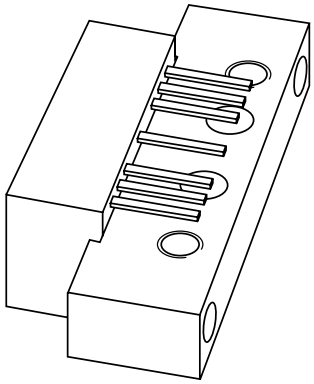
DATA SHEET



BGY1085A

1000 MHz, 18.5 dB gain push-pull amplifier

Product specification
Supersedes data of 1997 Apr 15

2001 Oct 25

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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.

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).

PINNING - SOT115J

PIN	DESCRIPTION
1	input
2	common
3	common
5	$+V_B$
7	common
8	common
9	output

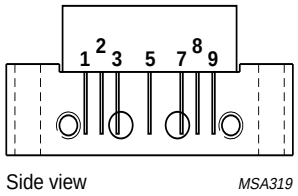


Fig.1 Simplified outline.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	f = 50 MHz	18	19	dB
		f = 1000 MHz	18.5	–	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	–	240	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_i	RF input voltage	–	65	dBmV
T_{stg}	storage temperature	–40	+100	°C
T_{mb}	operating mounting base temperature	–20	+100	°C

CHARACTERISTICS

Table 1 Bandwidth 40 to 1000 MHz; T_{case} = 30 °C; $Z_S = Z_L$ = 75 Ω

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	–	–	±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 dBmV; measured at 595.25 MHz	–	–	–58	dB
		110 channels flat; V_o = 44 dBmV; measured at 745.25 MHz	–	–	–53	dB
		150 channels flat; V_o = 40 dBmV; measured at 985.25 MHz	–	–53	–	dB
X_{mod}	cross modulation	85 channels flat; V_o = 44 dBmV; measured at 55.25 MHz	–	–	–58	dB
		110 channels flat; V_o = 44 dBmV; measured at 55.25 MHz	–	–	–54	dB
		150 channels flat; V_o = 40 dBmV; measured at 55.25 MHz	–	–54	–	dB
CSO	composite second order distortion	85 channels flat; V_o = 44 dBmV; measured at 596.5 MHz	–	–	–60	dB
		110 channels flat; V_o = 44 dBmV; measured at 746.5 MHz	–	–	–56	dB
		150 channels flat; V_o = 40 dBmV; measured at 986.5 MHz	–	–56	–	dB

