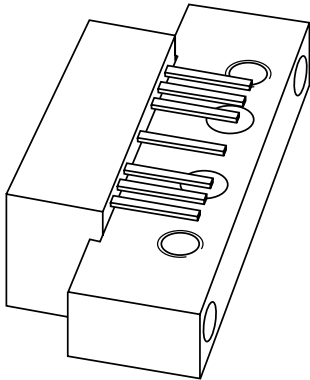


# DATA SHEET



## **BGE787B** CATV amplifier module

Preliminary specification

2000 Oct 03

# CATV amplifier module

# BGE787B

## FEATURES

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

## APPLICATIONS

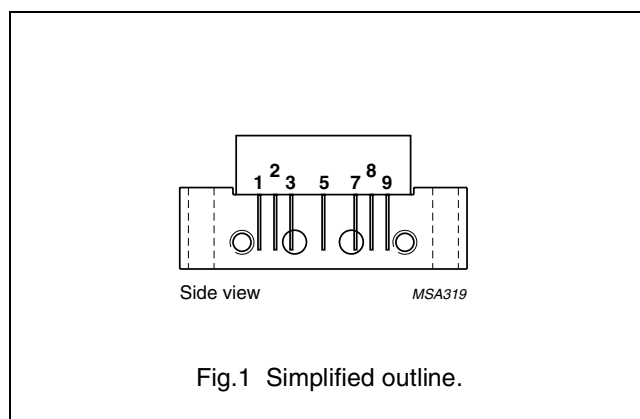
- Single module line extender in CATV systems operating in the 40 to 750 MHz frequency range.

## 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, 3, 7, 8	common
5	+V <sub>B</sub>
9	output



## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	28.5	29.5	dB
		f = 750 MHz	29	–	dB
I <sub>tot</sub>	total current consumption (DC)	V <sub>B</sub> = 24 V	–	340	mA

## LIMITING VALUES

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

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

## CATV amplifier module

## BGE787B

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G <sub>p</sub>	power gain	f = 50 MHz	28.5	29.5	dB
		f = 750 MHz	29	–	dB
SL	slope cable equivalent	f = 40 to 750 MHz	0.2	2.2	dB
FL	flatness of frequency response	f = 40 to 750 MHz	–	±0.45	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	–	–48	dB
X <sub>mod</sub>	cross modulation	110 channels flat; V <sub>o</sub> = 44 dBmV; measured at 55.25 MHz	–	–52	dB
CSO	composite second order distortion	110 channels flat; V <sub>o</sub> = 44 dBmV; measured at 746.5 MHz	–	–56	dB
d <sub>2</sub>	second order distortion	note 1	–	–70	dB
V <sub>o</sub>	output voltage	d <sub>im</sub> = –60 dB; note 2	59	–	dBmV
NF	noise figure	f = 50 MHz	–	5	dB
		f = 750 MHz	–	6.5	dB
PM	positive match	f = 40 MHz to 2 GHz	–	3	dB
I <sub>tot</sub>	total current consumption (DC)	note 3	–	340	mA

**Notes**

- 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.
- 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.
- The module normally operates at V<sub>B</sub> = 24 V, but is able to withstand supply transients up to 30 V.

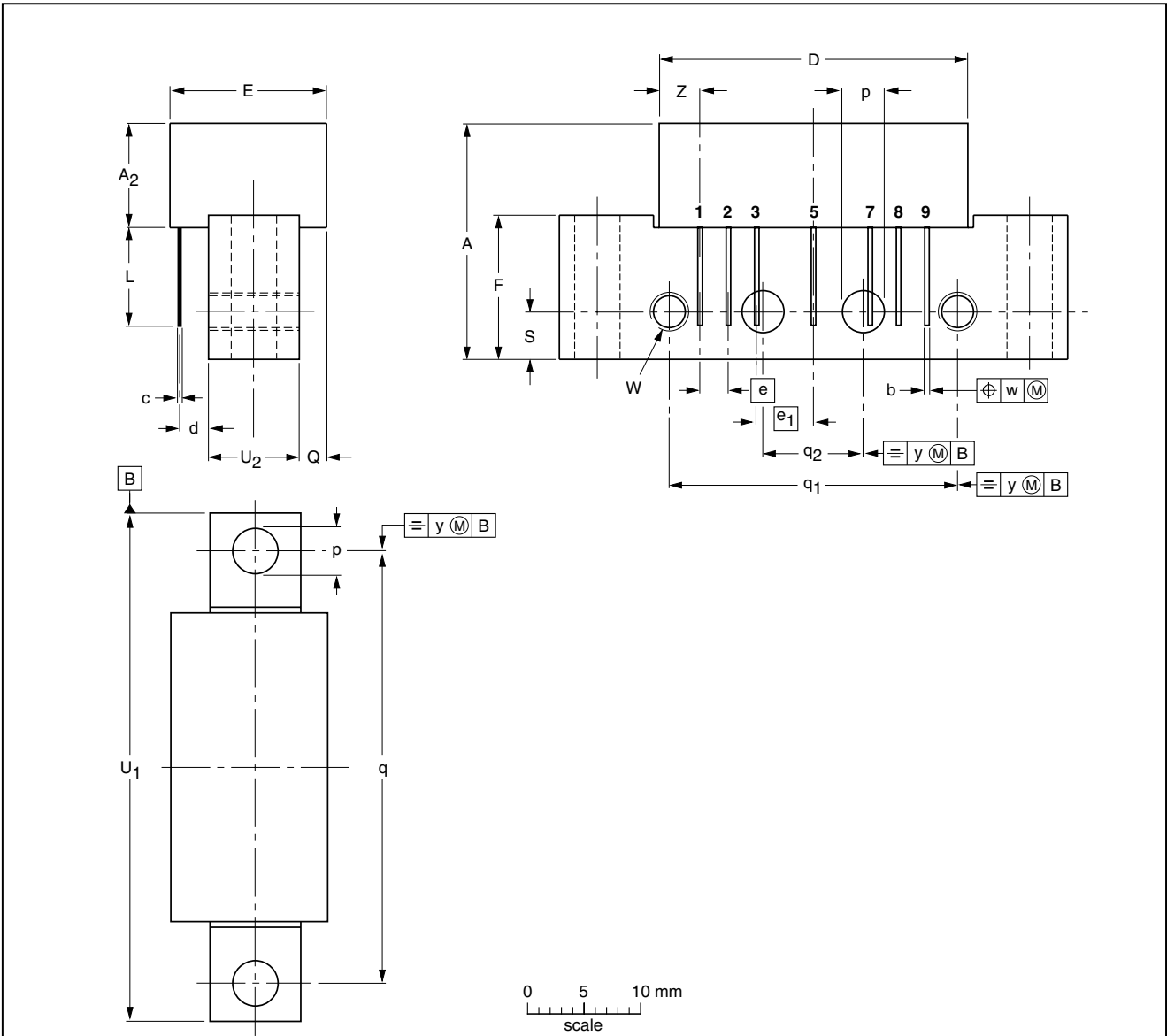
CATV amplifier module

BGE787B

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

## CATV amplifier module

BGE787B

## DATA SHEET STATUS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS <sup>(1)</sup>
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

## Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

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**Limiting values definition** — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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Printed in The Netherlands

603518/01/pp6

Date of release: 2000 Oct 03

Document order number: 9397 750 07565

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