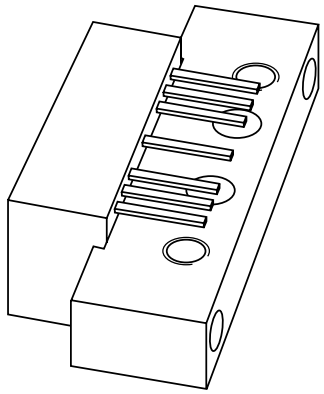
DATA SHEET



CGY887B

860 MHz, 27.8 dB gain push-pull amplifier

Product specification

2001 Nov 27

860 MHz, 27.8 dB gain push-pull amplifier CGY887B

FEATURES

- Excellent linearity
- High gain
- Extremely low noise
- Excellent return loss properties
- Rugged construction
- Gold metallization ensures excellent reliability.

APPLICATIONS

- CATV systems operating in the 40 to 870 MHz frequency range.

DESCRIPTION

Hybrid dynamic range amplifier module in a SOT115J package operating at a voltage supply of 24 V (DC), employing both GaAs and Si dies.

PINNING - SOT115J

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

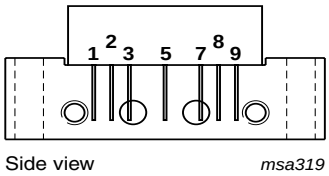


Fig.1 Simplified outline.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	f = 45 MHz	27.2	27.8	dB
		f = 870 MHz	28	29	dB
I_{tot}	total current consumption (DC)	V_B = 24 V	295	325	mA

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_B	supply voltage	–	30	V
V_i	RF input voltage (single tone)	–	70	dBmV
T_{stg}	storage temperature	–40	+100	°C
T_{mb}	operating mounting base temperature	–20	+100	°C

CHARACTERISTICS

Bandwidth 45 to 870 MHz; V_B = 24 V; T_{mb} = 35 °C; $Z_S = Z_L$ = 75 Ω.

