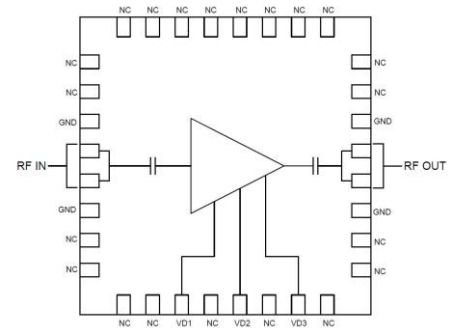


X BAND LOW NOISE AMPLIFIER (8.8 – 10.2 GHz)

Features

- ◆ Frequency Range : 8.8-10.2GHz
- ◆ Nominal Gain : 28dB
- ◆ Noise Figure : 1.5dB
- ◆ Return Loss : >10dB
- ◆ Output P1dB : 10dBm
- ◆ OIP3 : 20dBm
- ◆ Self-bias 2V operation
- ◆ DC decoupled Input and Output
- ◆ Package Dimensions: 5mm x 5mm x 1mm

Functional Diagram



Typical Applications

- ◆ Radar
- ◆ Military
- ◆ Test Equipment & Sensor

Description

The ASL1024P5 is X-band Low noise amplifier available in 32 Lead -- 5mm X 5mm X 1mm QFN package for surface mount applications. The LNA uses 3 stages of amplification and operates in 8.8 – 10.2 GHz frequency range. The LNA features 28dB of minimum gain with a noise figure of 1.5dB typical and input and output return losses of 10dB and 12dB typical respectively. Input/output matching networks and bypass capacitors are provided on-chip for simplification of assembly operation. The package is suitable in applications where high gain, very low noise and excellent linearity are desired.

Absolute Maximum Ratings¹

Parameter	Absolute Maximum	Units
Positive DC voltage	+6	V
RF input power	+23	dBm
Operating Temperature	-55 to +90	°C
Storage Temperature	-65 to +150	°C

