Limiter-diode LNA

Product Features

- GaAs p-HEMT chip on board
- Limiter-diode insertion
- High Maximum Input Power(+30dBm)
- No matching circuit needed
- Single Supply Voltage (+5V)
- Surface Mount Hybrid Type
- Tape & Reel Packaging
- Small Size, High Heatsink
- Alumina Substrate
- Pb Free / RoHS Standard

Description

This LNA family is a high gain, ultra low noise amplifier.

Electrical Specifications

PARAMETER	UNIT	MIN	ТҮР	MAX
Frequency Range	MHz	1200	-	1400
Small Signal Gain (S ₂₁)	dB	-	18	-
Gain Flatness	dB	-	± 0.5	-
Input Return Loss (S ₁₁)	dB	-	-12	-
Output Return Loss (S22)	dB	-	-11	-
1dB Compression Point (P ₁ dB)	dBm	18	20	-
Output 3 rd Order Intercept Point (OIP3) (TYP.)	dBm	30	33	-
Noise Figure (TYP.)	dB	-	0.7	1.0
RF Input Power (for 12 hours)	dBm	-	-	30

Test Condition

 \odot Fc=1300MHz, Supply Voltage = +5V, 50ohm system, Ta = 25 $^{\circ}$ C

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

mА

Absolute Maximum Ratings

DC Supply

Current (Vdc=+5V)

PARAMETER	UNIT	RATING	REMARK
Device Voltage	V	8	-
RF Input Power	dBm	30	-
Operating Temperature	Ĵ	$-40 \sim 85$	-
Storage Temperature	Ĵ	-50 ~ 125	-

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Note

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

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CL1302D-L

Applications

- ppneations
- WiMAX, LTE
- Radar
- Repeater
- Base Station
- RF Sub-Systems

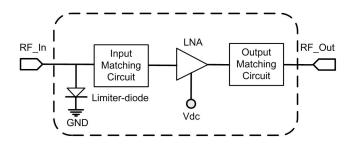




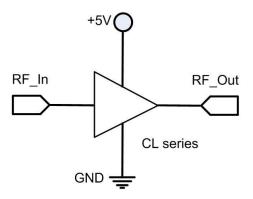
tions

RFHIC

Functional Diagram



Application Circuit



ESD Protection

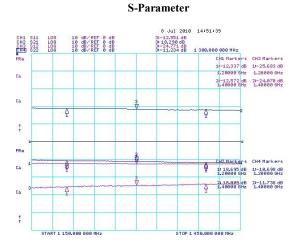
Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices. Some of the precautions recommended are;

- 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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OIP3

🔆 Agilent 22:48:52	2 Jan 6,1970				Freq/Channel
Ch Free Intermod (TOI)	a 1.3 GHz	Г		Trig Free	Center Freq 1.30000000 GHz
		L			Start Freq 1.29750000 GHz
Ref 0.9 dBm #Samp Log	#Atten 30 dB		*		Stop Freq 1.30250000 GHz
10 dB/ Offst 0.9	↓ ↓				CF Step 500.000000 kHz <u>Auto</u> Man
dB Center 1.300 000 0				Span 5 MHz	FreqOffset 0.00000000 Hz
Res BW 47 kHz	+VE Freq	W 300 Hz dBm	Sweep 874	4.4 ms (601 pts) Intercept	Signal Track
Base Lower Base Upper Worst Case 3rd Order Lower 3rd Order Upper	Freq 1.29951 GHz 1.30050 GHz 1.29850 GHz 1.29850 GHz 1.30149 GHz	авт -0.03 0.02 -66.43 -66.43 -70.66	GBC -0.05 0.00 -66.46 -66.46 -70.69	33.20 dBm 33.20 dBm 33.20 dBm 35.34 dBm	0n <u>Off</u>
Copyright 2000-2	2007 Agilent To	chnologies			J

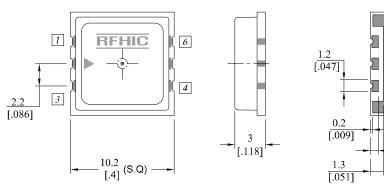
Noise Figure

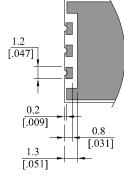
🔆 Agilent	14:48:19 Jul	9,2010			Frequency
	Mkr1 Mkr2 Mkr3	1.2 GHz 1.3 GHz 1.4 GHz	0.715 dB 0.605 dB 0.627 dB	18.199 dB 17.560 dB 17.038 dB	Freq Mode Sweep
3.000					Start Fred 1.15000000 GH:
					Stop Fred 1.45000000 GH:
NFIG Scale/ 9.300					Center Fre 1.30000000 GH
dB					Freq Spa 300.000000 MH
	~			° ,	Fixed Fre 14.7500000 GH
0.000 Start 1.150 Foold 306.9				o 1.45000 GHz s Off Corr	More 1 of 2

Limiter-diode LNA

Package Dimensions (Type: CP-16A)

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





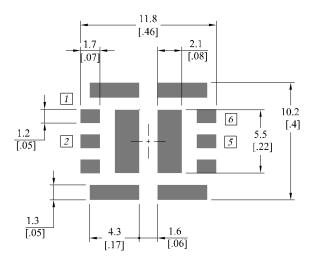
▲ Top View

▲ Side View

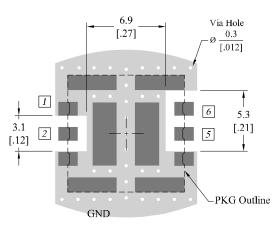
▲ Bottom View

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

Recommended Pattern



Recommended Mounting Configuration



* 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
CL1302D-L	2012.10.19	1.1	New datasheet format	-
CL1302D-L	2012.2.18	1.0	Initial Release	-

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