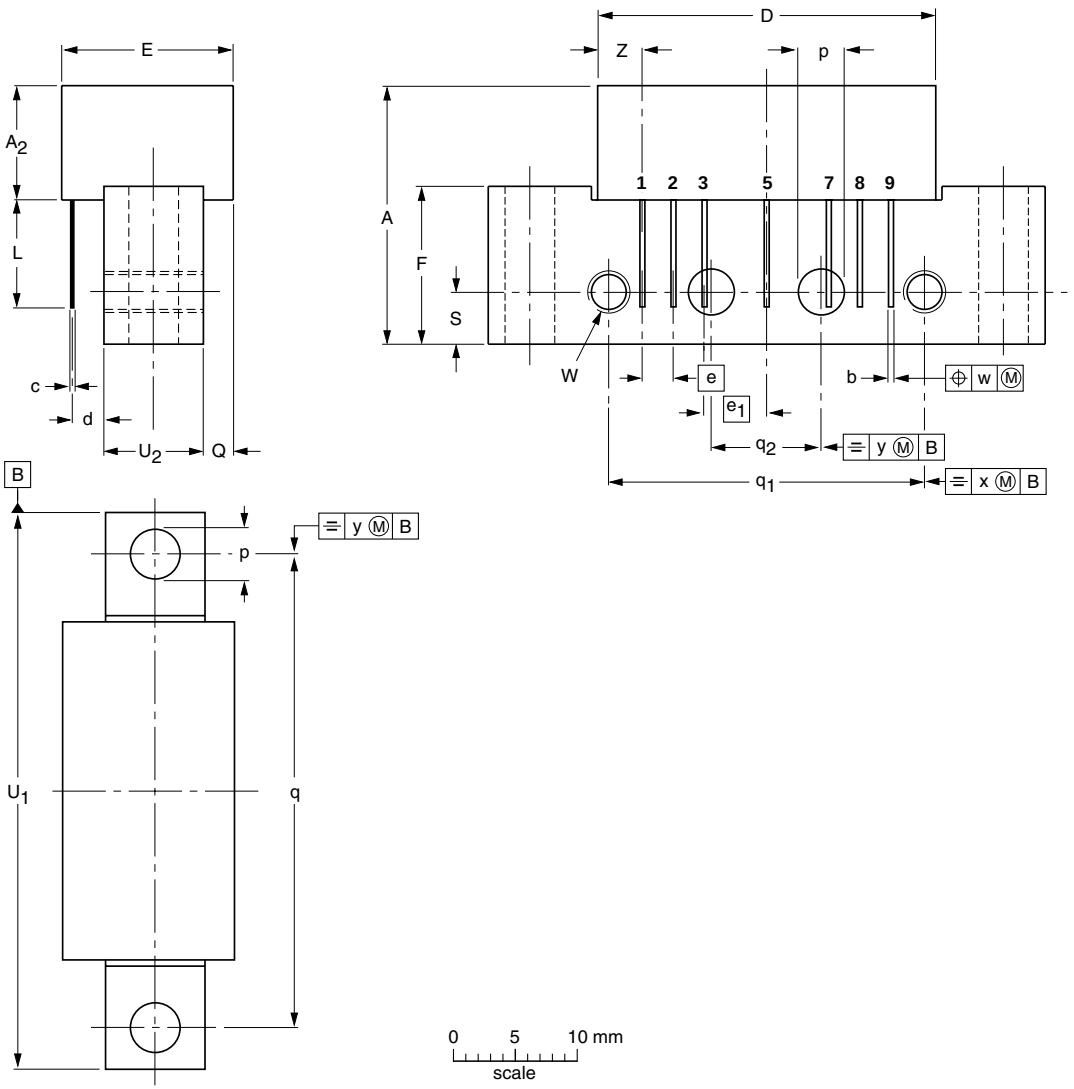
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 45 MHz	27.2	27.5	27.8	dB
		f = 870 MHz	28	28.5	29	dB
SL	slope straight line	f = 45 to 870 MHz	0.5	1	1.5	dB
FL	flatness straight line	f = 45 to 100 MHz	−0.25	–	+0.25	dB
		f = 100 to 800 MHz	−0.5	–	+0.5	dB
		f = 800 to 870 MHz	−0.4	–	+0.1	dB
s_{11}	input return losses	f = 40 to 80 MHz	24	–	–	dB
		f = 80 to 160 MHz	22	–	–	dB
		f = 160 to 320 MHz	19	–	–	dB
		f = 320 to 550 MHz	18	–	–	dB
		f = 550 to 650 MHz	17	–	–	dB
		f = 650 to 750 MHz	16	–	–	dB
		f = 750 to 870 MHz	14	–	–	dB
		f = 870 to 914 MHz	12	–	–	dB
s_{22}	output return losses	f = 40 to 80 MHz	23	–	–	dB
		f = 80 to 160 MHz	22	–	–	dB
		f = 160 to 320 MHz	18	–	–	dB
		f = 320 to 550 MHz	17	–	–	dB
		f = 550 to 650 MHz	17	–	–	dB
		f = 650 to 750 MHz	17	–	–	dB
		f = 750 to 870 MHz	14	–	–	dB
		f = 870 to 914 MHz	12	–	–	dB
s_{21}	phase response	f = 50 MHz	−45	–	+45	deg
CTB	composite triple beat	79 chs flat; V_o = 44 dBmV; f_m = 331.25 MHz	–	–	−63.5	dB
		132 chs flat; V_o = 44 dBmV; f_m = 445.25 MHz	–	–	−57.5	dB
X_{mod}	cross modulation	79 chs flat; V_o = 44 dBmV; f_m = 55.25 MHz	–	–	−57	dB
		132 chs flat; V_o = 44 dBmV; f_m = 55.25 MHz	–	–	−51	dB
CSO	composite second order distortion	79 chs flat; V_o = 44 dBmV; f_m = 54.0 MHz	–	–	−64	dB
		132 chs flat; V_o = 44 dBmV; f_m = 860.5 MHz	–	–	−58	dB
NF	noise figure	f = 50 MHz	–	–	5	dB
		f = 550 MHz	–	–	5	dB
		f = 750 MHz	–	–	5	dB
		f = 870 MHz	–	–	5	dB
d_2	second order distortion	note 1	–	–	−60	dB
		note 2	–	–	−57	dB
V_o	output voltage	d_{im} = −60 dB; note 3	66	–	–	dBmV
		d_{im} = −60 dB; note 4	64	–	–	dBmV
I_{tot}	total current consumption (DC)	note 5	295	310	325	mA

Notes

1. f_p = 55.25 MHz; V_p = 60 dBmV; f_q = 493.25 MHz; V_q = 60 dBmV; measured at $f_p + f_q$ = 548.5 MHz.
2. f_p = 55.25 MHz; V_p = 60 dBmV; f_q = 805.25 MHz; V_q = 60 dBmV; measured at $f_p + f_q$ = 860.5 MHz.
3. 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.
4. Measured according to DIN45004B: f_p = 851.25 MHz; $V_p = V_o$; f_q = 858.25 MHz; $V_q = V_o - 6$ dB; f_r = 860.25 MHz; $V_r = V_o - 6$ dB; measured at $f_p + f_q - f_r$ = 849.25 MHz.
5. 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	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

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

Notes

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Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

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