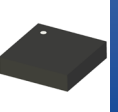


# X Band Low Noise Amplifier



ALND-WB-0012

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5.0 x 5.0 x 1.2 mm  
RoHS Compliant

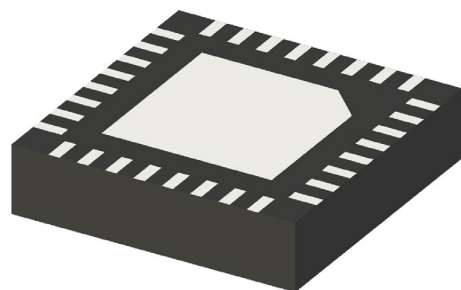
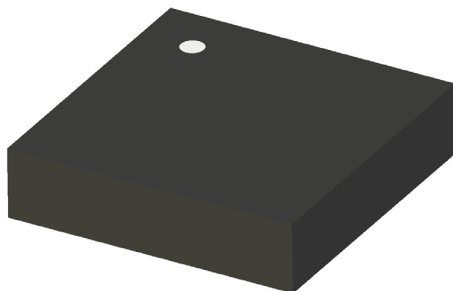
## Features

- Frequency Range: 8.5 – 10.5 GHz
- Small Signal Gain: 26.5 dB
- Noise Figure: 1.6dB (Typ)
- Input Return Loss: 10 dB (Typ)
- Output Return Loss: 8 dB (Typ)
- Output P1dB ~ 9 dBm (Typ)
- Self-bias 2V operation
- No external matching required
- DC Decoupled Input and Output
- 5mm SQ. QFN Package

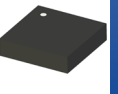
## Applications

- Electronic Warfare (EW)
- X Band Radar
- Phased Arrays
- Space
- Satellite Communications (Satcom)
- Test Equipment and Sensors

## Product Image



# X Band Low Noise Amplifier



ALND-WB-0012

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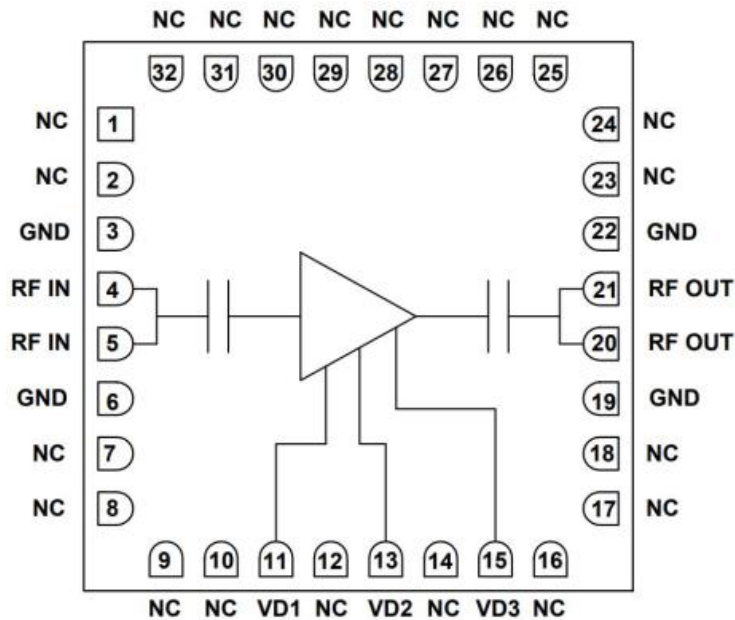


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RoHS Compliant

## Functional Diagram

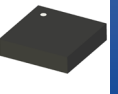


## Absolute Maximum Ratings

Parameter	Absolute Maximum	Units
Drain Bias Voltage (Vd)	5.0	Volts
Drain Current (Id)	120	mA
RF Input Power	23	dBm
Operating Temperature	-55 to +85	°C
Storage Temperature	-65 to +150	°C

1. Operation beyond these limits may cause permanent damage to the component

# X Band Low Noise Amplifier



ALND-WB-0012

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## Electrical Specifications

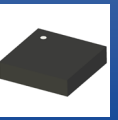
Parameters Description	Units	Minimum	Typical	Maximum
Frequency Range	GHz	8.5		10.5
Gain	dB		26.5	
Gain Flatness	dB		+/-1	
Noise Figure	dB		1.6	
Input Return Loss	dB		-10	
Output Return Loss	dB		-8	
Output Power (P1 dB)	dBm		9	
OIP3	dBm		14	
Junction Temperature	°C		80	
Supply Voltage	V		2	
Supply Current (Idq)	mA		80	110

@Ta = 25°C, Zo = 50Ω; Vd = +2V, Total Current = 80mA

### NOTES:

1. Electrical specifications as measured in test fixture.
2. OIP3 is measured at -25dBm power per tone
3. Case temperature of 70 °C, Pdiss = 0.3W

# X Band Low Noise Amplifier



ALND-WB-0012

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5.0 x 5.0 x 1.2 mm  
RoHS Compliant

## Ordering Information

Part Number	Description
ALND-WB-0012	X Band Low Noise Amplifier Packing: Bulk



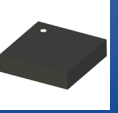
5101 Hidden Creek Ln Spicewood TX 78669

Phone: 512-371-6159 | Fax: 512-351-8858  
For terms and conditions of sales, please visit:  
[www.abracon.com](http://www.abracon.com)

REVISED: 07-31-24

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# X Band Low Noise Amplifier



ALND-WB-0012

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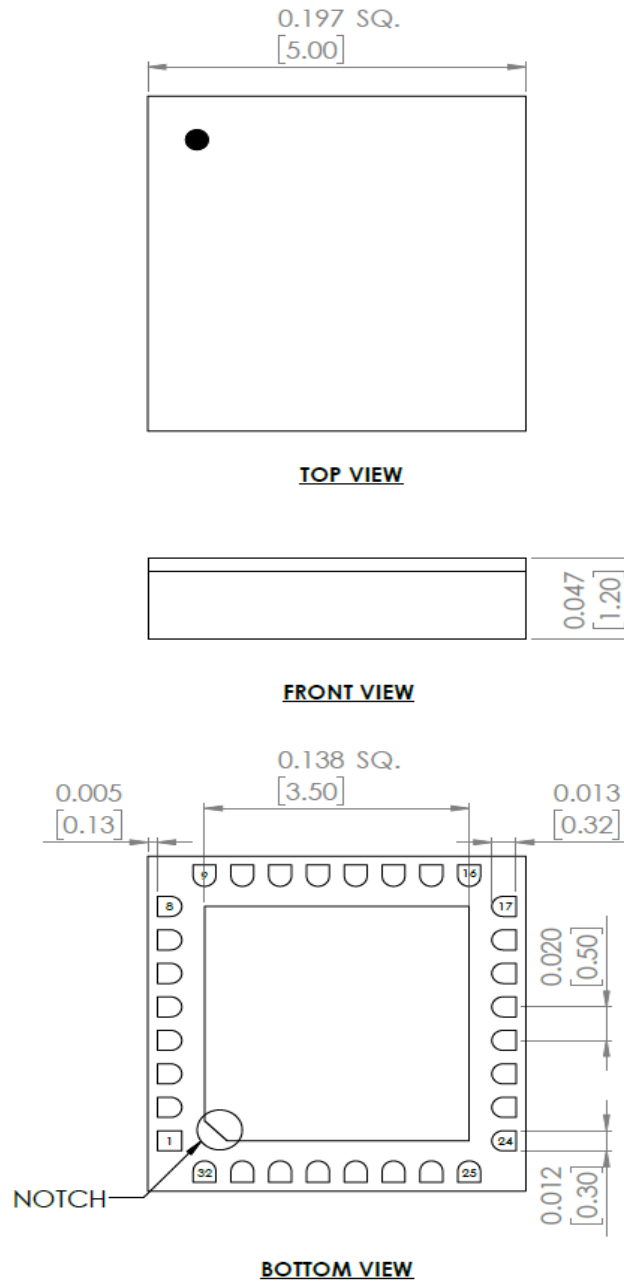


Check Inventory



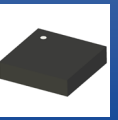
5.0 x 5.0 x 1.2 mm  
RoHS Compliant

## Product Dimensions



Unit: inches[mm]

# X Band Low Noise Amplifier



ALND-WB-0012

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5.0 x 5.0 x 1.2 mm  
RoHS Compliant

## Notes:

1. Body: Ceramic Grade.
2. Lead Finish: Full Gold Plate [Gold (1-2um) on Nickel (2.5-7.6um) Plating].
3. All Dimension mentioned are in mm (millimeters).

