



# BGY67

200 MHz, 22 dB gain reverse amplifier

Rev. 5 — 19 September 2011

Product data sheet

## 1. Product profile

### 1.1 General description

Hybrid amplifier module for CATV systems operating over a frequency range of 5 MHz to 200 MHz at a voltage supply of 24 V (DC). The device is intended as a reverse amplifier for use in two-way systems.

#### CAUTION



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

### 1.2 Features and benefits

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

### 1.3 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	$f = 10 \text{ MHz}$	21.5	-	22.5	dB
$I_{\text{tot}}$	total current consumption (DC)	$V_B = 24 \text{ V}$	[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		
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
BGY67	-	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;  $T_{mb} = 30\text{ °C}$ ;  $Z_S = Z_L = 75\ \Omega$ ; unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
$G_p$	power gain	$f = 10\text{ MHz}$	21.5	-	22.5	dB	
SL	slope cable equivalent	$f = 5\text{ MHz to }200\text{ MHz}$	-0.2	-	+0.5	dB	
FL	flatness of frequency response	$f = 5\text{ MHz to }200\text{ MHz}$	-	-	$\pm 0.2$	dB	
$S_{11}$	input return losses	$f = 5\text{ MHz to }200\text{ MHz}$	20	-	-	dB	
$S_{22}$	output return losses	$f = 5\text{ MHz to }200\text{ MHz}$	20	-	-	dB	
CTB	composite triple beat	22 channels flat; $V_o = 50\text{ dBmV}$ ; measured at 175.25 MHz	-	-	-67	dB	
$X_{mod}$	cross modulation	22 channels flat; $V_o = 50\text{ dBmV}$ ; measured at 55.25 MHz	-	-	-60	dB	
$d_2$	second order distortion	$V_o = 50\text{ dBmV}$	[1]	-	-67	dB	
$V_o$	output voltage	$d_{im} = -60\text{ dB}$	[2]	67	-	-	dBmV
			[3]	64	-	-	dBmV
F	noise figure	$f = 200\text{ MHz}$	-	-	5.5	dB	
$I_{tot}$	total current consumption (DC)	$V_B = 24\text{ V}$	[4]	-	215	230	mA

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

[2] Measured according to DIN45004B;

$f_p = 35.25\text{ MHz}$ ;  $V_o = V_p$ ;  $f_q = 42.25\text{ MHz}$ ;  $V_q = V_o - 6\text{ dB}$ ;  $f_r = 44.25\text{ MHz}$ ;  $V_r = V_o - 6\text{ dB}$ ; measured at  $f_p + f_q - f_r = 33.25\text{ MHz}$ .

[3] Measured according to DIN45004B;

