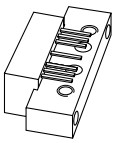


BGY585A

550 MHz, 18.2 dB gain push-pull amplifier

Rev. 6 — 29 September 2010 Product data sheet

1. Product profile

1.1 General description

Hybrid amplifier module for CATV systems operating over a frequency range of 40 MHz to 550 MHz at a voltage supply of 24 V (DC). Intended for use as a final amplifier.

1.2 Features and benefits

- Excellent linearity
- Extremely low noise
- Silicon nitride passivation
- Rugged construction
- Optimal reliability ensured by TiPtAu metallized crystals

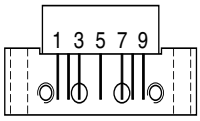
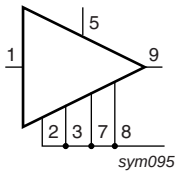
1.3 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	f = 50 MHz	17.7	-	18.7	dB
		f = 550 MHz	18.8	-	20	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	-	220	240	mA

2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	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
BGY585A	-	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_{case}	case operating temperature		−20	+100	°C

5. Characteristics

Table 5. Characteristics

T_{case} = 30 °C; Z_S = Z_L = 75 Ω.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Bandwidth 40 MHz to 550 MHz							
G_p	power gain	f = 50 MHz		17.7	-	18.7	dB
		f = 550 MHz		18.8	-	20	dB
SL	slope cable equivalent	f = 40 MHz to 550 MHz		0.5	-	2	dB
FL	flatness of frequency response	f = 40 MHz to 550 MHz		-	-	±0.2	dB
s_{11}	input return losses	f = 40 MHz to 80 MHz		20	-	-	dB
		f = 80 MHz to 160 MHz		19	-	-	dB
		f = 160 MHz to 550 MHz		18	-	-	dB
s_{22}	output return losses	f = 40 MHz to 80 MHz		20	-	-	dB
		f = 80 MHz to 160 MHz		19	-	-	dB
		f = 160 MHz to 550 MHz		18	-	-	dB
CTB	composite triple beat	77 channels flat; V_o = 44 dBmV; measured at 547.25 MHz		-	-	−59	dB
X_{mod}	cross modulation	77 channels flat; V_o = 44 dBmV; measured at 55.25 MHz		-	-	−62	dB
CSO	composite second order distortion	77 channels flat; V_o = 44 dBmV; measured at 548.5 MHz		-	-	−59	dB
d_2	second order distortion		[1]	-	-	−72	dB
V_o	output voltage	d_{im} = −60 dB	[2]	61.5	-	-	dBmV
F	noise figure	f = 550 MHz		-	-	8	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	[3]	-	220	240	mA

Table 5. Characteristics *...continued*

T_{case} = 30 °C; $Z_S = Z_L$ = 75 Ω.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Bandwidth 40 MHz to 450 MHz							
G_p	power gain	f = 50 MHz		17.7	-	18.7	dB
		f = 450 MHz		18.6	-	19.8	dB
SL	slope cable equivalent	f = 40 MHz to 450 MHz		0.5	-	1.8	dB
FL	flatness of frequency response	f = 40 MHz to 450 MHz		-	-	±0.2	dB
s_{11}	input return losses	f = 40 MHz to 80 MHz		20	-	-	dB
		f = 80 MHz to 160 MHz		19	-	-	dB
		f = 160 MHz to 450 MHz		18	-	-	dB
s_{22}	output return losses	f = 40 MHz to 80 MHz		20	-	-	dB
		f = 80 MHz to 160 MHz		19	-	-	dB
		f = 160 MHz to 450 MHz		18	-	-	dB
CTB	composite triple beat	60 channels flat; V_o = 46 dBmV; measured at 445.25 MHz		-	-	−61	dB
X_{mod}	cross modulation	60 channels flat; V_o = 46 dBmV; measured at 55.25 MHz		-	-	−61	dB
CSO	composite second order distortion	60 channels flat; V_o = 46 dBmV; measured at 446.5 MHz		-	-	−61	dB
d_2	second order distortion		[4]	-	-	−75	dB
V_o	output voltage	d_{im} = −60 dB	[5]	64	-	-	dBmV
F	noise figure	f = 450 MHz		-	-	7	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	[3]	-	220	240	mA

[1] f_p = 55.25 MHz; V_p = 44 dBmV; f_q = 493.25 MHz; V_q = 44 dBmV; measured at $f_p + f_q$ = 548.5 MHz.

[2] Measured according to DIN45004B; f_p = 540.25 MHz; $V_p = V_o$; f_q = 547.25 MHz; $V_q = V_o$ −6 dB; f_r = 549.25 MHz; $V_r = V_o$ −6 dB; measured at $f_p + f_q - f_r$ = 538.25 MHz.

