

# DATA SHEET

**BGE788**

**CATV amplifier module**

Product specification  
Supersedes data of 1997 May 05  
File under Discrete Semiconductors, SC16

1998 Jan 08

# CATV amplifier module

# BGE788

## FEATURES

- Excellent linearity
- Extremely low noise
- High gain
- Excellent return loss properties.

## APPLICATIONS

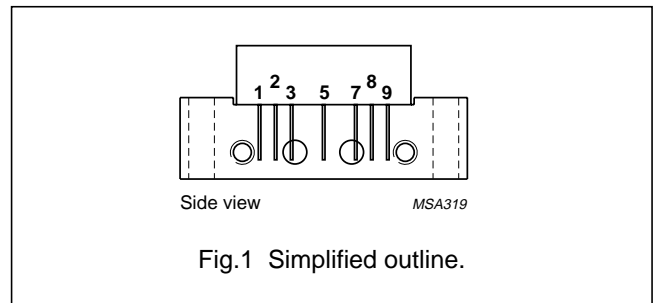
- Single module line extender in CATV systems operating in the 40 to 750 MHz frequency range.

## DESCRIPTION

Hybrid high dynamic range amplifier module operating at a supply voltage of 24 V (DC) in a SOT115J package. The module consists of two cascaded stages both in cascode configuration.

## PINNING - SOT115J

PIN	DESCRIPTION
1	input
2	common
3	common
5	+V <sub>B</sub>
7	common
8	common
9	output



## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	33.5	34.5	dB
		f = 750 MHz	34	–	dB
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	290	320	mA

## LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V <sub>B</sub>	supply voltage	–	25	V
V <sub>i</sub>	RF input voltage	–	55	dBmV
T <sub>stg</sub>	storage temperature	–40	+100	°C
T <sub>mb</sub>	mounting base operating temperature	–20	+100	°C

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**CHARACTERISTICS**Bandwidth 40 to 750 MHz;  $V_B = 24\text{ V}$ ;  $T_{\text{case}} = 30\text{ °C}$ ;  $Z_S = Z_L = 75\ \Omega$ .

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	33.5	34.5	dB
		f = 750 MHz	34	–	dB
SL	slope cable equivalent	f = 40 to 750 MHz	0.5	2.5	dB
FL	flatness of frequency response	f = 40 to 750 MHz	–	±0.5	dB
S <sub>11</sub>	input return losses	f = 40 to 80 MHz	20	–	dB
		f = 80 to 160 MHz	18.5	–	dB
		f = 160 to 320 MHz	17	–	dB
		f = 320 to 640 MHz	15.5	–	dB
		f = 640 to 750 MHz	14	–	dB
S <sub>22</sub>	output return losses	f = 40 to 80 MHz	20	–	dB
		f = 80 to 160 MHz	18.5	–	dB
		f = 160 to 320 MHz	17	–	dB
		f = 320 to 640 MHz	15.5	–	dB
		f = 640 to 750 MHz	14	–	dB
S <sub>21</sub>	phase response	f = 50 MHz	135	225	deg
CTB	composite triple beat	110 channels flat; V <sub>o</sub> = 44 dBmV; measured at 745.25 MHz	–	–49	dB
X <sub>mod</sub>	cross modulation	110 channels flat; V <sub>o</sub> = 44 dBmV; measured at 55.25 MHz	–	–51	dB
CSO	composite second order distortion	110 channels flat; V <sub>o</sub> = 44 dBmV; measured at 746.5 MHz	–	–52	dB
d <sub>2</sub>	second order distortion	note 1	–	–64	dB
V <sub>o</sub>	output voltage	d <sub>im</sub> = –60 dB; note 2	58	–	dBmV
F	noise figure	f = 750 MHz	–	7	dB
PM	positive match	f = 40 MHz to 2 GHz	–	3	dB
I <sub>tot</sub>	total current consumption (DC)	note 3	290	320	mA

**Notes**

1. f<sub>p</sub> = 55.25 MHz; V<sub>p</sub> = 44 dBmV;  
f<sub>q</sub> = 691.25 MHz; V<sub>q</sub> = 44 dBmV;  
measured at f<sub>p</sub> + f<sub>q</sub> = 746.5 MHz.
2. Measured according to DIN45004B;  
f<sub>p</sub> = 740.25 MHz; V<sub>p</sub> = V<sub>o</sub>;  
f<sub>q</sub> = 747.25 MHz; V<sub>q</sub> = V<sub>o</sub> –6 dB;  
f<sub>r</sub> = 749.25 MHz; V<sub>r</sub> = V<sub>o</sub> –6 dB;  
measured at f<sub>p</sub> + f<sub>q</sub> – f<sub>r</sub> = 738.25 MHz.
3. The module normally operates at V<sub>B</sub> = 24 V, but is able to withstand supply transients up to 30 V.

