

# 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

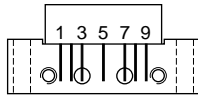
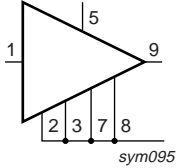
Table 1: Quick reference data

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

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

## 2. Pinning information

Table 2: Pinning

Pin	Description	Simplified outline	Symbol
1	input		 sym095
2	common		
3	common		
5	+V <sub>B</sub>		
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 <sub>i</sub>	RF input voltage		-	65	dBmV
T <sub>stg</sub>	storage temperature		-40	+100	°C
T <sub>mb</sub>	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;

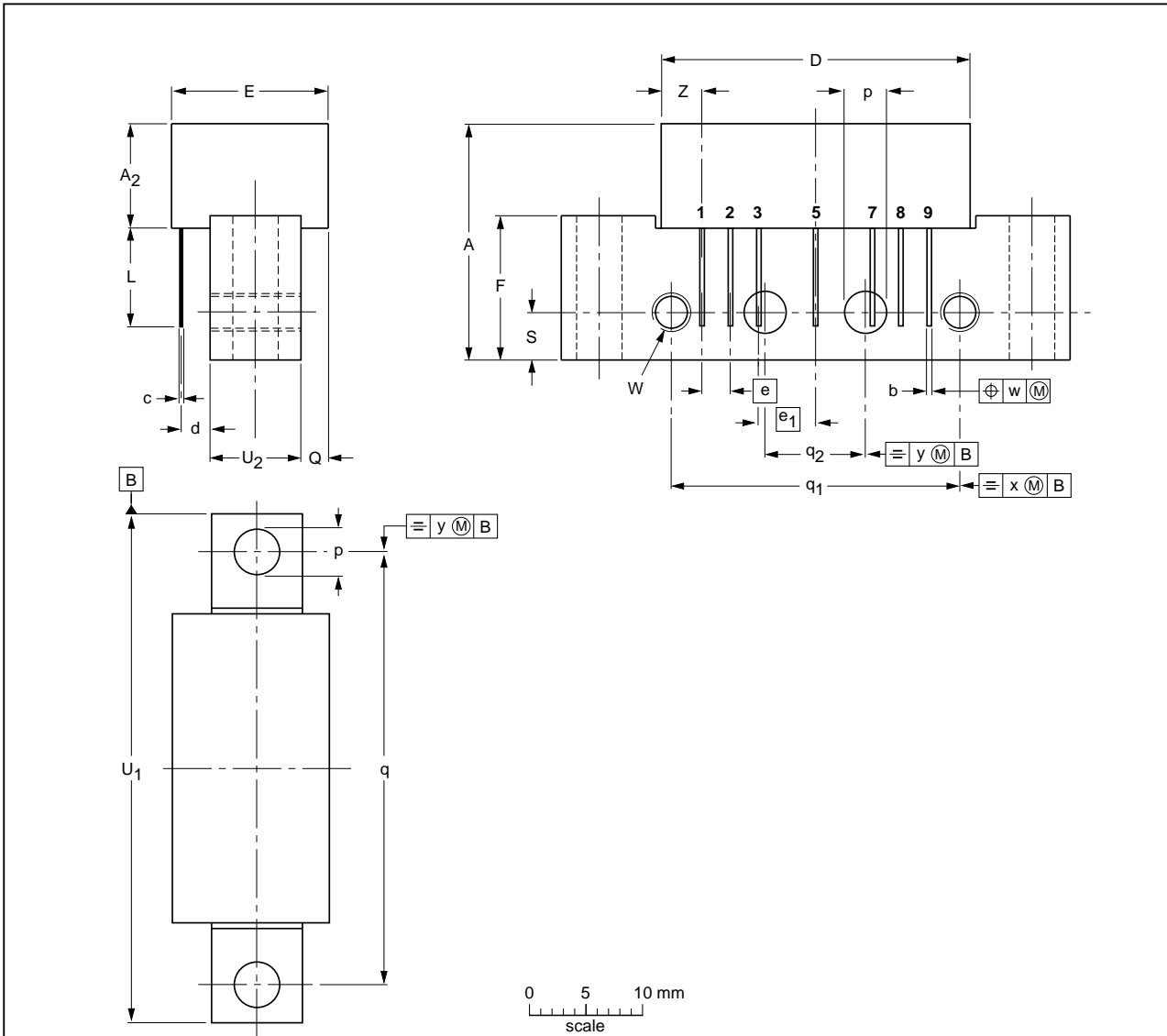
$f_p = 187.25$  MHz;  $V_o = V_p$ ;  $f_q = 194.25$  MHz;  $V_q = V_o - 6$  dB;  $f_r = 196.25$  MHz;  $V_r = V_o - 6$  dB; measured at  $f_p + f_q - f_r = 185.25$  MHz.

[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 <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>	U <sub>2</sub>	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:	<ul style="list-style-type: none"><li>The format of this data sheet has been redesigned to comply with the new presentation and information standard of Philips Semiconductors.</li></ul>				
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 <sup>[1]</sup>	Product status <sup>[2]</sup> <sup>[3]</sup>	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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**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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Date of release: 14 March 2005  
Document number: 9397 750 14755

Published in The Netherlands