## Biasing and Operation:

ALND-WB-0012 is self-biased, requires a single positive drain supply for its operation.

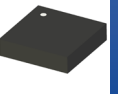
## Turn ON Procedure:

1. Apply Drain Voltage of +2V and observe total drain current as 80 mA (Typ).
2. Turn ON RF Power.

## Turn OFF Procedure:

1. Turn OFF RF Power
2. Turn OFF Drain Voltage.

# X Band Low Noise Amplifier



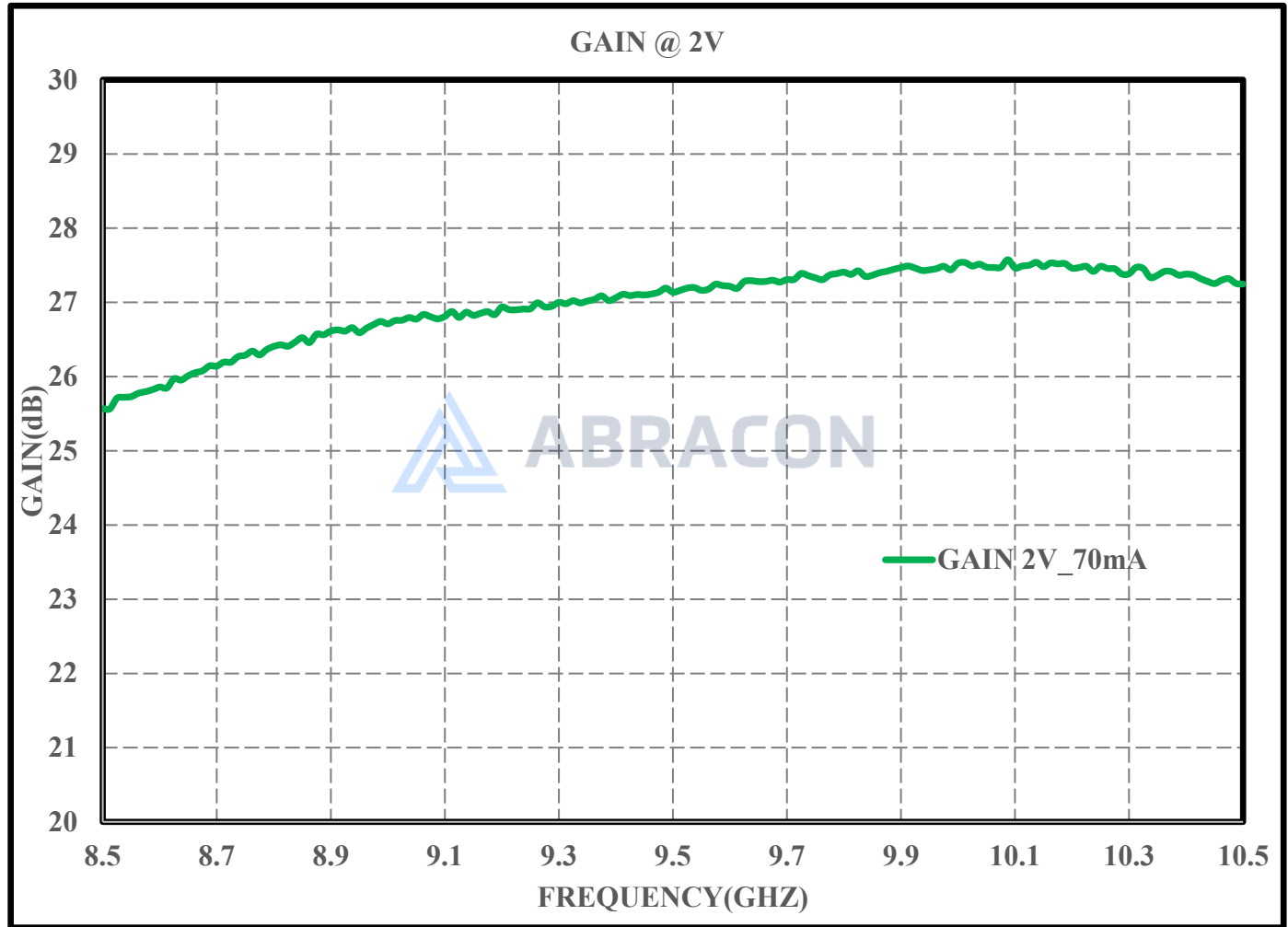
ALND-WB-0012

Request Samples

Check Inventory

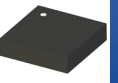
5.0 x 5.0 x 1.2 mm  
RoHS Compliant

## Test Fixture Data



Vd1 = Vd2 = Vd3 = Vd = +2V Total Current (Idq) = 70mA, Ta=25°C, Zo = 50Ω

