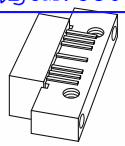


OM7650

550 MHz, 34 dB gain push-pull amplifier

Rev. 2 — 29 September 2010 Product data sheet

1. Product profile

1.1 General description

Hybrid high dynamic range amplifier module in SOT115BA package operating at a supply voltage of 24 V (DC).

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
- Silicon nitride passivation
- Rugged construction
- TiPtAu metallized crystals ensure excellent reliability
- Surface mount transformers

1.3 Applications

- Single module line extender in CATV systems operating in the 40 MHz to 550 MHz frequency range.

1.4 Quick reference data

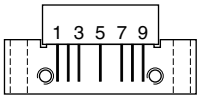
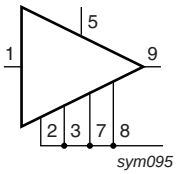
Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
G_p	power gain	f = 50 MHz		33.0	-	35.0	dB
		f = 550 MHz		33.2	-	-	dB
I_{tot}	total current	V_B = 24 V	[1]	300	-	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	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
OM7650	-	rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 × 6-32 UNC; 7 Sn-plated in-line leads	SOT115BA

4. Marking

Table 4. Marking

Type number	Marking
OM7650	INDI 50

5. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V_i	input voltage		-	55	dBmV
T_{stg}	storage temperature		−40	+100	°C
T_{mb}	mounting base temperature		−20	+100	°C

6. Characteristics

Table 6. Characteristics

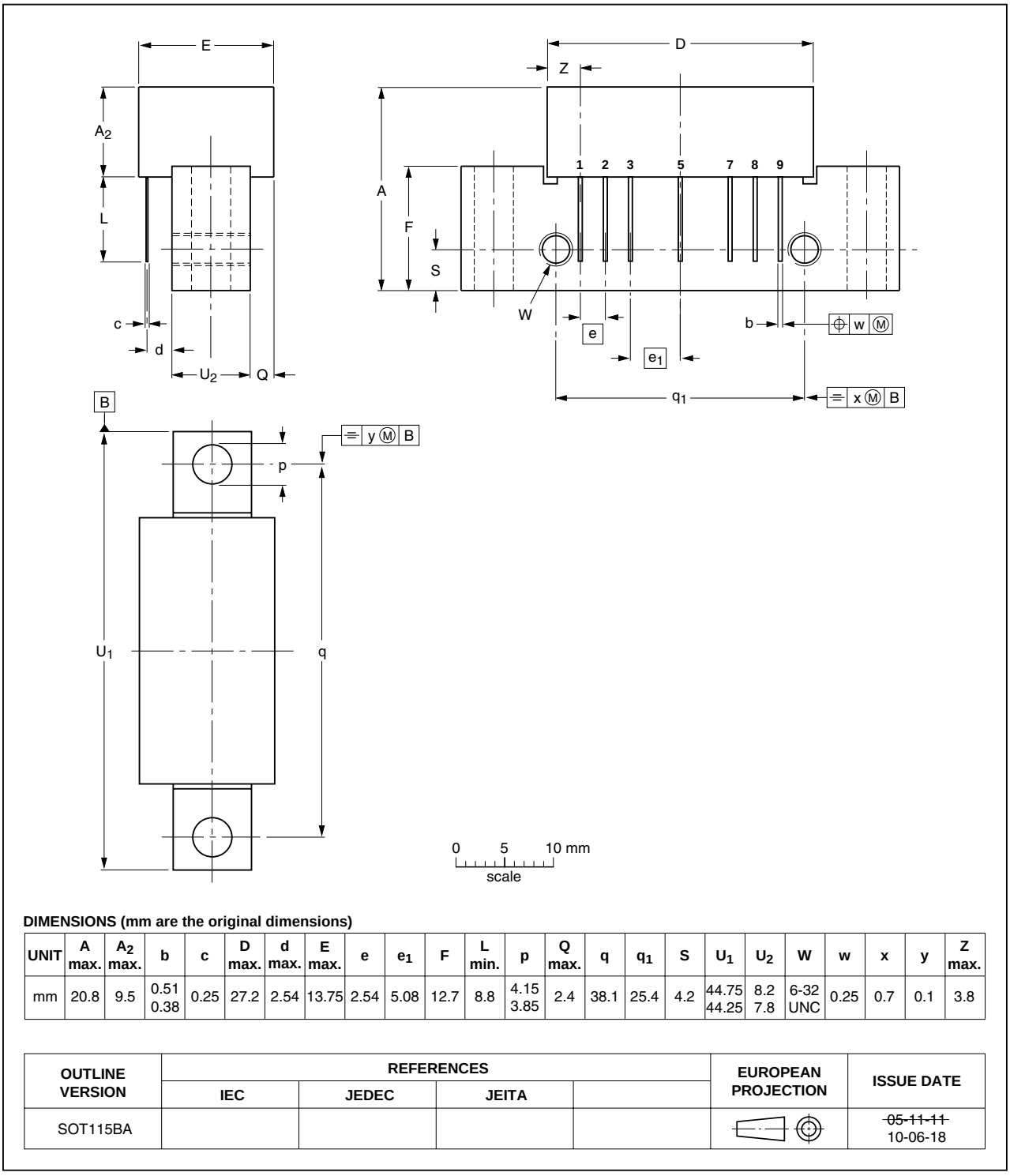
Bandwidth 40 MHz to 550 MHz; V_B = 24 V; T_{case} = 35 °C; Z_S = Z_L = 75 Ω unless otherwise specified.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
G_p	power gain	f = 50 MHz		33.0	-	35.0	dB
		f = 550 MHz		33.2	-	-	dB
SL	slope cable equivalent	f = 40 MHz to 550 MHz		0.2	-	2.0	dB
FL	flatness of frequency response	f = 40 MHz to 550 MHz		-	-	±0.5	dB
S_{11}	input return losses	f = 40 MHz to 160 MHz		15	-	-	dB
		f = 160 MHz to 550 MHz		10	-	-	dB
S_{22}	output return losses	f = 40 MHz to 160 MHz		15	-	-	dB
		f = 160 MHz to 550 MHz		10	-	-	dB
CTB	composite triple beat	77 channels flat; V_o = 44 dBmV; measured at 547.25 MHz		-	-	−45	dB
CSO	composite second-order distortion	77 channels flat; V_o = 44 dBmV; measured at 548.5 MHz		-	-	−57	dB
NF	noise figure	f = 50 MHz		-	-	8	dB
I_{tot}	total current	V_B = 24 V	[1]	300	-	340	mA

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

7. Package outline

Rectangular single-ended package; aluminium flange; 2 vertical mounting holes; 2 x 6-32 UNC; 7 Sn-plated in-line leads **SOT115BA**



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_2 max.	b	c	D max.	d max.	E max.	e	e_1	F	L min.	p	Q max.	q	q_1	S	U_1	U_2	W	w	x	y	Z max.
mm	20.8	9.5	0.51 0.38	0.25	27.2	2.54	13.75	2.54	5.08	12.7	8.8	4.15 3.85	2.4	38.1	25.4	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			
SOT115BA						~~05-11-11~~ 10-06-18

Fig 1. Package outline SOT115BA

8. Revision history

Table 7. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
OM7650 v.2	20100929	Product data sheet	-	OM7650 v.1
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Package outline drawings have been updated to the latest version.			
OM7650 v.1	20060531	Product data sheet	-	-

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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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11. Contents

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