

**DISCRETE SEMICONDUCTORS**

# DATA SHEET

## **BGY687** CATV amplifier module

Product specification

1995 Sep 11

Supersedes data of February 1995

File under Discrete Semiconductors, SC16

## CATV amplifier module

## BGY687

## FEATURES

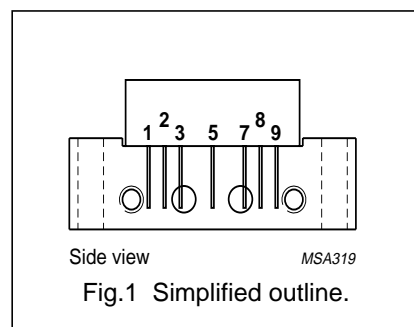
- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability.

## DESCRIPTION

Hybrid high dynamic range amplifier module designed for CATV systems operating over a frequency range of 40 to 600 MHz at a voltage supply of 24 V (DC).

## PINNING - SOT115J

PIN	DESCRIPTION
1	input
2	common
3	common
5	+V <sub>B</sub>
7	common
8	common
9	output



## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	21	22	dB
		f = 600 MHz	22	–	dB
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	–	240	mA

## LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V <sub>i</sub>	RF input voltage	–	65	dBmV
T <sub>stg</sub>	storage temperature	–40	+100	°C
T <sub>mb</sub>	operating mounting base temperature	–20	+100	°C

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**CHARACTERISTICS**Bandwidth 40 to 600 MHz;  $T_{\text{case}} = 30\text{ }^{\circ}\text{C}$ ;  $Z_S = Z_L = 75\ \Omega$ .

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$G_p$	power gain	$f = 50\text{ MHz}$	21	22	dB
		$f = 600\text{ MHz}$	22	–	dB
SL	slope cable equivalent	$f = 40\text{ to }600\text{ MHz}$	0.8	2.2	dB
FL	flatness of frequency response	$f = 40\text{ to }600\text{ MHz}$	–	$\pm 0.2$	dB
$S_{11}$	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	19	–	dB
		$f = 160\text{ to }600\text{ MHz}$	18	–	dB
$S_{22}$	output return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	dB
		$f = 80\text{ to }160\text{ MHz}$	19	–	dB
		$f = 160\text{ to }550\text{ MHz}$	18	–	dB
		$f = 550\text{ to }600\text{ MHz}$	16	–	dB
$S_{21}$	phase response	$f = 50\text{ MHz}$	–45	+45	deg
CTB	composite triple beat	85 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 595.25 MHz	–	–54	dB
$X_{\text{mod}}$	cross modulation	85 channels flat; $V_o = 44\text{ dBmV}$ ; 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	–	–52	dB
$d_2$	second order distortion	note 1	–	–66	dB
$V_o$	output voltage	$d_{\text{im}} = -60\text{ dB}$ ; note 2	58	–	dBmV
F	noise figure	$f = 600\text{ MHz}$	–	6.5	dB
$I_{\text{tot}}$	total current consumption (DC)	note 3	–	240	mA

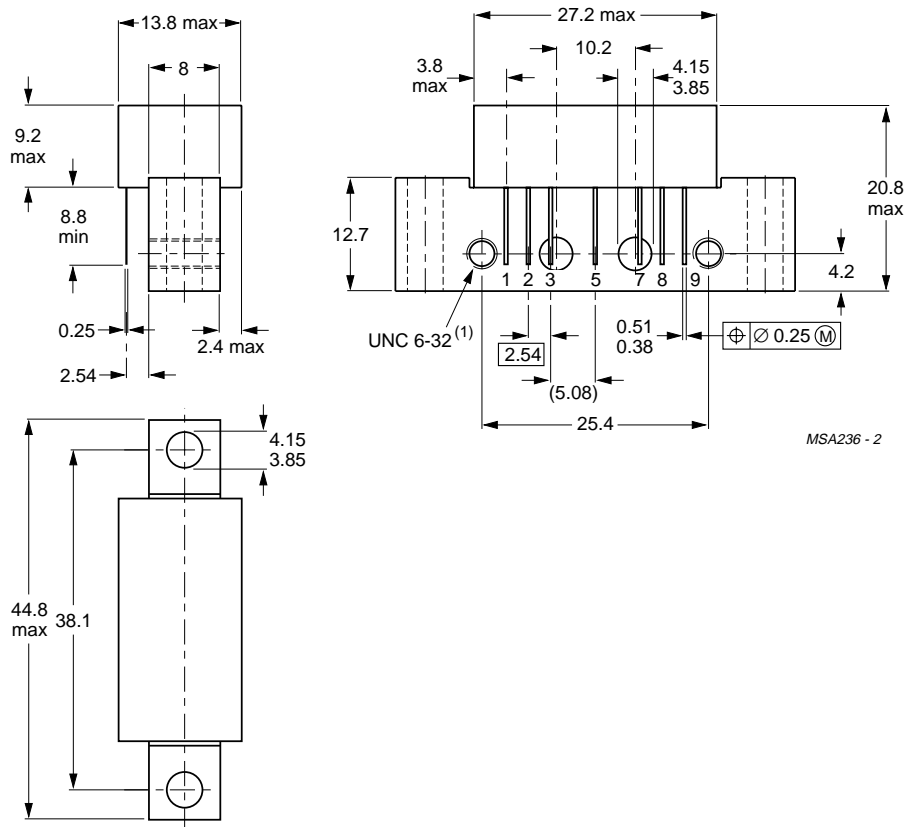
**Notes**

- $f_p = 55.25\text{ MHz}$ ;  $V_p = 44\text{ dBmV}$ ;  
 $f_q = 541.25\text{ MHz}$ ;  $V_q = 44\text{ dBmV}$ ;  
measured at  $f_p + f_q = 596.5\text{ MHz}$ .
- $f_p = 590.25\text{ MHz}$ ;  $V_p = V_o$ ;  
 $f_q = 597.25\text{ MHz}$ ;  $V_q = V_o - 6\text{ dB}$ ;  
 $f_r = 599.25\text{ MHz}$ ;  $V_r = V_o - 6\text{ dB}$ ;  
measured at  $f_p + f_q - f_r = 588.25\text{ MHz}$ .
- 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) Screws 6-32UNC-2A available on request.
- (2) Leads gold plated.

Fig.2 SOT115C.

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**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

**LIFE SUPPORT APPLICATIONS**

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