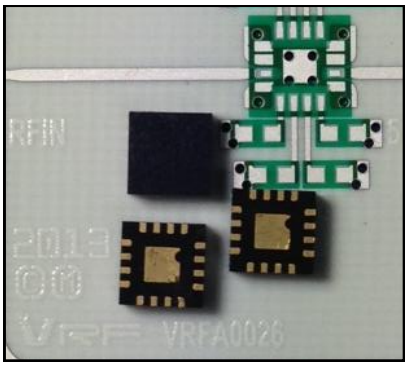
VRFA0026-QFN

X-Band QFN Packaged GaAs MMIC LNA

Preliminary Datasheet v4

Features



- Frequency Range: 7 to 11 GHz
- Single supply 3V, 80mA self bias
- 1.2dB Noise Figure @ 9GHz typical
- 23dB small signal gain
- Rugged power handling capability
- 50Ω matched RF ports
- 3x3QFN package RoHS & REACH compliant

Description

The VRFA0026-QFN is an X-band low noise amplifier MMIC in a 3x3 QFN package which operates over the frequency range of 7GHz to 11GHz. The circuit demonstrates a nominal 1.2dB noise figure at 9GHz with small signal gain of 23dB across the frequency band. The VRFA0026-QFN draws 80mA from a +3VDC supply. The RF ports are DC blocked and matched to 50Ω. Typical applications for the VRFA0026-QFN include point to point radios, VSAT, radar and test & instrumentation.

Electrical Specifications

T=+25°C baseplate, V_{DD} = +3V, Id=80mA

Parameter	Specification			Unit
	Max.	Typ. @9GHz	Min.	
Frequency Bandwidth	7		11	GHz
Small Signal Gain		23		dB
Noise Figure		1.2		dBm
I/P Return Loss		-8		dB
O/P return Loss		-9		
P1dB Ouput Power		15.5		dBm

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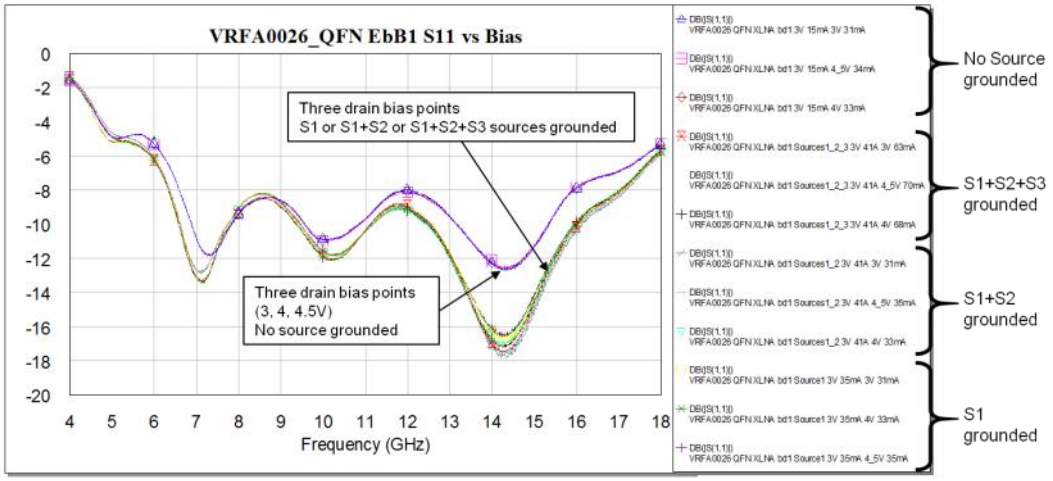
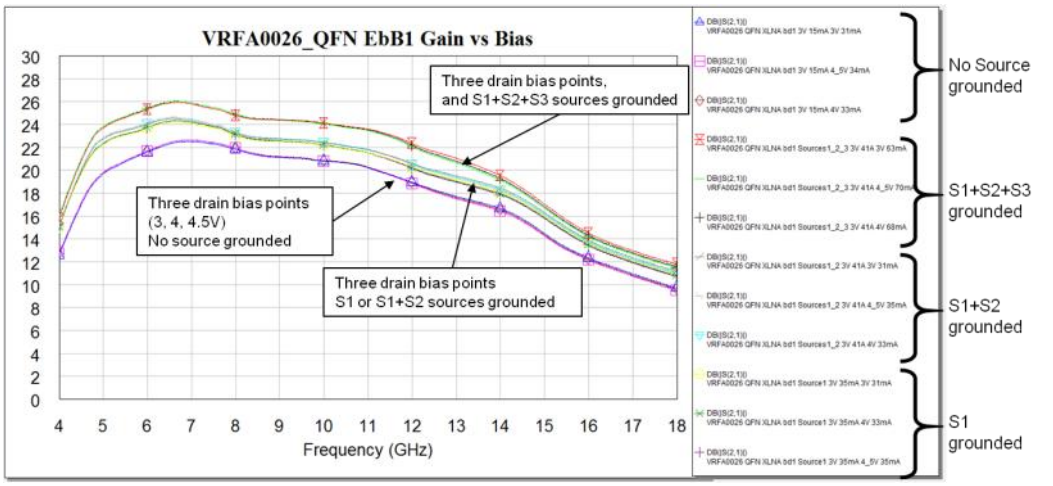
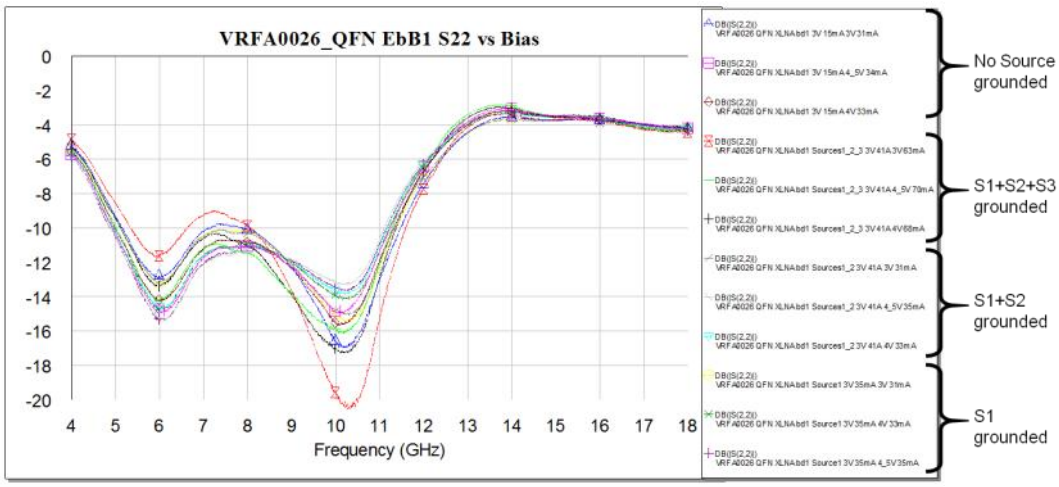
Measured Performance