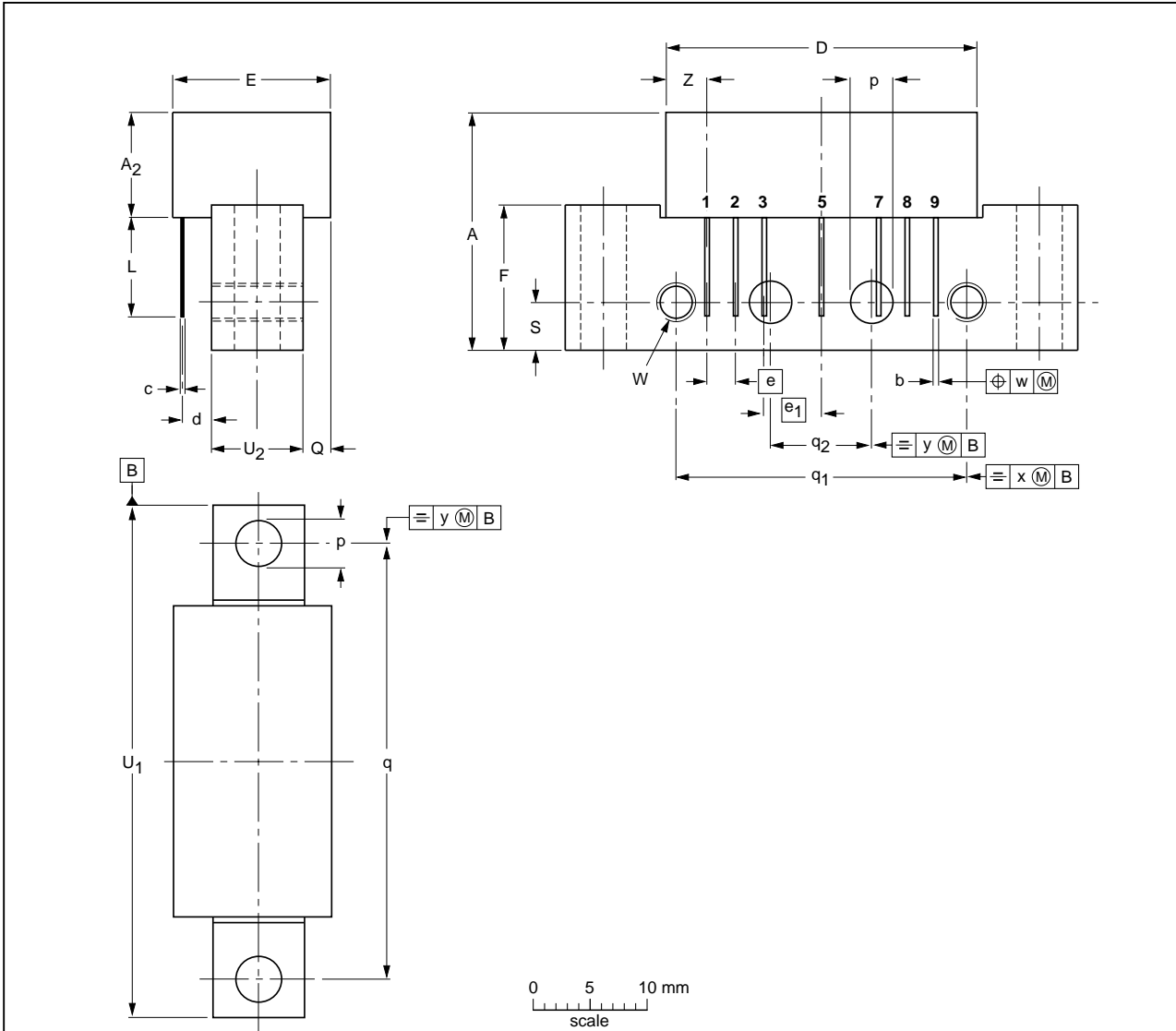
$f_p = 187.25\text{ MHz}$ ;  $V_o = V_p$ ;  $f_q = 194.25\text{ MHz}$ ;  $V_q = V_o - 6\text{ dB}$ ;  $f_r = 196.25\text{ MHz}$ ;  $V_r = V_o - 6\text{ dB}$ ; measured at  $f_p + f_q - f_r = 185.25\text{ MHz}$ .

[4] The module normally operates at  $V_B = 24\text{ V}$ , 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	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	9.5	0.51 0.38	0.25	27.2	2.04 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						-04-02-04- 10-06-18

**Fig 1. Package outline SOT115J**

## 7. Revision history

**Table 6. Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes
BGY67 v.5	20110919	Product data sheet	-	BGY67 v.4
Modifications:		<ul style="list-style-type: none"><li>• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.</li><li>• Legal texts have been adapted to the new company name where appropriate.</li><li>• Package outline drawings have been updated to the latest version.</li></ul>		
BGY67 v.4 (9397 750 14745)	20050317	Product data sheet	-	BGY67 v.3
BGY67 v.3 (9397 750 08799)	20011018	Product specification	-	BGY67 v.2
BGY67 v.2 (9397 750 02172)	19970415	Product specification	-	n.a.

## 8. Legal information

### 8.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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

[2] The term 'short data sheet' is explained in section "Definitions".

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