# X Band Low Noise Amplifier

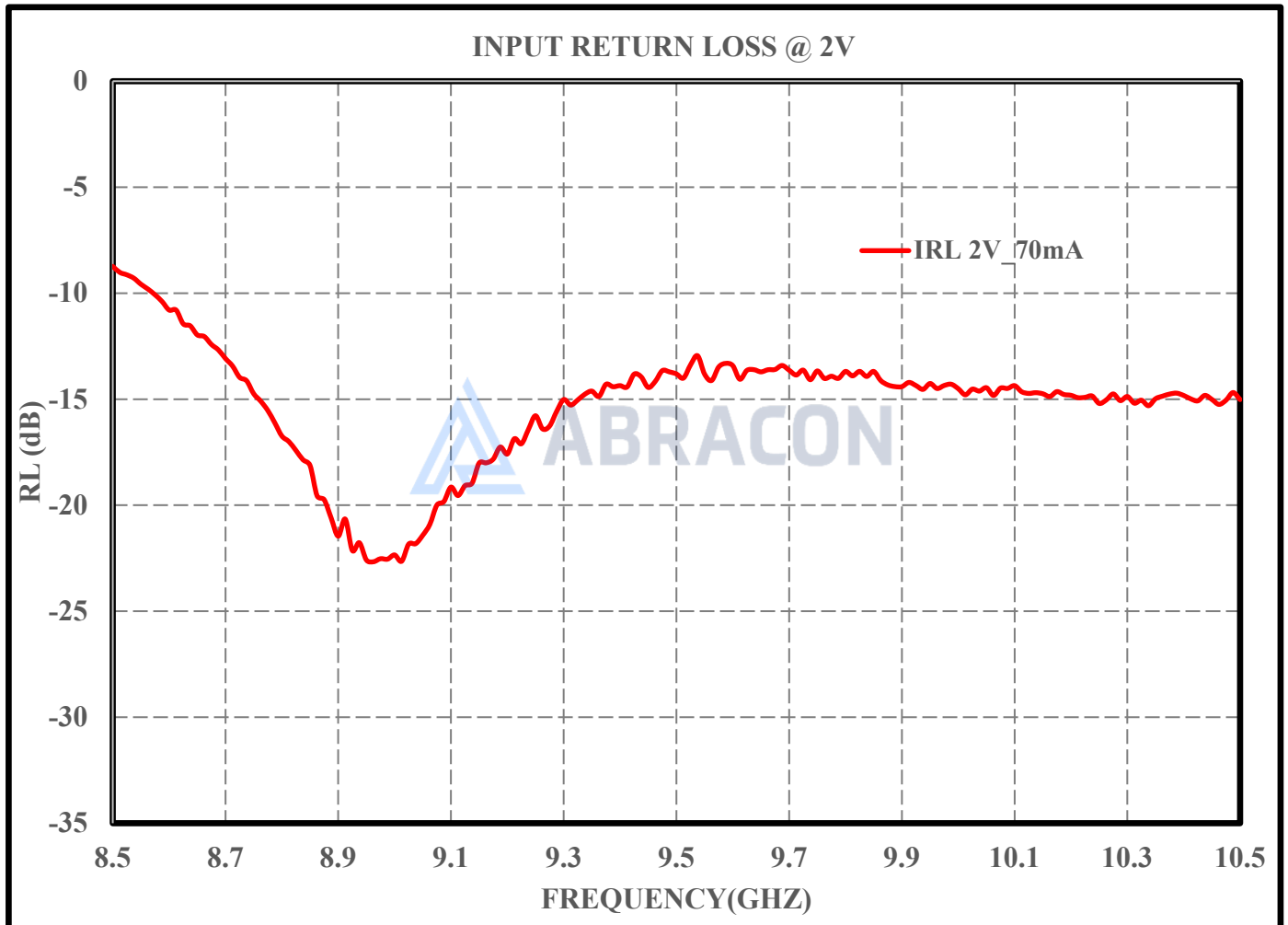


ALND-WB-0012

Request Samples

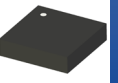
Check Inventory

5.0 x 5.0 x 1.2 mm  
RoHS Compliant





# X Band Low Noise Amplifier

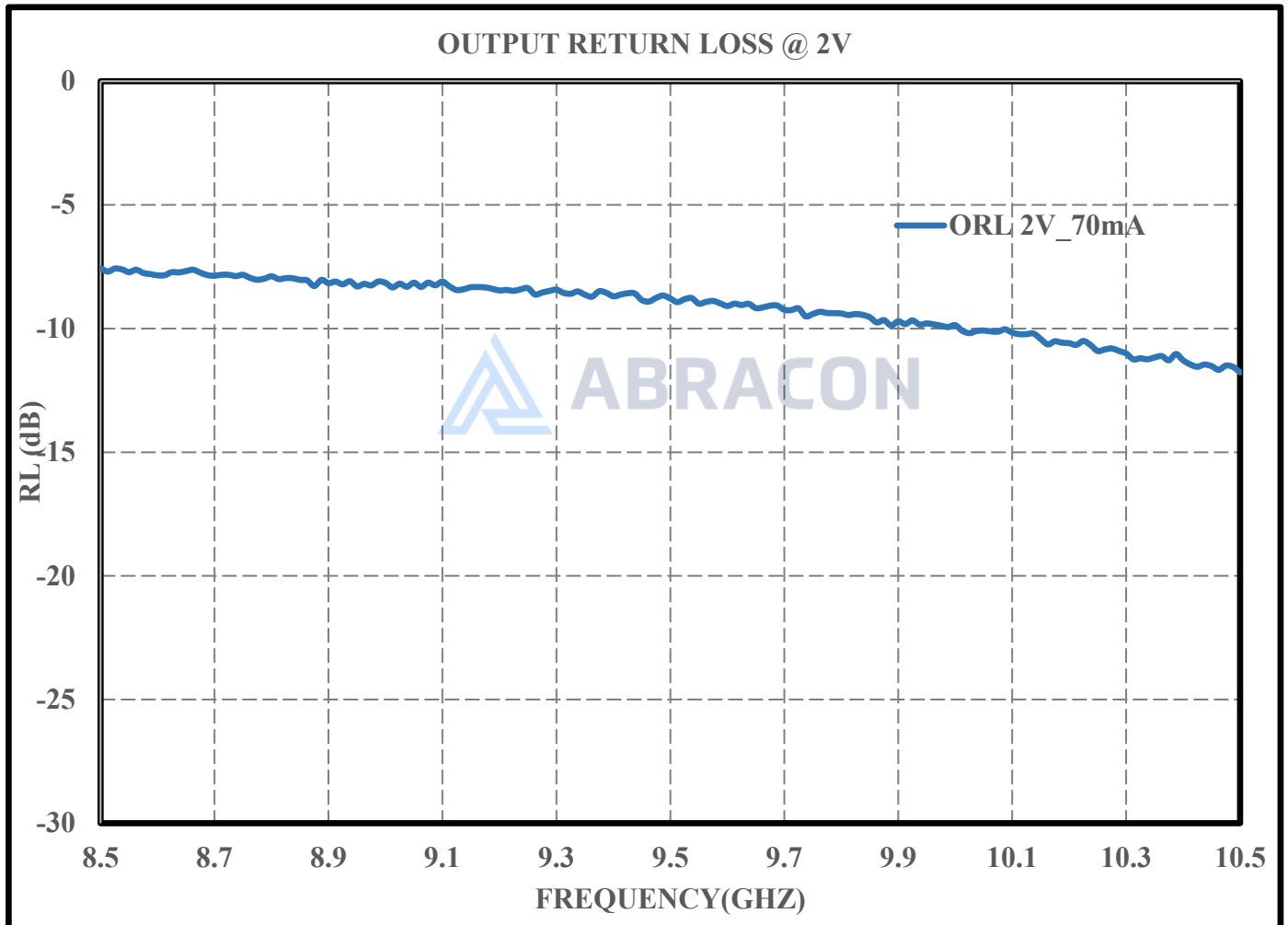


ALND-WB-0012

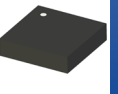
Request Samples

Check Inventory

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RoHS Compliant



# X Band Low Noise Amplifier

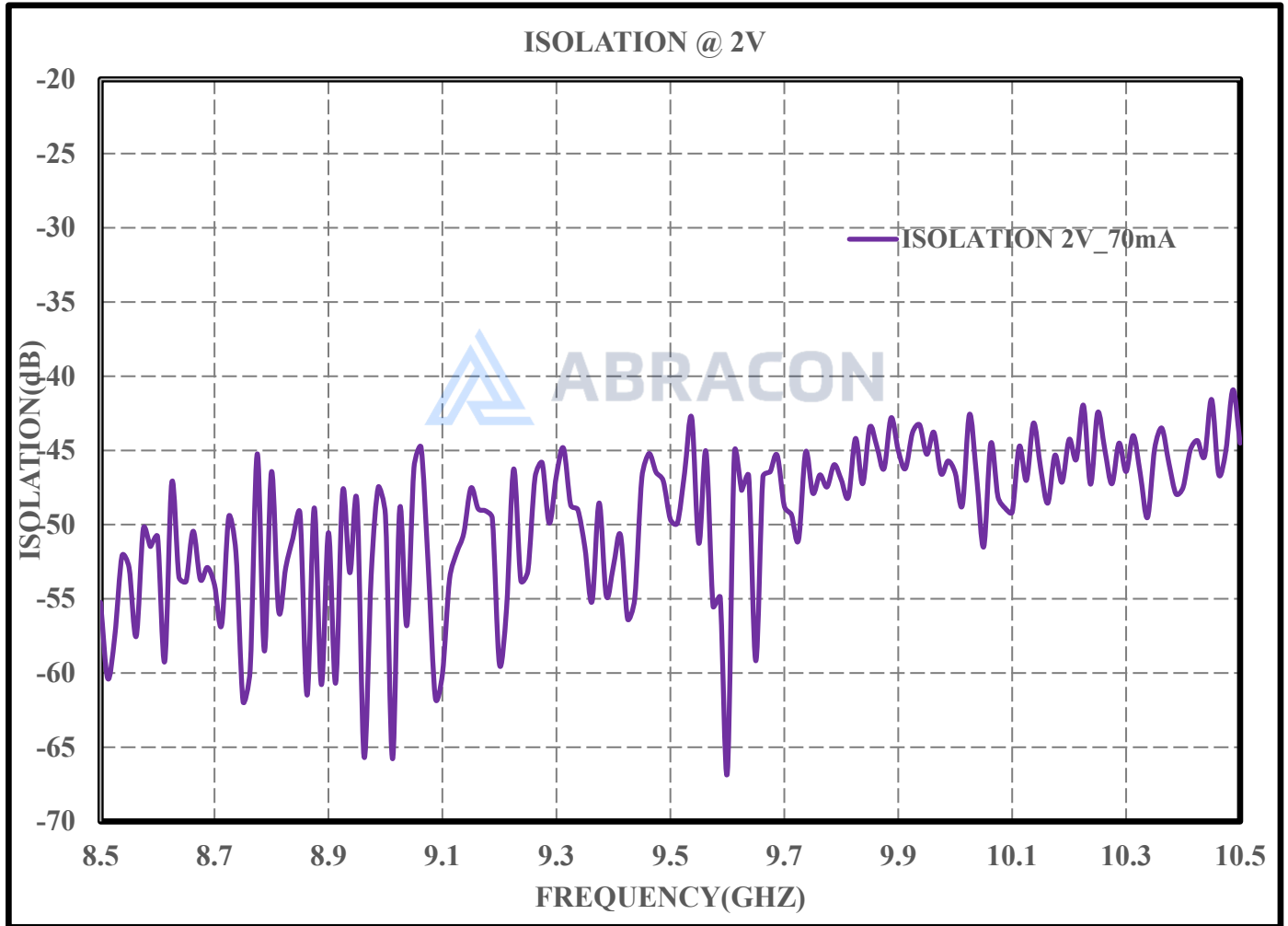


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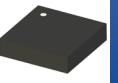
Request Samples

