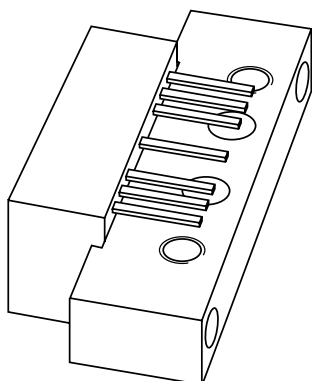


DATA SHEET



CGY887

870 MHz, 21.5 dB gain
push-pull amplifier

Product specification
Supersedes data of 2002 June 07

2002 Jun 27

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FEATURES

- Superior linearity
- Extremely low noise
- Rugged construction
- Gold metallization ensures excellent reliability
- Excellent gain behaviour over temperature.

APPLICATIONS

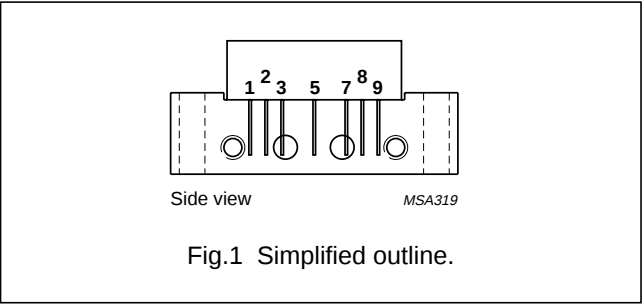
- CATV systems operating in the 40 to 870 MHz frequency range.

DESCRIPTION

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

PINNING - SOT115J

PIN	DESCRIPTION
1	input
2	common
3	common
5	+V _B
7	common
8	common
9	output



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G _p	power gain	f = 50 MHz	21.2	21.8	dB
		f = 870 MHz	22	23	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	–	75	dBmV
T _{stg}	storage temperature	–40	+100	°C
T _{mb}	operating mounting base temperature	–20	+100	°C

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CHARACTERISTICSBandwidth 40 to 870 MHz; $V_B = 24$ V; $T_{mb} = 35$ °C; $Z_S = Z_L = 75$ Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	power gain	f = 45 MHz	21.2	21.8	dB
		f = 870 MHz	22	23	dB
SL	slope straight line	f = 45 to 870 MHz; note 1	0.6	1.4	dB
FL	flatness straight line	f = 45 to 100 MHz	–	± 0.3	dB
		f = 100 to 800 MHz	–	± 0.5	dB
		f = 800 to 870 MHz	–	± 0.3	dB
S_{11}	input return losses	f = 45 to 80 MHz	20	–	dB
		f = 80 to 160 MHz	20	–	dB
		f = 160 to 320 MHz	20	–	dB
		f = 320 to 550 MHz	20	–	dB
		f = 550 to 650 MHz	19	–	dB
		f = 650 to 750 MHz	17	–	dB
		f = 750 to 870 MHz	17	–	dB
S_{22}	output return losses	f = 45 to 80 MHz	21	–	dB
		f = 80 to 160 MHz	19	–	dB
		f = 160 to 320 MHz	17	–	dB
		f = 320 to 550 MHz	16	–	dB
		f = 550 to 650 MHz	16	–	dB
		f = 650 to 750 MHz	16	–	dB
		f = 750 to 870 MHz	16	–	dB
S_{21}	phase response	f = 50 MHz	–45	+45	deg
CTB	composite triple beat	79 chs flat; $V_o = 44$ dBmV; $f_m = 547.25$ MHz	–	–57	dB
		112 chs flat; $V_o = 44$ dBmV; $f_m = 745.25$ MHz	–	–55	dB
		132 chs flat; $V_o = 42$ dBmV; $f_m = 859.25$ MHz	–	–55	dB
X_{mod}	cross modulation	79 chs flat; $V_o = 44$ dBmV; $f_m = 55.25$ MHz	–	–53	dB
		112 chs flat; $V_o = 44$ dBmV; $f_m = 55.25$ MHz	–	–50	dB
		132 chs flat; $V_o = 42$ dBmV; $f_m = 55.25$ MHz	–	–52	dB
CSO	composite second order distortion	79 chs flat; $V_o = 44$ dBmV; $f_m = 548.5$ MHz	–	–60	dB
		CSO _{sum} 112 chs flat; $V_o = 44$ dBmV; $f_m = 746.5$ MHz	–	–55	dB
		CSO _{dif} 112 chs flat; $V_o = 44$ dBmV; $f_m = 150$ MHz	–	–65	dB
		CSO _{sum} 132 chs flat; $V_o = 42$ dBmV; $f_m = 860.5$ MHz	–	–55	dB
		CSO _{dif} 132 chs flat; $V_o = 42$ dBmV; $f_m = 150$ MHz	–	–65	dB
d_2	second order distortion	note 2	–	–58	dB
		note 3	–	–57	dB
		note 4	–	–57	dB
V_o	output voltage	$d_{im} = -60$ dB; note 5	64	–	dBmV
		$d_{im} = -60$ dB; note 6	63	–	dBmV
		$d_{im} = -60$ dB; note 7	62	–	dBmV

