

# BGE788C

750 MHz, 34 dB gain push-pull amplifier

Rev. 01 — 1 April 2005

Product data sheet

## 1. Product profile

### 1.1 General 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.

#### CAUTION



This device is sensitive to ElectroStatic Discharge (ESD). Therefore care should be taken during transport and handling.

### 1.2 Features

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

### 1.3 Applications

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

### 1.4 Quick reference data

Table 1: Quick reference data

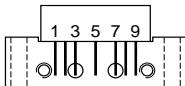
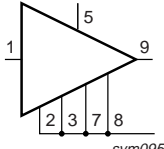
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	$f = 50$ MHz	33.2	-	35.2	dB
		$f = 750$ MHz	33.5	-	-	dB
$I_{tot}$	total current consumption	$V_B = 24$ V	[1] 285	-	325	mA

[1] The module normally operates at  $V_B = 24$  V, but is able to withstand supply transients up to 30 V.

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## 2. Pinning information

Table 2: Pinning

Pin	Description	Simplified outline	Symbol
1	input		
2	common		
3	common		
5	+V <sub>B</sub>		
7	common		
8	common		
9	output		

## 3. Ordering information

Table 3: Ordering information

Type number	Package		
	Name	Description	Version
BGE788C	-	rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 × 6-32 UNC and 2 extra horizontal mounting holes; 7 gold-plated in-line leads	SOT115J

## 4. Limiting values

Table 4: Limiting values

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

Symbol	Parameter	Conditions	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 temperature		-20	+100	°C

## 5. Characteristics

**Table 5: Characteristics**

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	f = 50 MHz	33.2	-	35.2	dB
		f = 750 MHz	33.5	-	-	dB
SL	slope cable equivalent	f = 40 MHz to 750 MHz	0.3	-	2.3	dB
FL	flatness of frequency response	f = 40 MHz to 750 MHz	-	-	$\pm 0.6$	dB
$ S_{11} ^2$	input return losses	f = 40 MHz to 320 MHz	16	-	-	dB
		f = 320 MHz to 640 MHz	15	-	-	dB
		f = 640 MHz to 750 MHz	14	-	-	dB
$ S_{22} ^2$	output return losses	f = 40 MHz to 320 MHz	16	-	-	dB
		f = 320 MHz to 640 MHz	15	-	-	dB
		f = 640 MHz to 750 MHz	14	-	-	dB
$\phi_{s21}$	phase response	f = 50 MHz	135	-	225	deg
CTB	composite triple beat	110 channels flat; $V_o = 44$ dBmV; measured at 745.25 MHz	-	-	-49	dB
CSO	composite second order distortion	110 channels flat; $V_o = 44$ dBmV; measured at 746.5 MHz	-	-	-52	dB
NF	noise figure	f = 50 MHz	-	-	8	dB
$I_{tot}$	total current consumption		[1] 285	-	325	mA

[1] The module normally operates at  $V_B = 24$  V, but is able to withstand supply transients up to 30 V.

