

BGD712C

750 MHz, 18 dB gain push-pull amplifier

Rev. 01 — 2 May 2006

Product data sheet

1. Product profile

1.1 General description

Hybrid high dynamic range amplifier module in SOT115J package operating at a supply voltage 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

- Excellent linearity
- Extremely low noise
- Excellent return loss properties
- Silicon nitride passivation
- Rugged construction
- Gold metallization ensures excellent reliability

1.3 Applications

- CATV systems operating in the 40 MHz to 750 MHz frequency range.

1.4 Quick reference data

Table 1: Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	$f = 45$ MHz	18.2	-	18.8	dB
		$f = 750$ MHz	19	-	20	dB
I_{tot}	total current	$V_B = 24$ V	[1] 380	-	410	mA

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

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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
BGD712C	-	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 _B	supply voltage		-	30	V
V _i	input voltage		-	70	dBmV
T _{stg}	storage temperature		-40	+100	°C
T _{mb}	mounting base temperature		-20	+100	°C

5. Characteristics

Table 5: Characteristics

Bandwidth 40 MHz to 750 MHz; $V_B = 24$ V; $T_{mb} = 35$ °C; $Z_S = Z_L = 75$ Ω.

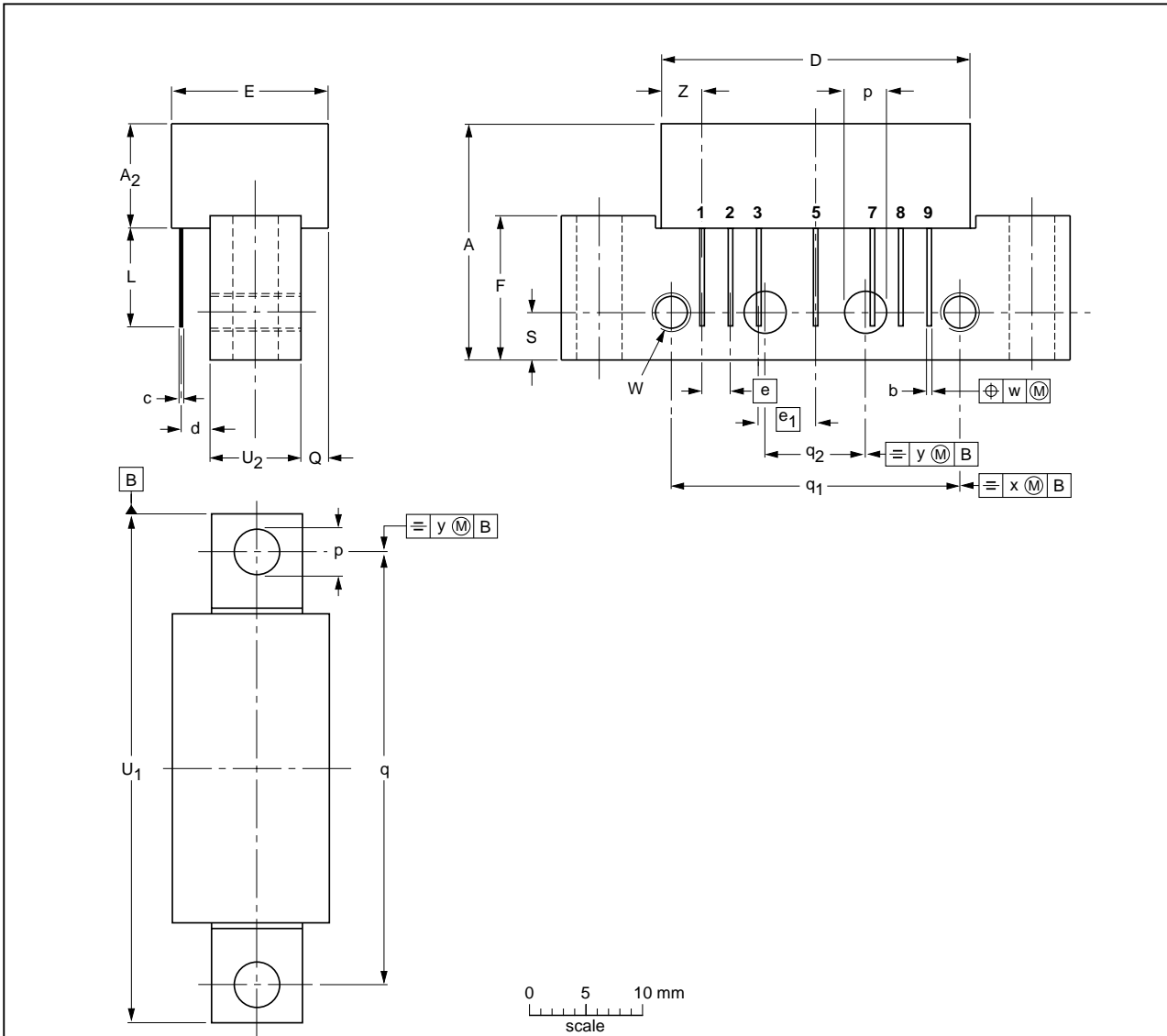
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	f = 45 MHz	18.2	-	18.8	dB
		f = 750 MHz	19.0	-	20.0	dB
SL	slope cable equivalent	f = 45 MHz to 750 MHz	0.5	-	1.5	dB
FL	flatness of frequency response	f = 45 MHz to 100 MHz	-	-	±0.35	dB
		f = 100 MHz to 700 MHz	-	-	±0.5	dB
		f = 700 MHz to 750 MHz	-	-	±0.15	dB
S_{11}	input return losses	f = 45 MHz to 790 MHz	17	-	-	dB
S_{22}	output return losses	f = 45 MHz to 790 MHz	17	-	-	dB
ϕ_{s21}	phase response	f = 50 MHz	135	-	225	deg
CTB	composite triple beat	112 channels flat; $V_o = 44$ dBmV; measured at 745.25 MHz	-	-	-62	dB
		60 channels flat; $V_o = 44$ dBmV measured at 745.25 MHz	-	-67	-	dB
		79 channels flat; $V_o = 44$ dBmV measured at 547.25 MHz	-	-	-68	dB
CSO	composite second-order distortion	112 channels flat; $V_o = 44$ dBmV; measured at 746.5 MHz	-	-	-63	dB
		60 channels flat; $V_o = 44$ dBmV measured at 746.5 MHz	-	-70	-	dB
		79 channels flat; $V_o = 44$ dBmV measured at 548.5 MHz	-	-	-68	dB
NF	noise figure	f = 50 MHz	-	-	7	dB
		f = 750 MHz	-	-	7	dB
I_{tot}	total current		[1] 380	-	410	mA

[1] The module normally operates at $V_B = 24$ 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 ₂ max.	b	c	D max.	d max.	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	9.1	0.51 0.38	0.25	27.2	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						99-02-06 04-02-04

Fig 1. Package outline SOT115J

7. Revision history

Table 6: Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BGD712C_1	20060502	Product data sheet	-	-

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".

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