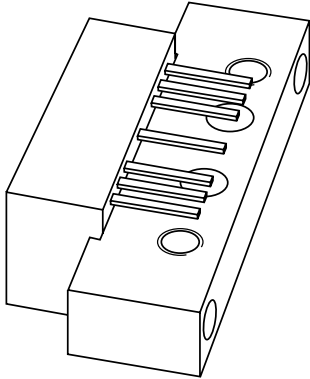


DATA SHEET



BGD814 CATV amplifier module

Preliminary specification

1999 Dec 10

CATV amplifier module

BGD814

FEATURES

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

APPLICATIONS

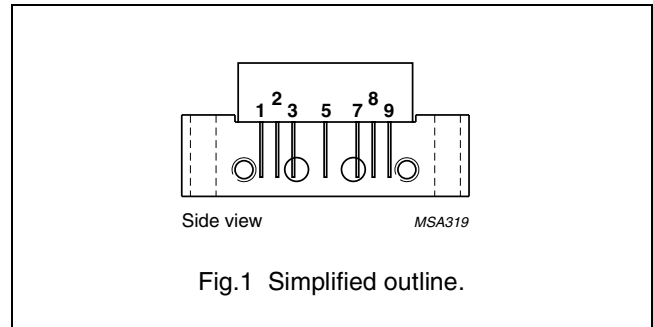
- CATV systems operating in the 40 to 870 MHz frequency range.

DESCRIPTION

Hybrid amplifier module in a SOT115J package operating with a voltage supply of 24 V (DC).

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	19.7	20.3	dB
		f = 870 MHz	20.5	21.5	dB
I _{tot}	total current consumption (DC)	V _B = 24 V	380	410	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	–	70	dBmV
T _{stg}	storage temperature	–40	+100	°C
T _{mb}	operating mounting base temperature	–20	+100	°C

CATV amplifier module

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CHARACTERISTICSBandwidth 40 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 = 45 MHz	19.7	–	20.3	dB
		f = 870 MHz	20.5	–	21.5	dB
SL	slope straight line	f = 45 to 870 MHz; note 1	0.4	–	1.4	dB
FL	flatness straight line	f = 45 to 100 MHz	–	–	±0.35	dB
		f = 100 to 800 MHz	–	–	±0.5	dB
		f = 800 to 870 MHz	–	–	±0.15	dB
S ₁₁	input return losses	f = 45 to 80 MHz	22	–	–	dB
		f = 80 to 160 MHz	22	–	–	dB
		f = 160 to 320 MHz	21	–	–	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	15	–	–	dB
		f = 870 to 914 MHz	13	–	–	dB
S ₂₂	output return losses	f = 45 to 80 MHz	25	–	–	dB
		f = 80 to 160 MHz	23	–	–	dB
		f = 160 to 320 MHz	19	–	–	dB
		f = 320 to 550 MHz	18	–	–	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
CTB	composite triple beat	79 chs flat; V _o = 44 dBmV; f _m = 547.25 MHz	–	–	–68	dB
		112 chs flat; V _o = 44 dBmV; f _m = 745.25 MHz	–	–	–62	dB
		132 chs flat; V _o = 44 dBmV; f _m = 859.25 MHz	–	–	–57.5	dB
		112 chs; f _m = tbd MHz; V _o = 50.2 dBmV at 745 MHz; note 2	–	–	tbd	dB
		79 chs; f _m = tbd MHz; V _o = 47.3 dBmV at 547 MHz; note 3	–	–	tbd	dB
X _{mod}	cross modulation	79 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–	–67	dB
		112 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–	–63.5	dB
		132 chs flat; V _o = 44 dBmV; f _m = 55.25 MHz	–	–	–62	dB
		112 chs; f _m = tbd MHz; V _o = 50.2 dBmV at 745 MHz; note 2	–	–	tbd	dB
		79 chs; f _m = tbd MHz; V _o = 47.3 dBmV at 547 MHz; note 3	–	–	tbd	dB

CATV amplifier module

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CSO	composite second order distortion	79 chs flat; $V_o = 44$ dBmV; $f_m = 548.5$ MHz	–	–	–68	dB
		112 chs flat; $V_o = 44$ dBmV; $f_m = 746.5$ MHz	–	–	–63	dB
		132 chs flat; $V_o = 44$ dBmV; $f_m = 860.5$ MHz	–	–	–59	dB
		112 chs; $f_m =$ tbd MHz; $V_o = 50.2$ dBmV at 745 MHz; note 2	–	–	tbd	dB
		79 chs; $f_m =$ tbd MHz; $V_o = 47.3$ dBmV at 547 MHz; note 3	–	–	tbd	dB
d_2	second order distortion	note 4	–	–	–75	dB
V_o	output voltage	$d_{im} = -60$ dB; note 5	64	–	–	dBmV
		CTB compression = 1 dB; 132 chs flat; $f =$ tbd MHz	tbd	–	–	dBmV
		CSO compression = 1 dB; 132 chs flat; $f =$ tbd MHz	tbd	–	–	dBmV
F	noise figure	$f = 50$ MHz	–	–	5.5	dB
		$f = 550$ MHz	–	–	5.5	dB
		$f = 750$ MHz	–	–	6.5	dB
		$f = 870$ MHz	–	–	7.5	dB
I_{tot}	total current consumption (DC)	note 6	380	395	410	mA

