MLN3037

Rev B Nov 2012

3.0 GHz -3.7 GHz

Low Noise Amplifier

Data Sheet

Description

MLN3037 is 3 GHz to 3.7 GHz wideband low noise amplifier with very flat gain. The input and output are matched to 50 Ω with DC blocking capacitors. No external matching components or DC bypassing capacitor are needed.

MLN3037 offers good output P1dB under low current consumption. The compact size and thin thickness design are suitable for portable device applications.

Features

- 420 mil x 260 mil surface mount package
- Excellent flatness in S21
- Fully matched input and output
- High linearity and P1dB
- Unconditionally stable across load condition
- Single 5V supply

Applications

- Mobile Infrastructures
- WiMAX
- Defense
- Security System
- Measurement
- Fixed Wireless

Specifications at 3.5 GHz 5V 42mA(typical)

- 1.05dB noise figure
- 14dBm output P1dB
- -20dB input return loss
- -20dB output return loss
- 26dB gain
- 43.8mA current consumption at 85°C
- 39.9mA current consumption at -40°C

MLN3037
Low Noise Amplifier

Electrical Specifications

index	Testing Item	Symbol	Test Conditions	min	nom	max	unit
1	Gain	S21	3.0 GHz - 3.7 GHz	25	26		dB
1.1	Gain	S21	3.4 GHz - 3.6 GHz	25.6	26.3		dB
2	Gain variation	ΔG	3.0 GHz - 3.7 GHz		+/-0.1	+/-0.3	dB
2.1	Gain variation	ΔG	3.4 GHz - 3.6 GHz		+/-0.1	+/-0.2	dB
3	Input return loss	S11	3.0 GHz - 3.7 GHz	15	20		dB
3.1	Input return loss	S11	3.4 GHz - 3.6 GHz	16	20		dB
4	Output return loss	S22	3.0 GHz - 3.7 GHz	15	20		dB
4.1	Output return loss	S22	3.4 GHz - 3.6 GHz	16	20		dB
5	Reverse isolation	S12	3.0 GHz - 3.7 GHz	40			dB
6	Noise figure	NF	3.0 GHz - 3.7 GHz		1.05	1.35	dB
7	Output power 1dB compression point	OP1dB	3.0 GHz - 3.7 GHz	13	13.7		dBm
7.1	Output power 1dB compression point	OP1dB	3.4 GHz - 3.6 GHz	13.6	14		dBm
8	Current consumption	Idd	25°C		42	46	mA
9	Power supply operating voltage	Vdd		4.7	5	5.3	V
10	Maximum average RF input power	Pin,max	DC to 6 GHz			10	dBm
11	Operating Temperature	To		-40		85	°C
12	Siorage temperature	To		-55		150	°C

Ordering information

Model Number	MLN3037

Marking : MLN3037

Solder reflow.

The high temperature solder SN100 was used for the inside assembly of ABT, MLN and MLT series modules. The melting temperature point of the high temperature solder SN100 is around 227 ^{0}C. Thus, melting temperature of the solder paste should be below 205 ^{0}C for assembling ABT, MLN and MLT series module on the test board. SN63 solder paste melting temperature point is around 183 ^{0}C and is suitable for the assembly purpose.

Caution! ESD sensitive device.

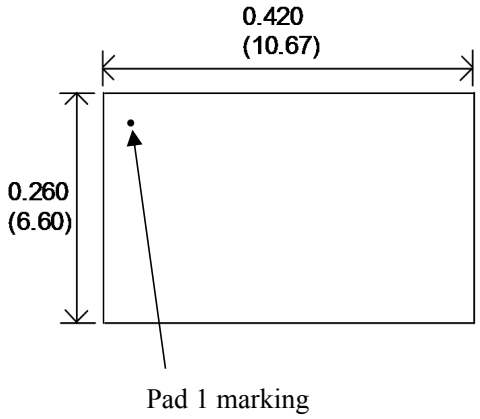
Following three suggestions that can avoid ESD effectively:

a) Workers who directly handle ABT, MLN and MLT series or boards on which devices have been mounted can wear both wrist straps and ESD protective shoes.

