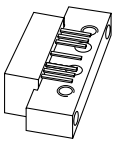

BGY66B

120 MHz, 25 dB gain reverse amplifier

Rev. 04 — 29 March 2005 Product data sheet

1. Product profile

1.1 General description

Hybrid high dynamic range amplifier module designed for applications in CATV systems with a bandwidth of 5 MHz to 120 MHz operating with a voltage supply of 24 V (DC).

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
- Gold metallization ensures excellent reliability

1.3 Applications

- Intended as a reverse amplifier for use in two-way systems

1.4 Quick reference data

Table 1: Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
G_p	power gain	f = 10 MHz		24.5	-	25.5	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	[1]	115	-	135	mA

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

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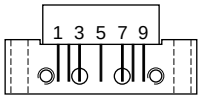
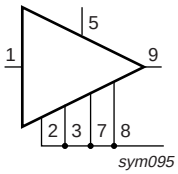
2. Pinning information

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
BGY66B	-	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 5 MHz to 120 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 = 10 MHz		24.5	-	25.5	dB
SL	slope cable equivalent			–0.2	-	+0.5	dB
FL	flatness of frequency response			-	-	±0.2	dB
s_{11}	input return losses			20	-	-	dB
s_{22}	output return losses			20	-	-	dB
CTB	composite triple beat	14 channels flat; V_o = 48 dBmV; measured at 67.25 MHz		-	-	–66	dB
X_{mod}	cross modulation	14 channels flat; V_o = 48 dBmV; measured at 67.25 MHz		-	-	–54	dB
d_2	second order distortion		[1]	-	-	–70	dB
V_o	output voltage	d_{im} = –60 dB	[2]	60	-	-	dBmV
F	noise figure	f = 120 MHz		-	-	5	dB
I_{tot}	total current consumption (DC)		[3]	115	-	135	mA

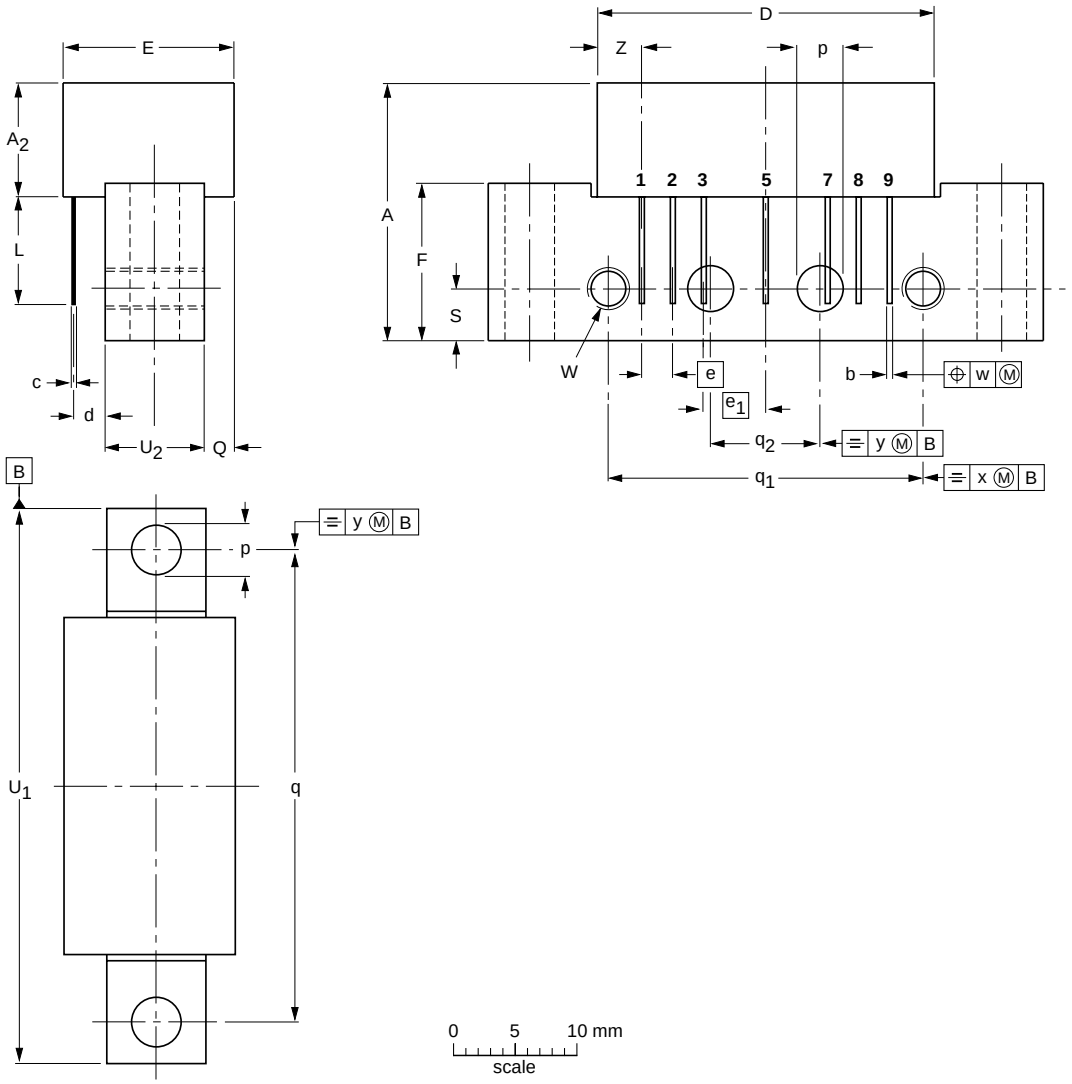
[1] f_p = 55.25 MHz; V_p = 48 dBmV; f_q = 61.25 MHz; V_q = 48 dBmV; measured at $f_p + f_q$ = 116.5 MHz.

[2] Measured according to DIN45004B;
f_p = 111.25 MHz; $V_p = V_o$; f_q = 118.25 MHz; $V_q = V_o$ – 6 dB; f_r = 120.25 MHz; $V_r = V_o$ – 6 dB; measured at $f_p + f_q - f_r$ = 109.25 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
BGY66B_4	20050329	Product data sheet	-	9397 750 14739	BGY66B_3
Modifications:	• The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.				
BGY66B_3	20011018	Product specification	-	9397 750 08798	BGY66B_2
BGY66B_2	19970414	Product specification	-	9397 750 02145	BGY66B_1
BGY66B_1	19950922	Product specification	-	-	BGY66B04_1
BGY66B04_1	19940915	Preliminary specification	-	9397 738 70011	-

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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

[1] Please consult the most recently issued data sheet before initiating or completing a design.

[2] The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.

[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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12. Contents

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