## 6. 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

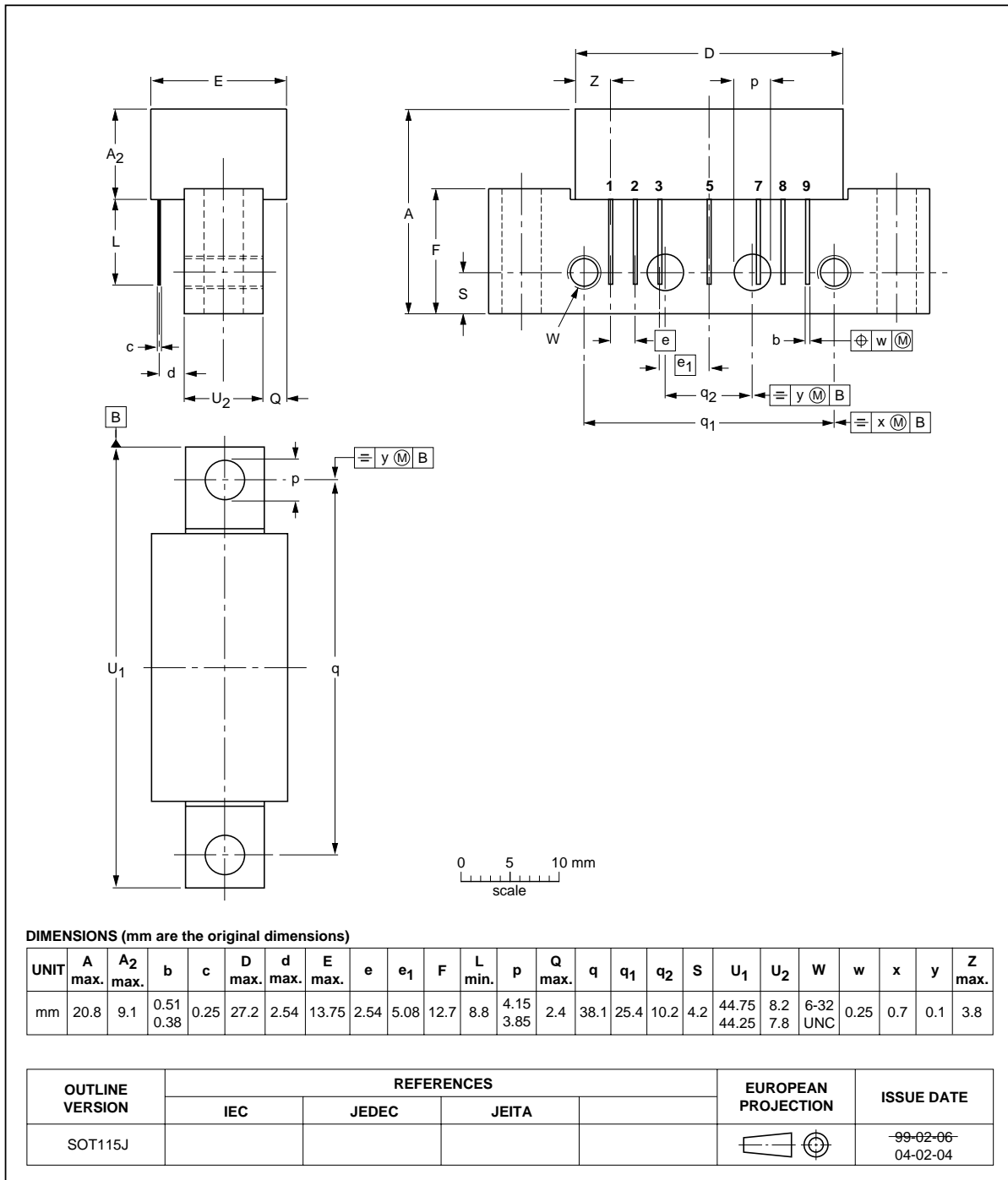


Fig 1. Package outline SOT115J



## 7. Revision history

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**Table 6: Revision history**

Document ID	Release date	Data sheet status	Change notice	Doc. number	Supersedes
BGE788C_1	20050401	Product data sheet	-	9397 750 14607	-

## 8. Data sheet status

Level	Data sheet status [1]	Product status [2] [3]	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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## 12. Contents

<b>1</b>	<b>Product profile</b> . . . . .	<b>1</b>
1.1	General description . . . . .	1
1.2	Features . . . . .	1
1.3	Applications . . . . .	1
1.4	Quick reference data . . . . .	1
<b>2</b>	<b>Pinning information</b> . . . . .	<b>2</b>
<b>3</b>	<b>Ordering information</b> . . . . .	<b>2</b>
<b>4</b>	<b>Limiting values</b> . . . . .	<b>2</b>
<b>5</b>	<b>Characteristics</b> . . . . .	<b>3</b>
<b>6</b>	<b>Package outline</b> . . . . .	<b>4</b>
<b>7</b>	<b>Revision history</b> . . . . .	<b>5</b>
<b>8</b>	<b>Data sheet status</b> . . . . .	<b>6</b>
<b>9</b>	<b>Definitions</b> . . . . .	<b>6</b>
<b>10</b>	<b>Disclaimers</b> . . . . .	<b>6</b>
<b>11</b>	<b>Contact information</b> . . . . .	<b>6</b>



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