Check Inventory

5.0 x 5.0 x 1.2 mm  
RoHS Compliant



# X Band Low Noise Amplifier

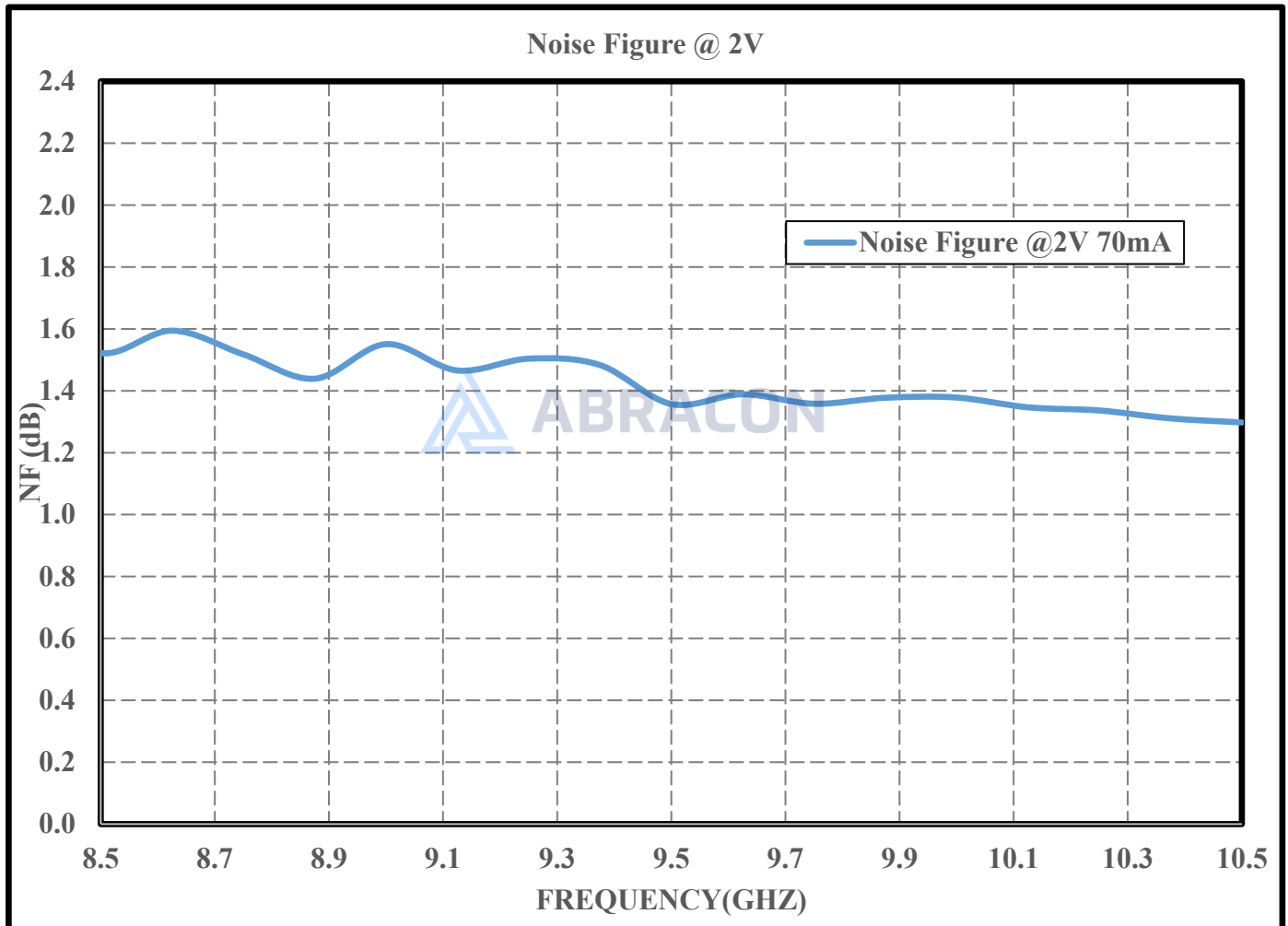


ALND-WB-0012

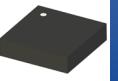
Request Samples

Check Inventory

5.0 x 5.0 x 1.2 mm  
RoHS Compliant



# X Band Low Noise Amplifier

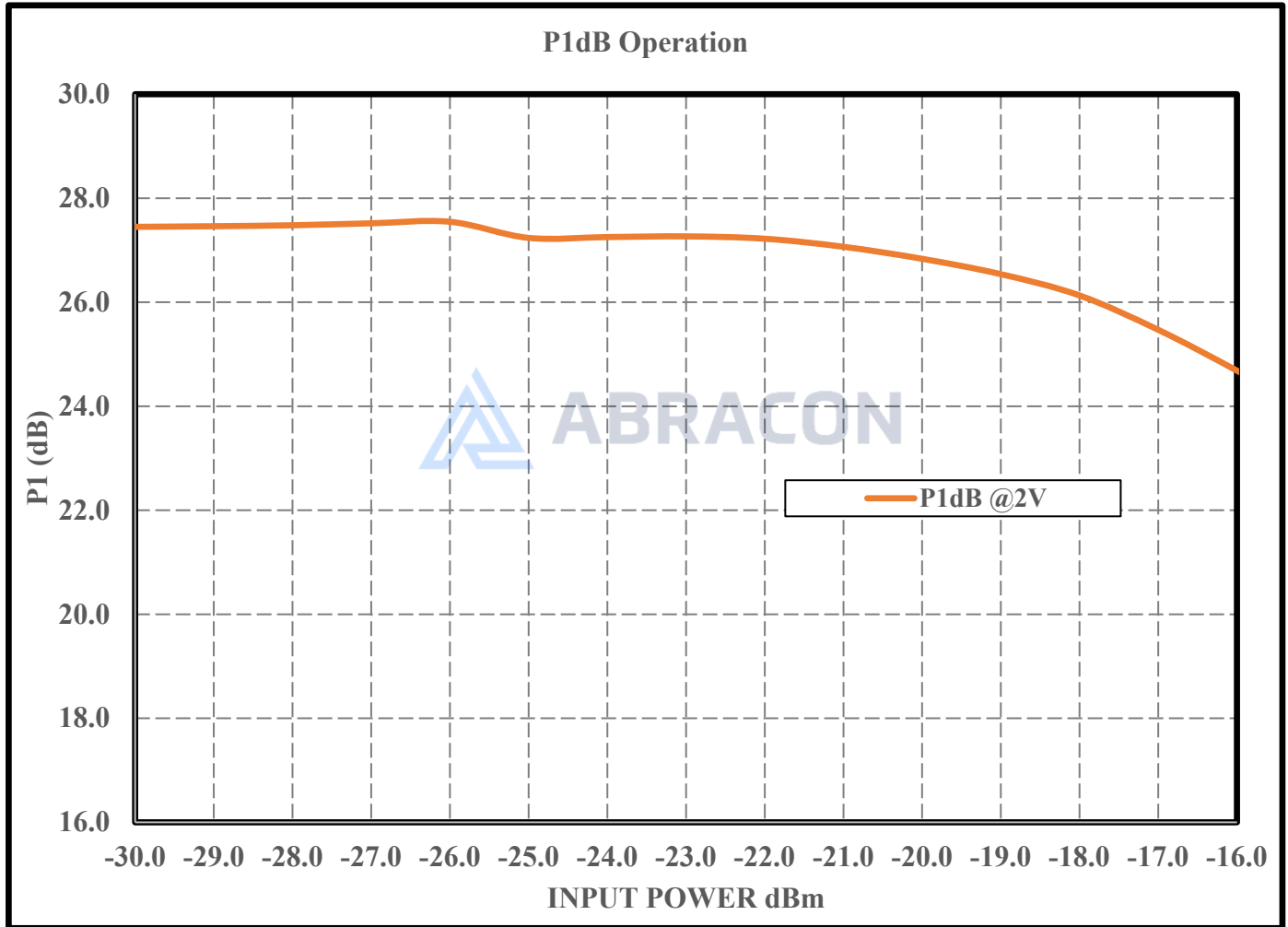


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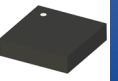
Request Samples

