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# BGY835C

## CATV amplifier module

Rev. 2 — 28 September 2010

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 an 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 860 MHz frequency range.

### 1.4 Quick reference data

**Table 1. Quick reference data**

Bandwidth 40 MHz to 860 MHz;  $V_B = 24$  V;  $T_{mb} = 30$  °C;  $Z_S = Z_L = 75$   $\Omega$  unless otherwise specified.

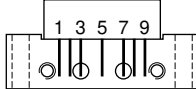
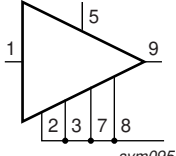
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	f = 50 MHz	33.5	-	34.5	dB
		f = 860 MHz	34	-	-	dB
$I_{tot}$	total current	[1]	-	-	340	mA

[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	Graphic 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
BGY835C	-	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>	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 860 MHz;  $V_B = 24$  V;  $T_{mb} = 30$  °C;  $Z_S = Z_L = 75$   $\Omega$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$G_p$	power gain	f = 50 MHz	33.5	-	34.5	dB
		f = 860 MHz	34	-	-	dB
SL	slope cable equivalent	f = 40 MHz to 860 MHz	0.5	-	2.5	dB
FL	flatness of frequency response	f = 40 MHz to 860 MHz	-0.5	-	+0.5	dB
$RL_{in}$	input return loss	f = 40 MHz to 80 MHz	20	-	-	dB
		f = 80 MHz to 160 MHz	18.5	-	-	dB
		f = 160 MHz to 320 MHz	17	-	-	dB
		f = 320 MHz to 640 MHz	15.5	-	-	dB
		f = 640 MHz to 860 MHz	14	-	-	dB
$RL_{out}$	output return loss	f = 40 MHz to 80 MHz	20	-	-	dB
		f = 80 MHz to 160 MHz	18.5	-	-	dB
		f = 160 MHz to 320 MHz	17	-	-	dB
		f = 320 MHz to 640 MHz	15.5	-	-	dB
		f = 640 MHz to 860 MHz	14	-	-	dB
$\phi_{s21}$	phase response	f = 50 MHz	135	-	225	deg
CTB	composite triple beat	measured at f = 859.25 MHz	[1]	-	-60	dB
CSO	composite second-order distortion	measured at f = 860.5 MHz	[1]	-	-55	dB
NF	noise figure	f = 50 MHz	-	-	4.5	dB
		f = 860 MHz	-	-	7	dB
$I_{tot}$	total current		[2]	-	340	mA

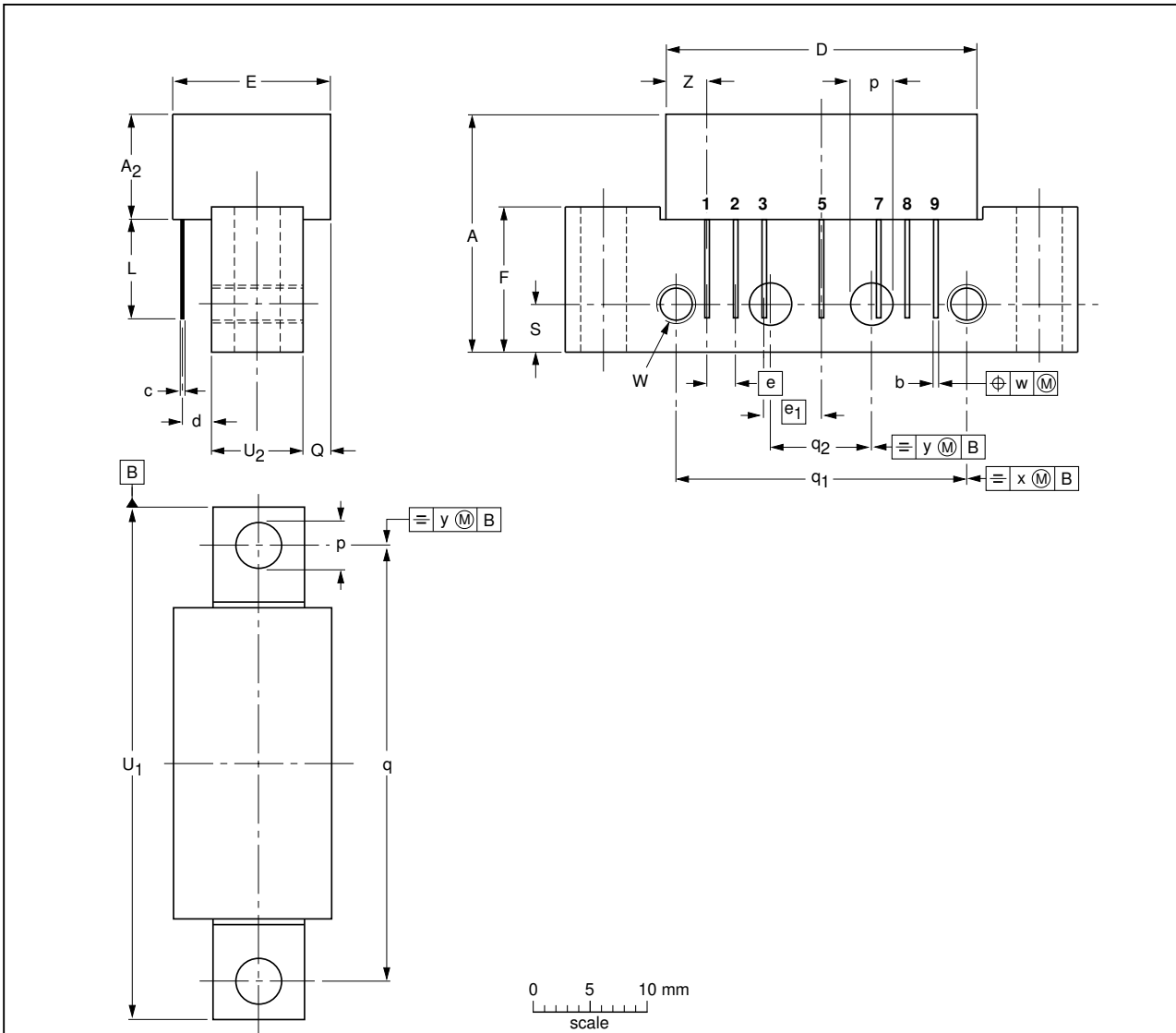
[1] 49 channels;  $V_o = 44$  dBmV, flat output level.

[2] 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



**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. Abbreviations

Table 6. Abbreviations

Acronym	Description
CATV	Community Antenna TeleVision
DC	Direct Current
UNC	UNified Coarse

## 8. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BGY835C v.2	20100928	Product data sheet	-	BGY835C v.1
Modifications:	<ul style="list-style-type: none"><li>• Package outline drawings have been updated to the latest version.</li><li>• Legal texts have been updated.</li></ul>			
BGY835C v.1	20080908	Product data sheet	-	-

## 9. Legal information

### 9.1 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.

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

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