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

Electrical Specifications @ T_A = 25 °C, Z_o =50Ω

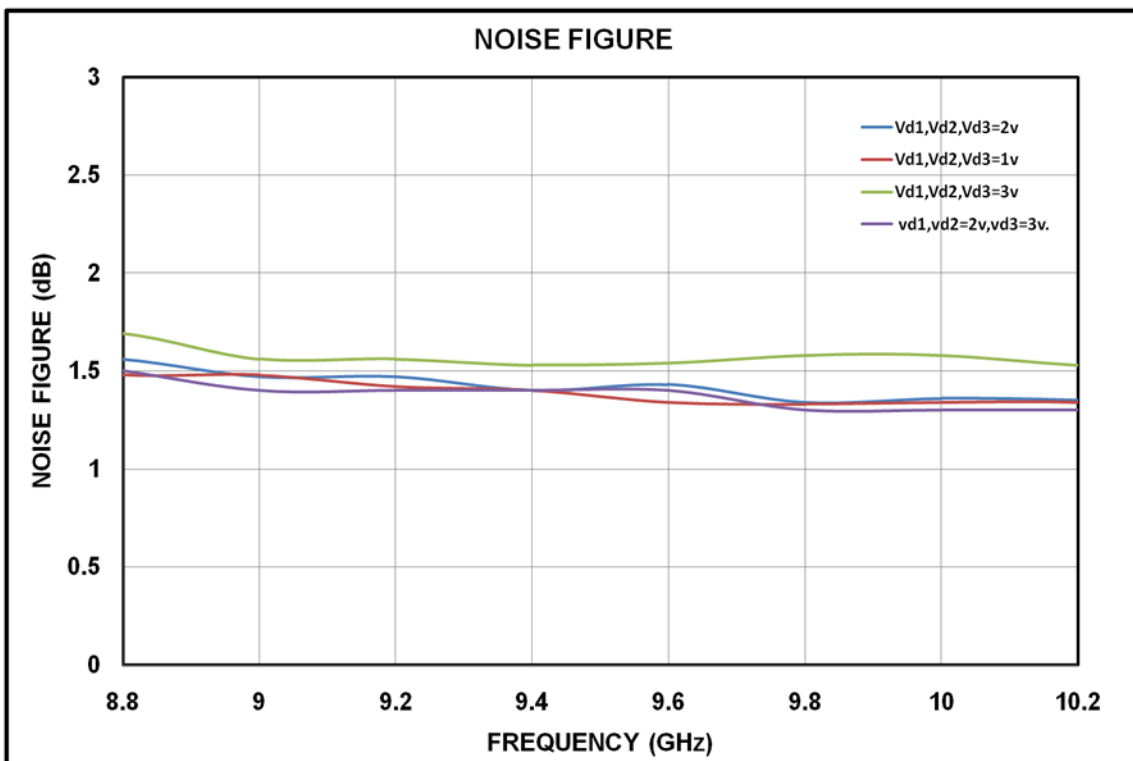
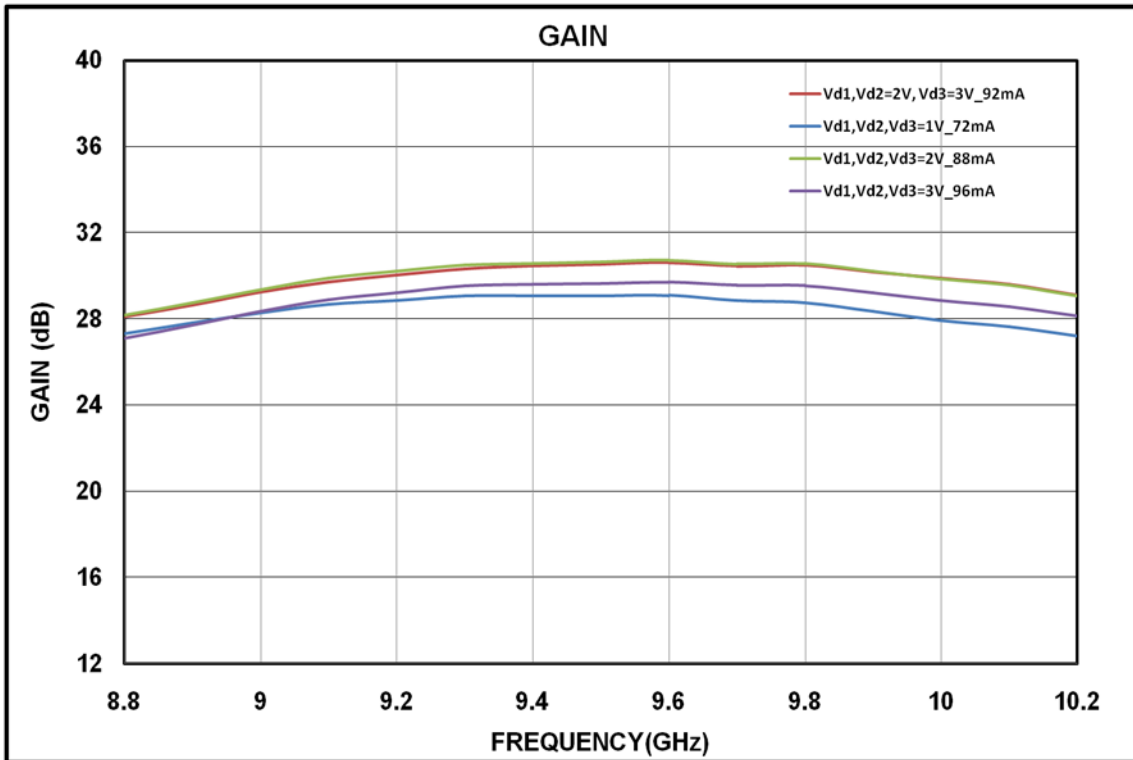
Parameter	Typical		Units
Frequency	9 -10	8.8 – 10.2	GHz
Gain	29(min)	28(min)	dB
Gain Flatness	+/-0.7	+/-1	dB
Noise Figure	1.5	1.5	dB
Input Return loss	- 12	-10	dB
Output Return loss	- 12	-10	dB
Output Power at 1dB Compression	10	10	dBm
OIP3	20	20	dBm
Voltage (Vd1,Vd2,Vd3)	2	2	V
Current (Id)	75 - 90	75 - 90	mA

Note:

