

BGY587

550 MHz, 22 dB gain push-pull amplifier

Rev. 04 — 11 April 2005

Product data sheet

1. Product profile

1.1 General description

Hybrid amplifier module in a SOT115J package, operating at a supply voltage of 24 V. The BGY587 is intended for use as a final amplifier.

CAUTION



This device is sensitive to ElectroStatic Discharge (ESD). Therefore care should be taken during transport and handling.

1.2 Features

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

1.3 Applications

- CATV systems operating in the 40 MHz to 550 MHz frequency range

1.4 Quick reference data

Table 1: Quick reference data

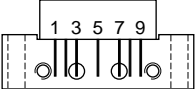
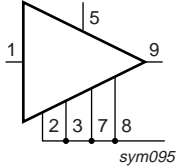
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	$f = 50 \text{ MHz}$	21.5	-	22.5	dB
		$f = 550 \text{ MHz}$	22	-	-	dB
I_{tot}	total current consumption (DC)	$V_B = 24 \text{ V}$	[1] -	220	240	mA

[1] The module normally operates at $V_B = 24 \text{ V}$, but is able to withstand supply transients of up to 30 V.

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2. Pinning information

Table 2: Pinning

Pin	Description	Simplified outline	Symbol
1	input		
2	common		
3	common		
5	+V _B		
7	common		
8	common		
9	output		

3. Ordering information

Table 3: Ordering information

Type number	Package		
	Name	Description	Version
BGY587	-	rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 × 6-32 UNC and 2 extra horizontal mounting holes; 7 gold-plated in-line leads	SOT115J

4. Limiting values

Table 4: Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
V _i	RF input voltage		-	65	dBmV
T _{stg}	storage temperature		-40	+100	°C
T _{mb}	mounting base temperature		-20	+100	°C

5. Characteristics

Table 5: Characteristics

Bandwidth 40 MHz to 550 MHz; $V_B = 24$ V; $T_{mb} = 30$ °C; $Z_S = Z_L = 75$ Ω unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	f = 50 MHz	21.5	-	22.5	dB
		f = 550 MHz	22	-	-	dB
SL	slope cable equivalent	f = 40 MHz to 550 MHz	0.2	-	1.5	dB
FL	flatness of frequency response	f = 40 MHz to 550 MHz	-	-	± 0.2	dB
S_{11}	input return losses	f = 40 MHz to 80 MHz	20	-	-	dB
		f = 80 MHz to 160 MHz	19	-	-	dB
		f = 160 MHz to 550 MHz	18	-	-	dB
S_{22}	output return losses	f = 40 MHz to 80 MHz	20	-	-	dB
		f = 80 MHz to 160 MHz	19	-	-	dB
		f = 160 MHz to 550 MHz	18	-	-	dB
φ_{s21}	phase response	f = 50 MHz	+135	-	+225	deg
CTB	composite triple beat	77 channels flat; $V_o = 44$ dBmV; measured at 547.25 MHz	-	-	-57	dB
X_{mod}	cross modulation	77 channels flat; $V_o = 44$ dBmV; measured at 55.25 MHz	-	-	-58	dB
CSO	composite second order distortion	77 channels flat; $V_o = 44$ dBmV; measured at 548.25 MHz	-	-	-54	dB
d_2	second order distortion		[1] -	-	-66	dB
V_o	output voltage	$d_{im} = -60$ dB	[2] 61	-	-	dBmV
NF	noise figure	f = 550 MHz	-	-	7	dB
I_{tot}	total current consumption (DC)		[3] -	220	240	mA

[1] $f_p = 55.25$ MHz; $V_p = 44$ dBmV; $f_q = 493.25$ MHz; $V_q = 44$ dBmV; measured at $f_p + f_q = 548.5$ MHz.

[2] Measured according to DIN45004B;

