

# DATA SHEET

## **BGY89** CATV amplifier module

Product specification  
File under Discrete Semiconductors, SC16

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**Philips Semiconductors**



**PHILIPS**

# CATV amplifier module

# BGY89

## FEATURES

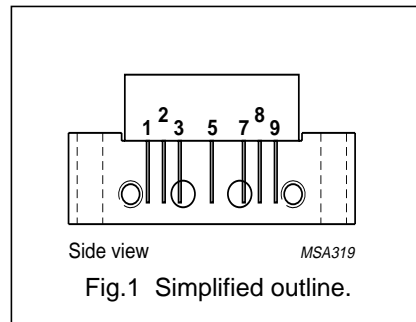
- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- TiPtAu metallized crystals ensure optimal reliability.

## DESCRIPTION

Hybrid amplifier module for CATV systems operating over a frequency range of 40 to 450 MHz at a voltage supply of 24 V (DC). The module is intended for use as a line-extender.

## 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.	TYP.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	37	–	39	dB
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	–	320	340	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	–	55	dBmV
T <sub>stg</sub>	storage temperature	–40	+100	°C
T <sub>mb</sub>	operating mounting base temperature	–20	+100	°C

## CATV amplifier module

BGY89

**CHARACTERISTICS**Bandwidth 40 to 450 MHz;  $V_B = 24$  V;  $T_{mb} = 35$  °C;  $Z_S = Z_L = 75$   $\Omega$ .

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	37	–	39	dB
		f = 450 MHz	37	–	–	dB
SL	slope cable equivalent	f = 40 to 450 MHz	0	–	2.5	dB
FL	flatness of frequency response	f = 40 to 450 MHz	–	–	±0.4	dB
S <sub>11</sub>	input return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	19	–	–	dB
		f = 160 to 450 MHz	18	–	–	dB
S <sub>22</sub>	output return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	19	–	–	dB
		f = 160 to 450 MHz	18	–	–	dB
S <sub>21</sub>	phase response	f = 50 MHz	–45	–	+45	deg
CTB	composite triple beat	60 channels flat; V <sub>o</sub> = 46 dBmV; measured at 445.25 MHz	–	–	–58	dB
X <sub>mod</sub>	cross modulation	60 channels flat; V <sub>o</sub> = 46 dBmV; measured at 55.25 MHz	–	–	–58	dB
CSO	composite second order distortion	60 channels flat; V <sub>o</sub> = 46 dBmV; measured at 446.5 MHz	–	–	–58	dB
d <sub>2</sub>	second order distortion	note 1	–	–	–70	dB
V <sub>o</sub>	output voltage	d <sub>im</sub> = –60 dB; note 2	63	–	–	dBmV
F	noise figure	f = 450 MHz	–	–	5.5	dB
I <sub>tot</sub>	total current consumption (DC)	note 3	–	320	340	mA

**Notes**

1.  $f_p = 55.25$  MHz;  $V_p = 46$  dBmV;  
 $f_q = 343.25$  MHz;  $V_q = 46$  dBmV;  
measured at  $f_p + f_q = 398.5$  MHz.
2. Measured according to DIN45004B:  
 $f_p = 440.25$  MHz;  $V_p = V_o = 63$  dBmV;  
 $f_q = 447.25$  MHz;  $V_q = V_o - 6$  dB;  
 $f_r = 449.25$  MHz;  $V_r = V_o - 6$  dB;  
measured at  $f_p + f_q - f_r = 438.25$  MHz.
3. The module normally operates at  $V_B = 24$  V, but is able to withstand supply transients up to 30 V.