

# DATA SHEET

## **BGY84A; BGY85A** CATV amplifier modules

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

1997 Apr 10

# CATV amplifier modules

# BGY84A; BGY85A

### FEATURES

- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Optimal reliability ensured by TiPtAu metallized crystals.

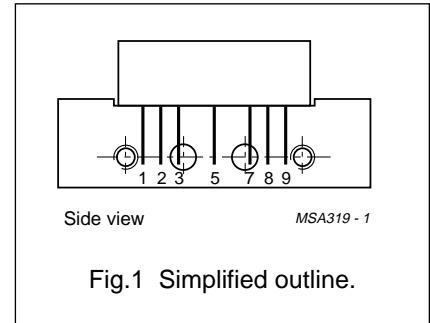
### DESCRIPTION

Hybrid amplifier modules for CATV systems operating over a frequency range of 40 to 450 MHz at a voltage supply of +24 V (DC). BGY84A is intended for use as an input amplifier module and BGY85A as an output amplifier module.

### PINNING - SOT115J

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

### PIN CONFIGURATION



### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	18	–	18.8	dB
		f = 450 MHz	18.7	–	20.2	dB
I <sub>tot</sub>	total current consumption (DC) BGY84A BGY85A	V <sub>B</sub> = +24 V	–	180	200	mA
			–	220	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>	mounting base operating temperature	–20	+100	°C

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## CHARACTERISTICS

Table 1 Bandwidth 40 to 450 MHz;  $T_{mb} = 30\text{ }^{\circ}\text{C}$ ;  $Z_S = Z_L = 75\text{ }\Omega$ 

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$G_p$	power gain	$f = 50\text{ MHz}$	18	–	18.8	dB
		$f = 450\text{ MHz}$	18.7	–	20.2	dB
SL	slope cable equivalent	$f = 40\text{ to }450\text{ MHz}$	0.3	–	1.5	dB
FL	flatness of frequency response	$f = 40\text{ to }450\text{ MHz}$	–	–	$\pm 0.2$	dB
$S_{11}$	input return losses	$f = 40\text{ to }80\text{ MHz}$	20	–	–	dB
		$f = 80\text{ to }160\text{ MHz}$	19	–	–	dB
		$f = 160\text{ to }450\text{ MHz}$	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
		$f = 160\text{ to }450\text{ MHz}$	18	–	–	dB
CTB	composite triple beat BGY84A BGY85A	60 channels flat; $V_o = 46\text{ dBmV}$ ; measured at 445.25 MHz	–	–	–55	dB
			–	–	–59	dB
$X_{mod}$	cross modulation BGY84A BGY85A	60 channels flat; $V_o = 46\text{ dBmV}$ ; measured at 55.25 MHz	–	–	–58	dB
			–	–	–61	dB
$d_2$	second order distortion	note 1	–	–	–72	dB
$V_o$	output voltage BGY84A BGY85A	$d_{im} = -60\text{ dB}$ ; note 2	60	–	–	dBmV
			62.5	–	–	dBmV
F	noise figure BGY84A BGY85A	$f = 40\text{ to }450\text{ MHz}$	–	–	6.5	dB
			–	–	7	dB
$I_{tot}$	total current consumption BGY84A BGY85A	DC value; $V_B = +24\text{ V}$ ; note 3	–	180	200	mA
			–	220	240	mA

## Notes

- $f_p = 55.25\text{ MHz}$ ;  $V_p = 46\text{ dBmV}$ ;  
 $f_q = 343.25\text{ MHz}$ ;  $V_q = 46\text{ dBmV}$ ;  
measured at  $f_p + f_q = 398.5\text{ MHz}$ .
- Measured according to DIN45004B;  
 $f_p = 440.25\text{ MHz}$ ;  $V_p = V_o$ ;  
 $f_q = 447.25\text{ MHz}$ ;  $V_q = V_o - 6\text{ dB}$ ;  
 $f_r = 449.25\text{ MHz}$ ;  $V_r = V_o - 6\text{ dB}$ ;  
measured at  $f_p + f_q - f_r = 438.25\text{ MHz}$ .
- The modules normally operate at  $V_B = +24\text{ V}$ , but are able to withstand supply transients up to  $+30\text{ V}$ .



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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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**NOTES**

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