

# BGE788C

750 MHz, 34 dB gain push-pull amplifier

Rev. 2 — 16 September 2011

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 and benefits

- 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.



## 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;  $V_B = 24\text{ V}$ ;  $T_{mb} = 30\text{ °C}$ ;  $Z_S = Z_L = 75\ \Omega$ .

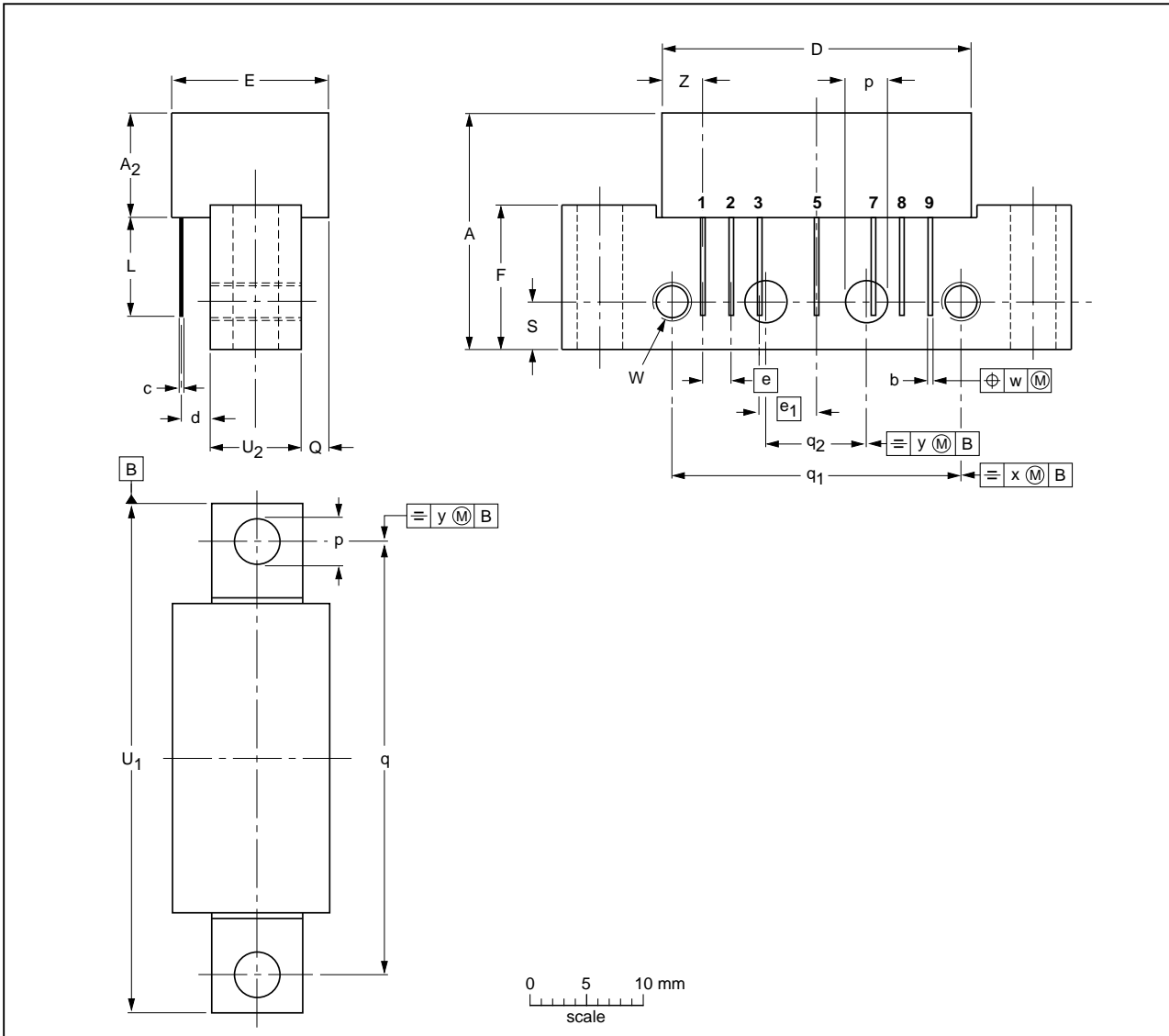
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	f = 50 MHz	33.2	-	35.2	dB
		f = 750 MHz	33.5	-	-	dB
SL	slope cable equivalent	f = 40 MHz to 750 MHz	0.3	-	2.3	dB
FL	flatness of frequency response	f = 40 MHz to 750 MHz	-	-	$\pm 0.6$	dB
$ S_{11} ^2$	input return losses	f = 40 MHz to 320 MHz	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
$\varphi_{s21}$	phase response	f = 50 MHz	135	-	225	deg
CTB	composite triple beat	110 channels flat; $V_o = 44\text{ dBmV}$ ; measured at 745.25 MHz	-	-	-49	dB
CSO	composite second order distortion	110 channels flat; $V_o = 44\text{ dBmV}$ ; 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  $V_B = 24\text{ V}$ , 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



**DIMENSIONS (mm are the original dimensions)**

UNIT	A max.	A <sub>2</sub> max.	b	c	D max.	d	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>	U <sub>2</sub>	W	w	x	y	Z max.
mm	20.8	9.5	0.51 0.38	0.25	27.2	2.04 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 44.25	8.2 7.8	6-32 UNC	0.25	0.7	0.1	3.8

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT115J						04-02-04- 10-06-18

**Fig 1. Package outline SOT115J**

## 7. Revision history

Table 6. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BGE788C v.2	20110916	Product data sheet	-	BGE788C v.1
Modifications:		<ul style="list-style-type: none"><li>• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.</li><li>• Legal texts have been adapted to the new company name where appropriate.</li><li>• Package outline drawings have been updated to the latest version.</li></ul>		
BGE788C v.1 (9397 750 14607)	20050401	Product data sheet	-	-

## 8. Legal information

### 8.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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## 10. Contents

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<b>1</b>	<b>Product profile</b> . . . . .	<b>1</b>
1.1	General description . . . . .	1
1.2	Features and benefits . . . . .	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>Legal information</b> . . . . .	<b>6</b>
8.1	Data sheet status . . . . .	6
8.2	Definitions . . . . .	6
8.3	Disclaimers . . . . .	6
8.4	Trademarks . . . . .	7
<b>9</b>	<b>Contact information</b> . . . . .	<b>7</b>
<b>10</b>	<b>Contents</b> . . . . .	<b>8</b>

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Date of release: 16 September 2011

Document identifier: BGE788C

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