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
NF	noise figure	f = 50 MHz	–	5.5	dB
		f = 100 MHz to f = 870 MHz	–	5	dB
I _{tot}	total current consumption (DC)	note 8	–	240	mA

Notes

- Slope straight line is defined as gain at 870 MHz against gain at 45 MHz.
- $f_p = 55.25$ 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;
 $f_q = 691.25$ MHz; $V_q = 60$ dBmV;
measured at $f_p + f_q = 746.5$ 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:
 $f_p = 740.25$ 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.
- 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.

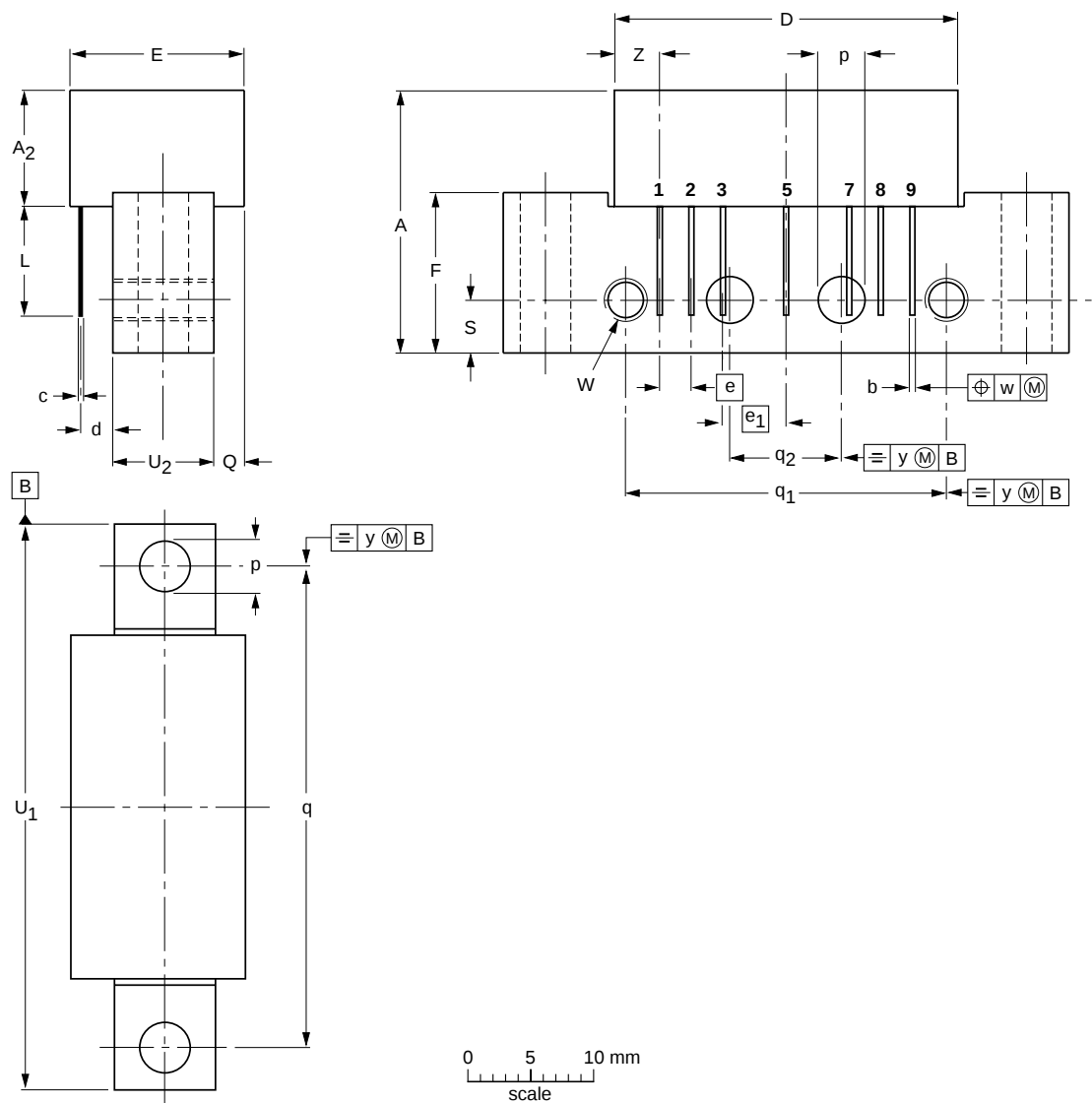
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PACKAGE OUTLINE

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 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

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DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	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.

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NOTES

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Contact information

For additional information please visit <http://www.semiconductors.philips.com>. Fax: **+31 40 27 24825**

For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

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