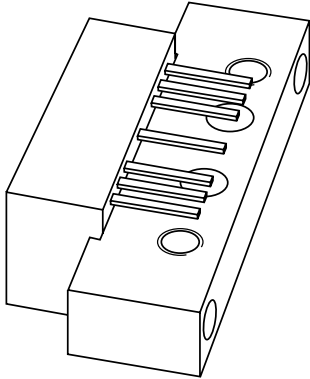


DATA SHEET



CGD914 CATV amplifier module

Preliminary specification

1999 Nov 12

CATV amplifier module

CGD914

FEATURES

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

APPLICATIONS

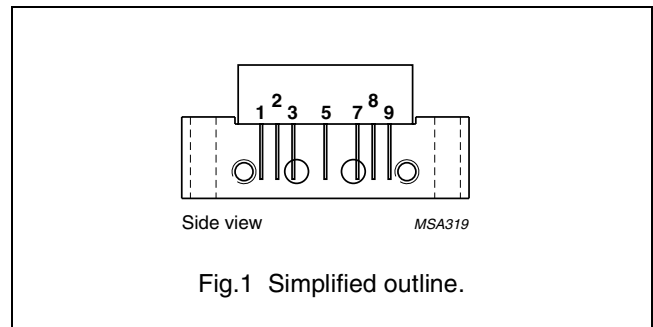
- CATV systems operating in the 40 to 870 MHz frequency range.

DESCRIPTION

Hybrid 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, 3	common
5	+V _B
7, 8	common
9	output



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G _p	power gain	f = 45 MHz	19.75	20.25	dB
		f = 870 MHz	20.2	21.5	dB
I _{tot}	total current consumption (DC)	V _B = 24 V	345	375	mA

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V _B	supply voltage	–	30	V
V _i	RF input voltage	–	65	dBmV
T _{stg}	storage temperature	–40	+100	°C
T _{mb}	operating mounting base temperature	–20	+100	°C

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CHARACTERISTICSBandwidth 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 _p	power gain	f = 45MHz	19.75	20	20.25	dB
		f = 870 MHz	20.2	21	21.5	dB
SL	slope straight line	f = 45 to 870 MHz	0.2	1	1.5	dB
FL	flatness straight line	f = 45 to 870 MHz	–	–	±0.45	dB
	flatness narrow band	in each 6 MHz segment	–	–	±0.1	dB
S ₁₁	input return losses	f = 40 to 80 MHz	20	–	–	dB
		f = 80 to 160 MHz	19	–	–	dB
		f = 160 to 320 MHz	18	–	–	dB
		f = 320 to 550 MHz	16	–	–	dB
		f = 550 to 650 MHz	15	–	–	dB
		f = 650 to 750 MHz	14	–	–	dB
		f = 750 to 870 MHz	14	–	–	dB
		f = 870 to 914 MHz	10	–	–	dB
S ₂₂	output return losses	f = 40 to 80 MHz	21	–	–	dB
		f = 80 to 160 MHz	21	–	–	dB
		f = 160 to 320 MHz	20	–	–	dB
		f = 320 to 550 MHz	19	–	–	dB
		f = 550 to 650 MHz	18	–	–	dB
		f = 650 to 750 MHz	17	–	–	dB
		f = 750 to 870 MHz	16	–	–	dB
		f = 870 to 914 MHz	14	–	–	dB
S ₂₁	phase response	f = 50 MHz	–45	–	+45	deg
S ₁₂	reverse isolation	RF _{out} to RF _{in}	–	–	21	dB
CTB	composite triple beat	79 chs; f _m = 445.25 MHz; note 1	–	–	–76	dB
		112 chs; f _m = 649.25 MHz; note 2	–	–	–63	dB
		132 chs; f _m = 745.25 MHz; note 3	–	–	–55	dB
		79 chs flat; V _o = 44 dBmV; f _m = 547.25 MHz	–	–	–73	dB
		112 chs flat; V _o = 44 dBmV; f _m = 745.25 MHz	–	–	–63	dB
		132 chs flat; V _o = 44 dBmV; f _m = 745.25 MHz	–	–	–59.5	dB
X _{mod}	cross modulation	79 chs; f _m = 55.25 MHz; note 1	–	–	–73	dB
		112 chs; f _m = 55.25 MHz; note 2	–	–	–64	dB
		132 chs; f _m = 55.25 MHz; note 3	–	–	–58	dB
		79 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–	–71	dB
		112 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–	–67	dB
		132 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–	–64	dB

CATV amplifier module

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CSO Sum	composite second order distortion (sum)	79 chs; $f_m = 446.5$ MHz; note 1	–	–	–70	dB
		112 chs; $f_m = 746.5$ MHz; note 2	–	–	–60	dB
		132 chs; $f_m = 860.5$ MHz; note 3	–	–	–56	dB
		79 chs flat; $V_o = 44$ dBmV; $f_m = 548.5$ MHz	–	–	–61	dB
		112 chs flat; $V_o = 44$ dBmV; $f_m = 746.5$ MHz	–	–	–52	dB
		132 chs flat; $V_o = 44$ dBmV; $f_m = 860.5$ MHz	–	–	–50	dB
CSO Diff	composite second order distortion (diff)	79 chs; $f_m = 150$ MHz; note 1	–	–	–58	dB
		112 chs; $f_m = 150$ MHz; note 2	–	–	–52	dB
		132 chs; $f_m = 150$ MHz; note 3	–	–	–48	dB
		79 chs flat; $V_o = 44$ dBmV; $f_m = 150$ MHz	–	–	–58	dB
		112 chs flat; $V_o = 44$ dBmV; $f_m = 150$ MHz	–	–	–56	dB
		132 chs flat; $V_o = 44$ dBmV; $f_m = 150$ MHz	–	–	–55	dB
NF	noise figure	$f = 50$ MHz	–	2.5	3.5	dB
		$f = 550$ MHz	–	2.5	3.2	dB
		$f = 750$ MHz	–	2.6	3.5	dB
		$f = 870$ MHz	–	3	4	dB
I_{tot}	total current consumption (DC)	note 4	345	360	375	mA

