

# BGY68

75 MHz, 30 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
- Gold metallization ensures excellent reliability

### 1.3 Applications

- Reverse amplifier in two-way CATV systems in the 5 MHz to 75 MHz frequency range

### 1.4 Quick reference data

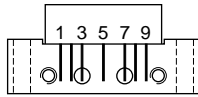
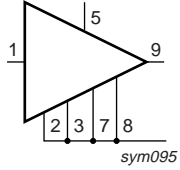
Table 1: Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	$f = 10 \text{ MHz}$	29.2	-	30.8	dB
$I_{tot}$	total current consumption (DC)		[1]	-	135	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		
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
BGY68	-	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		-	55	dBmV
T <sub>stg</sub>	storage temperature		-40	+100	°C
T <sub>mb</sub>	mounting base temperature		-20	+100	°C

## 5. Characteristics

**Table 5: Characteristics**

Bandwidth 5 MHz to 75 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	29.2	-	30.8	dB
SL	slope cable equivalent	$f = 5$ MHz to 75 MHz	-0.2	-	+0.5	dB
FL	flatness of frequency response	$f = 5$ MHz to 75 MHz	-	-	±0.2	dB
$S_{11}$	input return losses	$f = 5$ MHz to 75 MHz	20	-	-	dB
$S_{22}$	output return losses	$f = 5$ MHz to 50 MHz	20	-	-	dB
		$f = 50$ MHz to 75 MHz	18	-	-	dB
CTB	composite triple beat	4 channels flat; $V_o = 50$ dBmV; measured at 25 MHz	-	-	-68	dB
$X_{mod}$	cross modulation	4 channels flat; $V_o = 50$ dBmV; measured at 25 MHz	-	-	-60	dB
$d_2$	second order distortion		[1]	-	-70	dB
F	noise figure	$f = 75$ MHz	-	-	3.5	dB
$I_{tot}$	total current consumption (DC)		[2]	-	135	mA

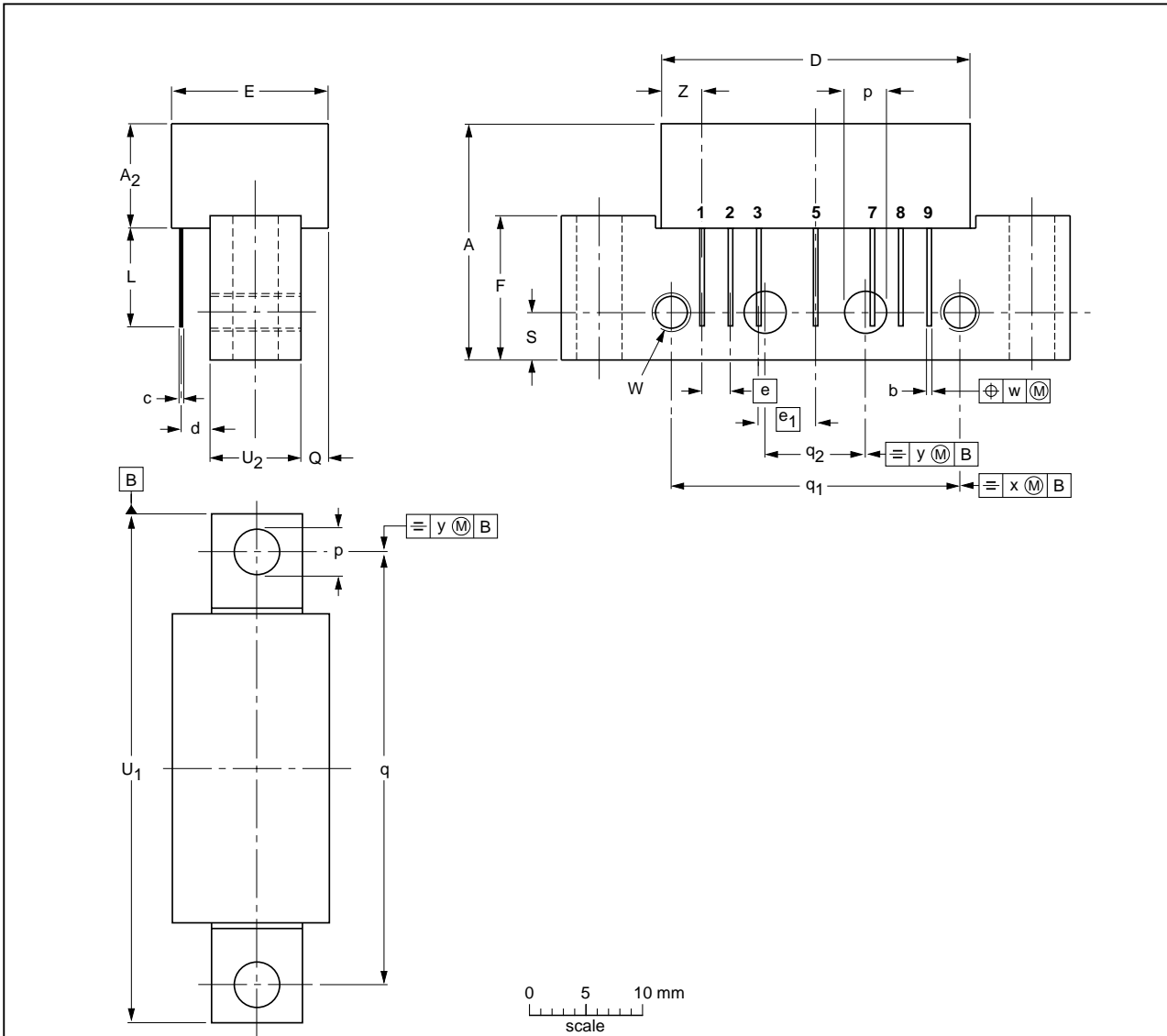
[1]  $f_p = 19$  MHz;  $V_p = 50$  dBmV;  $f_q = 31$  MHz;  $V_q = 50$  dBmV; measured at  $f_p + f_q = 50$  MHz.

[2] 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
BGY68_4	20050314	Product data sheet	-	9397 750 14738	BGY68_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>				
BGY68_3	20011018	Product specification	-	9397 750 08797	BGY68_2
BGY68_2	19970414	Product specification	-	9397 750 02146	BGY68_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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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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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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## 12. Contents

<b>1</b>	<b>Product profile</b> .....	<b>1</b>
1.1	General description .....	1
1.2	Features .....	1
1.3	Applications .....	1
1.4	Quick reference data .....	1
<b>2</b>	<b>Pinning information</b> .....	<b>2</b>
<b>3</b>	<b>Ordering information</b> .....	<b>2</b>
<b>4</b>	<b>Limiting values</b> .....	<b>2</b>
<b>5</b>	<b>Characteristics</b> .....	<b>3</b>
<b>6</b>	<b>Package outline</b> .....	<b>4</b>
<b>7</b>	<b>Revision history</b> .....	<b>5</b>
<b>8</b>	<b>Data sheet status</b> .....	<b>6</b>
<b>9</b>	<b>Definitions</b> .....	<b>6</b>
<b>10</b>	<b>Disclaimers</b> .....	<b>6</b>
<b>11</b>	<b>Contact information</b> .....	<b>6</b>



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