Notes

- Slope straight line is defined as gain @ 870 MHz – gain @ 45 MHz.
- Tilt = 10.2 dB (55 to 745 MHz).
- Tilt = 7.3 dB (55 to 547 MHz).
- $f_p = 55.25$ MHz; $V_p = 44$ dBmV;
 $f_q = 805.25$ MHz; $V_q = 44$ dBmV;
measured at $f_p + f_q = 860.5$ 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 35 V.

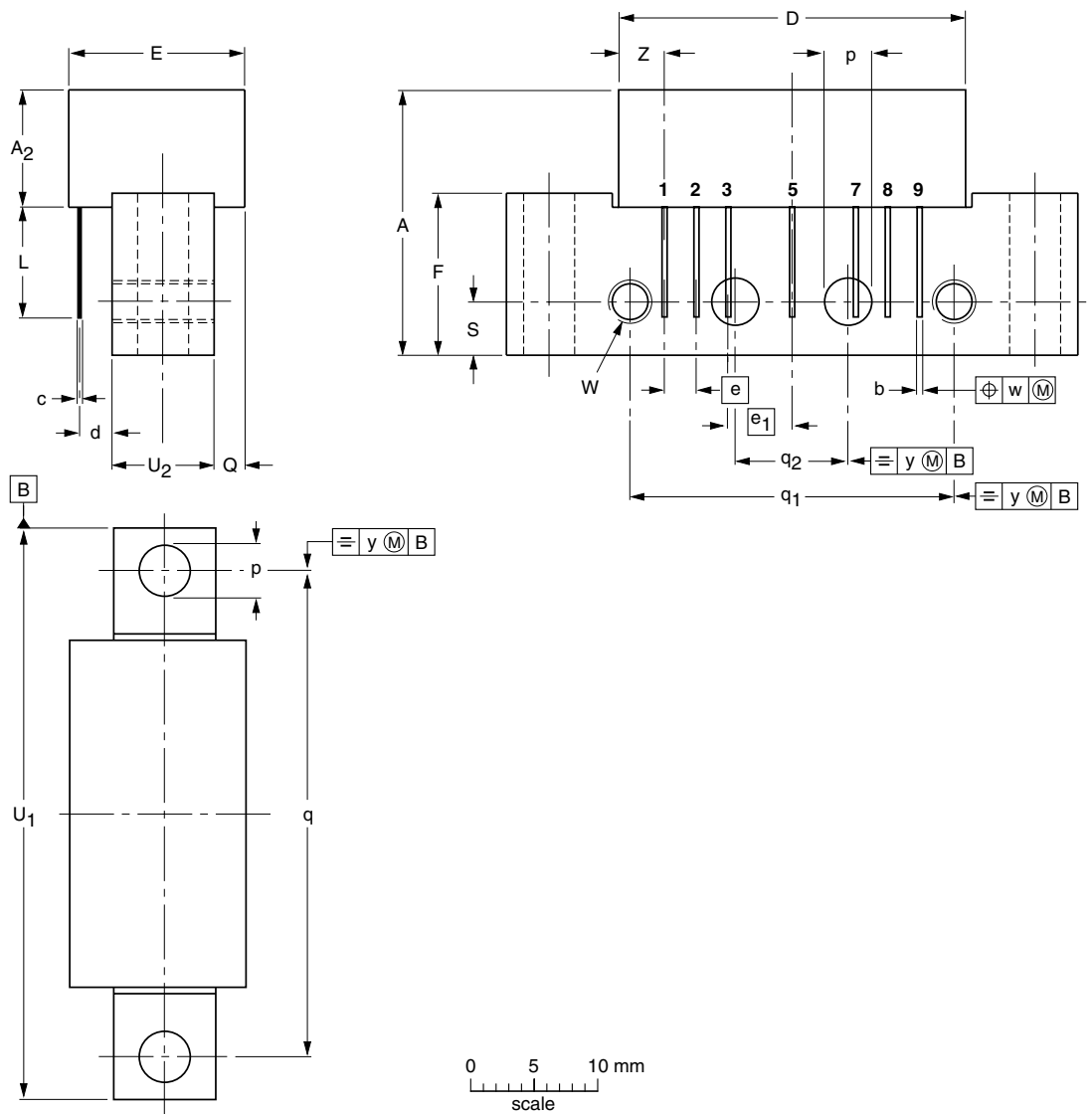
CATV amplifier module

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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

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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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