

1000MHz 22dB 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 SOT115J package, using a GaAs MMIC, matching with SMT transformers at input and output port, 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

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

1.3 Applications

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

1.4 Quick reference data

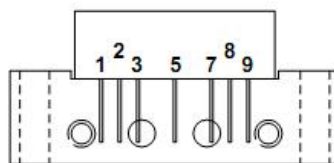
Bandwidth 40 MHz to 1000MHz; $V_B = 24\text{ V}$; $T_{mb} = 30\text{ }^\circ\text{C}$; $Z_S = Z_L = 75\text{ }\Omega$

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	$f = 50\text{ MHz}$	20.5	21.0	22.0	dB
		$f = 1000\text{ MHz}$	21.0	-	-	dB
I_{tot}	total current	$V_B = 24\text{ V}$	230	250	270	mA

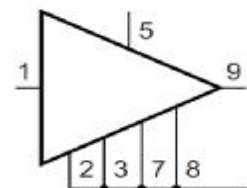
2. Pin information

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]	V _i	-	60	dBmV
Operating Case Temperature	T _c	-20	+90	°C
Storage Temperature	T _{stg}	-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		23.0	24.0	24.5	V
Operating Case Temperature	T _c		-20	+30	+80	°C

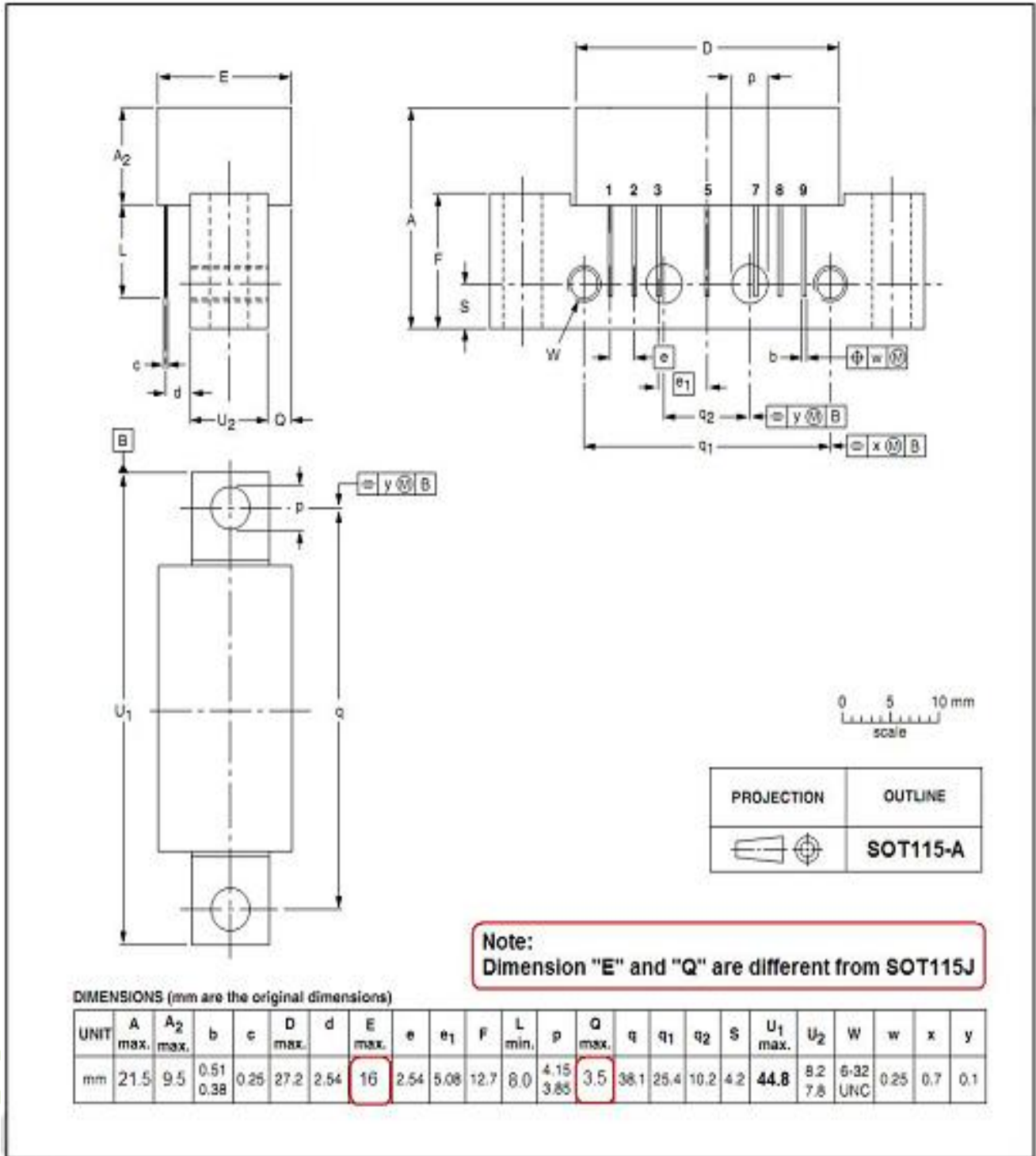
4. Electrical characteristics

(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	G _p	f = 50 MHz	20.5	21.0	22.0	dB
Gain Slope	S _L	f = 50 to 1000MHz	0	0.5	1.5	dB
Gain Flatness	FL	f = 50 to 1000MHz	-	-	±0.5	dB
Noise Figure	NF	f = 50 to 1000MHz	-	4.0	5.0	dB
Operating Current	I _B	V _B =24VDC, RF OFF	230	250	270	mA
Composite Triple Beat	CTB		-	-61	-	dB
Cross Modulation	XM	98 channels, V _O = 44dBmV at 743.25 MHz, flat output level across the band	-	-60	-	dB
Composite 2nd Order Beat	CSO		-	-62	-	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.



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