

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

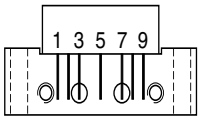
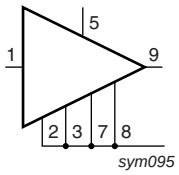
1.3 Quick reference data

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

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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.

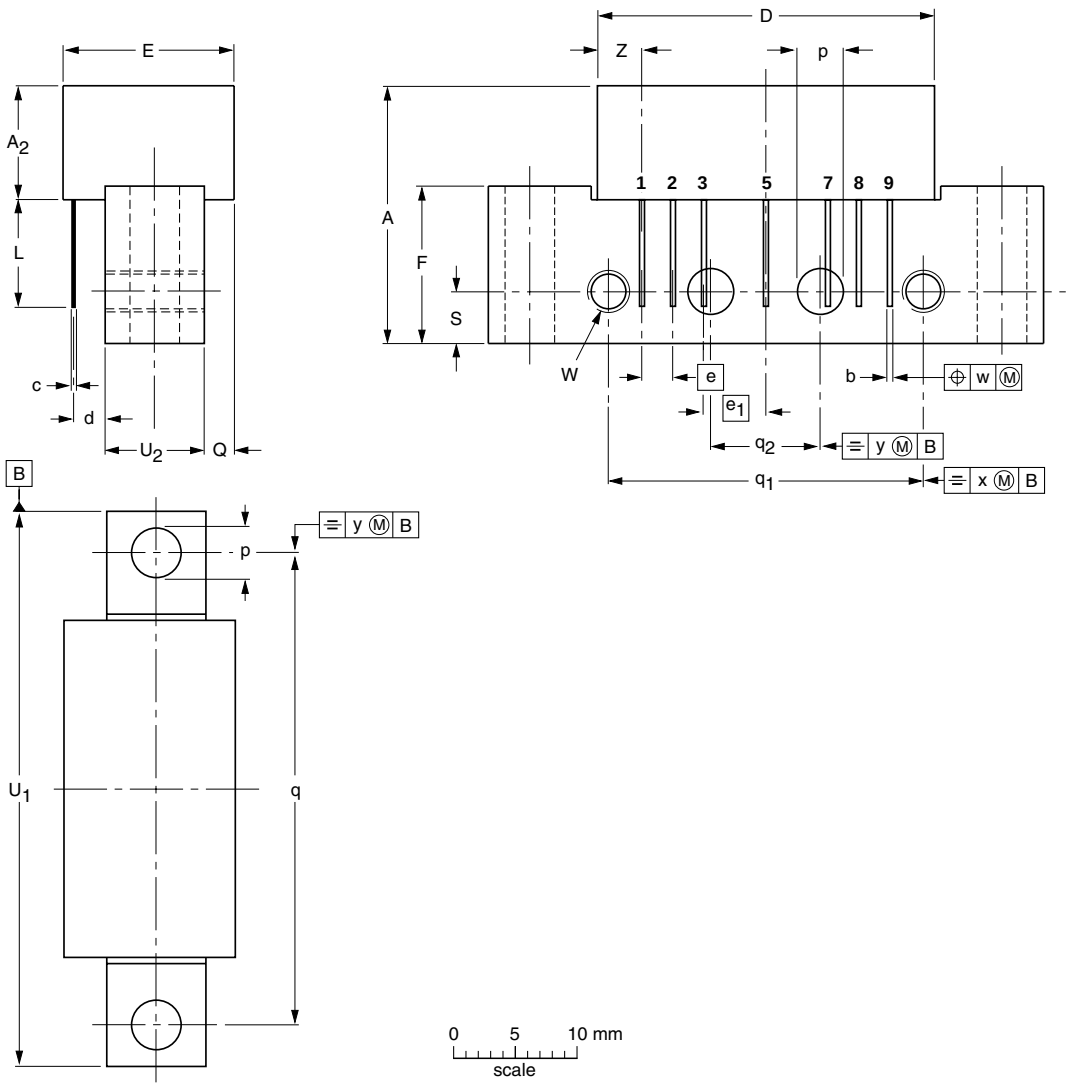
[5] Measured according to DIN45004B; f_p = 440.25 MHz; $V_p = V_o$; f_q = 447.25 MHz; $V_q = V_o$ −6 dB; f_r = 449.25 MHz; $V_r = V_o$ −6 dB; measured at $f_p + f_q - f_r$ = 438.25 MHz.

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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
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

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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".

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10. Contents

1 Product profile 1
1.1 General description 1
1.2 Features and benefits 1
1.3 Quick reference data 1
2 Pinning information 1
3 Ordering information 2
4 Limiting values 2
5 Characteristics 2
6 Package outline 4
7 Revision history 5
8 Legal information 6
8.1 Data sheet status 6
8.2 Definitions 6
8.3 Disclaimers 6
8.4 Trademarks 7
9 Contact information 7
10 Contents 8

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