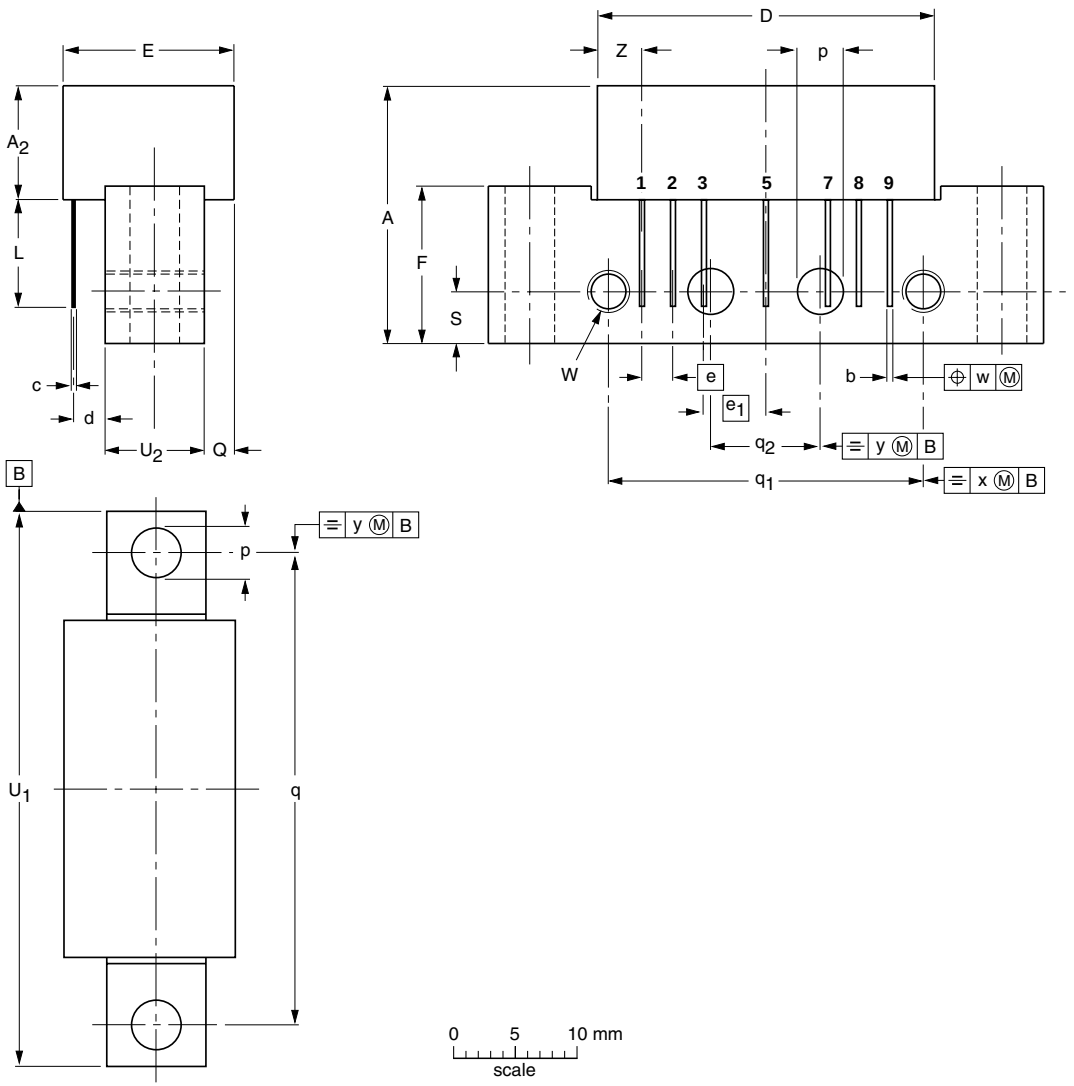
[3] The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.

[4] f_p = 55.25 MHz; V_p = 46 dBmV; f_q = 391.25 MHz; V_q = 46 dBmV; measured at $f_p + f_q$ = 446.5 MHz.

[5] Measured according to DIN45004B; f_p = 440.25 MHz; $V_p = V_o$; f_q = 447.25 MHz; $V_q = V_o$ −6 dB; f_r = 449.25 MHz; $V_r = V_o$ −6 dB; measured at $f_p + f_q - f_r$ = 438.25 MHz.

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

7. Revision history

Table 6. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BGY585A v.6	20100929	Product data sheet	-	BGY585A v.5
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.			
BGY585A v.5 (9397 750 14432)	20050124	Product data sheet	-	BGY585A v.4
BGY585A v.4 (9397 750 08802)	20011018	Product specification	-	BGY585A v.3
BGY585A v.3 (9397 750 06341)	19990326	Product specification	-	BGY585A v.2

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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10. Contents

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