

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

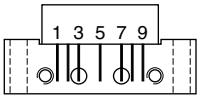
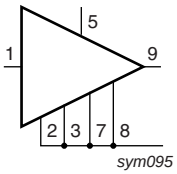
Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
G_p	power gain	f = 10 MHz		24.5	-	25.5	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	[1]	115	-	135	mA

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

2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Graphic 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
BGY66B	-	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	+100	°C

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5. Characteristics

Table 5. Characteristics

Bandwidth 5 MHz to 120 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		24.5	-	25.5	dB
SL	slope cable equivalent			–0.2	-	+0.5	dB
FL	flatness of frequency response			-	-	±0.2	dB
s_{11}	input return losses			20	-	-	dB
s_{22}	output return losses			20	-	-	dB
CTB	composite triple beat	14 channels flat; V_o = 48 dBmV; measured at 67.25 MHz		-	-	–66	dB
X_{mod}	cross modulation	14 channels flat; V_o = 48 dBmV; measured at 67.25 MHz		-	-	–54	dB
d_2	second order distortion		[1]	-	-	–70	dB
V_o	output voltage	d_{im} = –60 dB	[2]	60	-	-	dBmV
F	noise figure	f = 120 MHz		-	-	5	dB
I_{tot}	total current consumption (DC)		[3]	115	-	135	mA

[1] 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.

[2] Measured according to DIN45004B;
f_p = 111.25 MHz; $V_p = V_o$; f_q = 118.25 MHz; $V_q = V_o$ – 6 dB; f_r = 120.25 MHz; $V_r = V_o$ – 6 dB; measured at $f_p + f_q - f_r$ = 109.25 MHz.

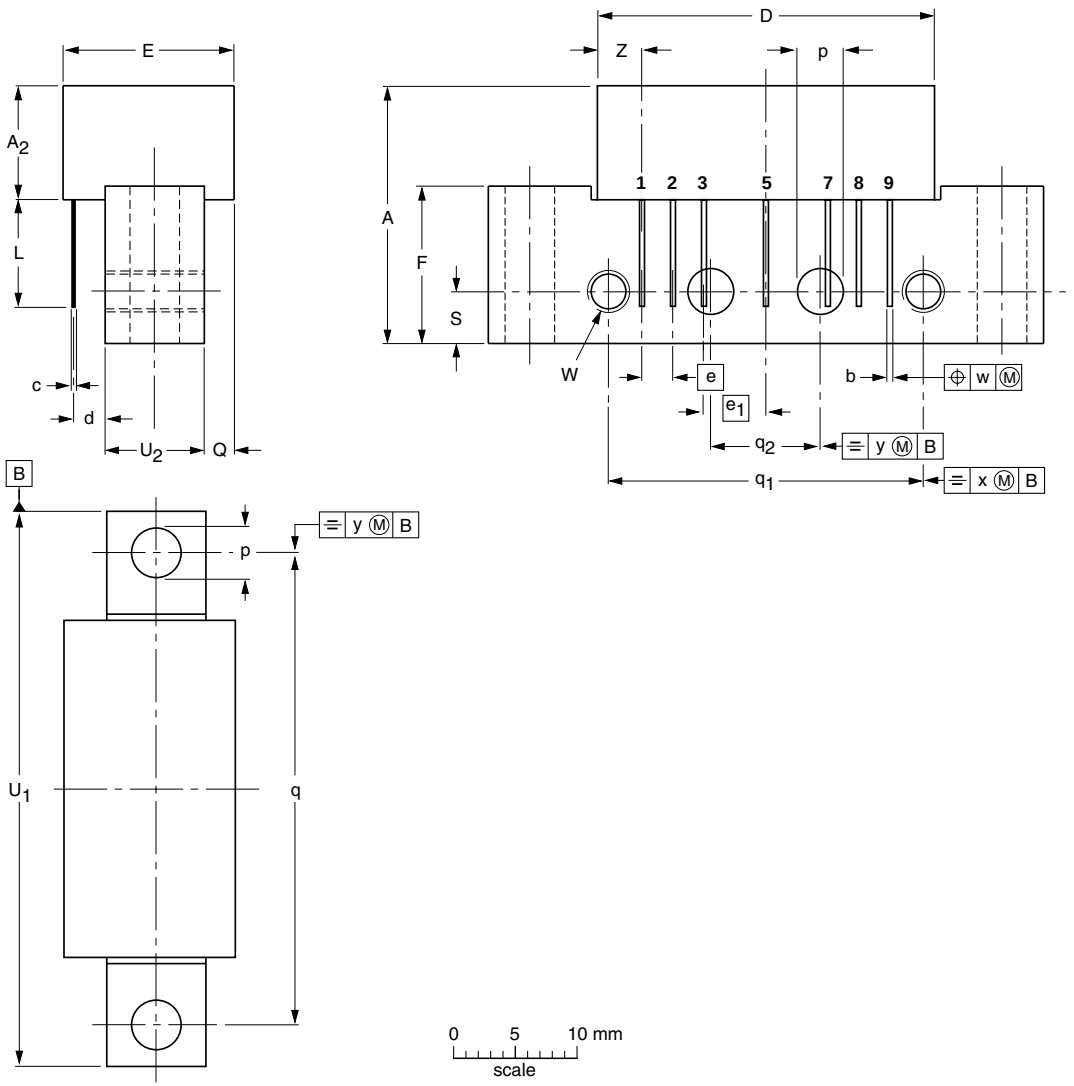
[3] The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.

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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	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	9.5	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

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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:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Package outline drawings have been updated 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	-	-

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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.

[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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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