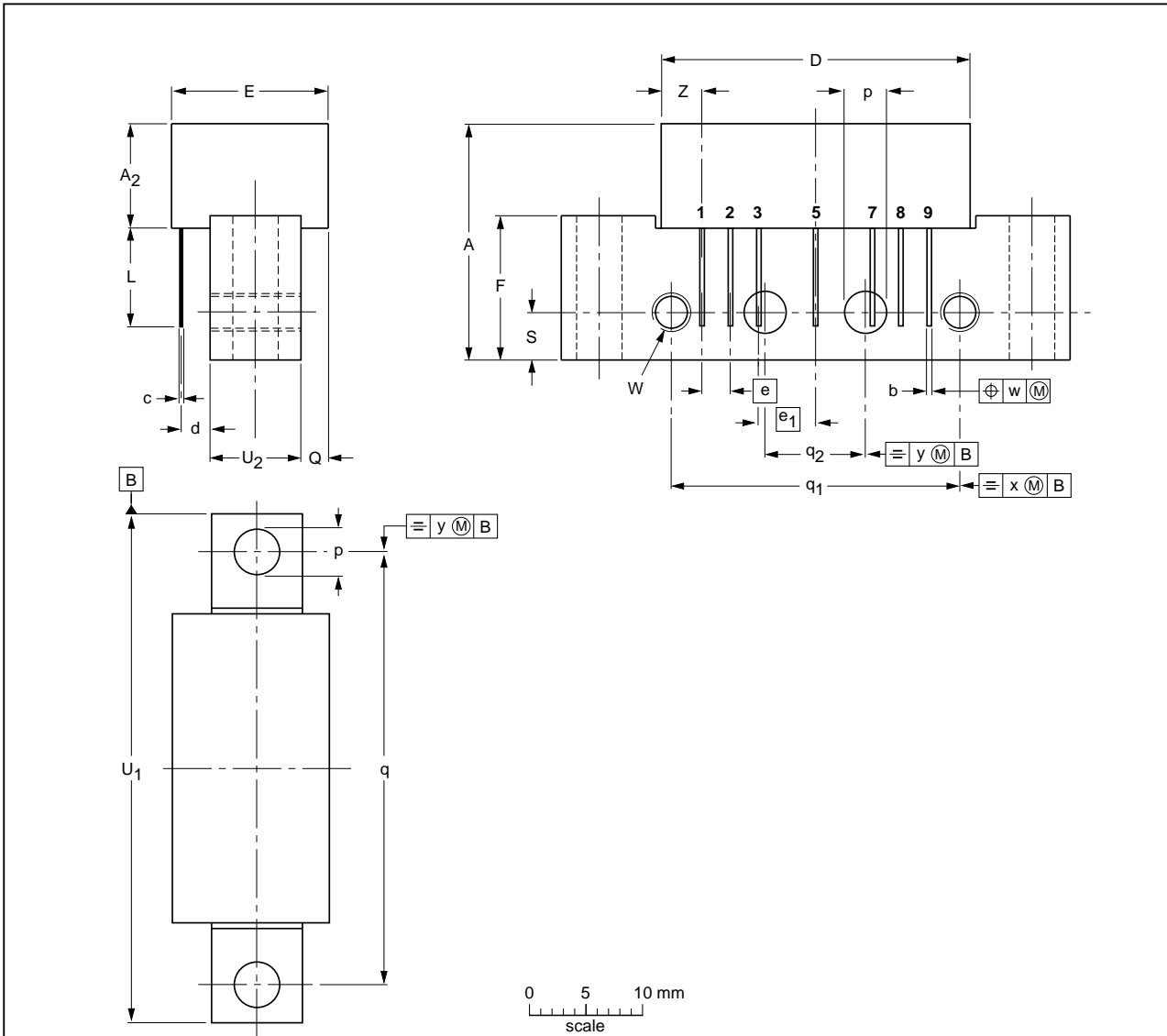
$f_p = 540.25$ MHz; $V_p = V_o$; $f_q = 547.25$ MHz; $V_q = V_o - 6$ dB; $f_r = 549.25$ MHz; $V_r = V_o - 6$ dB; measured at $f_p + f_q - f_r = 538.25$ MHz.

[3] The module normally operates at $V_B = 24$ V, but is able to withstand supply transients up to 30 V.

6. 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 ₂ max.	b	c	D max.	d max.	E max.	e	e ₁	F	L min.	p	Q max.	q	q ₁	q ₂	S	U ₁	U ₂	W	w	x	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 44.25	8.2 7.8	6-32 UNC	0.25	0.7	0.1	3.8

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT115J						99-02-06 04-02-04

Fig 1. Package outline SOT115J

7. Revision history

Table 6: Revision history

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
BGY587_4	20050411	Product data sheet	-	9397 750 14764	BGY587_3
Modifications:	<ul style="list-style-type: none">The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.				
BGY587_3	20011127	Product specification	-	9397 750 08966	BGY586_2
BGY586_2	19940207	n.a.	n.a.	n.a.	-

8. Data sheet status

Level	Data sheet status ^[1]	Product status ^[2] ^[3]	Definition
I	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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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

9. Definitions

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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