Wideband LNA WL0510

Product Features

- E-pHEMT chip on board
- No matching circuit needed
- 1~500MHz Wideband Amplifier
- Higher linearity
- Surface Mount Hybrid package
- CP-16 Tape & Reel Package
- Pb Free / RoHS Standard

Applications

- CATV
- Radio systems
- Satellite
- RF Sub-Systems

Package Type : CP-16

Description

RFHIC's Low Noise Amplifier series are all hybrid LNA type products which includes all matching for the convenience of customers. WL series are a wideband LNA used for up to 4GHz. All LNA hybrids are possible to have custom frequency & spec without any additional NRE cost involved.

Electrical Specifications

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	1	-	500	-
Gain	dB	20	23	-	-
Gain Flatness	dB	-	1.5	-	1 ~ 500MHz
Input Return Loss	dB	-	-18	-	-
Output Return Loss	dB	-	-10	-	-
1dB Compression Point	dBm	-	21	-	1 ~ 500MHz
Output IP3	dBm	-	35	-	10MHz
		-	33	-	500MHz
Noise Figure	dB	-	1.7	-	10MHz
		-	1.3	-	500MHz
DC Current	mA	-	100	-	Vdd = 5.0V

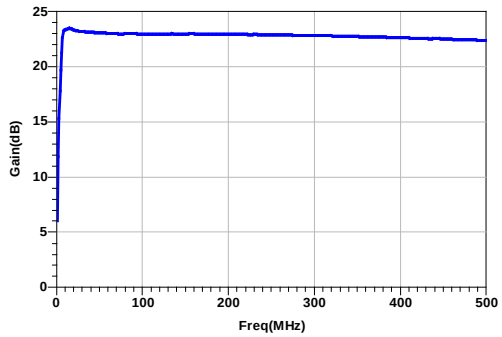
Note
1. Test conditions unless otherwise noted. Test Freq = 1-500MHz, T=25℃, Vdd=5V, 50Ω system
2. OIP3 measured with 2 tones at an output power of +5dBm/tone separated by 1MHz, Test Freq = 10 and 500MHz

Absolute Maximum Ratings

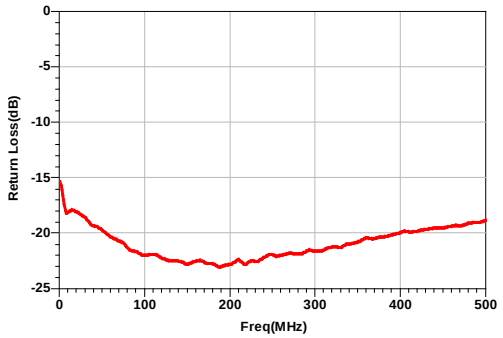
PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Supply Voltage	VDC	-	5	9	-
Operating Temperature	℃	-40	-	85	-
Storage Temperature	℃	-50	-	125	-