1. The above mentioned electrical specifications are measured on PCB mounted QFN package.

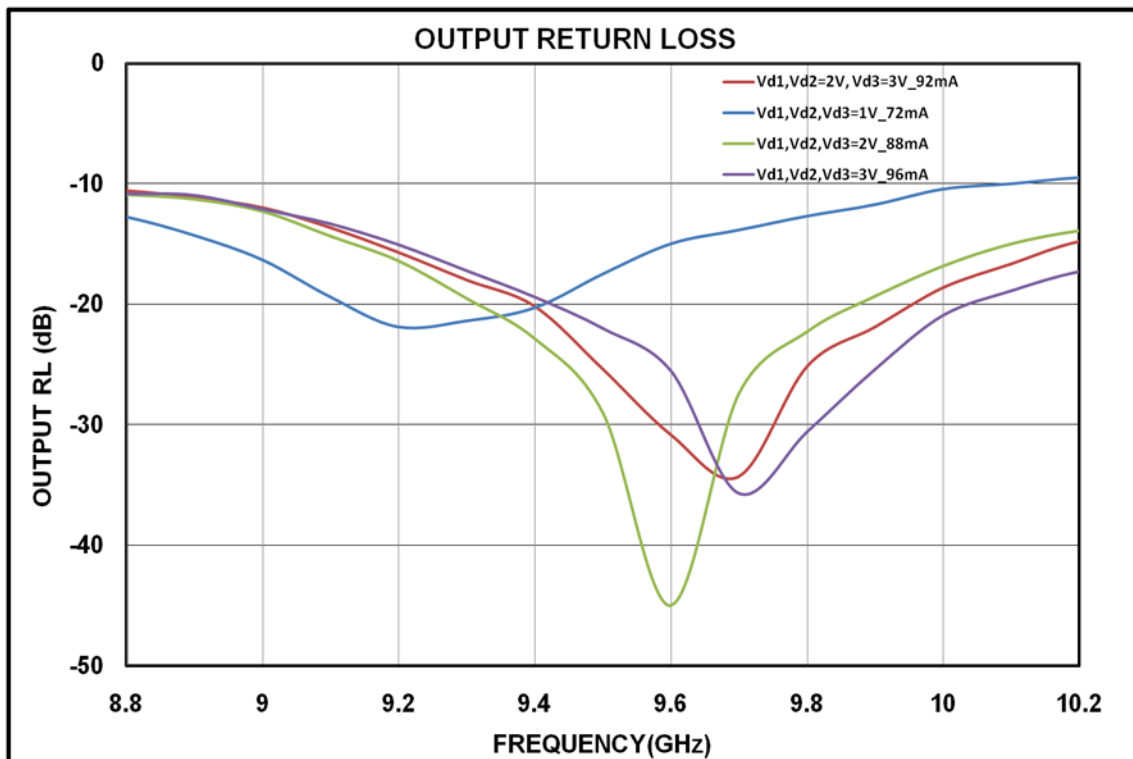
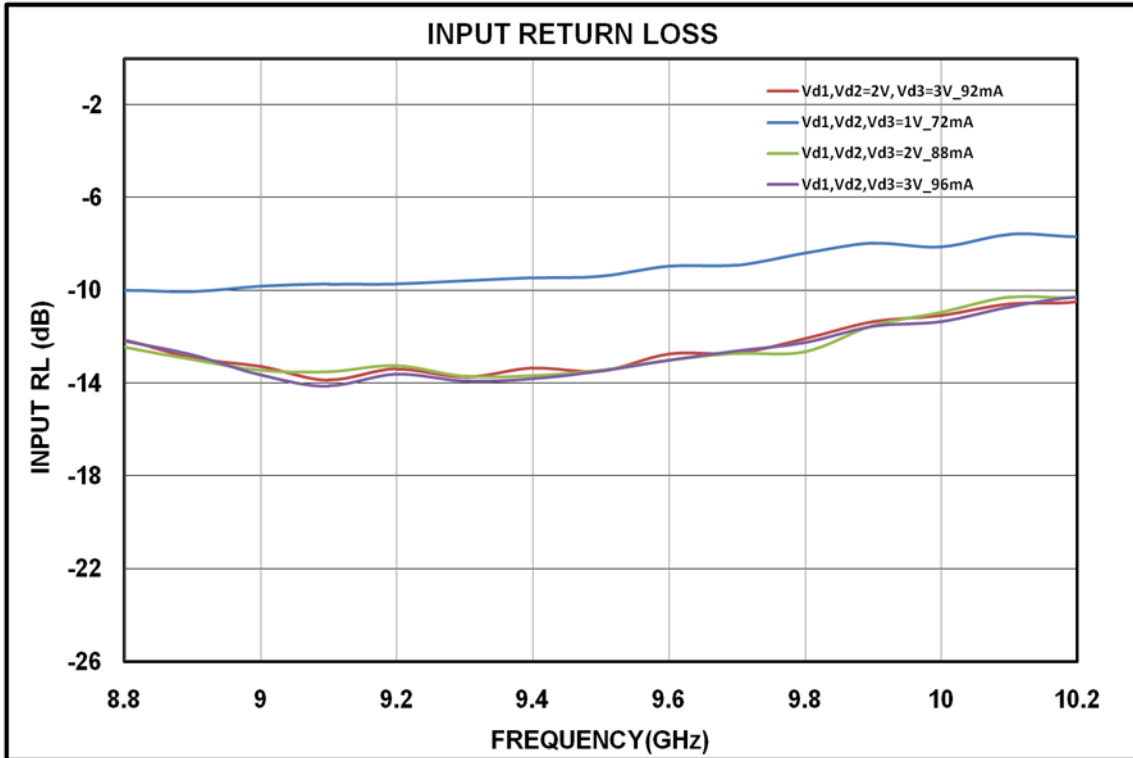
Test fixture data

