# Wideband LNA

#### **Product Features**

- GaAs p-HEMT chip on board
- No matching circuit needed
- High Maximum input power(+25dBm)
- High IP3 & Low Noise
- Single Supply Voltage (+5V)
- Surface Mount Hybrid Type
- Tape & Reel Packaging
- Small Size, High Heatsink
- Alumina Substrate
- Pb Free / RoHS Standard

### Descriptions

- 2G & 3G Repeater
- Base Station
- PCS, CDMA, W-CDMA

WL1008-L / WL2208-L

WL1015-L / WL2215-L

- GSM, DCS, UMTS
- RF Sub-Systems



Package : CP-16A

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 50~2200MHz. The structure of the device is built with GaAs p-HEMT die attached on a ceramic thick film substrate. The device is still smaller than the area one would use for the application notes all together. Depending on the part number, one can use this in different frequency applications. All LNA hybrids are possible to have custom frequency & spec without any additional NRE cost involved.

All RFHIC products are RoHS compliant.

### **Electrical Specifications**

Parameter	Units	WL1008-L	WL2208-L	WL1015-L	WL2215-L
Frequency Range	MHz	50~1000	50~2200	50~1000	50~2200
Small Signal Gain (S <sub>21</sub> )	dB	16	15	16	15
Gain Flatness	dB	±1.0	±2.0	±1.0	±2.0
Input Return Loss (S <sub>11</sub> )	dB	-15	-10	-15	-10
Output Return Loss (S <sub>22</sub> )	dB	-5	-5	-5	-5
1dB Compression Point (P <sub>1</sub> dB)	dBm	19	20	21	21
Output 3 <sup>rd</sup> Order Intercept Point (OIP3) (TYP.)	dBm	31	31	35	35
Noise Figure (TYP.)	dB	1.5	1.5	1.7	1.7
DC Supply Current (Vdc=+5V)	mA	100	100	160	160

#### **Test Condition**

① Supply voltage = +5V, 50ohm System, Ta =  $25^{\circ}C$ 

② OIP3 is measured with two tones, at an output power of +0dBm/tone separated by 1MHz.

• Tel : 82-31-250-5011

All specifications may change without notice.

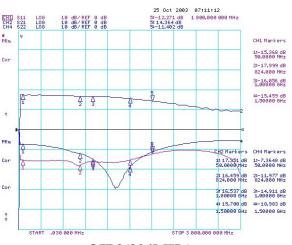
Version 6.1

# Wideband LNA

## WL1008-L / WL2208-L WL1015-L / WL2215-L

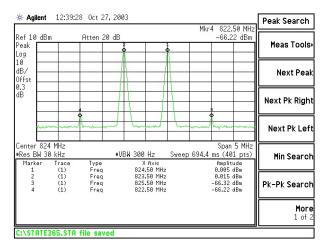


# WL1008-L



**S-Parameter** 

#### OIP3(824MHz)



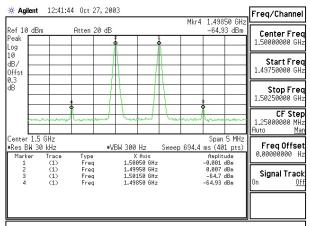
#### P1dB(824MHz)



#### **Noise Figure**

Frequency	← <b>Agilent</b> 10:33:45 May 17, 2007 DUT Amplifier Sys Downconv Off					
Freq Mode Sweep						
Start Fre	iain dB	Fig dB	Noise	Freq		
50.0000000 MH	7.098		1.904	50.0000 MHz		
Stop Fre	6.935 6.965		1.218 1.247	117.8571 MHz 185.7143 MHz		
1.00000000 GH	6.644 6.983		1.402 1.400	253.5714 MHz 321.4286 MHz		
Center Fre	6.849 6.597		1.443	389.2857 MHz 457.1429 MHz		
525.000000 MH	6.054		1.479 1.485	525.0000 MHz		
Freg Spa	6.185 6.424		1.561 1.445	592.8571 MHz 660.7143 MHz		
950.000000 MH	6.555 6.067		1.430 1.385	728.5714 MHz 796.4286 MHz		
Fixed Fre	5.994		1.399	864.2857 MHz		
1.50500000 GH	5.861 5.643		1.462 1.525	932.1429 MHz 1.000000 GHz		
More		D : 15				
1 of 2	Stop 1.00000 GHz Loss Off Corr	Points 15 Att 0 dB	BW 4 MHz Avgs Off			

#### OIP3(1500MHz)



#### P1dB(1500MHz)



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rfsales@rfhic.com

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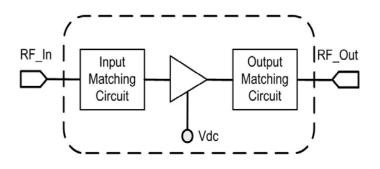


## **Absolute Maximum Ratings\***

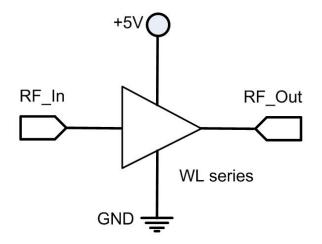
PARAMETER	Unit	Rating	Remark
Device Voltage	V	+8	
RF Input Power	dBm	+25	
Operating Temperature	°C	-40 to +85	
Storage Temperature	Ĵ	-50 to +125	

\* Operation of this device in excess of any one of these parameters may cause permanent damage.

#### **Functional Diagram**



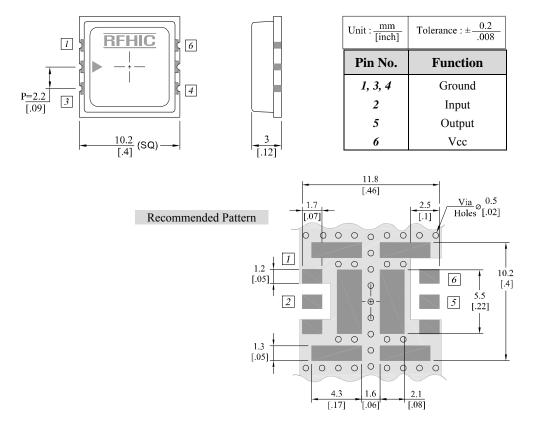
### **Application Circuit**



• Tel : 82-31-250-5011



#### Package Dimensions (Type: CP-16A)



#### **ESD** Protection

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices. Some of the precautions recommended are;

- Person at a workbench should be earthed via a wrist strap and a resistor.
- All mains-powered equipment should be connected to the mains via an earth-leakage switch.
- Equipment cases should be grounded.
- Relative humidity should be maintained between 40% and 50%.
- An ionizer is recommended.
- Keep static materials, such as plastic envelopes and plastic trays etc. away from the workbench.

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