

# DATA SHEET



## **BGY1085A**

**1 000 MHz, 18.5 dB gain push-pull  
amplifier**

Product specification  
Supersedes data of 1997 Apr 15

2001 Oct 25

**1000 MHz, 18.5 dB gain push-pull amplifier**

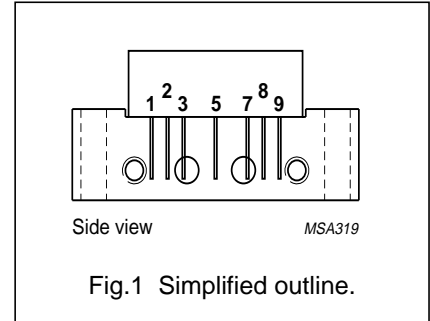
**BGY1085A**

**FEATURES**

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

**PINNING - SOT115J**

PIN	DESCRIPTION
1	input
2	common
3	common
5	+V <sub>B</sub>
7	common
8	common
9	output



**DESCRIPTION**

Hybrid high amplifier module for CATV systems operating over a frequency range of 40 to 1000 MHz at a supply voltage of +24 V (DC).

**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	18	19	dB
		f = 1000 MHz	18.5	–	dB
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	–	240	mA

**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V <sub>i</sub>	RF input voltage	–	65	dBmV
T <sub>stg</sub>	storage temperature	–40	+100	°C
T <sub>mb</sub>	operating mounting base temperature	–20	+100	°C

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## CHARACTERISTICS

**Table 1** Bandwidth 40 to 1000 MHz;  $T_{\text{case}} = 30\text{ }^{\circ}\text{C}$ ;  $Z_S = Z_L = 75\ \Omega$ 

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$G_p$	power gain	f = 50 MHz	18	–	19	dB
		f = 1000 MHz	18.5	–	–	dB
SL	slope cable equivalent	f = 40 to 1000 MHz	0	–	2	dB
FL	flatness of frequency response	f = 40 to 1000 MHz	–	–	$\pm 0.3$	dB
$S_{11}$	input return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	18.5	–	–	dB
		f = 160 to 320 MHz	17	–	–	dB
		f = 320 to 640 MHz	15.5	–	–	dB
		f = 640 to 1000 MHz	14	–	–	dB
$S_{22}$	output return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	18.5	–	–	dB
		f = 160 to 320 MHz	17	–	–	dB
		f = 320 to 640 MHz	15.5	–	–	dB
		f = 640 to 1000 MHz	14	–	–	dB
CTB	composite triple beat	85 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 595.25 MHz	–	–	–58	dB
		110 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 745.25 MHz	–	–	–53	dB
		150 channels flat; $V_o = 40\text{ dBmV}$ ; measured at 985.25 MHz	–	–53	–	dB
$X_{\text{mod}}$	cross modulation	85 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 55.25 MHz	–	–	–58	dB
		110 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 55.25 MHz	–	–	–54	dB
		150 channels flat; $V_o = 40\text{ dBmV}$ ; measured at 55.25 MHz	–	–54	–	dB
CSO	composite second order distortion	85 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 596.5 MHz	–	–	–60	dB
		110 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 746.5 MHz	–	–	–56	dB
		150 channels flat; $V_o = 40\text{ dBmV}$ ; measured at 986.5 MHz	–	–56	–	dB

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
d <sub>2</sub>	second order distortion	note 1	–	–	–72	dB
		note 2	–	–	–65	dB
		note 3	–	–68	–	dB
V <sub>o</sub>	output voltage	d <sub>im</sub> = –60 dB				
		note 4	61	–	–	dBmV
		note 5	60	–	–	dBmV
		note 6	57	–	–	dBmV
F	noise figure	f = 50 MHz	–	–	5.5	dB
		f = 550 MHz	–	–	6	dB
		f = 600 MHz	–	–	6	dB
		f = 650 MHz	–	–	6.5	dB
		f = 750 MHz	–	–	7	dB
		f = 860 MHz	–	–	7.5	dB
		f = 1000 MHz	–	–	7.5	dB
I <sub>tot</sub>	total current consumption (DC)	note 7	–	–	240	mA

**Notes**

- f<sub>p</sub> = 55.25 MHz; V<sub>p</sub> = 44 dBmV;  
f<sub>q</sub> = 541.25 MHz; V<sub>q</sub> = 44 dBmV;  
measured at f<sub>p</sub> + f<sub>q</sub> = 596.5 MHz.
- f<sub>p</sub> = 55.25 MHz; V<sub>p</sub> = 44 dBmV;  
f<sub>q</sub> = 691.25 MHz; V<sub>q</sub> = 44 dBmV;  
measured at f<sub>p</sub> + f<sub>q</sub> = 746.5 MHz.
- f<sub>p</sub> = 55.25 MHz; V<sub>p</sub> = 40 dBmV;  
f<sub>q</sub> = 931.25 MHz; V<sub>q</sub> = 40 dBmV;  
measured at f<sub>p</sub> + f<sub>q</sub> = 986.5 MHz.
- f<sub>p</sub> = 590.25 MHz; V<sub>p</sub> = V<sub>o</sub>;  
f<sub>q</sub> = 597.25 MHz; V<sub>q</sub> = V<sub>o</sub> –6 dB;  
f<sub>r</sub> = 599.25 MHz; V<sub>r</sub> = V<sub>o</sub> –6 dB;  
measured at f<sub>p</sub> + f<sub>q</sub> – f<sub>r</sub> = 588.25 MHz.
- f<sub>p</sub> = 740.25 MHz; V<sub>p</sub> = V<sub>o</sub>;  
f<sub>q</sub> = 747.25 MHz; V<sub>q</sub> = V<sub>o</sub> –6 dB;  
f<sub>r</sub> = 749.25 MHz; V<sub>r</sub> = V<sub>o</sub> –6 dB;  
measured at f<sub>p</sub> + f<sub>q</sub> – f<sub>r</sub> = 738.25 MHz.
- f<sub>p</sub> = 980.25 MHz; V<sub>p</sub> = V<sub>o</sub>;  
f<sub>q</sub> = 987.25 MHz; V<sub>q</sub> = V<sub>o</sub> –6 dB;  
f<sub>r</sub> = 989.25 MHz; V<sub>r</sub> = V<sub>o</sub> –6 dB;  
measured at f<sub>p</sub> + f<sub>q</sub> – f<sub>r</sub> = 978.25 MHz.
- The module normally operates at V<sub>B</sub> = 24 V, but is able to withstand supply transients up to 30 V.

