



Package: SOT-115J

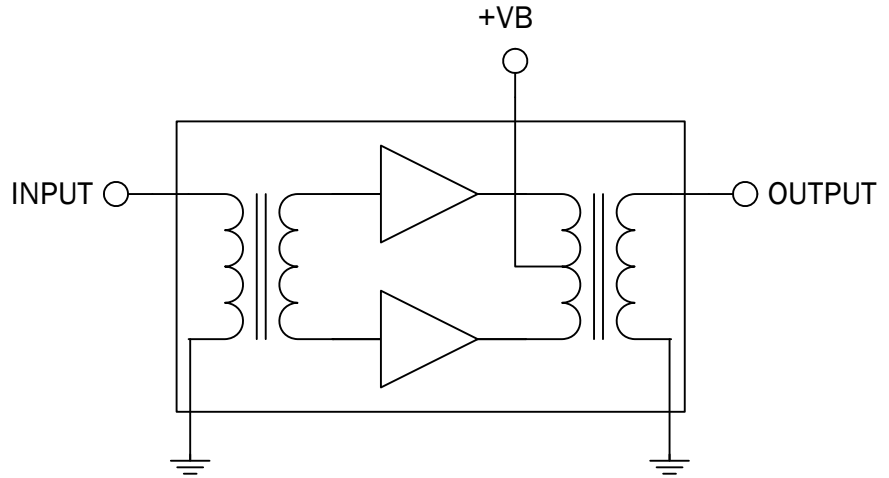


**Features**

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- 28dB Min. Gain at 1003MHz
- 270mA Max. at 24V<sub>DC</sub>

**Applications**

- 40MHz to 1003MHz CATV Amplifier Systems



Functional Block Diagram

**Product Description**

The RFPP2870 is a Hybrid Push Pull amplifier module. The part employs GaAs MESFET, GaAs pHEMT and GaN HEMT die and is operated from 40MHz to 1003MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.

**Optimum Technology Matching® Applied**

- |   |                                      |  |  |
|---|--------------------------------------|--|--|
| <input type="checkbox"/> GaAs HBT               | <input type="checkbox"/> SiGe BiCMOS | <input checked="" type="checkbox"/> GaAs pHEMT | <input checked="" type="checkbox"/> GaN HEMT |
| <input checked="" type="checkbox"/> GaAs MESFET | <input type="checkbox"/> Si BiCMOS   | <input type="checkbox"/> Si CMOS               | <input type="checkbox"/> BiFET HBT           |
| <input type="checkbox"/> InGaP HBT              | <input type="checkbox"/> SiGe HBT    | <input type="checkbox"/> Si BJT                | <input type="checkbox"/> LDMOS               |

RF MICRO DEVICES®, RFMD®, Optimum Technology Matching®, Enabling Wireless Connectivity™, PowerStar®, POLARIS™ TOTAL RADIO™ and UltimateBlue™ are trademarks of RFMD, LLC. BLUETOOTH is a trademark owned by Bluetooth SIG, Inc., U.S.A. and licensed for use by RFMD. All other trade names, trademarks and registered trademarks are the property of their respective owners. ©2006, RF Micro Devices, Inc.

## Absolute Maximum Ratings

Parameter	Rating	Unit
RF Input Voltage (single tone)	70	dBmV
DC Supply Over-Voltage (5 minutes)	30	V
Storage Temperature	-40 to +100	°C
Operating Mounting Base Temperature	-30 to +100	°C



**Caution!** ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

The information in this publication is believed to be accurate and reliable. However, no responsibility is assumed by RF Micro Devices, Inc. ("RFMD") for its use, nor for any infringement of patents, or other rights of third parties, resulting from its use. No license is granted by implication or otherwise under any patent or patent rights of RFMD. RFMD reserves the right to change component circuitry, recommended application circuitry and specifications at any time without prior notice.



RoHS (Restriction of Hazardous Substances): Compliant per EU Directive 2002/95/EC.

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Overall</b>					$V_B = 24V; T_{MB} = 30^\circ C; Z_S = Z_L = 75\Omega$
Power Gain		27.0		dB	$f = 50MHz$
	28.0	28.5	29.0	dB	$f = 1003MHz$
Slope <sup>[1]</sup>	0.5	1.0	2.0	dB	$f = 40MHz$ to 1003MHz
Flatness of Frequency Response			0.8	dB	$f = 40MHz$ to 1003MHz (Peak to Valley)
Input Return Loss	-20			dB	$f = 40MHz$ to 320MHz
	-19			dB	$f = 320MHz$ to 640MHz
	-18			dB	$f = 640MHz$ to 870MHz
	-17			dB	$f = 870MHz$ to 1003MHz
Output Return Loss	-20			dB	$f = 40MHz$ to 320MHz
	-19			dB	$f = 320MHz$ to 640MHz
	-18			dB	$f = 640MHz$ to 870MHz
	-17			dB	$f = 870MHz$ to 1003MHz
Noise Figure		4.5	5.0	dB	$f = 50MHz$ to 1003MHz
Total Current Consumption (DC)		250.0	270.0	mA	
<b>Distortion data 40MHz to 550MHz</b>					$V_B = 24V; T_{MB} = 30^\circ C; Z_S = Z_L = 75\Omega$
CTB		-68		dBc	$V_O = 46dBmV$ , flat, 79 analog channels plus 75 digital channels (-6dB offset)[2], [4]
XMOD		-64		dBc	
CSO		-75		dBc	
CIN		66		dB	
<b>Distortion data 40MHz to 750MHz</b>					$V_B = 24V; T_{MB} = 30^\circ C; Z_S = Z_L = 75\Omega$
Power Gain			-64		$V_O = 44dBmV$ ; 112 analog channels flat; [3], [4]
			-58		
Slope <sup>[1]</sup>			-65		