Check Inventory

5.0 x 5.0 x 1.2 mm  
RoHS Compliant



# X Band Low Noise Amplifier

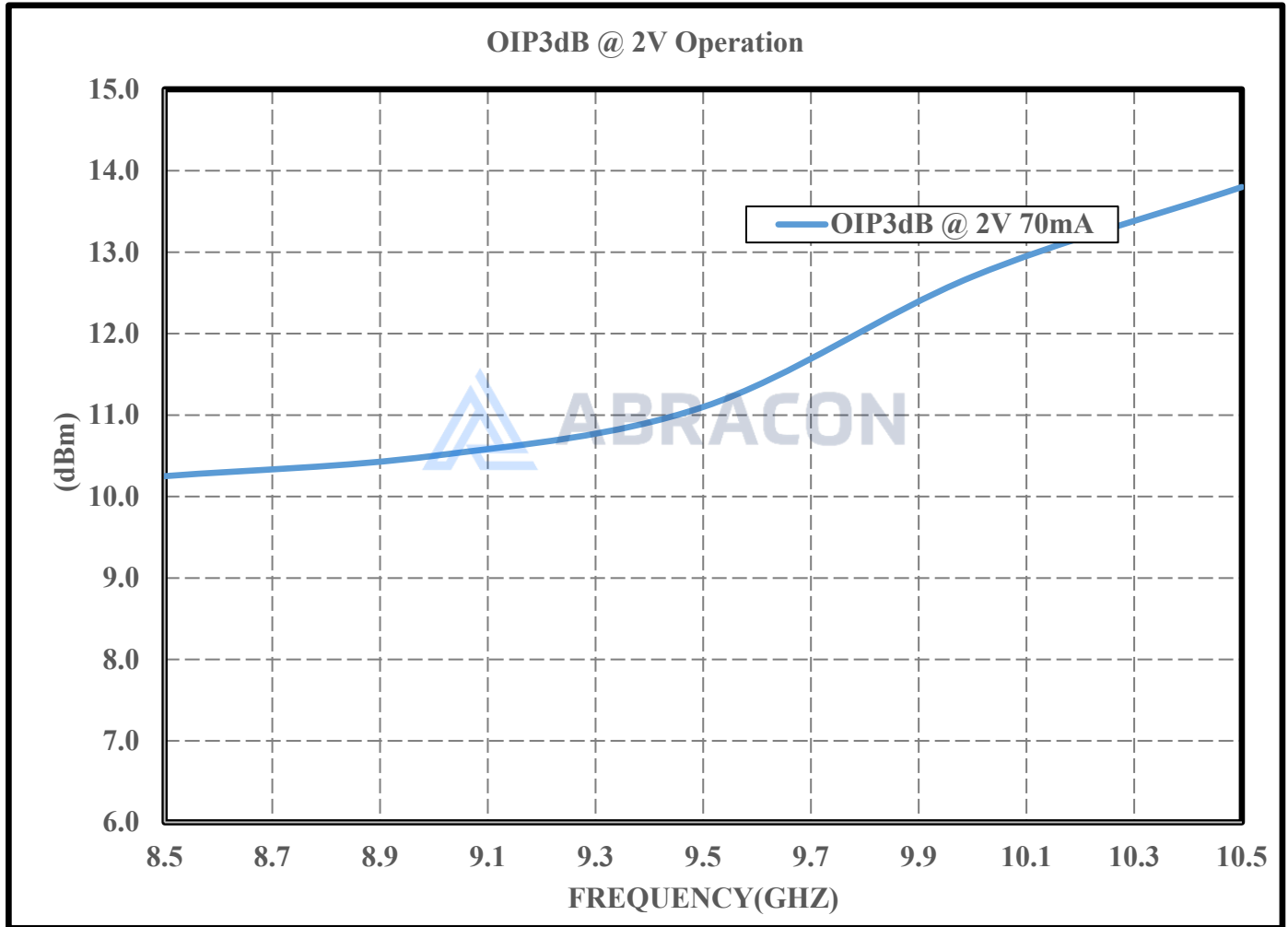


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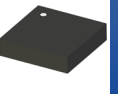
Request Samples

