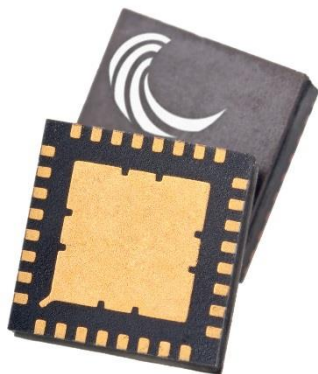


Linwave QFN High Pin 2-20 GHz LNA

LW48-793138



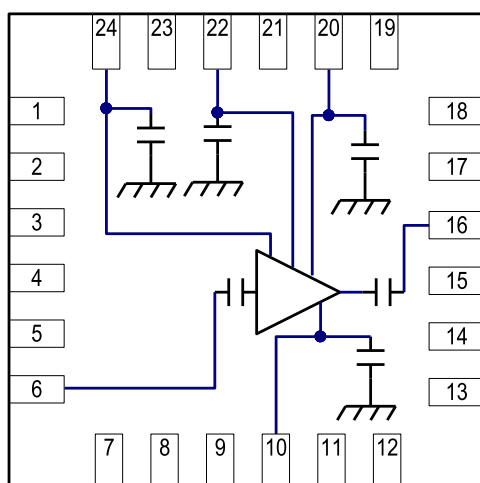
Features:

- Frequency from 2-20GHz
- Pin 40dBm
- Nominal gain : 15dB
- Low Noise Figure <3.0dB, typically 2.0dB
- P1dB typically +20dBm
- Quiescent bias $V_d=8V$, $I_d=125mA$
- QFN
- Integrated DC blocks

Applications:

- Communications systems
- Low noise frontends
- Gain block, LNA

Functional Diagram:



Pin Designations	
Pin No.	Function
Pin 6	RF IN
Pin 16	RF OUT
Pin 4-5, 7	GROUND
Pin 10	Vg
Pin 11-12, 14-15	GROUND
Pin 17-18	Ground
Pin 20	Vd
Pin 22	Vs
Pin 24	Vc

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Electrical Specifications Vdd=8.0V Vg=-3V Vc=2V T=25 °C

Parameter	Min	Typ	Max	Units
Frequency Range	2		20	GHz
Gain		16		dB
Noise Figure		2.5		dB
Input Return Loss		10		dB
Output Return Loss		12		dB
Output P1dB		20		dBm

Pin Descriptions

Pin Number	Function	Description
6	RF INPUT	This pad is AC coupled and matched to 50 ohms
16	RF OUTPUT	This pad is AC coupled and matched to 50 ohms
1-3, 8-9, 13, 19, 21, 23	N/C	The pins are not connected internally; however, all data shown was measured with these pins connected to RF/DC ground externally.
10	Vg	Gate Voltage
20	Vd	Drain Voltage
22	Vs	Source Voltage
24	Vc	Cascode Voltage
4-5, 7, 11-12, 14-15, 17-18	GROUND	Must be connected to RF/DC ground
Ground paddle	GROUND	Must be connected to RF/DC ground

Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
Vd		8-15		V
Id		125		mA
Vg		-3		V
Vc		2-4		V

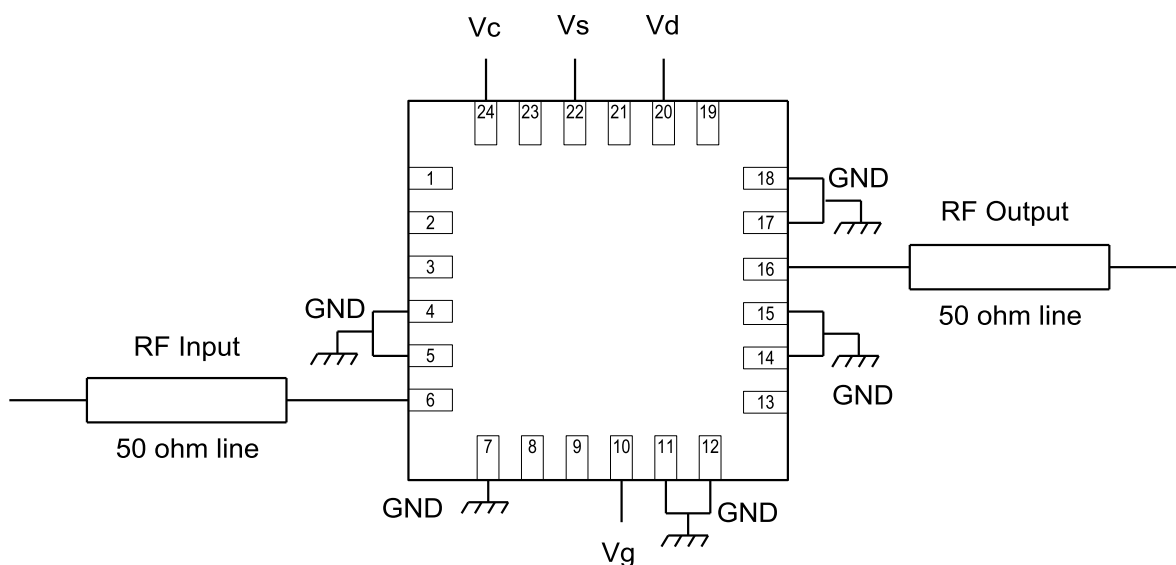
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Application Circuit

Note: Effective heatsinking through the ground paddle on the underside of the package is essential for high power operation (RF Input >1W)



Bias Up Procedure

1. Set $V_G = -5.0\text{ V}$, $V_C = 0.0\text{ V}$, $V_D = 0.0\text{ V}$
2. Adjust V_D to desired drain voltage
3. Adjust V_C to desired voltage
4. Adjust V_G until $I_{DS} = 125\text{ mA}$
5. Turn on RF signal

Bias Down Procedure

1. Turn off RF signal
2. Adjust V_G to -5.0 V
3. Adjust V_C to 0.0 V
4. Adjust V_D to 0.0 V
5. Adjust V_G to 0.0 V

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