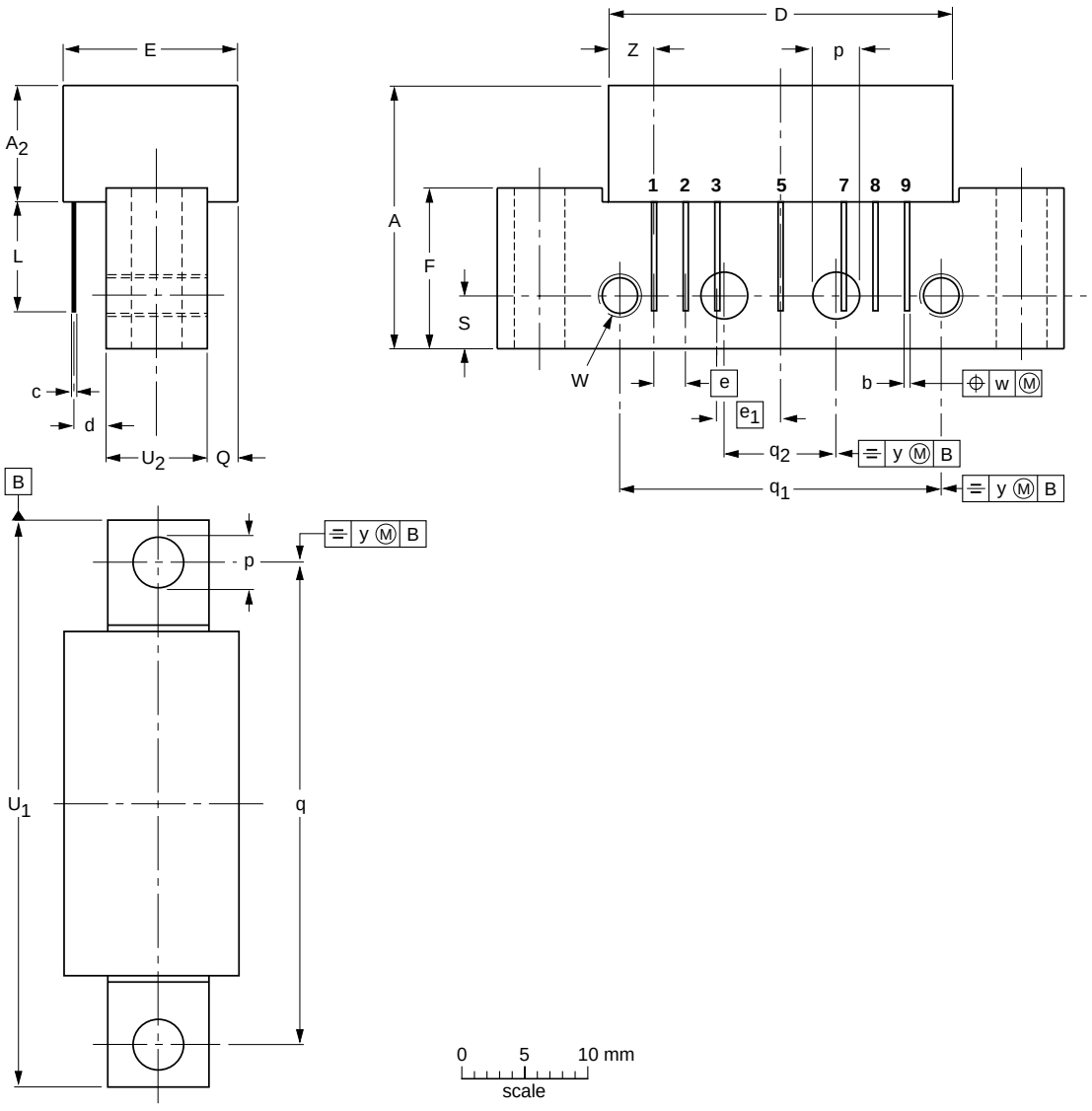
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
d_2	second order distortion	note 1	–	–	–72	dB
		note 2	–	–	–65	dB
		note 3	–	–68	–	dB
V_o	output voltage	d_{im} = –60 dB				
		note 4	61	–	–	dBmV
		note 5	60	–	–	dBmV
		note 6	57	–	–	dBmV
F	noise figure	f = 50 MHz	–	–	5.5	dB
		f = 550 MHz	–	–	6	dB
		f = 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_{tot}	total current consumption (DC)	note 7	–	–	240	mA

Notes

1. f_p = 55.25 MHz; V_p = 44 dBmV;
   f_q = 541.25 MHz; V_q = 44 dBmV;
   measured at $f_p + f_q$ = 596.5 MHz.
2. f_p = 55.25 MHz; V_p = 44 dBmV;
   f_q = 691.25 MHz; V_q = 44 dBmV;
   measured at $f_p + f_q$ = 746.5 MHz.
3. f_p = 55.25 MHz; V_p = 40 dBmV;
   f_q = 931.25 MHz; V_q = 40 dBmV;
   measured at $f_p + f_q$ = 986.5 MHz.
4. f_p = 590.25 MHz; $V_p = V_o$;
   f_q = 597.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 599.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 588.25 MHz.
5. f_p = 740.25 MHz; $V_p = V_o$;
   f_q = 747.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 749.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 738.25 MHz.
6. f_p = 980.25 MHz; $V_p = V_o$;
   f_q = 987.25 MHz; $V_q = V_o$ –6 dB;
   f_r = 989.25 MHz; $V_r = V_o$ –6 dB;
   measured at $f_p + f_q - f_r$ = 978.25 MHz.
7. The module normally operates at V_B = 24 V, but is able to withstand supply transients up to 30 V.

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 max.	U_2	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

DATA SHEET STATUS

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	DEFINITIONS
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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