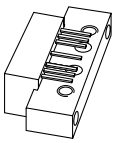


BGY67A

200 MHz, 24 dB gain reverse amplifier

Rev. 04 — 14 March 2005 Product data sheet

1. Product profile

1.1 General description

Hybrid high dynamic range amplifier module in a SOT115J package operating at 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
- TiPtAu metallized crystals ensure optimal reliability

1.3 Applications

- Reverse amplifier in two-way CATV systems in the 5 MHz to 200 MHz frequency range

1.4 Quick reference data

Table 1: Quick reference data

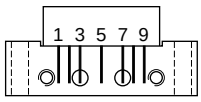
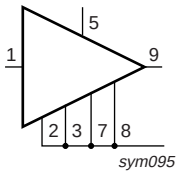
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
G_p	power gain	f = 10 MHz		23.5	-	24.5	dB
I_{tot}	total current consumption (DC)		[1]	-	215	230	mA

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

PHILIPS

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
BGY67A	-	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	+90	°C

5. Characteristics

Table 5: Characteristics

Bandwidth 5 MHz to 200 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		23.5	-	24.5	dB
SL	slope cable equivalent	f = 5 MHz to 200 MHz		–0.2	-	+0.5	dB
FL	flatness of frequency response	f = 5 MHz to 200 MHz		-	-	±0.2	dB
s_{11}	input return losses	f = 5 MHz to 200 MHz		20	-	-	dB
s_{22}	output return losses	f = 5 MHz to 200 MHz		20	-	-	dB
CTB	composite triple beat	22 channels flat; V_o = 50 dBmV; measured at 175.25 MHz		-	-	–67	dB
X_{mod}	cross modulation	22 channels flat; V_o = 50 dBmV; measured at 55.25 MHz		-	-	–59	dB
d_2	second order distortion	V_o = 50 dBmV	[1]	-	-	–67	dB
V_o	output voltage	d_{im} = –60 dB	[2]	67	-	-	dBmV
			[3]	64	-	-	dBmV
F	noise figure	f = 200 MHz		-	-	5.5	dB
I_{tot}	total current consumption (DC)		[4]	-	215	230	mA

[1] f_p = 83.25 MHz; V_p = 50 dBmV; f_q = 109.25 MHz; V_q = 50 dBmV; measured at $f_p + f_q$ = 192.5 MHz.

