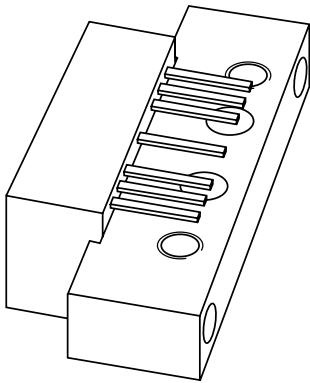


# DATA SHEET



## **BGY687**

**600 MHz, 21.5 dB gain push-pull  
amplifier**

Product specification  
Supersedes data of 1995 Sep 11

2001 Nov 08

# 600 MHz, 21.5 dB gain push-pull amplifier

# BGY687

### FEATURES

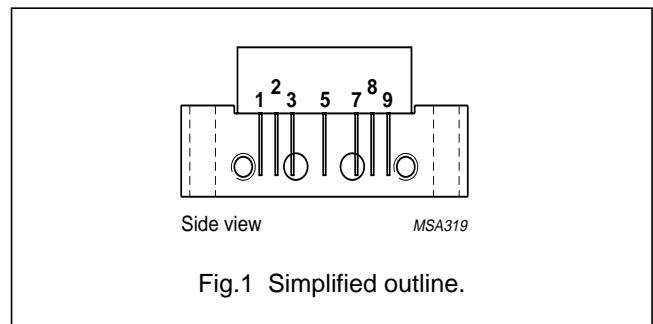
- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability.

### 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 60134).

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;  $T_{\text{case}} = 30\text{ °C}$ ;  $Z_S = Z_L = 75\ \Omega$ .

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	21	22	dB
		f = 600 MHz	22	–	dB
SL	slope cable equivalent	f = 40 to 600 MHz	0.8	2.2	dB
FL	flatness of frequency response	f = 40 to 600 MHz	–	±0.2	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 600 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 550 MHz	18	–	dB
		f = 550 to 600 MHz	16	–	dB
S <sub>21</sub>	phase response	f = 50 MHz	–45	+45	deg
CTB	composite triple beat	85 channels flat; V <sub>o</sub> = 44 dBmV; measured at 595.25 MHz	–	–54	dB
X <sub>mod</sub>	cross modulation	85 channels flat; V <sub>o</sub> = 44 dBmV; measured at 55.25 MHz	–	–54	dB
CSO	composite second order distortion	85 channels flat; V <sub>o</sub> = 44 dBmV; measured at 596.5 MHz	–	–52	dB
d <sub>2</sub>	second order distortion	note 1	–	–66	dB
V <sub>o</sub>	output voltage	d <sub>im</sub> = –60 dB; note 2	58	–	dBmV
NF	noise figure	f = 600 MHz	–	6.5	dB
I <sub>tot</sub>	total current consumption (DC)	note 3	–	240	mA

**Notes**

1.  $f_p = 55.25\text{ MHz}$ ;  $V_p = 44\text{ dBmV}$ ;  $f_q = 541.25\text{ MHz}$ ;  $V_q = 44\text{ dBmV}$ ; measured at  $f_p + f_q = 596.5\text{ MHz}$ .
2.  $f_p = 590.25\text{ MHz}$ ;  $V_p = V_o$ ;  $f_q = 597.25\text{ MHz}$ ;  $V_q = V_o - 6\text{ dB}$ ;  $f_r = 599.25\text{ MHz}$ ;  $V_r = V_o - 6\text{ dB}$ ; measured at  $f_p + f_q - f_r = 588.25\text{ MHz}$ .
3. The module normally operates at  $V_B = 24\text{ V}$ , but is able to withstand supply transients up to 30 V.

