1000MHz 34dB Gain With GaAs Push-Pull Amplifier Module

1. Product profile

1.1 General description

High dynamic range power doubler amplifier module operating at a supply voltage of 24VDC in an SOT115 package, using a cascaded power doubler MMIC with GaAs Technology from USA , adding ESD and surge protective devices.

CAUTION

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

1.2 Features and benefits

- Excellent linearity
- Low noise
- Low return loss
- Rugged construction
- High reliability

1.3 Applications

- CATV systems operating in the 40MHz to 1000MHz frequency range.

1.4 Quick reference data

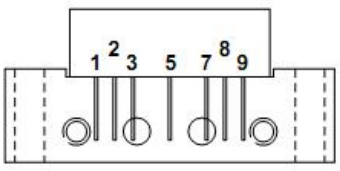
Bandwidth 40MHz to 1000MHz; V_B = 24 V; T_{mb} = 30 °C; $Z_S = Z_L$ = 75 Ω .

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	f = 50MHz	34.0	35.0	35.5	dB
		f = 1000MHz	35.0	-	-	dB
I_{tot}	total current	V_B = 24 V	260	290	320	mA

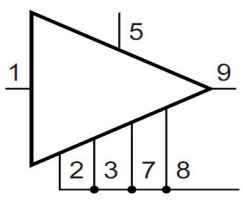
2. Pin information

Pin	Description
1	input
2	common
3	common
5	$+V_B$
7	common
8	common
9	output

Simplified Outline



Graphic Symbol



3. Operating conditions

3.1 Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134) (TA = +25°C)

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_B	-	25	V
Input Voltage [1]	Vi	-	65	dBmV
Operating Case Temperature	Tc	–20	+90	°C
Storage Temperature	Tstg	–40	+100	°C

[1] In case of single tone

3.2 Recommended operating conditions (Z_S = Z_L = 75 Ω)

Parameter	Symbol	Test Conditions	MIN	TYP	MAX	Unit
Supply Voltage	V_B		23.5	24.0	24.5	V
Operating Case Temperature	Tc		−20	+30	+80	°C

4. Electrical characteristics

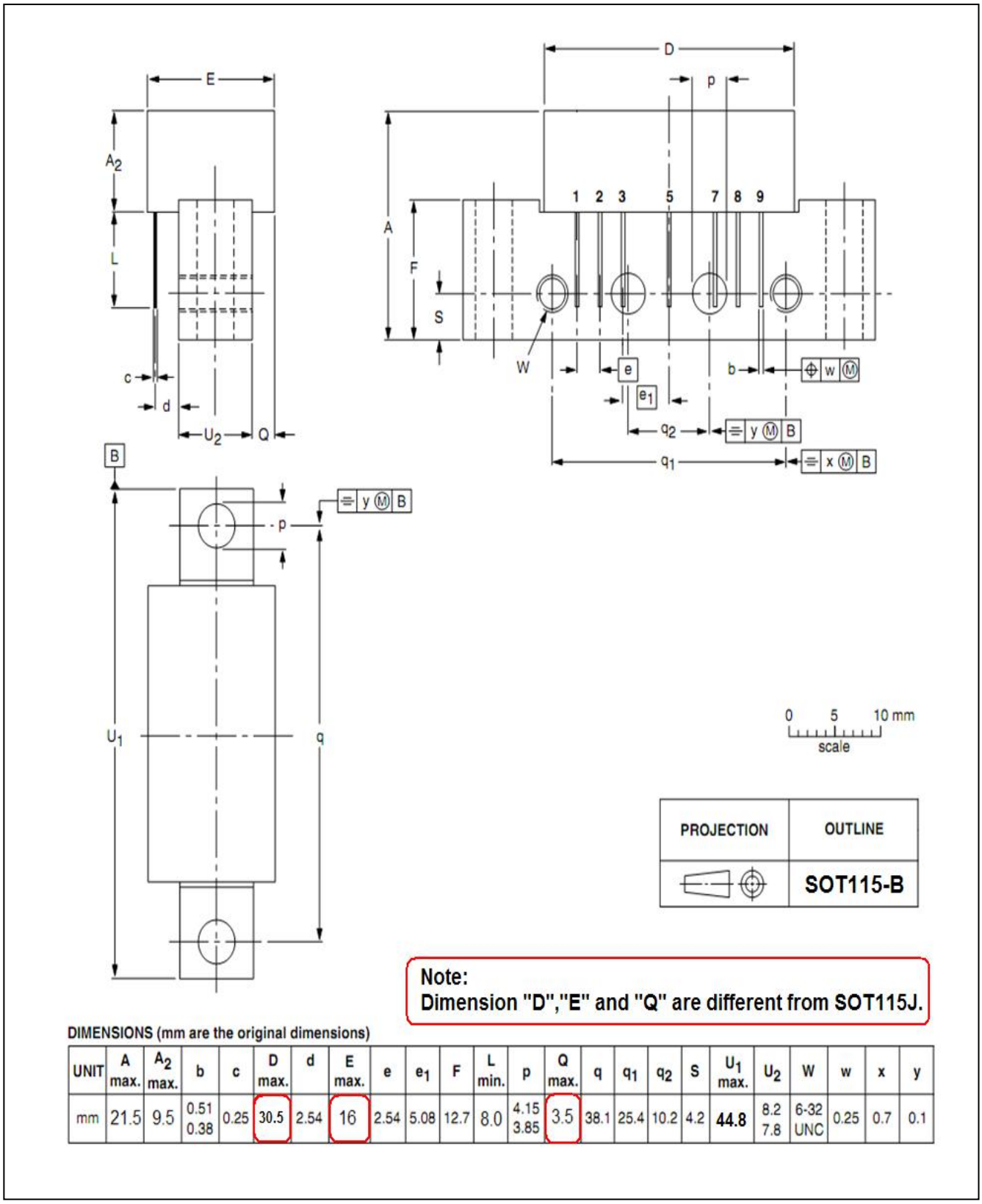
(T_C = 30±5°C, V_B = 24 V, Z_S = Z_L = 75 Ω)

Parameter	Symbol	Test Conditions	MIN	TYP	MAX	Unit
Power Gain	Gp	f = 50MHz	34.0	35.0	35.5	dB
Gain Slope	SL	f = 50 to 1000MHz	1.0	1.5	2.5	dB
Gain Flatness	FL	f = 50 to 1000MHz	–	–	±0.5	dB
Noise Figure	NF	f = 1000MHz	–	5.5	6.0	dB
Operating Current	IB	V_B=24VDC，RF OFF	260	290	320	mA
Composite Triple Beat	CTB	98 channels, V_O = 48dBmV at 743.25 MHz, flat output level across the band	–	−57	–	dB
Cross Modulation	XM		–	−56	–	dB
Composite 2nd Order Beat	CSO		–	−59	–	dB
Input Return Loss	S11	f = 40 to 550MHz	18	–	–	dB
		f = 550 to 1000MHz	16	–	–	dB
Output Return Loss	S22	f = 40 to 550MHz	16	–	–	dB
		f = 550 to 1000MHz	16	–	–	dB

5. Package outline

Rectangular single-ended package; aluminum flange; 2 vertical mounting holes; 2 x 6-32 UNC and 2 extra horizontal mounting holes; 7 gold-plated in-line leads.

SOT115-B



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 max.	U_2	W	w	x	y
mm	21.5	9.5	0.51 0.38	0.25	30.5	2.54	16	2.54	5.08	12.7	8.0	4.15 3.85	3.5	38.1	25.4	10.2	4.2	44.8	8.2 7.8	6-32 UNC	0.25	0.7	0.1

UNIT: mm