RFPP3870

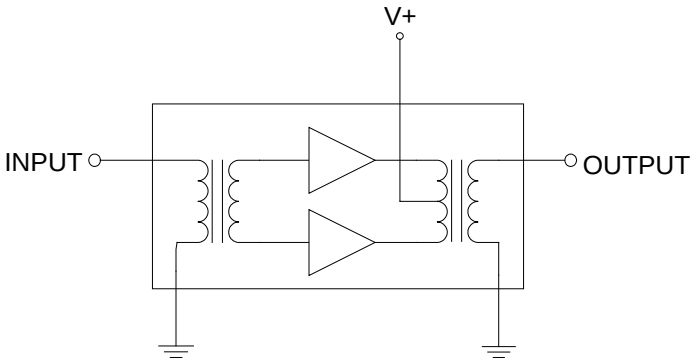
CATV Push Pull Hybrid 1218MHz 28dB

Product Description

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

Package: SOT-115J

Functional Block Diagram



Product Features

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

Applications

- 45 – 1218 MHz CATV Amplifier Systems

Ordering Information

Part No.	Description
RFPP3870	Box with 50 pcs

RFPP3870 Absolute Maximum Ratings

Parameter	Value / Range
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

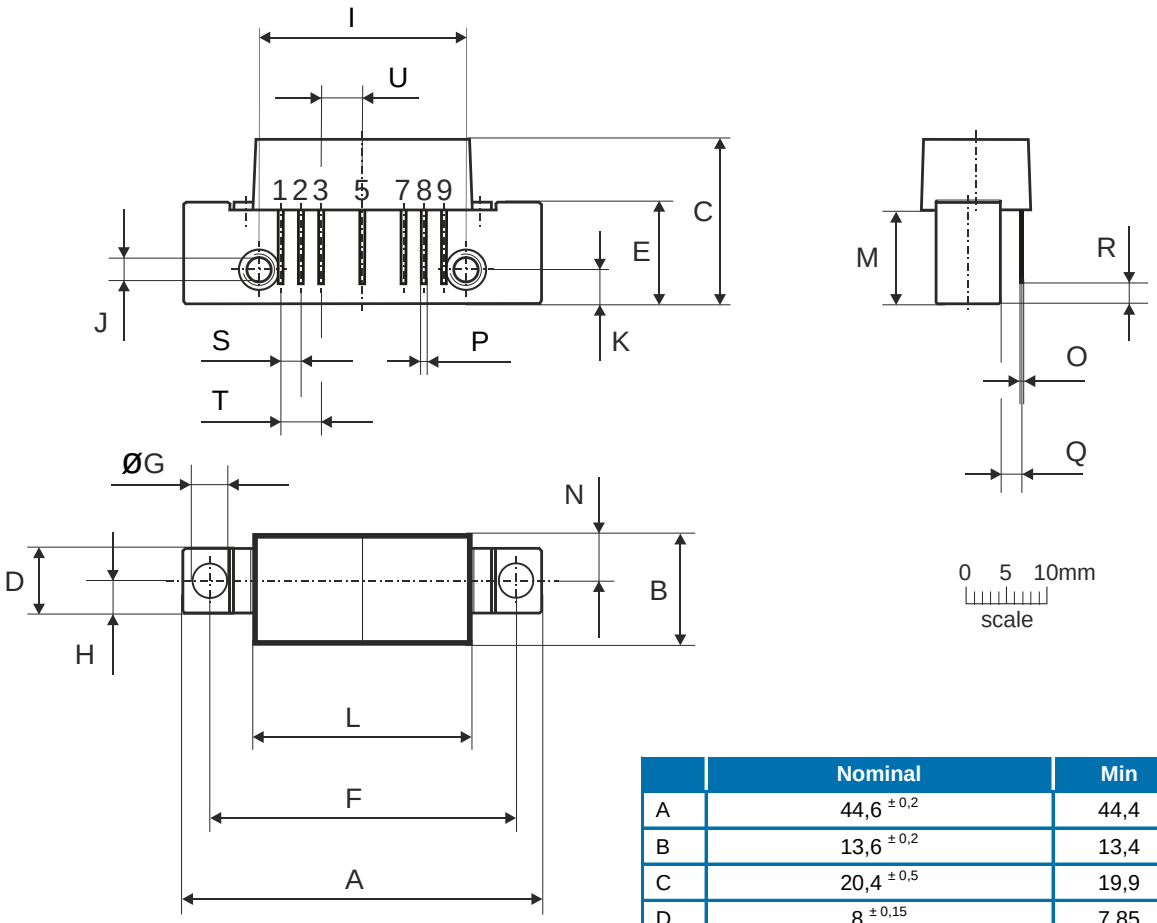
Operation of this device outside the parameter ranges given above may cause permanent damage.

Electrical Specifications

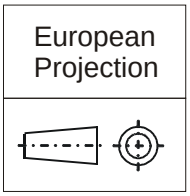
Parameter	Test Conditions: V+=24V, T_{MB}=30°C, Z_S=Z_L=75Ω	Min	Typ	Max	Unit
Operational Frequency Range	–	45	–	1218	MHz
Gain	f_o = 45 MHz		27.0		dB
Gain	f_o = 1218 MHz	28.0	28.5	29.5	
Gain Slope	45 to 1218 MHz [1]	1.0	1.5	2.5	
Gain Flatness	45 to 1218 MHz			0.8	
Input Return Loss (-S_{11})	f_o= 45 to 320 MHz	20.0		–	dB
	f_o= 320 to 640 MHz	19.0		–	
	f_o= 640 to 870 MHz	18.0		–	
	f_o= 870 to 1000 MHz	17.0		–	
	f_o= 1000 to 1218 MHz	16.0		–	
Output Return Loss (-S_{22})	f_o= 45 to 320 MHz	20.0		–	dB
	f_o= 320 to 640 MHz	19.0		–	
	f_o= 640 to 870 MHz	18.0		–	
	f_o= 870 to 1000 MHz	17.0		–	
	f_o= 1000 to 1218 MHz	16.0		–	
Noise Figure	f_o= 50 to 1218 MHz	–	4.6	5.5	dB
Total Current Consumption (DC)			260	270	mA
CTB	V_O = 46dBmV, flat, 79 analog channels plus 75 digital channels (-6dB offset) [2][4]		-72	-66	dBc
XMOD			-63	-60	dBc
CSO			-78	-70	dBc
CIN		67	69		dB
CTB	V_O = 45dBmV, flat, 79 analog channels plus 111 digital channels (-6dB offset) [3][4]		-72		dBc
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 Triple Beat (CTB) - The CTB parameter is defined by ANSI/SCTE 6.
   Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by ANSI/SCTE 6.
   Cross Modulation (XMOD) - Cross modulation (XMOD) is defined by ANSI/SCTE 58, 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/SCTE17 (Test procedure for carrier to noise)

Package Drawing (Dimensions in millimeters)



Notes:



Pinning:

Pin	Name
1	Input
2-3	GND
4	
5	V+
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

Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	1C	MIL-STD-1686

Caution!
ESD-Sensitive Device

RoHS Compliance

This part is compliant with 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) as amended by Directive 2015/863/EU.

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

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