Check Inventory

5.0 x 5.0 x 1.2 mm  
RoHS Compliant



# X Band Low Noise Amplifier



ALND-WB-0012

Request Samples

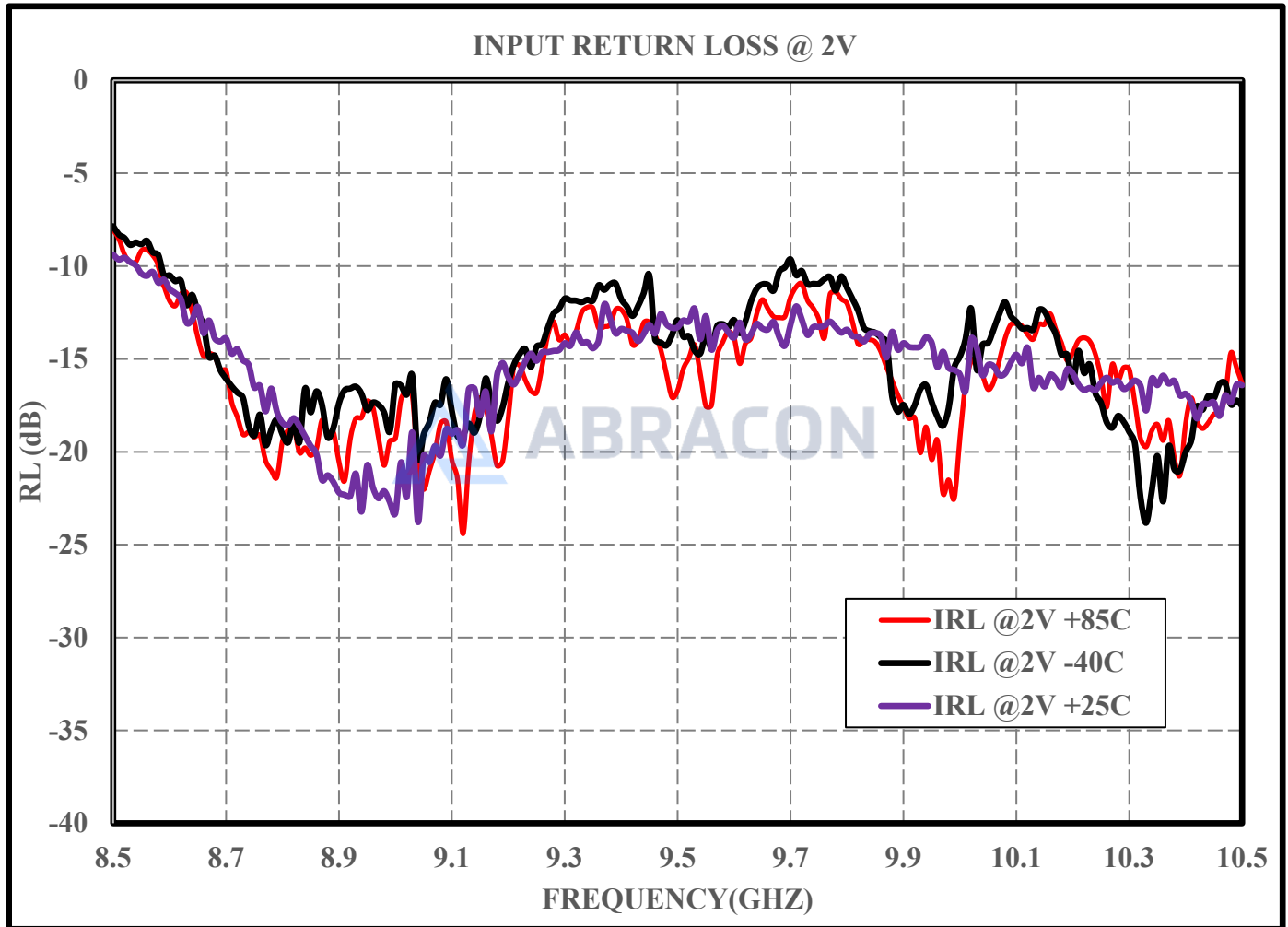


Check Inventory



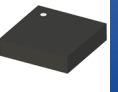
5.0 x 5.0 x 1.2 mm  
RoHS Compliant

## Test Fixture Data Over the temperature



Vd1 = Vd2 = Vd3 = Vd = +2V, Total Current (Idq) = 70mA, Zo = 50Ω

# X Band Low Noise Amplifier



ALND-WB-0012

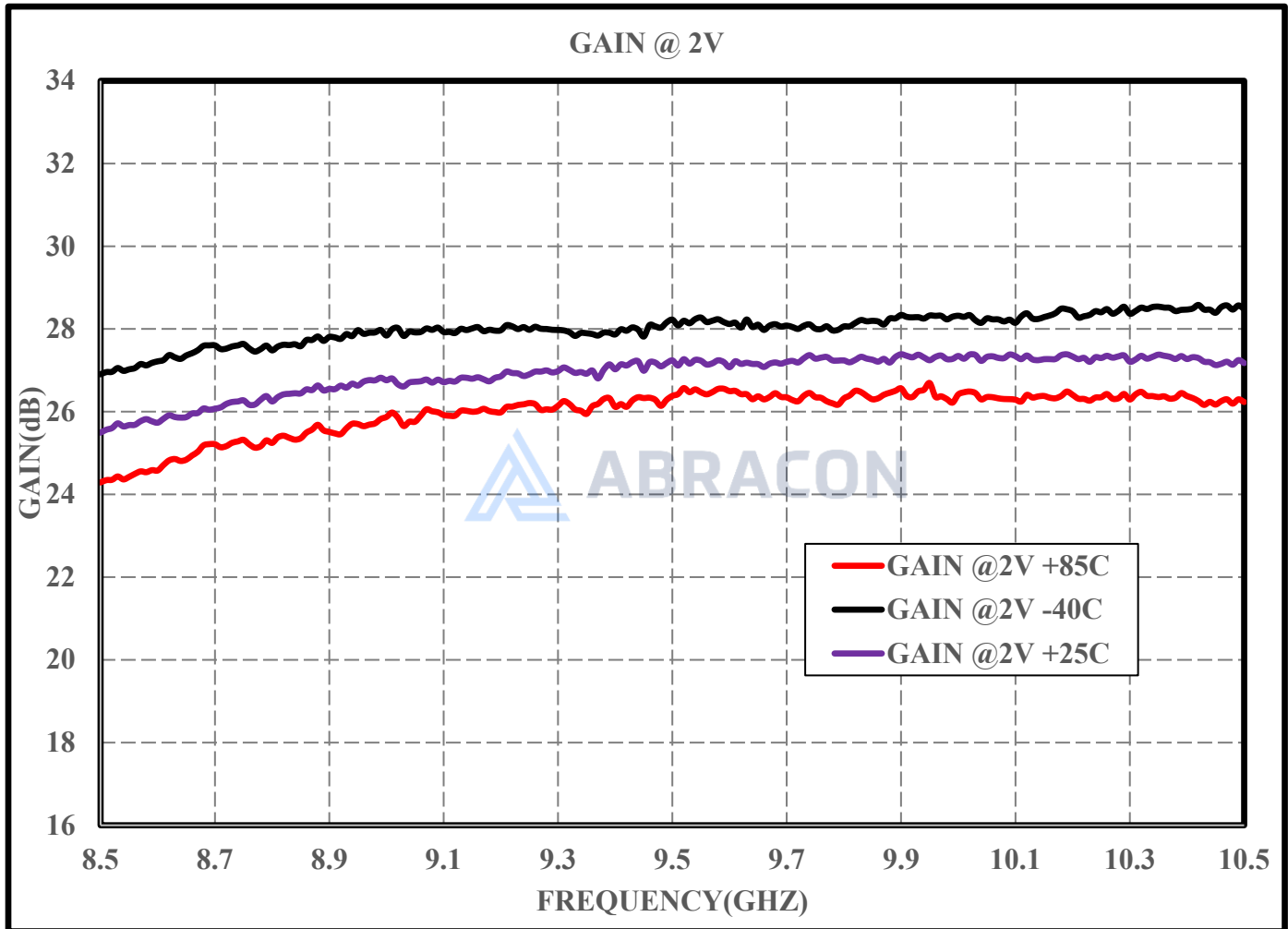
Request Samples



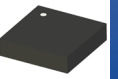
Check Inventory



5.0 x 5.0 x 1.2 mm  