Typical Performance @ VDD=5V, IDS=100mA, T=25℃, 50ohm System

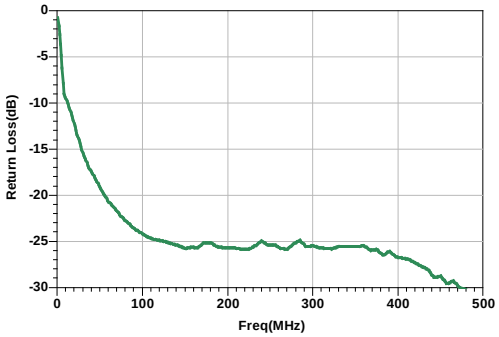
Frequency vs. Gain



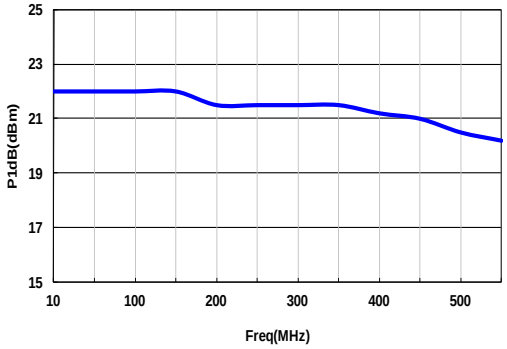
Frequency vs. S11



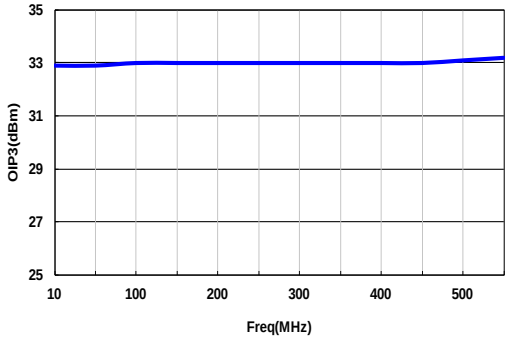
Frequency vs. S22



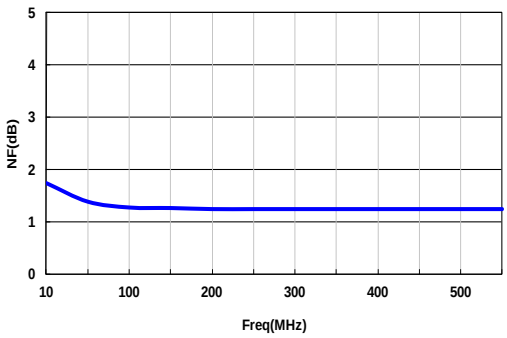
Frequency vs. P1dB



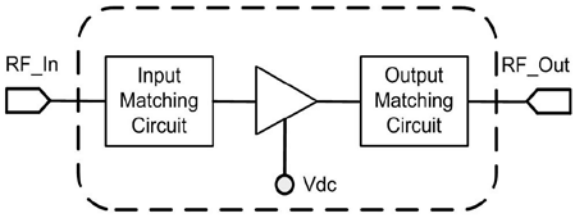
Frequency vs. OIP3



Frequency vs. Noise figure



Block Diagram

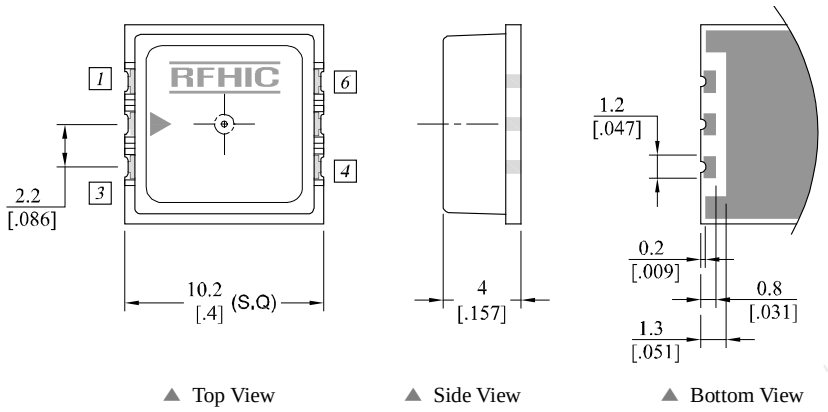


Note

1. WL Series Have internal DC blocking capacitors at the RF input and output ports.

Package Dimensions (Type: CP-16)

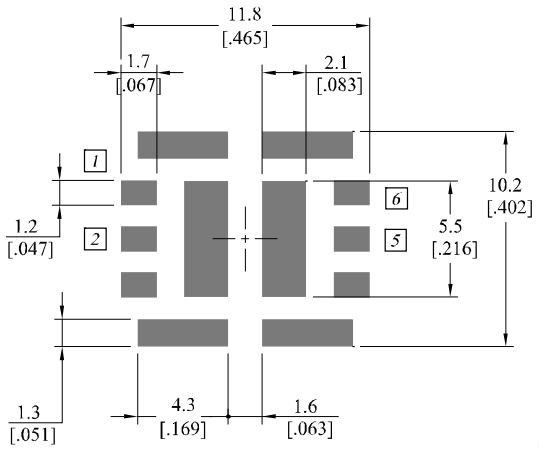
* Unit: mm[inch] | Tolerance ±0.15[.006]



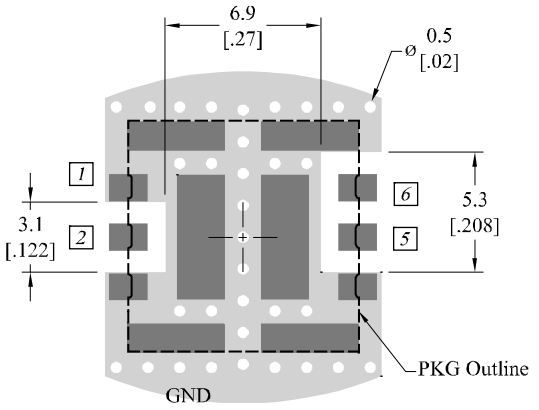
▲ Top View ▲ Side View ▲ Bottom View

Pin Description			
Pin No	**Function**	**Pin No**	**Function**
1	GND	4	GND
2	Input	5	Output
3	GND	6	Vcc

Recommended Pattern



Evaluation board Layout



*** Mounting Configuration Notes**

1. Ground / thermal via holes are critical for the proper performance of this device.
2. Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.
3. Mounting screws can be added near the part to fasten the board to a heatsink. Ensure that the ground / thermal via hole region contacts the heatsink.
4. Do not put solder mask on the backside of the PCB in the region where the board contacts the heatsink.
5. RF trace width depends upon the PCB material and construction.
6. Use 1 oz. Copper minimum.

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
WL0510	2012.10.10	1.0	-	-