

# **BGY66B**

# 120 MHz, 25 dB gain reverse amplifier Rev. 5 — 28 September 2010

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 and benefits

- 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	Тур	Max	Unit
$G_p$	power gain	f = 10 MHz	24.5	-	25.5	dB
I <sub>tot</sub>	total current consumption (DC)	$V_{B} = 24 \text{ V}$	<u>[1]</u> 115	-	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

	3	
Pin	Description	Simplified outline Graphic symbol
1	input	
2	common	1 3 5 7 9
3	common	
5	+V <sub>B</sub>	12 3 7 8
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; $2 \times 6-32$ 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 <sub>stg</sub>	storage temperature		-40	+100	°C
$T_{mb}$	mounting base temperature	Э	-20	+100	°C

### 5. Characteristics

Table 5. Characteristics

Bandwidth 5 MHz to 120 MHz;  $V_B = 24 \text{ V}$ ;  $T_{mb} = 30 \text{ °C}$ ;  $Z_S = Z_L = 75 \Omega$ ; unless otherwise specified.

Symbol	Parameter	Conditions	Min	Тур	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 <sub>11</sub>	input return losses		20	-	-	dB
S <sub>22</sub>	output return losses		20	-	-	dB
СТВ	composite triple beat	14 channels flat; $V_0 = 48 \text{ dBmV}$ ; measured at 67.25 MHz	-	-	-66	dB
$X_{mod}$	cross modulation	14 channels flat; $V_o = 48 \text{ dBmV}$ ; measured at 67.25 MHz	-	-	-54	dB
d <sub>2</sub>	second order distortion		<u>[1]</u> _	-	-70	dB
Vo	output voltage	$d_{im} = -60 \text{ dB}$	<u>2]</u> 60	-	-	dBmV
F	noise figure	f = 120 MHz	-	-	5	dB
I <sub>tot</sub>	total current consumption (DC)		3 115	-	135	mA

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

<sup>[2]</sup> Measured according to DIN45004B;  $f_p = 111.25 \text{ MHz}; \ V_p = V_o; \ f_q = 118.25 \text{ MHz}; \ V_q = V_o - 6 \text{ dB}; \ f_r = 120.25 \text{ MHz}; \ V_r = V_o - 6 \text{ dB}; \ measured at \ f_p + f_q - f_r = 109.25 \text{ MHz}.$ 

<sup>[3]</sup> 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

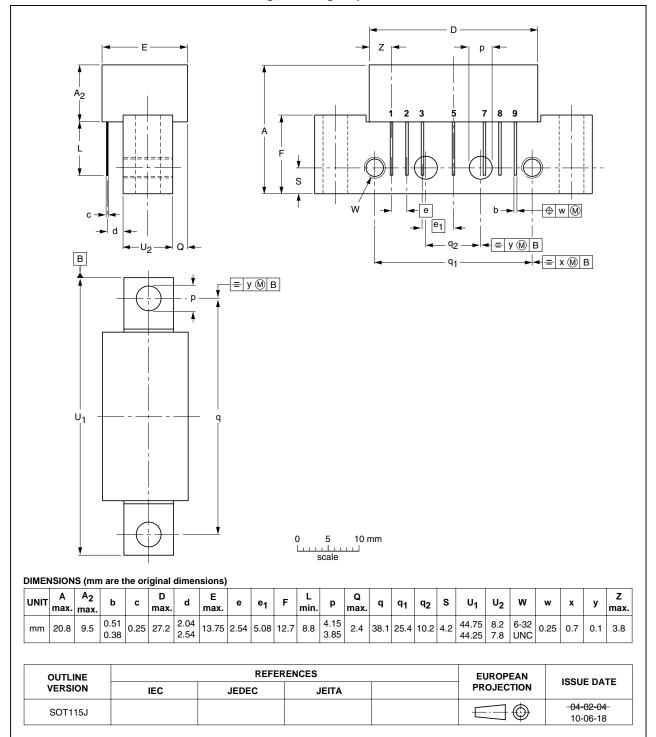


Fig 1. Package outline SOT115J

BGY66B

# 7. Revision history

### Table 6. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BGY66B v.5	20100928	Product data sheet	-	BGY66B v.4
Modifications:	<ul> <li>The format of NXP Semicon</li> </ul>	of this data sheet has been red onductors.	lesigned to comply with the	ne new identity guidelines of
	<ul> <li>Legal texts l</li> </ul>	nave been adapted to the new	company name where a	ppropriate.
	<ul> <li>Package out</li> </ul>	tline drawings have been upda	ated to the latest version.	
BGY66B v.4 (9397 750 14739)	20050329	Product data sheet	-	BGY66B v.3
BGY66B v.3 (9397 750 08798)	20011018	Product specification	-	BGY66B v.2
BGY66B v.2 (9397 750 02145)	19970414	Product specification	-	BGY66B v.1
BGY66B v.1	19950922	Product specification	-	BGY66B04 v.1
BGY66B04 v.1 (9397 738 70011)	19940915	Preliminary specification	-	-

### 8. Legal information

### 8.1 Data sheet status

Document status[1][2]	Product status[3]	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.

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- [2] The term 'short data sheet' is explained in section "Definitions"
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NXP Semiconductors BGY66B

### 120 MHz, 25 dB gain reverse amplifier

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