

DATA SHEET

BGD802

Hybrid CATV amplifier module

Product specification

1996 Jul 15

Supersedes data of 1996 Apr 25

File under Discrete Semiconductors, SC16

Hybrid CATV amplifier module

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FEATURES

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

APPLICATIONS

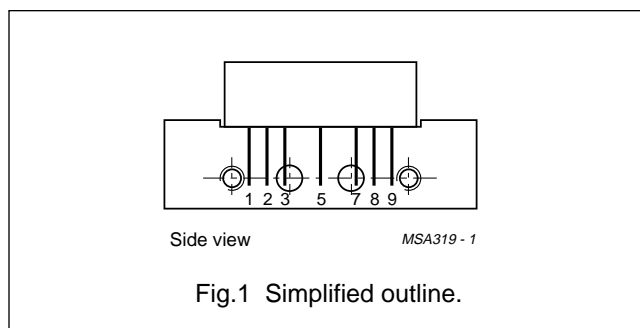
- CATV systems operating in the 40 to 860 MHz frequency range.

DESCRIPTION

Hybrid amplifier module in a SOT115J2 package operating with a voltage supply of 24 V (DC).

PINNING - SOT115J2

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	18	19	dB
		f = 860 MHz	18.5	–	dB
I _{tot}	total current consumption (DC)	V _B = 24 V	–	410	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V _B	supply voltage	–	25	V
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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CHARACTERISTICSBandwidth 40 to 860 MHz; $V_B = 24$ V; $T_{case} = 35$ °C; $Z_S = Z_L = 75$ Ω .

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	$f = 50$ MHz	18	19	dB
		$f = 860$ MHz	18.5	–	dB
SL	slope cable equivalent	$f = 40$ to 860 MHz	0.2	2	dB
FL	flatness of frequency response	$f = 40$ to 860 MHz	–	± 0.5	dB
S_{11}	input return losses	$f = 40$ to 80 MHz	20	–	dB
		$f = 80$ to 160 MHz	18.5	–	dB
		$f = 160$ to 320 MHz	17	–	dB
		$f = 320$ to 640 MHz	15.5	–	dB
		$f = 640$ to 860 MHz	14	–	dB
S_{22}	output return losses	$f = 40$ to 80 MHz	20	–	dB
		$f = 80$ to 160 MHz	18.5	–	dB
		$f = 160$ to 320 MHz	17	–	dB
		$f = 320$ to 640 MHz	15.5	–	dB
		$f = 640$ to 860 MHz	14	–	dB
S_{21}	phase response	$f = 50$ MHz	–45	+45	deg
CTB	composite triple beat	49 channels flat; $V_o = 47$ dBmV; measured at 859.25 MHz	–	–61	dB
X_{mod}	cross modulation	49 channels flat; $V_o = 47$ dBmV; measured at 55.25 MHz	–	–61	dB
CSO	composite second order distortion	49 channels flat; $V_o = 47$ dBmV; measured at 860.5 MHz	–	–60	dB
d_2	second order distortion	note 1	–	–69	dB
V_o	output voltage	$d_{im} = -60$ dB; note 2	61.5	–	dBmV
F	noise figure	$f = 50$ MHz	–	5.5	dB
		$f = 860$ MHz	–	9	dB
I_{tot}	total current consumption (DC)	note 3	–	410	mA

Notes

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

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		f = 320 to 640 MHz	15.5	–	dB
		f = 640 to 860 MHz	14	–	dB
S_{21}	phase response	f = 50 MHz	–45	+45	deg
CTB	composite triple beat	129 channels flat; $V_o = 44$ dBmV; measured at 859.25 MHz	–	–54	dB
X_{mod}	cross modulation	129 channels flat; $V_o = 44$ dBmV; measured at 55.25 MHz	–	–59	dB
CSO	composite second order distortion	129 channels flat; $V_o = 44$ dBmV; measured at 860.5 MHz	–	–56	dB
d_2	second order distortion	note 1	–	–69	dB
V_o	output voltage	$d_{im} = -60$ dB; note 2	61.5	–	dBmV
F	noise figure	f = 50 MHz	–	5.5	dB
		f = 860 MHz	–	9	dB
I_{tot}	total current consumption (DC)	note 3	–	410	mA

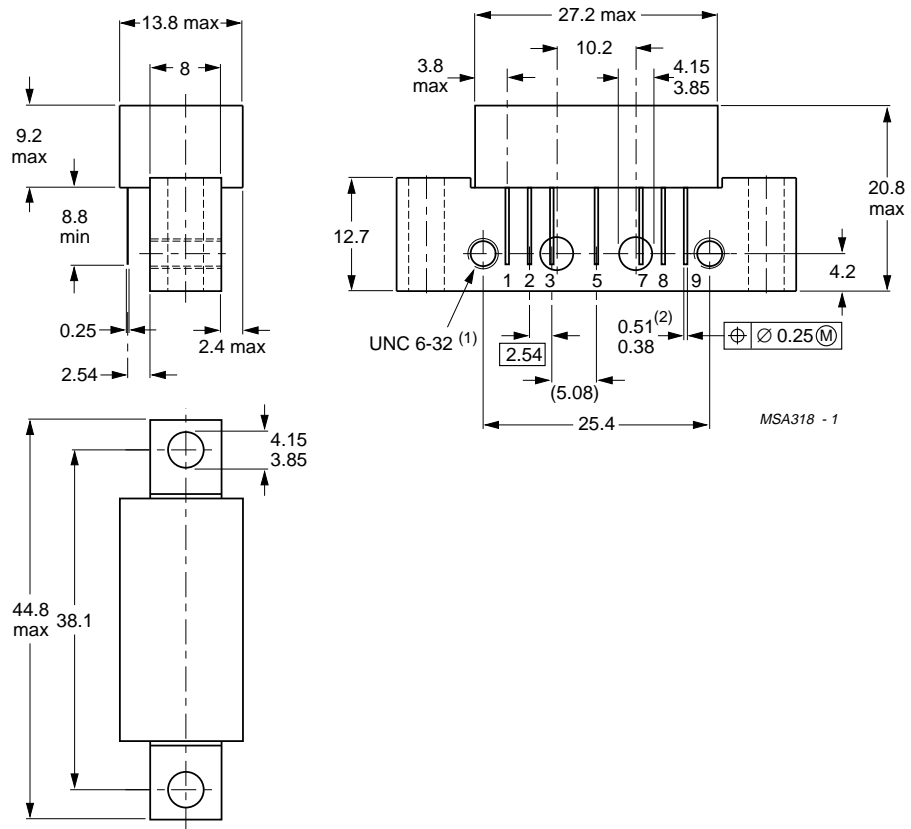
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PACKAGE OUTLINE



Dimensions in mm.

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

(2) Leads gold plated.

Fig.2 SOT115J2.

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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.	

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Printed in The Netherlands

127141/1200/02/pp8

Date of release: 1996 Jul 15

Document order number: 9397 750 00962

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