$V_{d1}=V_{d2}=V_{d3}=2V$, Total Current =88mA (Typ.), @ $T_A = 25\text{ }^\circ\text{C}$, $Z_o=50\Omega$



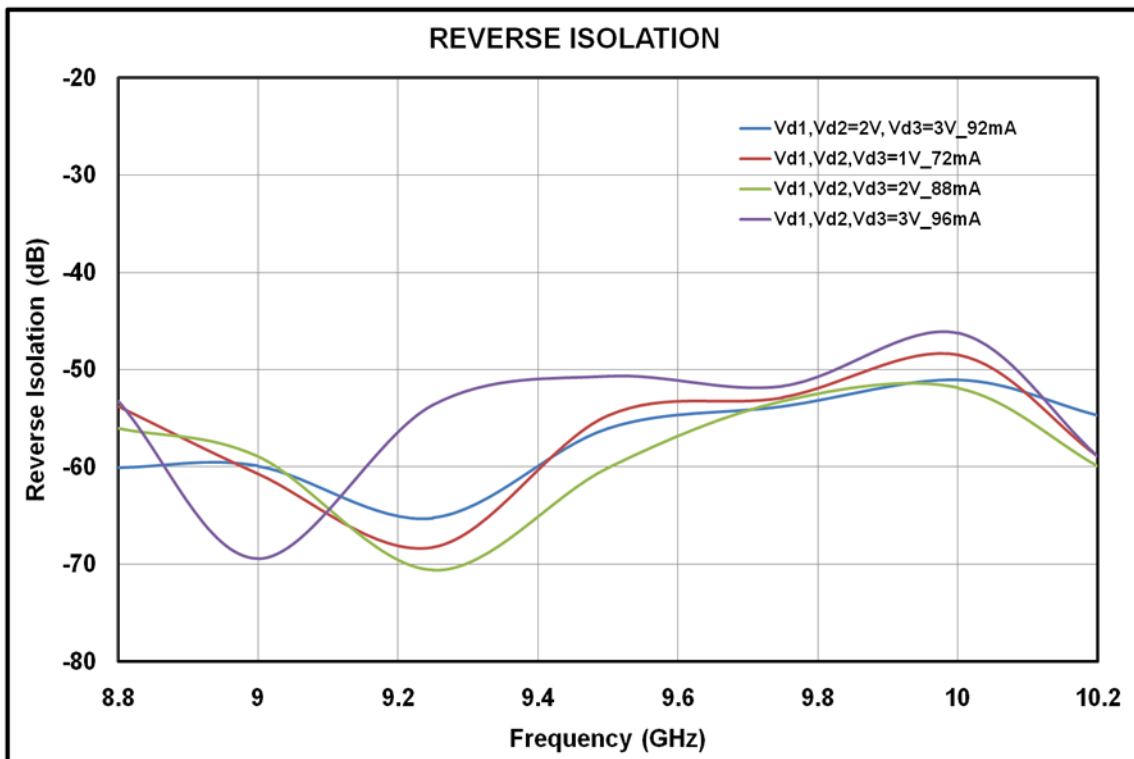
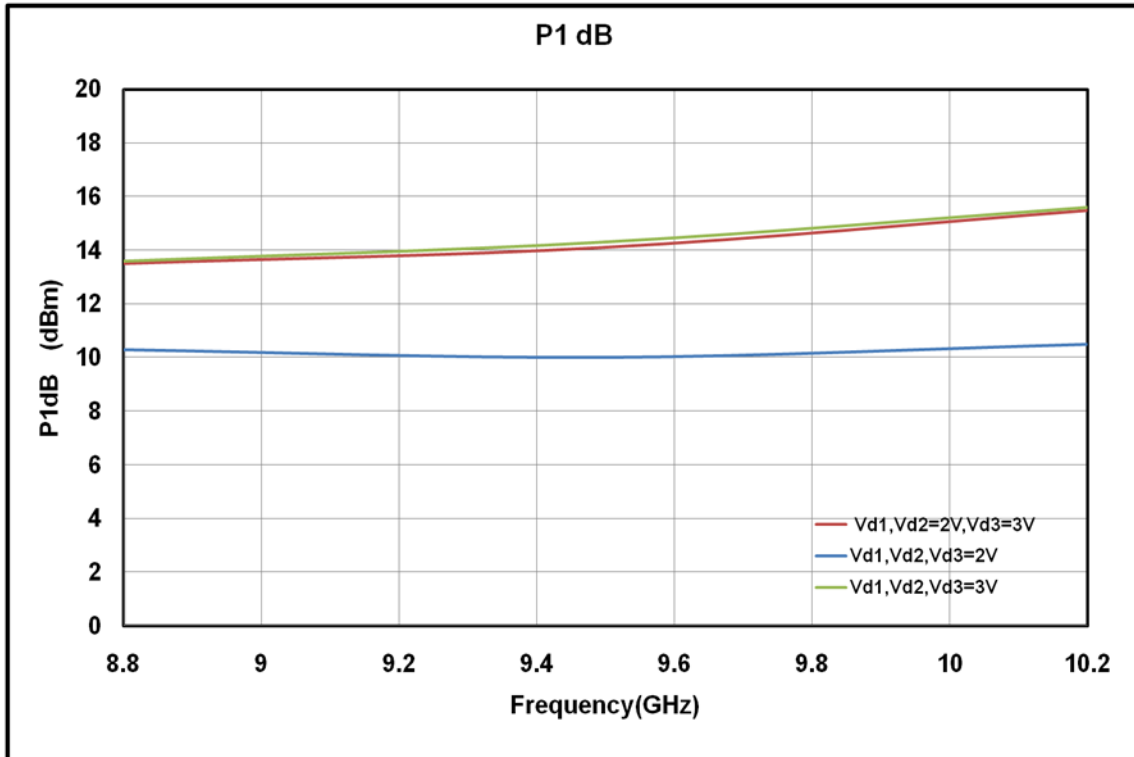
Test fixture data

