

DISCRETE SEMICONDUCTORS

DATA SHEET

BGY1085A CATV amplifier module

Product specification

1997 Apr 15

Supersedes data of 1995 Sep 11

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CATV amplifier module

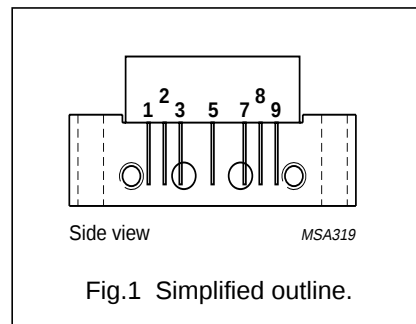
BGY1085A

FEATURES

- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability.

PINNING - SOT115J

PIN	DESCRIPTION
1	input
2	common
3	common
5	+V _B
7	common
8	common
9	output



DESCRIPTION

Hybrid high amplifier module for CATV systems operating over a frequency range of 40 to 1000 MHz at a supply voltage of +24 V (DC).

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G _p	power gain	f = 50 MHz	18	19	dB
		f = 1000 MHz	18.5	–	dB
I _{tot}	total current consumption (DC)	V _B = 24 V	–	240	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V _i	RF input voltage	–	65	dBmV
T _{stg}	storage temperature	–40	+100	°C
T _{mb}	operating mounting base temperature	–20	+100	°C

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CHARACTERISTICS

Table 1 Bandwidth 40 to 1000 MHz; $T_{\text{case}} = 30\text{ }^{\circ}\text{C}$; $Z_S = Z_L = 75\text{ }\Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	$f = 50\text{ MHz}$	18	–	19	dB
		$f = 1000\text{ MHz}$	18.5	–	–	dB
SL	slope cable equivalent	$f = 40\text{ to }1000\text{ MHz}$	0	–	2	dB
FL	flatness of frequency response	$f = 40\text{ to }1000\text{ MHz}$	–	–	± 0.3	dB
S_{11}	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	–	dB
		$f = 320\text{ to }640\text{ MHz}$	15.5	–	–	dB
		$f = 640\text{ to }1000\text{ MHz}$	14	–	–	dB
S_{22}	output return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	–	dB
		$f = 80\text{ to }160\text{ MHz}$	18.5	–	–	dB
		$f = 160\text{ to }320\text{ MHz}$	17	–	–	dB
		$f = 320\text{ to }640\text{ MHz}$	15.5	–	–	dB
		$f = 640\text{ to }1000\text{ MHz}$	14	–	–	dB
CTB	composite triple beat	85 channels flat; $V_o = 44\text{ dBmV}$; measured at 595.25 MHz	–	–	–58	dB
		110 channels flat; $V_o = 44\text{ dBmV}$; measured at 745.25 MHz	–	–	–53	dB
		150 channels flat; $V_o = 40\text{ dBmV}$; measured at 985.25 MHz	–	–53	–	dB
X_{mod}	cross modulation	85 channels flat; $V_o = 44\text{ dBmV}$; measured at 55.25 MHz	–	–	–58	dB
		110 channels flat; $V_o = 44\text{ dBmV}$; measured at 55.25 MHz	–	–	–54	dB
		150 channels flat; $V_o = 40\text{ dBmV}$; measured at 55.25 MHz	–	–54	–	dB
CSO	composite second order distortion	85 channels flat; $V_o = 44\text{ dBmV}$; measured at 596.5 MHz	–	–	–60	dB
		110 channels flat; $V_o = 44\text{ dBmV}$; measured at 746.5 MHz	–	–	–56	dB
		150 channels flat; $V_o = 40\text{ dBmV}$; measured at 986.5 MHz	–	–56	–	dB

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
d_2	second order distortion	note 1	–	–	–72	dB
		note 2	–	–	–65	dB
		note 3	–	–68	–	dB
V_o	output voltage	$d_{im} = -60$ dB				
		note 4	61	–	–	dBmV
		note 5	60	–	–	dBmV
		note 6	57	–	–	dBmV
F	noise figure	f = 50 MHz	–	–	5.5	dB
		f = 550 MHz	–	–	6	dB
		f = 600 MHz	–	–	6	dB
		f = 650 MHz	–	–	6.5	dB
		f = 750 MHz	–	–	7	dB
		f = 860 MHz	–	–	7.5	dB
		f = 1000 MHz	–	–	7.5	dB
I_{tot}	total current consumption (DC)	note 7	–	–	240	mA

