN45004B;
   f_p = 540.25 MHz; $V_p = V_o$ = 66.5 dBmV;
   f_q = 547.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 549.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 538.25 MHz.
3. The module normally operates at V_B = +24 V, but is able to withstand supply transients up to +30 V.

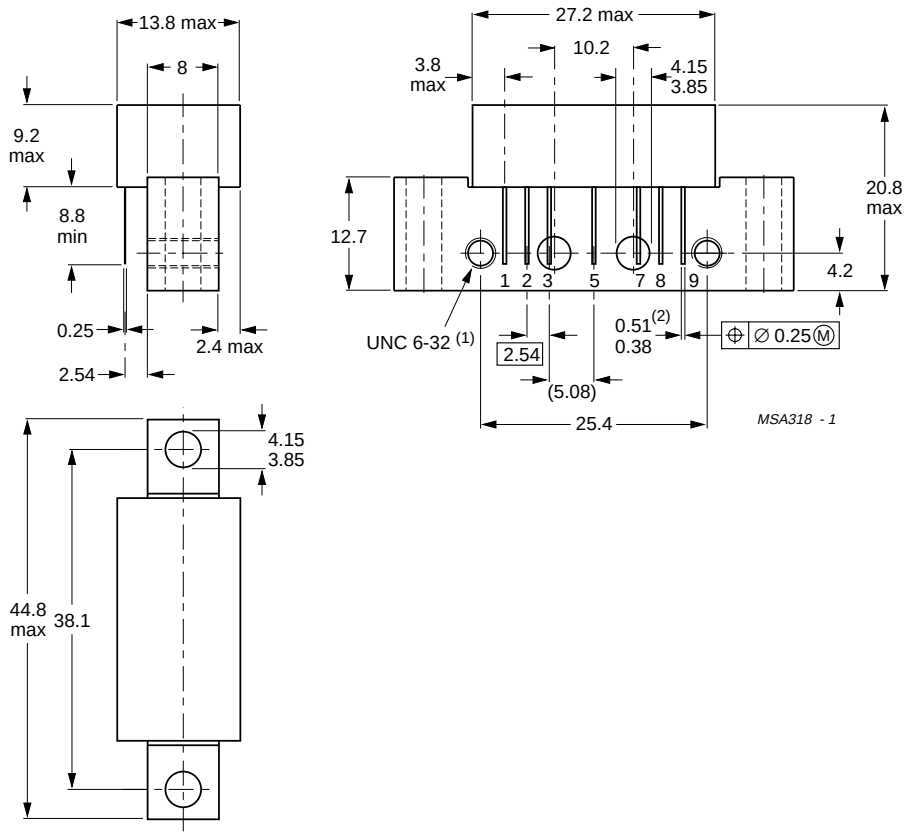
Table 2 Bandwidth 40 to 450 MHz; T_{case} = 35 °C; $Z_S = Z_L$ = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 50 MHz	33.5	–	35.5	dB
		f = 450 MHz	35	–	37	dB
SL	slope cable equivalent	f = 40 to 450 MHz	0.5	–	2.5	dB
FL	flatness of frequency response	f = 40 to 450 MHz	–	–	±0.3	dB
S_{11}	input return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	19	–	–	dB
		f = 160 to 450 MHz	18	–	–	dB
S_{22}	output return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	19	–	–	dB
		f = 160 to 450 MHz	18	–	–	dB
CTB	composite triple beat	60 channels flat; V_o = 46 dBmV; measured at 445.25 MHz	–	–	–61	dB
X_{mod}	cross modulation	60 channels flat; V_o = 46 dBmV; measured at 55.25 MHz	–	–	–59	dB
CSO	composite second order distortion	60 channels flat; V_o = 46 dBmV; measured at 446.5 MHz	–	–	–59	dB
d_2	second order distortion	note 1	–	–	–72	dB
V_o	output voltage	d_{im} = –60 dB; note 2	64	–	–	dBmV
F	noise figure	f = 450 MHz	–	–	6	B
I_{tot}	total current consumption	DC value; V_B = +24 V; note 3	–	320	340	mA

Notes

1. f_p = 55.25 MHz; V_p = 46 dBmV;
   f_q = 391.25 MHz; V_q = 46 dBmV;
   measured at $f_p + f_q$ = 446.5 MHz.
2. Measured according to DIN45004B;
   f_p = 440.25 MHz; $V_p = V_o$ = 66.5 dBmV;
   f_q = 447.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 449.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 438.25 MHz.
3. The module normally operates at V_B = +24 V, but is able to withstand supply transients up to +30 V.

PACKAGE OUTLINE



Dimensions in mm.

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

(2) Leads gold plated.

Fig.2 SOT115J.

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 the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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