T=+25°C baseplate, V_{DD} = +3V







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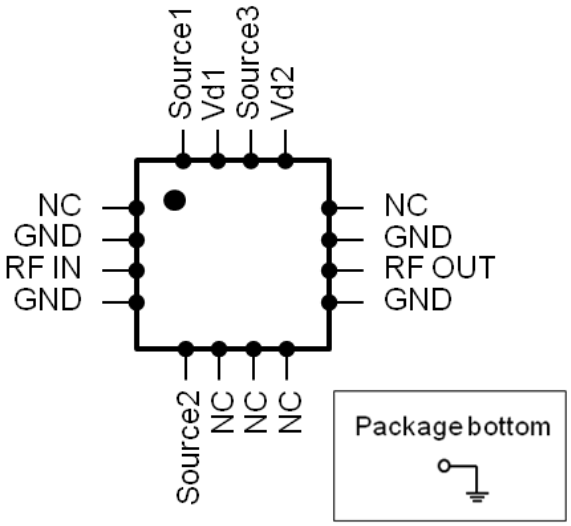
Recommended Absolute Maximum Ratings [1]

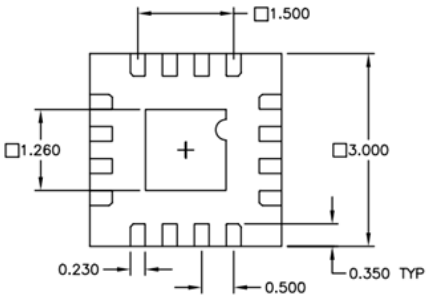
Parameter	Symbol	Value	Notes
Drain Bias Voltage	V_d	+4V	
Gate Bias Voltage	V_g	-5V	
Gate Current	I_g	50mA	
RF input power (pulsed)	RF_{in}	+28dBm	Tested under 20% 40us Recommend maximum dependent on bias point
Junction Temperature	T_j	175°C	For maximum median device lifetime, T_j should be minimised
Storage temperature	$T_{storage}$	-55 to 150°C	

[1] *Operation outside these conditions may cause permanent damage to the device. Combination of maximum rating conditions may reduce the values. Device performance at these ratings is not implied.*

Assembly & Bonding Diagram



TOP VIEW



Unit: mm

BOTTOM VIEW

PAD	CONNECTION
Vd1, Vd2	Device is self-biased, both connections are required
Source 1/2/3	Optional Connections to GND for optimize gain/NF/ com-pression
Package bottom	GND

Package Size	3mm x 3mm
Package Thickness	1.23 mm
Number of leads	16

GaAs devices are ESD sensitive and precautions should be observed during storage, handling, assembly and testing.