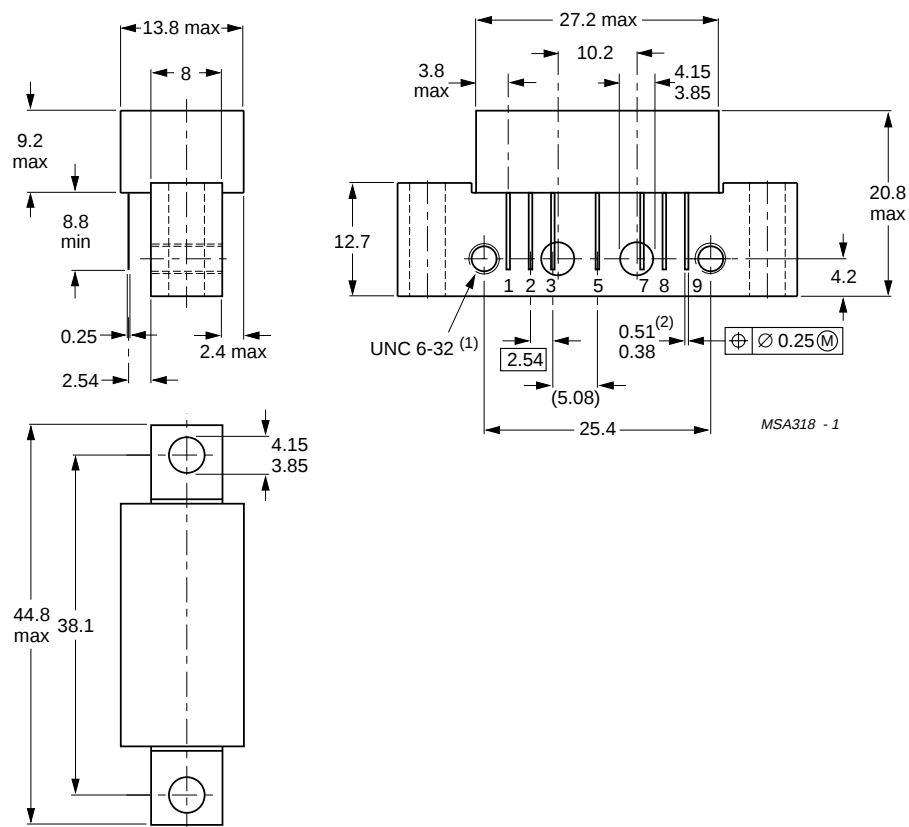
Notes

- $f_p = 55.25$ MHz; $V_p = 44$ dBmV;
 $f_q = 541.25$ MHz; $V_q = 44$ dBmV;
measured at $f_p + f_q = 596.5$ MHz.
- $f_p = 55.25$ MHz; $V_p = 44$ dBmV;
 $f_q = 691.25$ MHz; $V_q = 44$ dBmV;
measured at $f_p + f_q = 746.5$ MHz.
- $f_p = 55.25$ MHz; $V_p = 40$ dBmV;
 $f_q = 931.25$ MHz; $V_q = 40$ dBmV;
measured at $f_p + f_q = 986.5$ MHz.
- $f_p = 590.25$ MHz; $V_p = V_o$;
 $f_q = 597.25$ MHz; $V_q = V_o - 6$ dB;
 $f_r = 599.25$ MHz; $V_r = V_o - 6$ dB;
measured at $f_p + f_q - f_r = 588.25$ MHz.
- $f_p = 740.25$ MHz; $V_p = V_o$;
 $f_q = 747.25$ MHz; $V_q = V_o - 6$ dB;
 $f_r = 749.25$ MHz; $V_r = V_o - 6$ dB;
measured at $f_p + f_q - f_r = 738.25$ MHz.
- $f_p = 980.25$ MHz; $V_p = V_o$;
 $f_q = 987.25$ MHz; $V_q = V_o - 6$ dB;
 $f_r = 989.25$ MHz; $V_r = V_o - 6$ dB;
measured at $f_p + f_q - f_r = 978.25$ MHz.
- The module normally operates at $V_B = 24$ V, but is able to withstand supply transients up to 30 V.

CATV amplifier module

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PACKAGE OUTLINE



Dimensions in mm.

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

(2) Leads gold plated.

Fig.2 SOT115J.

CATV amplifier module

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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.	

LIFE SUPPORT APPLICATIONS

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CATV amplifier module

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