RoHS Compliant



# X Band Low Noise Amplifier

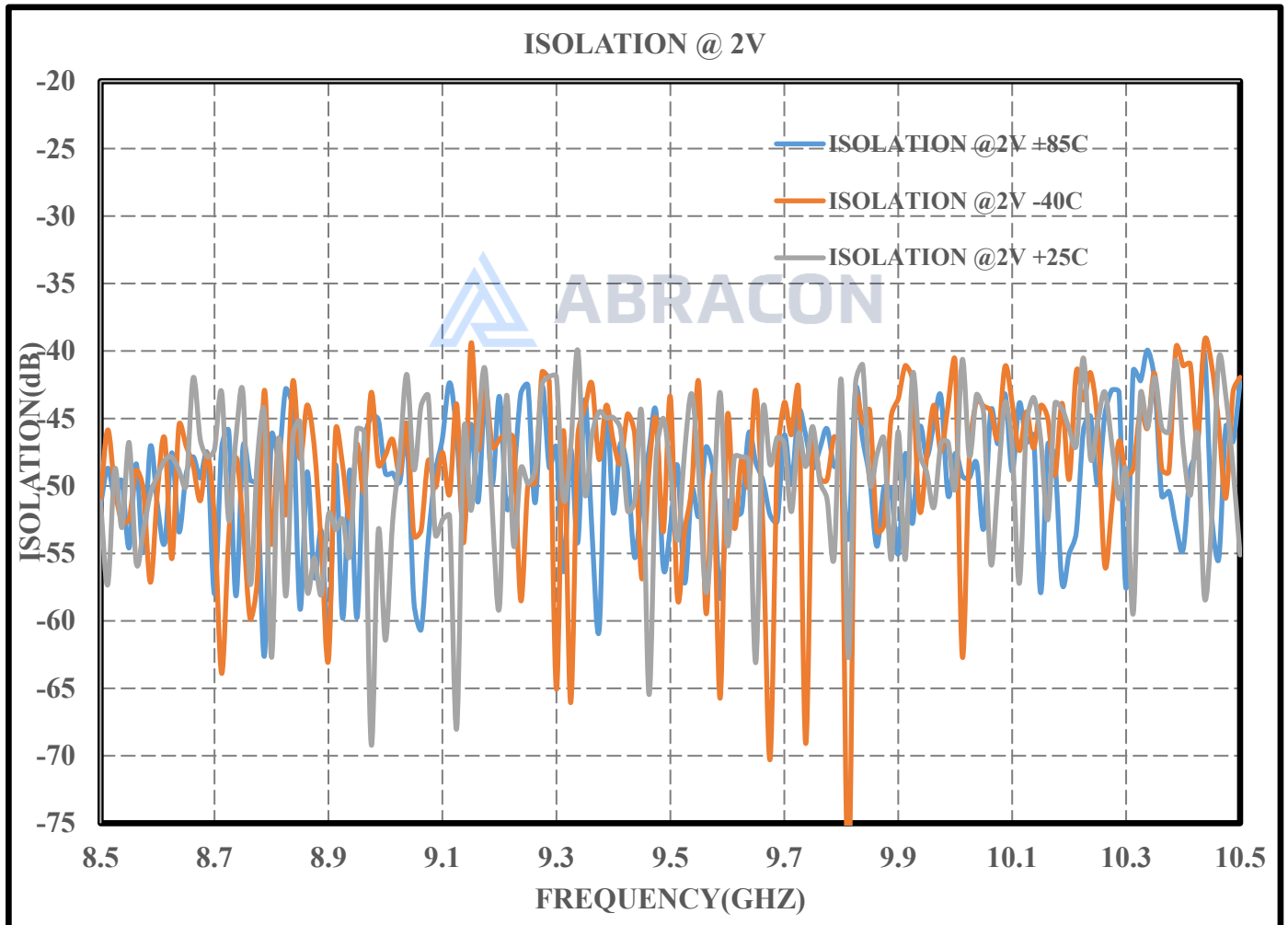


ALND-WB-0012

Request Samples

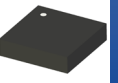
Check Inventory

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RoHS Compliant





# X Band Low Noise Amplifier

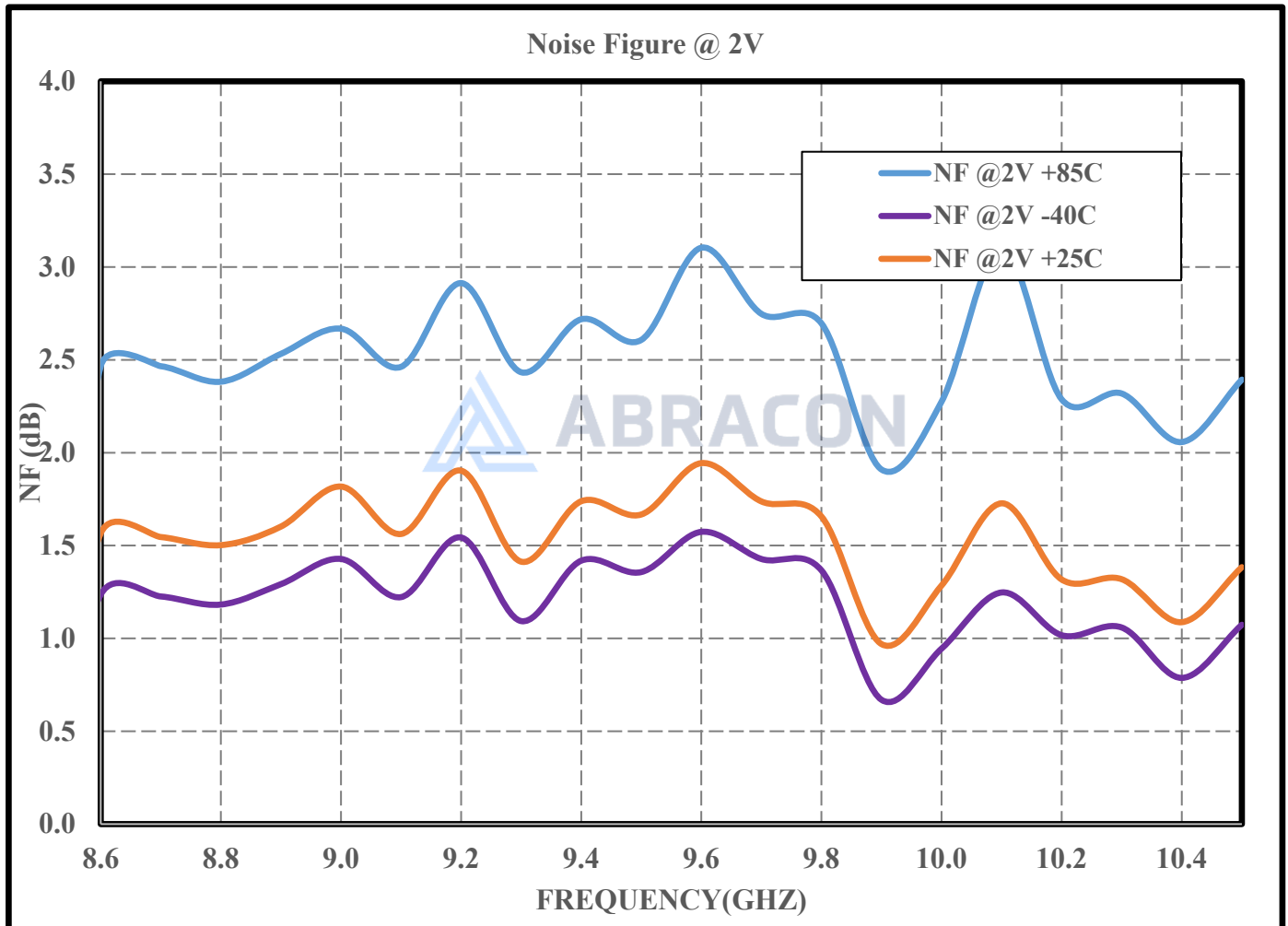


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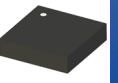
Request Samples

Check Inventory

5.0 x 5.0 x 1.2 mm  
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# X Band Low Noise Amplifier