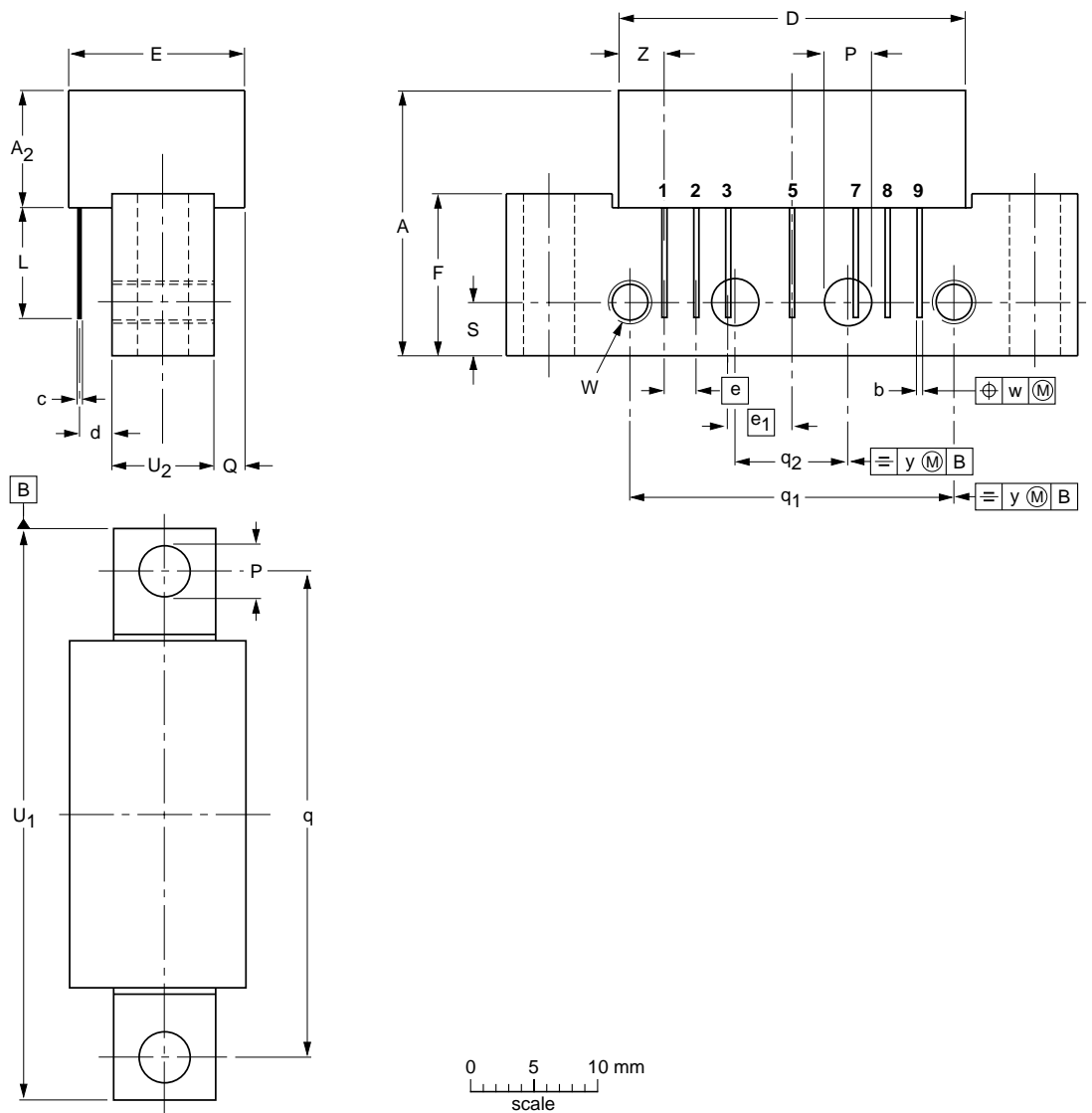
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PACKAGE OUTLINE

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 <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						97-04-10

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**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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**NOTES**

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