

870MHz 20dB Gain With GaAs Power Double 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 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

- 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 40MHz to 870MHz frequency range.

1.4 Quick reference data

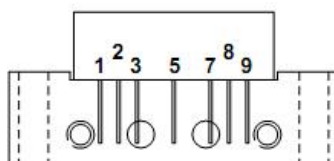
Bandwidth 40MHz to 870MHz; $V_B = 24\text{ V}$; $T_{mb} = 30\text{ }^\circ\text{C}$; $Z_S = Z_L = 75\text{ } \Omega$.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
G_p	power gain	$f = 50\text{MHz}$	19.5	20.0	21.0	dB
		$f = 870\text{MHz}$	20.5	-	-	dB
I_{tot}	total current	$V_B = 24\text{ V}$	330	350	380	mA

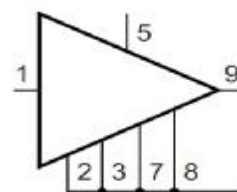
2. Pin information

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	-	65	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		23.5	24.0	24.5	V
Operating Case Temperature	T _C		-20	+30	+80	°C

4. Electrical characteristics

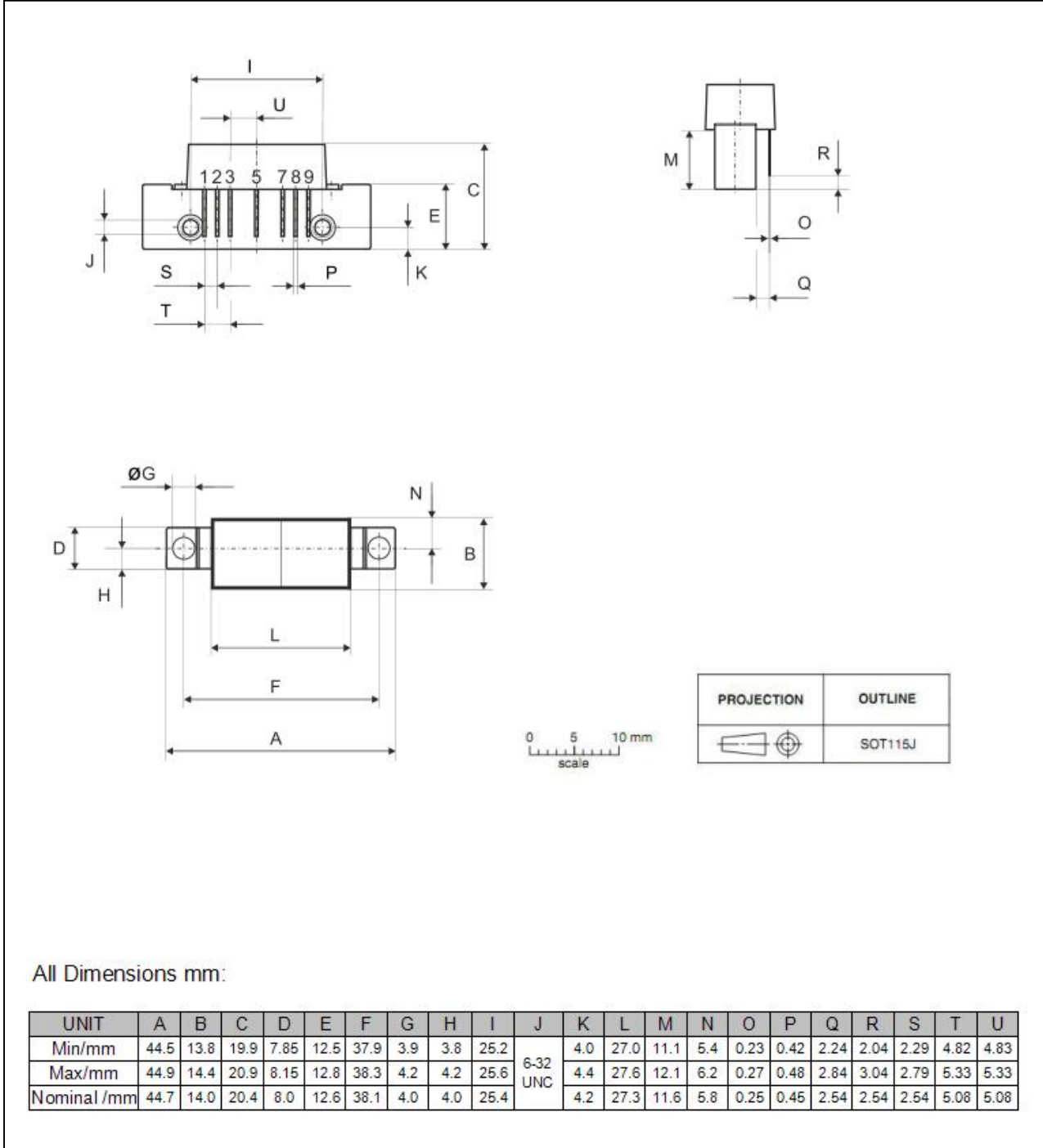
(T_C = 30±5°C, V_B = 24 V, Z_S = Z_L = 75 Ω)

Parameter	Symbol	Test Conditions	MIN	TYP	MAX	Unit
Power Gain	G _p	f = 50MHz	19.5	20.0	21.0	dB
Gain Slope	SL	f = 50 to 870MHz	1.0	1.5	2.5	dB
Gain Flatness	FL	f = 50 to 870MHz	-	-	±0.5	dB
Noise Figure	NF	f = 870MHz	-	6.0	6.5	dB
Operating Current	I _B	V _B =24VDC, RF OFF	330	350	380	mA
Composite Triple Beat	CTB	98 channels, V _o = 48dBmV at 743.25 MHz, flat output level across the band	-	-64	-	dB
Cross Modulation	XM		-	-62	-	dB
Composite 2nd Order Beat	CSO		-	-66	-	dB
Input Return Loss	S11	f = 40 to 550MHz	18	-	-	dB
		f = 550 to 870MHz	18	-	-	dB
Output Return Loss	S22	f = 40 to 550MHz	16	-	-	dB
		f = 550 to 870MHz	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.

SOT115J



All Dimensions mm:

UNIT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Min/mm	44.5	13.8	19.9	7.85	12.5	37.9	3.9	3.8	25.2	6-32 UNC	4.0	27.0	11.1	5.4	0.23	0.42	2.24	2.04	2.29	4.82	4.83
Max/mm	44.9	14.4	20.9	8.15	12.8	38.3	4.2	4.2	25.6		4.4	27.6	12.1	6.2	0.27	0.48	2.84	3.04	2.79	5.33	5.33
Nominal /mm	44.7	14.0	20.4	8.0	12.6	38.1	4.0	4.0	25.4		4.2	27.3	11.6	5.8	0.25	0.45	2.54	2.54	2.54	5.08	5.08