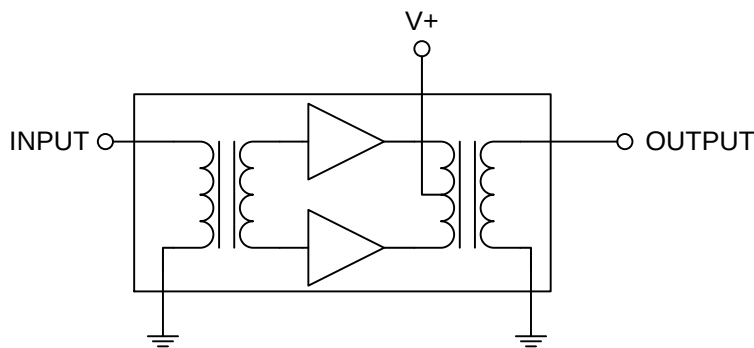


RFPP3870

GaAs/GaN Push Pull Hybrid
45MHz to 1218MHz

The RFPP3870 is a Hybrid Push Pull amplifier module. The part employs GaAs HFET die, GaAs pHEMT die and GaN HEMT die and operates from 45MHz to 1218MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.



Ordering Information

RFPP3870 Box with 50 pieces

Absolute Maximum Ratings

Parameter	Rating	Unit
RF Input Voltage (single tone)	75	dBmV
DC Supply Over-Voltage (5 minutes)	30	V
Storage Temperature	-40 to +100	°C
Operating Mounting Base Temperature	-30 to +100	°C



Package: SOT-115J

Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- 28.0dB Min. Gain at 1218MHz
- 270mA Max. at 24VDC

Applications

- 45MHz to 1218MHz CATV Amplifier Systems



Caution! ESD sensitive device.



RoHS (Restriction of Hazardous Substances): Compliant per EU Directive 2011/65/EU.

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.

Nominal Operating Parameters

Parameter	Specification			Unit	Condition
	Min	Typ	Max		
General Performance					V+ = 24V; T_{MB} = 30°C; Z_S = Z_L = 75Ω
Power Gain		27.0		dB	f = 45MHz
	28.0	28.5	29.5	dB	f = 1218MHz
Slope ^[1]	1.0	1.5	2.5	dB	f = 45MHz to 1218MHz
Flatness of Frequency Response			0.8	dB	f = 45MHz to 1218MHz
Input Return Loss	-20			dB	f = 45MHz to 320MHz
	-19			dB	f = 320MHz to 640MHz
	-18			dB	f = 640MHz to 870MHz
	-17			dB	f = 870MHz to 1000MHz
	-16			dB	f = 1000MHz to 1218MHz
Output Return Loss	-20			dB	f = 45MHz to 320MHz
	-19			dB	f = 320MHz to 640MHz
	-18			dB	f = 640MHz to 870MHz
	-17			dB	f = 870MHz to 1000MHz
	-16			dB	f = 1000MHz to 1218MHz
Noise Figure		4.6	5.5	dB	f = 50MHz to 1218MHz
Total Current Consumption (DC)		260.0	270.0	mA	
Distortion Data 40MHz to 550MHz					V+ = 24V; T_{MB} = 30°C; Z_S = Z_L = 75Ω
CTB		-72	-66	dBc	V _O = 46dBmV, flat, 79 analog channels plus 75 digital channels (-6dB offset) ^{[2][4]}
XMOD		-63	-60	dBc	
CSO		-78	-70	dBc	
CIN	67	69		dB	
Distortion Data 40MHz to 550MHz					V+ = 24V; T_{MB} = 30°C; Z_S = Z_L = 75Ω
CTB		-72		dBc	V _O = 45dBmV, flat, 79 analog channels plus 111 digital channels (-6dB offset) ^{[3][4]}
XMOD		-65		dBc	
CSO		-76		dBc	
CIN		70		dB	

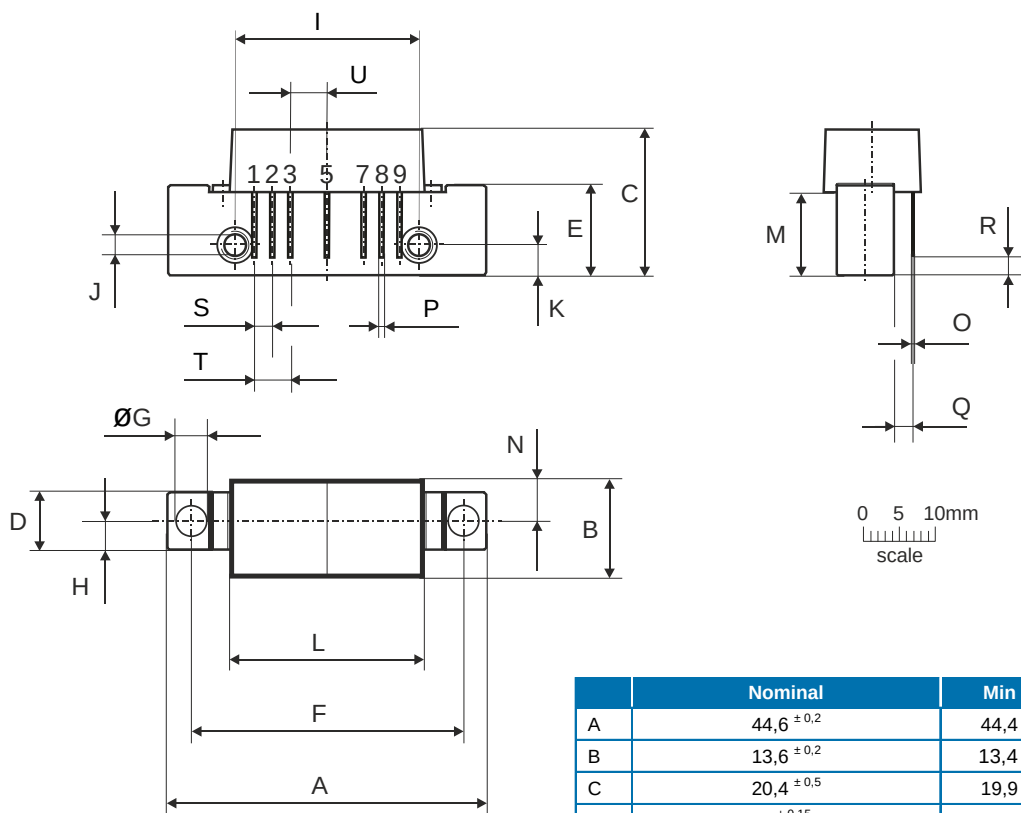
1. The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.

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. 79 analog channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +45dBmV flat output level, plus 111 digital channels, -6dB offset relative to the equivalent analog carrier.

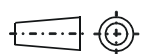
4. Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by the NCTA. Composite Triple Beat (CTB) - The CTB parameter is defined by the NCTA. Cross Modulation (XMOD) - Cross modulation (XMOD) is measured at baseband (selective voltmeter method), referenced to 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 (Dimensions in millimeters)



Notes:

European
Projection



Pinning:

Pin	Name
1	Input
2-3	GND
4	
5	+VB
6	
7-8	GND
9	Output

	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 ^{+0,2 / -0,05}	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