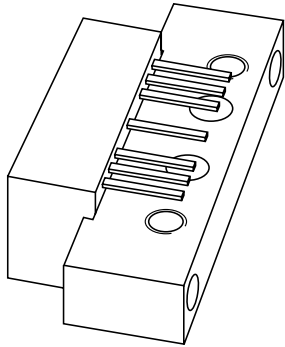


# DATA SHEET



## **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

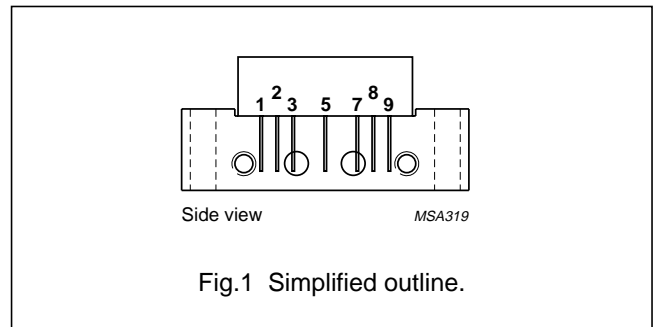
- CATV systems operating in the 40 to 870 MHz frequency range.

### 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 <sub>B</sub>
7, 8	common
9	output



### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 45 MHz	27.2	27.8	dB
		f = 870 MHz	28	29	dB
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	295	325	mA

### LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V <sub>B</sub>	supply voltage	–	30	V
V <sub>i</sub>	RF input voltage (single tone)	–	70	dBmV
T <sub>stg</sub>	storage temperature	–40	+100	°C
T <sub>mb</sub>	operating mounting base temperature	–20	+100	°C

## 860 MHz, 27.8 dB gain push-pull amplifier

CGY887B

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G <sub>p</sub>	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 <sub>11</sub>	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 <sub>22</sub>	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 <sub>21</sub>	phase response	f = 50 MHz	-45	-	+45	deg
CTB	composite triple beat	79 chs flat; V <sub>o</sub> = 44 dBmV; f <sub>m</sub> = 331.25 MHz	-	-	-63.5	dB
		132 chs flat; V <sub>o</sub> = 44 dBmV; f <sub>m</sub> = 445.25 MHz	-	-	-57.5	dB
X <sub>mod</sub>	cross modulation	79 chs flat; V <sub>o</sub> = 44 dBmV; f <sub>m</sub> = 55.25 MHz	-	-	-57	dB
		132 chs flat; V <sub>o</sub> = 44 dBmV; f <sub>m</sub> = 55.25 MHz	-	-	-51	dB
CSO	composite second order distortion	79 chs flat; V <sub>o</sub> = 44 dBmV; f <sub>m</sub> = 54.0 MHz	-	-	-64	dB
		132 chs flat; V <sub>o</sub> = 44 dBmV; f <sub>m</sub> = 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 <sub>2</sub>	second order distortion	note 1	-	-	-60	dB
		note 2	-	-	-57	dB

## 860 MHz, 27.8 dB gain push-pull amplifier

CGY887B

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_o$	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**

- $f_p = 55.25$  MHz;  $V_p = 60$  dBmV;  $f_q = 493.25$  MHz;  $V_q = 60$  dBmV; measured at  $f_p + f_q = 548.5$  MHz.
- $f_p = 55.25$  MHz;  $V_p = 60$  dBmV;  $f_q = 805.25$  MHz;  $V_q = 60$  dBmV; measured at  $f_p + f_q = 860.5$  MHz.
- 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.
- 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.
- The module normally operates at  $V_B = 24$  V, but is able to withstand supply transients up to 30 V.

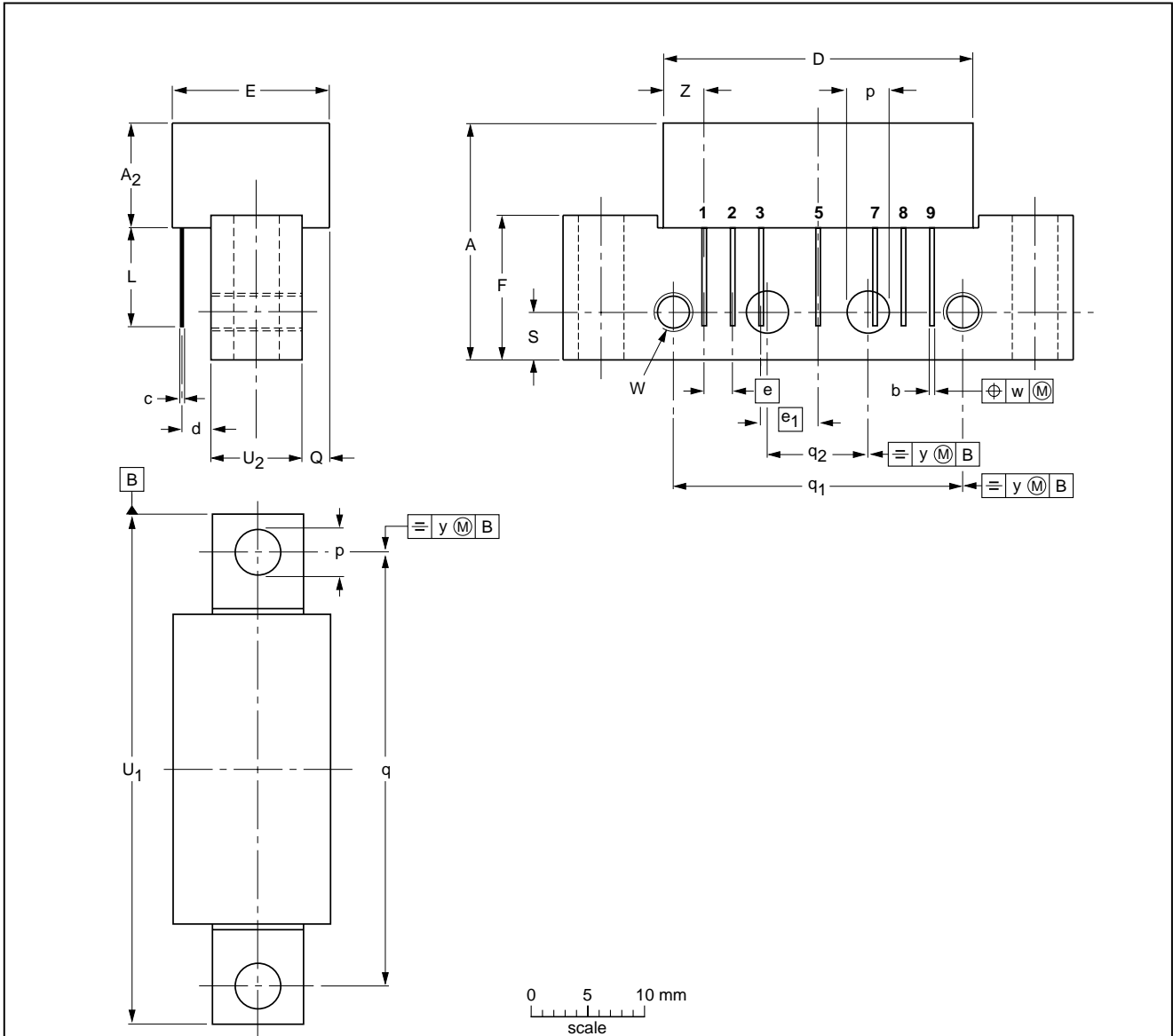
860 MHz, 27.8 dB gain push-pull amplifier

CGY887B

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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CGY887B

## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling. For further information, refer to Philips specs.: SNW-EQ-608, SNW-FQ-302A and SNW-FQ-302B.

860 MHz, 27.8 dB gain push-pull amplifier

CGY887B

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**NOTES**

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