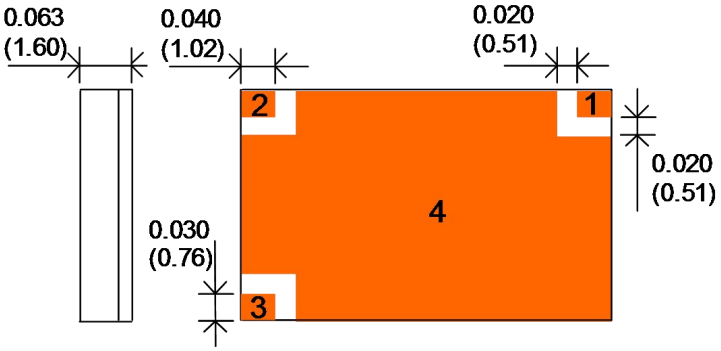
b) Gloves and finger sacks with ESD protection should be used. Especially, the finger sacks used when handling devices with bare hands must be conductive or electrostatic diffusive.

c) Workers should make efforts to wear clothing made from materials that do not generate static electricity.

Top View



Bottom View



Dimension is in inch(milimeter)

Pad 1 : RF input
Pad 2 : RF output
Pad 3 : Vdd 5V input
Pad 4 : Ground

Figure 1 Typical S11 measurement result

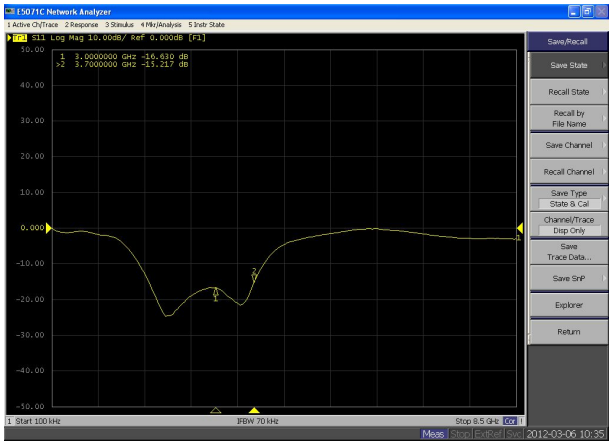


Figure 2 Typical S22 measurement result

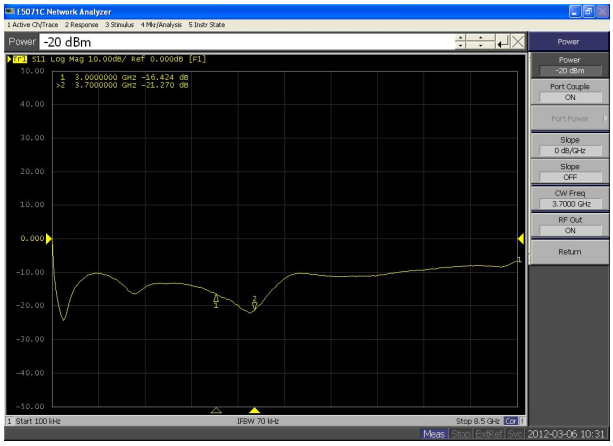


Figure 3 Typical S21 measurement result

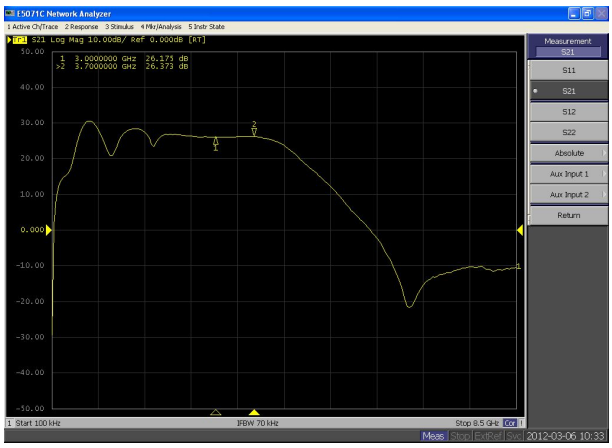


Figure 4 Typical P1dB 3 GHz measurement result

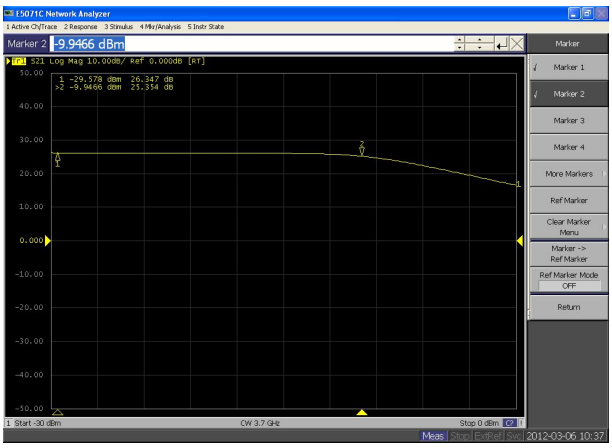


Figure 5 Typical P1dB 3.7 GHz measurement result