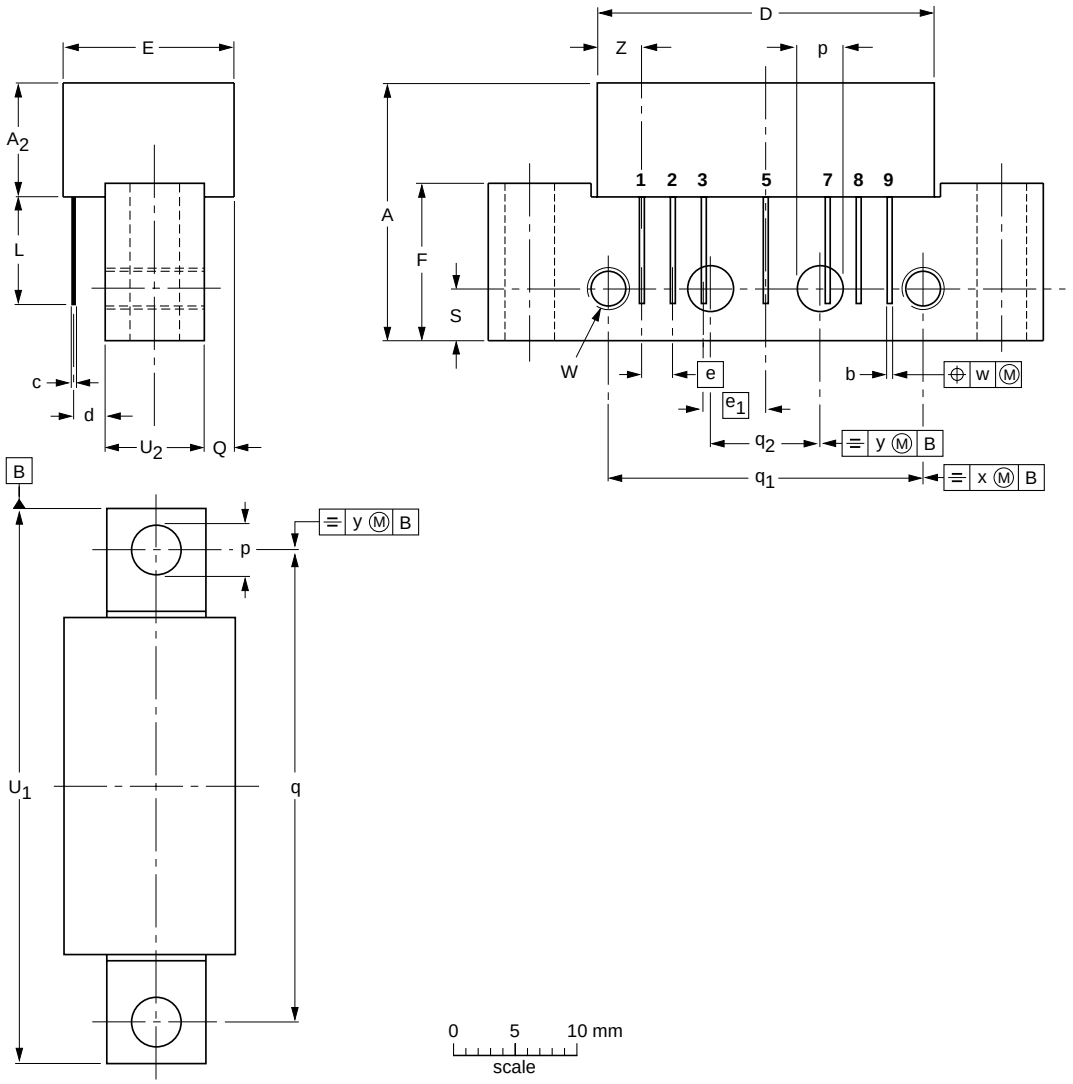
[2] Measured according to DIN45004B;
f_p = 35.25 MHz; $V_o = V_p$; f_q = 42.25 MHz; $V_q = V_o$ – 6 dB; f_r = 44.25 MHz; $V_r = V_o$ – 6 dB; measured at $f_p + f_q - f_r$ = 33.25 MHz.

[3] Measured according to DIN45004B;
f_p = 187.25 MHz; $V_o = V_p$; f_q = 194.25 MHz; $V_q = V_o$ – 6 dB; f_r = 196.25 MHz; $V_r = V_o$ – 6 dB; measured at $f_p + f_q - f_r$ = 185.25 MHz.

[4] 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
BGY67A_4	20050314	Product data sheet	-	9397 750 14755	BGY67A_3
Modifications:	• The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.				
BGY67A_3	20011018	Product specification	-	9397 750 08801	BGY67A_2
BGY67A_2	19970409	Product specification	-	9397 750 02104	BGY67A_1

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.

Application information — Applications that are described herein for any of these products are for illustrative purposes only. Philips Semiconductors make no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

10. Disclaimers

Life support — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips Semiconductors customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips Semiconductors for any damages resulting from such application.

Right to make changes — Philips Semiconductors reserves the right to make changes in the products - including circuits, standard cells, and/or software - described or contained herein in order to improve design and/or performance. When the product is in full production (status ‘Production’), relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN). Philips Semiconductors assumes no responsibility or liability for the use of any of these products, conveys no license or title under any patent, copyright, or mask work right to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified.

11. Contact information

For additional information, please visit: **http://www.semiconductors.philips.com**

For sales office addresses, send an email to: **sales.addresses@www.semiconductors.philips.com**

12. Contents

Date of release: 14 March 2005
Document number: 9397 750 14755

Published in The Netherlands