

DATA SHEET

BGY883

CATV amplifier module

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

1997 Apr 14

CATV amplifier module

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FEATURES

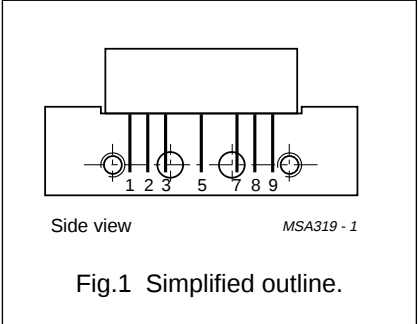
- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability.

DESCRIPTION

Hybrid amplifier module designed for CATV systems operating over a frequency range of 40 to 860 MHz at a voltage supply of 24 V (DC).

PINNING - SOT115J

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



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G _p	power gain	f = 50 MHz	14.5	15.5	dB
		f = 860 MHz	15	–	dB
I _{tot}	total current consumption (DC)	V _B = 24 V	–	235	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 860 MHz; $V_B = 24\text{ V}$; $T_{\text{case}} = 30\text{ }^{\circ}\text{C}$; $Z_S = Z_L = 75\text{ }\Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	$f = 50\text{ MHz}$	14.5	–	15.5	dB
		$f = 860\text{ MHz}$	15	–	–	dB
SL	slope cable equivalent	$f = 40\text{ to }860\text{ MHz}$	0	–	2	dB
FL	flatness of frequency response	$f = 40\text{ to }860\text{ MHz}$	–	–	± 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
		$f = 640\text{ to }860\text{ MHz}$	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
		$f = 640\text{ to }860\text{ MHz}$	14	–	–	dB
S_{21}	phase response	$f = 50\text{ MHz}$	–45	–	+45	deg
CTB	composite triple beat	49 channels flat; $V_o = 44\text{ dBmV}$; measured at 859.25 MHz	–	–	–61	dB
X_{mod}	cross modulation	49 channels flat; $V_o = 44\text{ dBmV}$; measured at 55.25 MHz	–	–	–61	dB
CSO	composite second order distortion	49 channels flat; $V_o = 44\text{ dBmV}$; measured at 860.5 MHz	–	–	–61	dB
d_2	second order distortion	note 1	–	–	–68	dB
V_o	output voltage	$d_{\text{im}} = -60\text{ dB}$; note 2	58.5	60	–	dBmV
F	noise figure	$f = 50\text{ MHz}$	–	–	6	dB
		$f = 550\text{ MHz}$	–	–	7	dB
		$f = 650\text{ MHz}$	–	–	7.5	dB
		$f = 750\text{ MHz}$	–	–	8	dB
		$f = 860\text{ MHz}$	–	–	8.5	dB
I_{tot}	total current consumption (DC)	note 3	–	–	235	mA

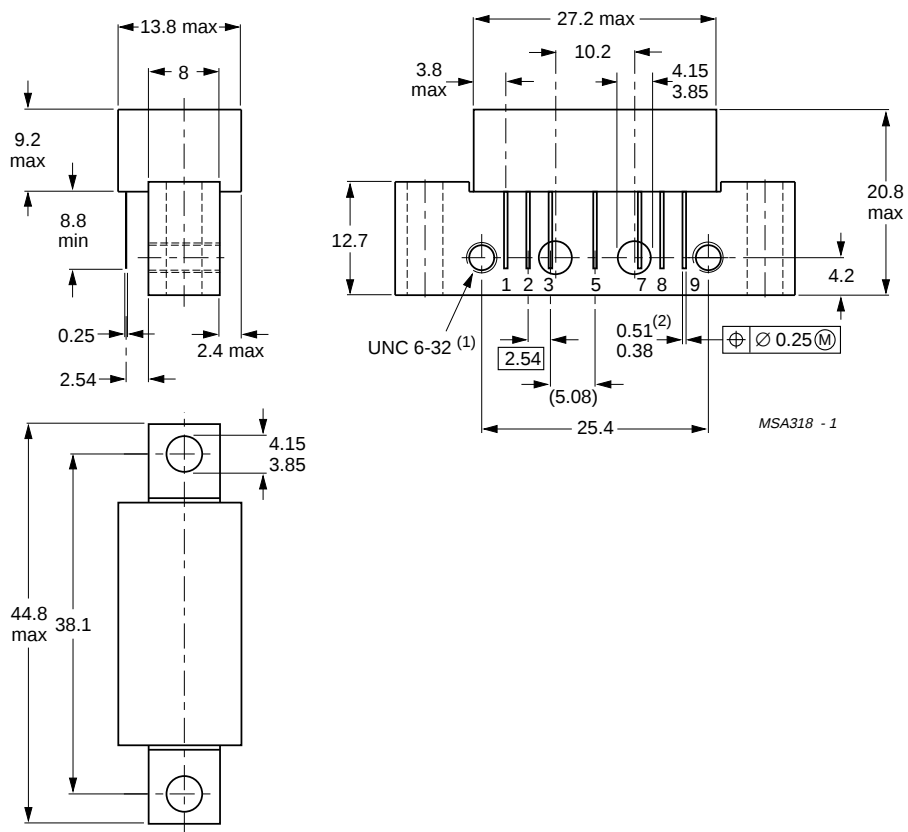
Notes

- $f_p = 55.25\text{ MHz}$; $V_p = 44\text{ dBmV}$;
 $f_q = 805.25\text{ MHz}$; $V_q = 44\text{ dBmV}$;
measured at $f_p + f_q = 860.5\text{ MHz}$.
- Measured according to DIN45004B:
 $f_p = 851.25\text{ MHz}$; $V_p = V_o$;
 $f_q = 858.25\text{ MHz}$; $V_q = V_o - 6\text{ dB}$;
 $f_r = 860.25\text{ MHz}$; $V_r = V_o - 6\text{ dB}$;
measured at $f_p + f_q - f_r = 849.25\text{ MHz}$.
- The module normally operates at $V_B = 24\text{ V}$, but is able to withstand supply transients up to 30 V.

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PACKAGE OUTLINE



Dimensions in mm.

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

(2) Leads gold plated.

Fig.2 SOT115J.

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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

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

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NOTES

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Printed in The Netherlands

127167/00/03/pp8

Date of release: 1997 Apr 14

Document order number: 9397 750 02154

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