$V_{d1}=V_{d2}=V_{d3}=2V$, Total Current =88mA (Typ.), @ $T_A = 25\text{ }^\circ\text{C}$, $Z_o=50\Omega$

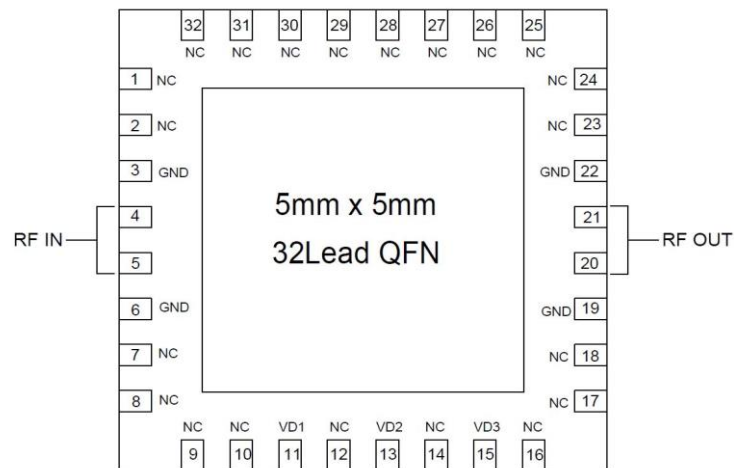


Test fixture data

$V_{d1}=V_{d2}=V_{d3}=2V$, Total Current =88mA (Typ.), @ $T_A = 25\text{ }^\circ\text{C}$, $Z_o=50\Omega$