ALND-WB-0012

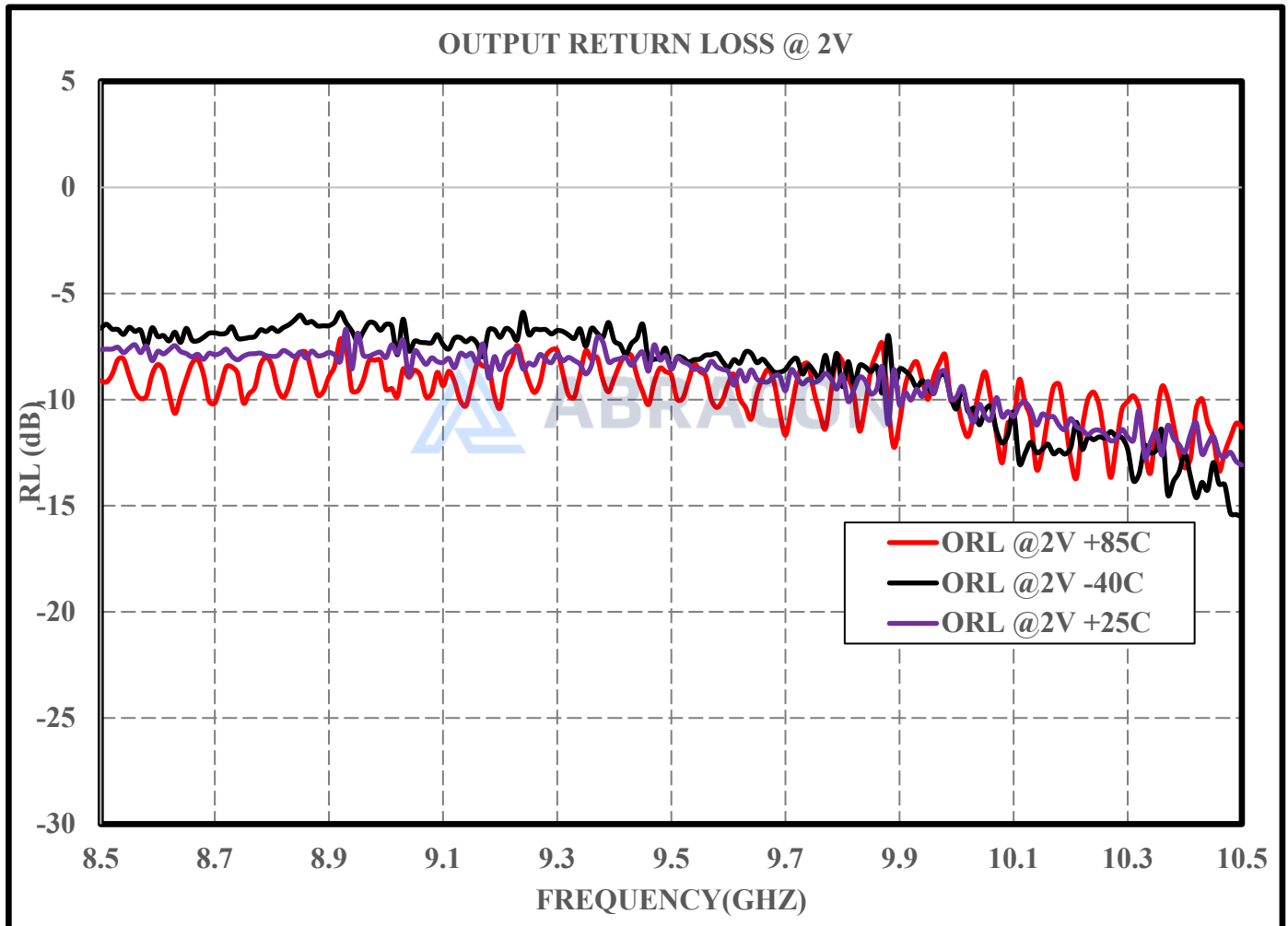
Request Samples



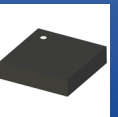
Check Inventory



5.0 x 5.0 x 1.2 mm  
RoHS Compliant



# X Band Low Noise Amplifier



ALND-WB-0012

Request Samples

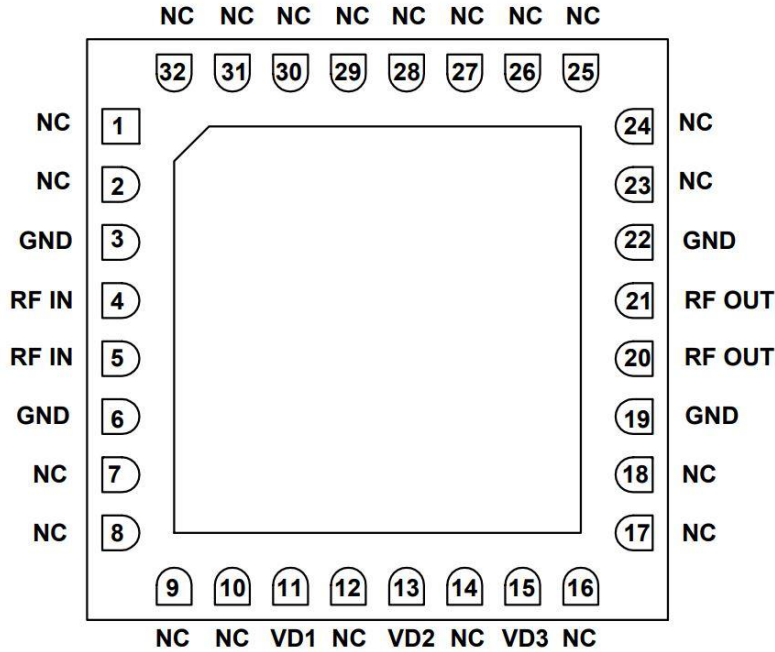


Check Inventory



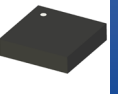
5.0 x 5.0 x 1.2 mm  
RoHS Compliant

## Pin Configuration



Pin Description	
Pin No. 4 & 5	RF In (RF Input)
Pin No. 20 & 21	RF Out (RF Output)
Pin No. 11,13 & 15	VD1, VD2 & VD3 (Drain Voltages for 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> stages )
Pin No. 3,6,19 & 22	GND (Ground)
Pin No. 1,2,7,8,9,10,14,16,17,18,23,24,25,26,27,28,29,30,31,32	NC (No Connection)

# X Band Low Noise Amplifier



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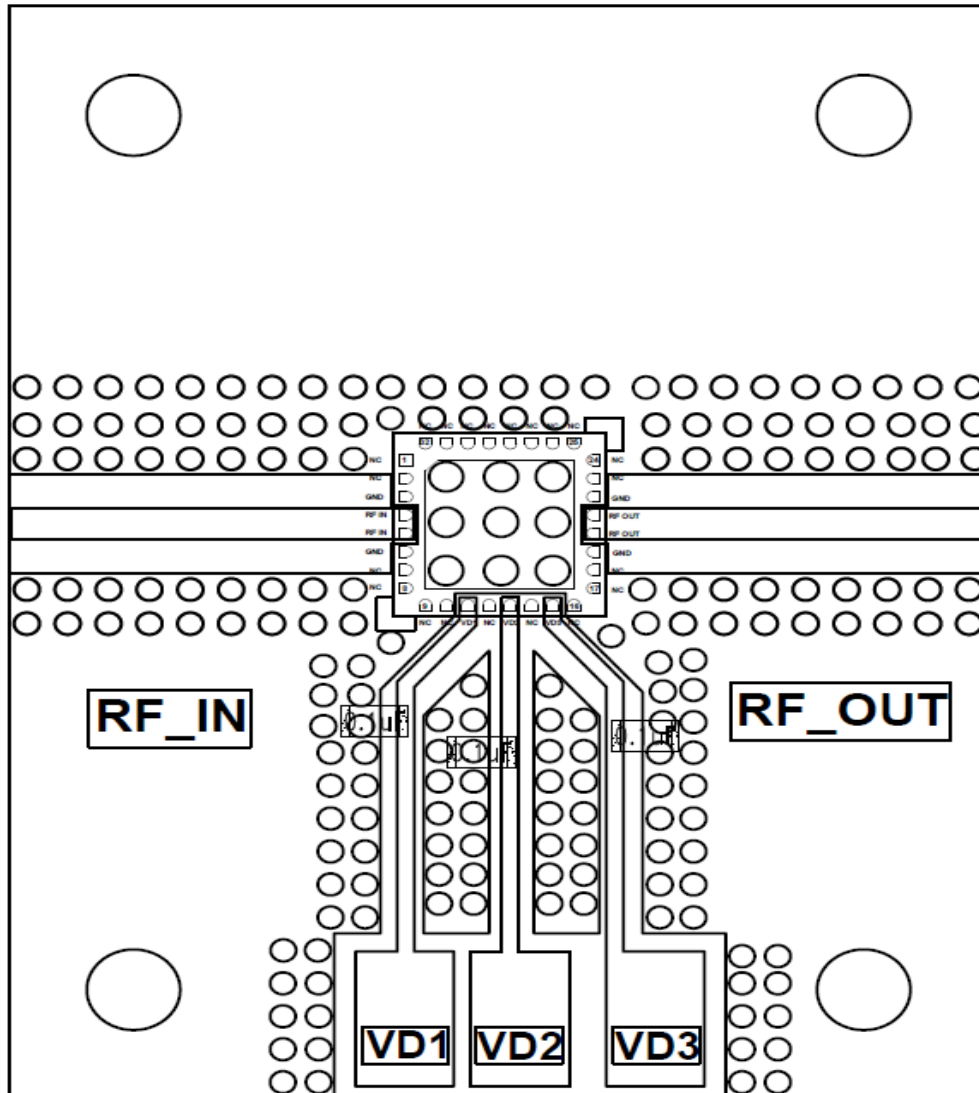


Check Inventory



5.0 x 5.0 x 1.2 mm  
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## Test Board Pattern



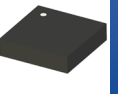
### Off Chip Components Details:

Component	Part Number / Description
0.1uF MLC (C1)	0.1uF ± 10% 16V 0402X7R or Equivalent

### NOTES:

1. Input and output are 50-ohm lines (preferably on 10 mil RT Duroid substrate).
2. Drain Bypass Capacitors C1 need to be placed close to the chip.

# X Band Low Noise Amplifier



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## Packaging

### Packing Tubes

10pcs per tube, 50 tubes per box

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