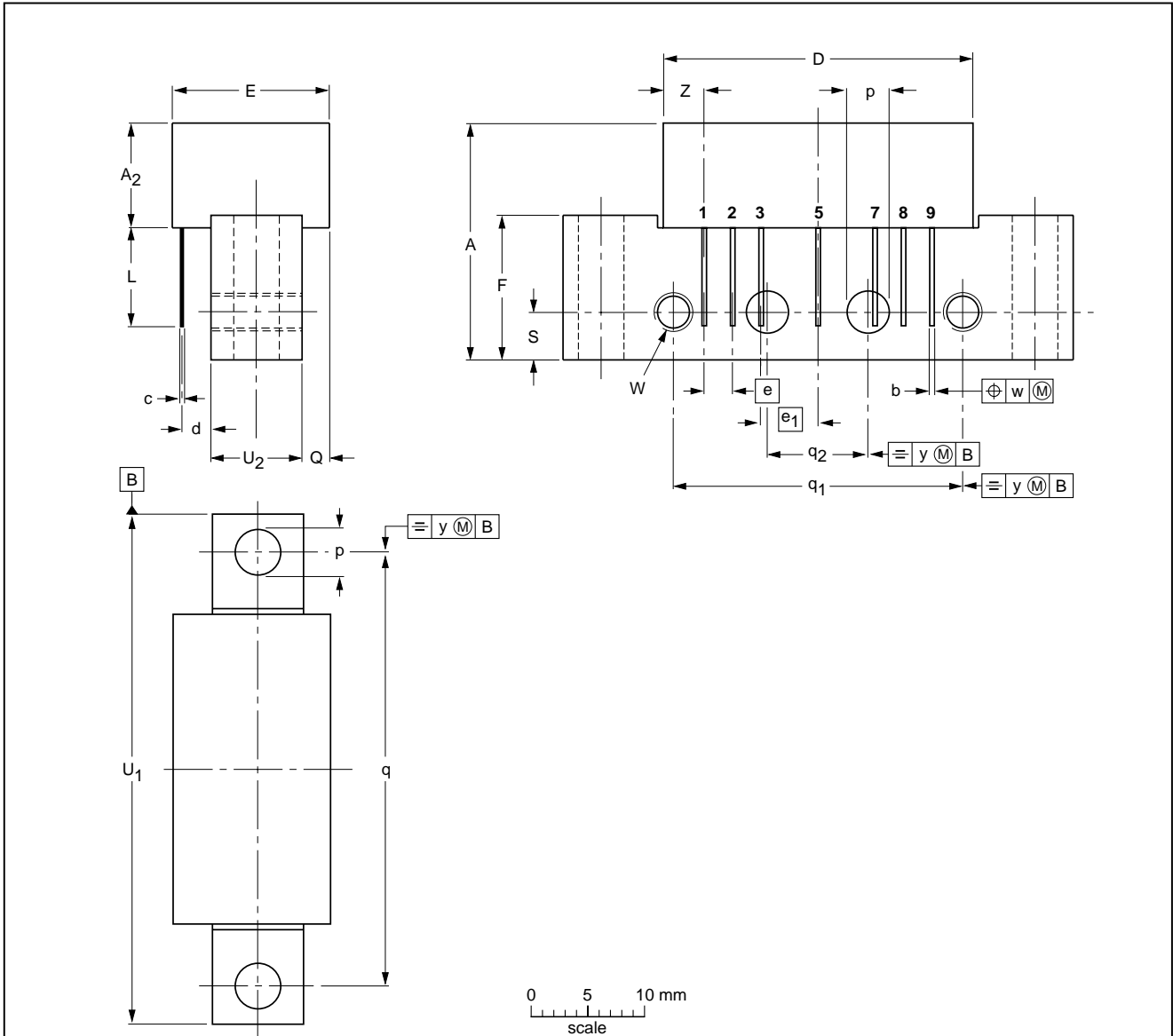
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PACKAGE OUTLINE

Rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounting holes; 7 gold-plated in-line leads

SOT115J



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A <sub>2</sub> max.	b	c	D max.	d max.	E max.	e	e <sub>1</sub>	F	L min.	p	Q max.	q	q <sub>1</sub>	q <sub>2</sub>	S	U <sub>1</sub> max.	U <sub>2</sub>	W	w	y	Z max.
mm	20.8	9.1	0.51 0.38	0.25	27.2	2.54	13.75	2.54	5.08	12.7	8.8	4.15 3.85	2.4	38.1	25.4	10.2	4.2	44.75	8	6-32 UNC	0.25	0.1	3.8

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT115J						99-02-06

## 600 MHz, 21.5 dB gain push-pull amplifier

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## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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## CAUTION

This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling. For further information, refer to Philips specs.: SNW-EQ-608, SNW-FQ-302A and SNW-FQ-302B.

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**NOTES**

600 MHz, 21.5 dB gain push-pull amplifier

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**NOTES**

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Printed in The Netherlands

613518/04/pp8

Date of release: 2001 Nov 08

Document order number: 9397 750 08807

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