

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

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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.

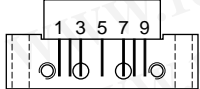
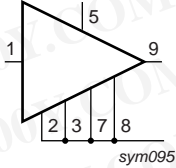
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	f = 50 MHz	33.5	-	34.5	dB
		f = 860 MHz	34	-	-	dB
I_{tot}	total current	[1]	-	-	340	mA

[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 _B		
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 _B	supply voltage		-	25	V
V _i	input voltage		-	55	dBmV
T _{stg}	storage temperature		-40	+100	°C
T _{mb}	mounting base temperature		-20	+100	°C

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5. Characteristics

Table 5. Characteristics

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

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

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

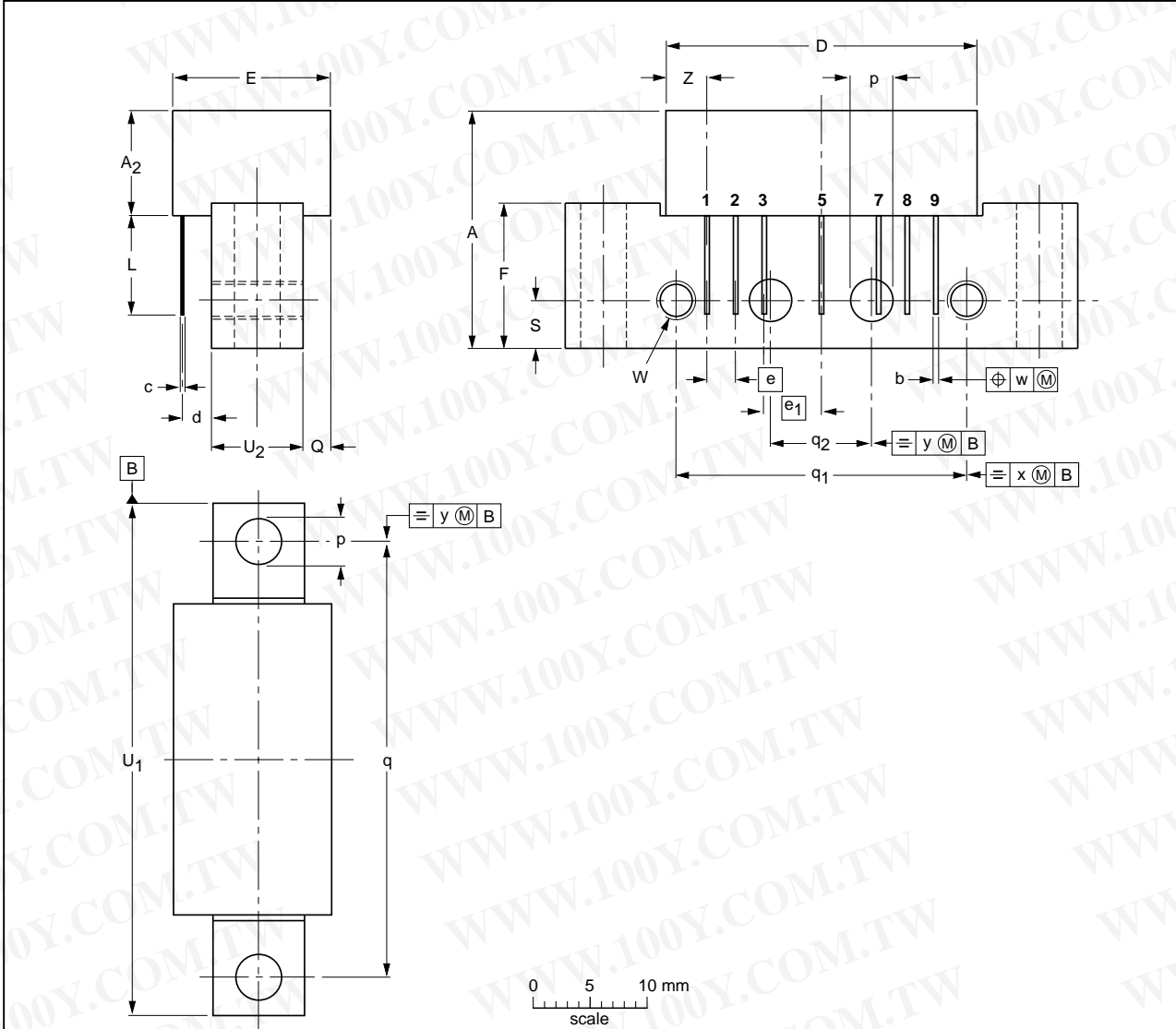
[2] The module normally operates at $V_B = 24\text{ V}$, but is able to withstand supply transients up to 30 V.

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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 ₂ max.	b	c	D max.	d	E max.	e	e ₁	F	L min.	p	Q max.	q	q ₁	q ₂	S	U ₁	U ₂	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"> • Package outline drawings have been updated to the latest version. • Legal texts have been updated. 			
BGY835C v.1	20080908	Product data sheet	-	-

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9. Legal information

9.1 Data sheet status

Document status ^{[1][2]}	Product status ^[3]	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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