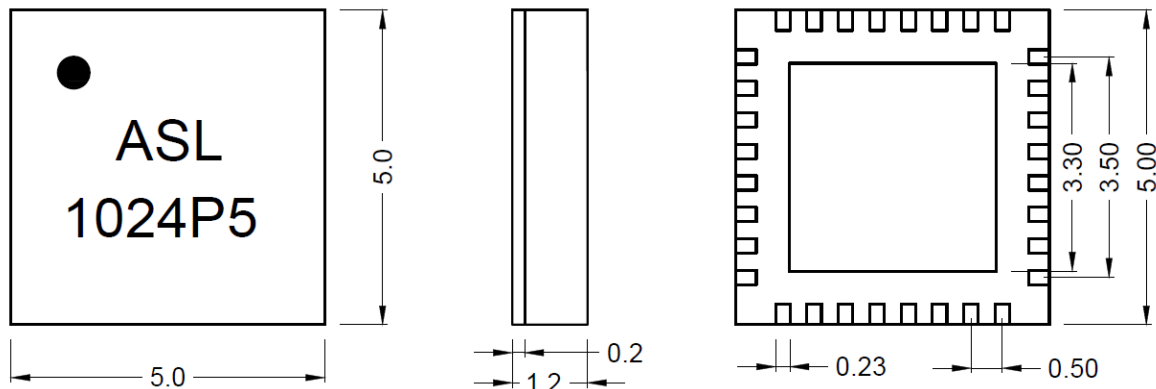
PIN CONFIGURATION



PIN Description

Pin 4, 5	: RF IN
Pin 11	: Drain Bias 1
Pin 13	: Drain Bias 2
Pin 15	: Drain Bias 3
Pin 20, 21	: RF OUT
Pin 3, 6, 19, 22	: Ground
Remaining all other Pins are NC (No Connection)	

QFN Package outline

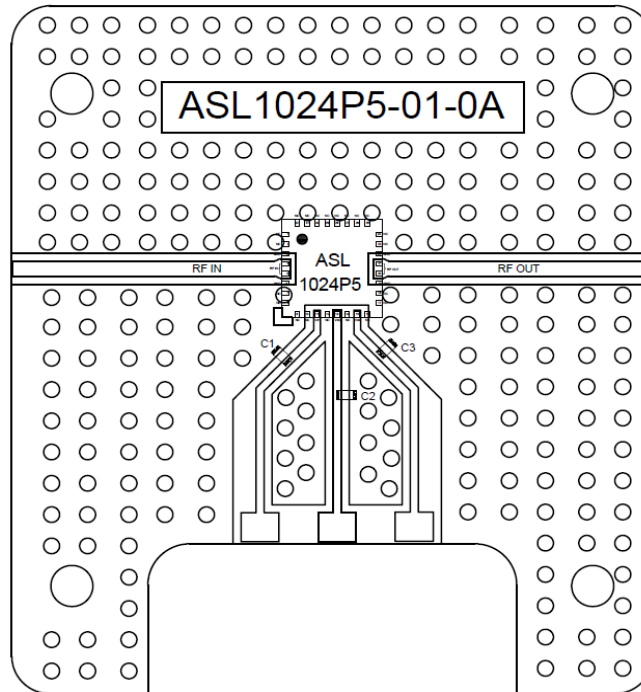


TOP VIEW

BOTTOM VIEW

Note: All Units are in mm.

Recommended Assembly Diagram



Note:

1. Input and output 50-ohm lines are on 10 mil RO5880 substrate.
2. Input / Output signal lines have 50Ω impedance.
3. 0.1 μF capacitors may be additionally used as a second level of bypass for reliable operation.

Bill of Material

Component ID	Value	Description	Manufacturer	Part Number
C1,C2,C3	0.1μF	CAP MCC 0.1UF±10% 10V 0603 X7R	Digi-Key	0603ZC104KAT2A



GaAs MMIC devices are susceptible to Electrostatic discharge. Proper precautions should be observed during handling, assembly & testing

All information and Specifications are subject to change without prior notice. Before using the product, please download and refer to latest datasheet from website.