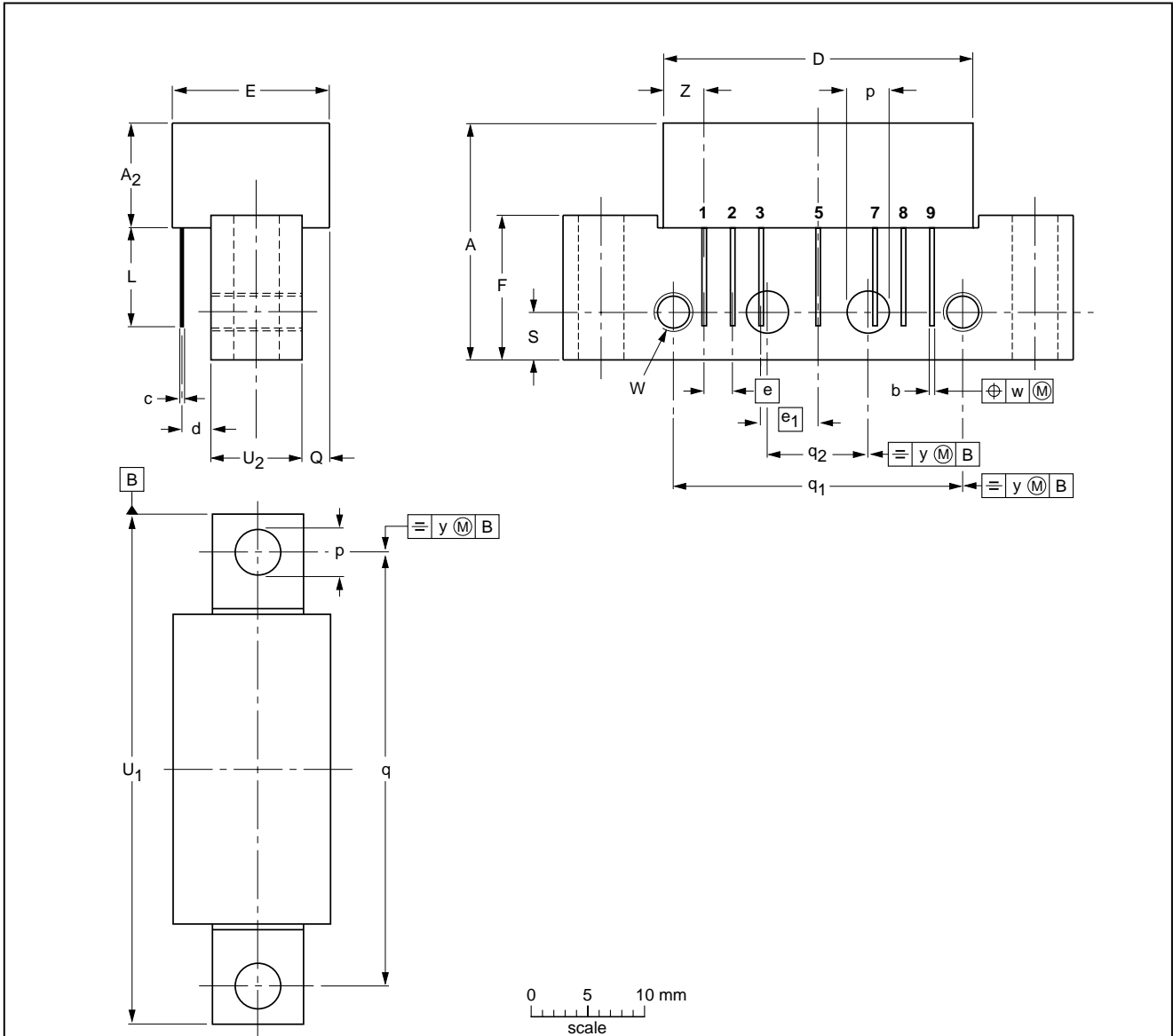
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PACKAGE OUTLINE

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 <sub>2</sub> max.	b	c	D max.	d max.	E max.	e	e <sub>1</sub>	F	L min.	p	Q max.	q	q <sub>1</sub>	q <sub>2</sub>	S	U <sub>1</sub> max.	U <sub>2</sub>	W	w	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	8	6-32 UNC	0.25	0.1	3.8

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT115J						99-02-06

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