Notes

1. $V_o = 38$ dBmV at 54 MHz; Tilt = 7.3 dB (55 to 547 MHz) extrapolated to 12 dB at 870 MHz.
2. $V_o = 38$ dBmV at 54 MHz; Tilt = 10.2 dB (55 to 745 MHz) extrapolated to 12 dB at 870 MHz.
3. $V_o = 38$ dBmV at 54 MHz; Tilt = 12 dB (55 to 865 MHz).
4. The module normally operates at $V_B = 24$ V, but is able to withstand supply transients up to 30 V.

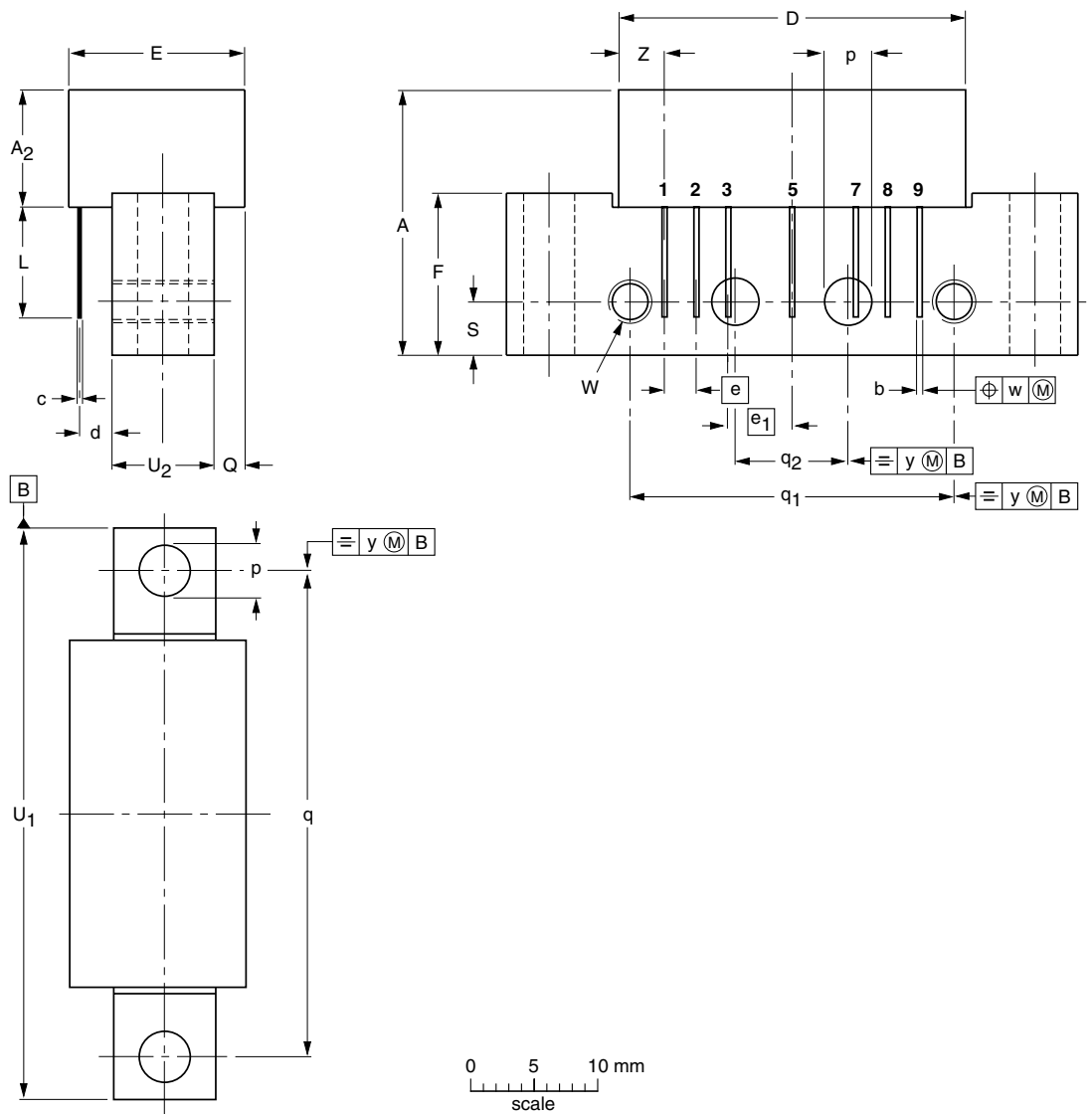
CATV amplifier module

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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

CATV amplifier module

CGD914

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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