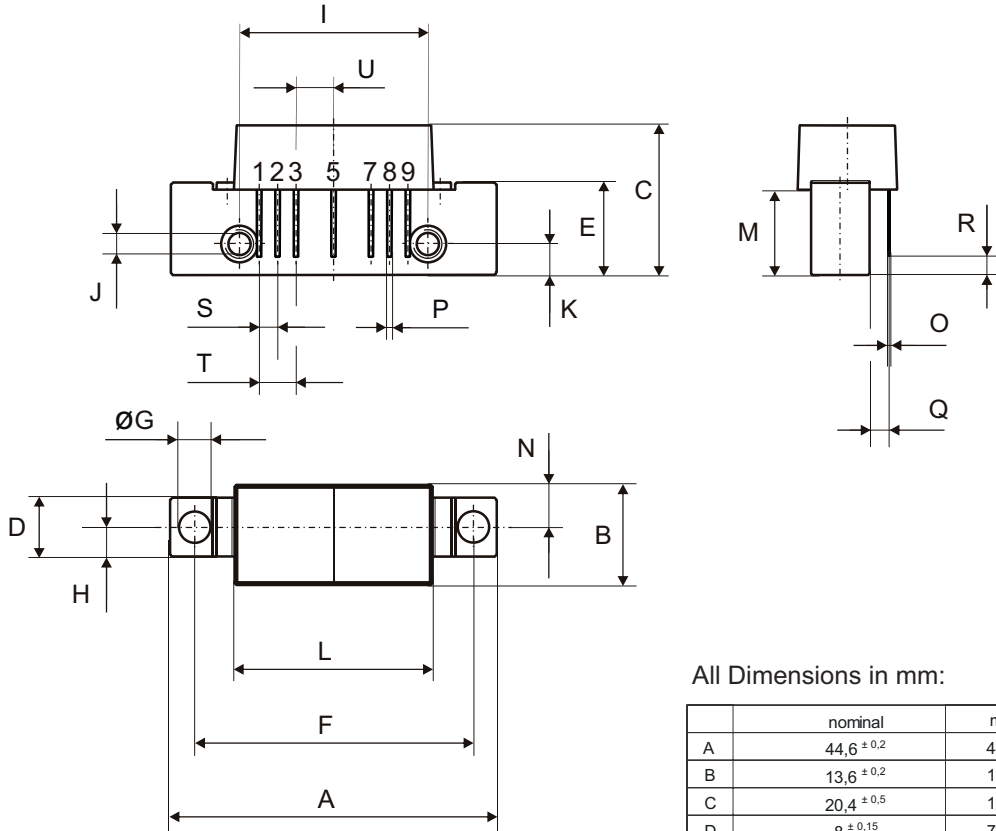
[1] The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.

[2] 79 analog channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +46dBmV flat output level, plus 75 digital channels, -6dB offset relative to the equivalent analog carrier.

[3] 112 analog channels, NTSC frequency raster: 55.25MHz to 745.25MHz, 44dBmV flat output level.

[4] Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by the NCTA. Composite Triple Beat (CTB) - The CTB parameter is defined by the NCTA. Cross Modulation (XMOD) - Cross modulation (XMOD) is measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested. Carrier to Intermodulation Noise (CIN) - The CIN parameter is defined by ANSI/SCTE 17 (Test procedure for carrier to noise).

Package Drawing

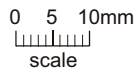


All Dimensions in mm:

	nominal	min	max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,4 ± 0,5	19,9	20,9
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,2	37,9	38,3
G	4 <sup>+0,2 / -0,05</sup>	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	27,2 ± 0,2	27,0	27,4
M	11,6 ± 0,5	11,1	12,1
N	5,8 ± 0,4	5,4	6,2
O	0,25 ± 0,02	0,23	0,27
P	0,45 ± 0,03	0,42	0,48
Q	2,54 ± 0,3	2,24	2,84
R	2,54 ± 0,5	2,04	3,04
S	2,54 ± 0,25	2,29	2,79
T	5,08 ± 0,25	4,83	5,33
U	5,08 ± 0,25	4,83	5,33

Pinning:

1	2	3	4	5	6	7	8	9
INPUT	GND	GND	+VB					OUTPUT



Notes:

