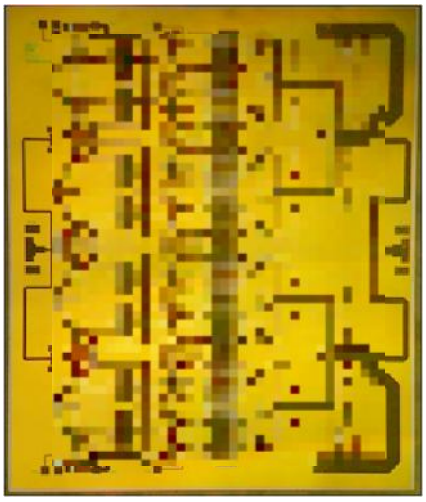
VRFA0041V2 - BD

7.9-8.4GHz 15W GaAs MMIC Power Amplifier

Preliminary Datasheet v1

Features

- Frequency Range: 7.9 to 8.4GHz
- Saturated CW Output Power 15W typical
- Saturated Efficiency 45% typical
- Bias: Vd = 8V, Idq = 4.2A
- Die Size: 5 x 5.94 x 0.1 mm
- Applications include satcomms



Description

The VRFA0041V2-BD is a 15W CW GaAs high power amplifier MMIC which operates over the frequency range of 7.9GHz to 8.4GHz. The amplifier typically delivers a small signal gain of +23dB, saturated output power Psat of +42dBm with a typical efficiency of 45%. The VRFA0041V2-BD draws 4.2A quiescent current from a +8VDC supply. The RF ports are DC blocked and matched to 50Ω. Typical applications for the VRFA0041V2 include C-Band satellite communications.

Electrical Specifications

T=+25°C baseplate, V_{DD} = +8V, Idq=4.2A

Parameter	Specification			Unit
	Max.	Typ.	Min.	
Frequency Bandwidth	7.9		8.4	GHz
Small Signal Gain		23		dB
CW Saturated Output Power (Psat)		42		dBm
I/P Return Loss		-10		dB
CW Power Added Efficiency (PAE)		45		%

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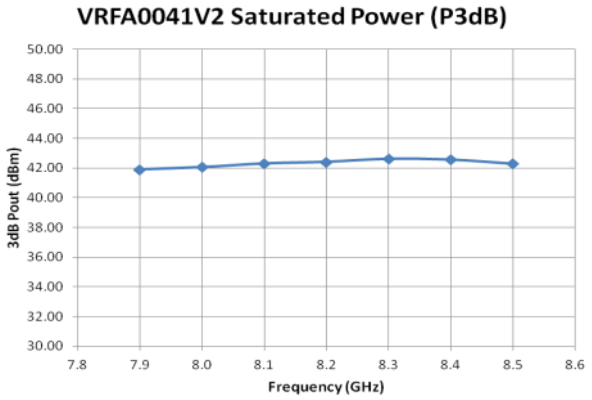
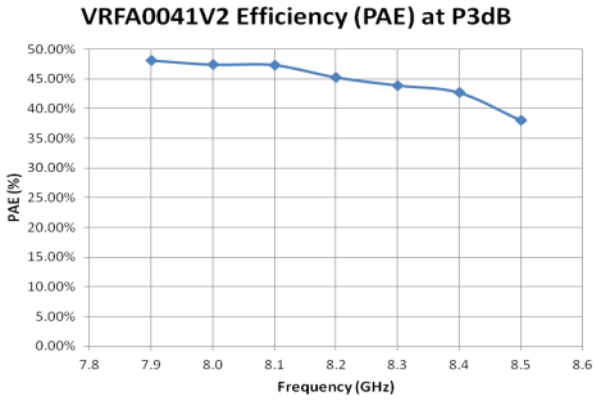
Measured Performance

T=+25°C baseplate, V_{DD} = +8V, I_{dq}=4.2A, CW





Recommended Absolute Maximum Ratings [1]

Parameter	Symbol	Value	Notes
Drain Bias Voltage	V_d	+10V	
Gate Bias Voltage	V_g	-5V	
Gate Current	I_g	50mA	
RF input power	RF_{in}	25dBm	
Power Dissipation	P_d		Related to Junction Temperature
Junction Temperature	T_j	200°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.

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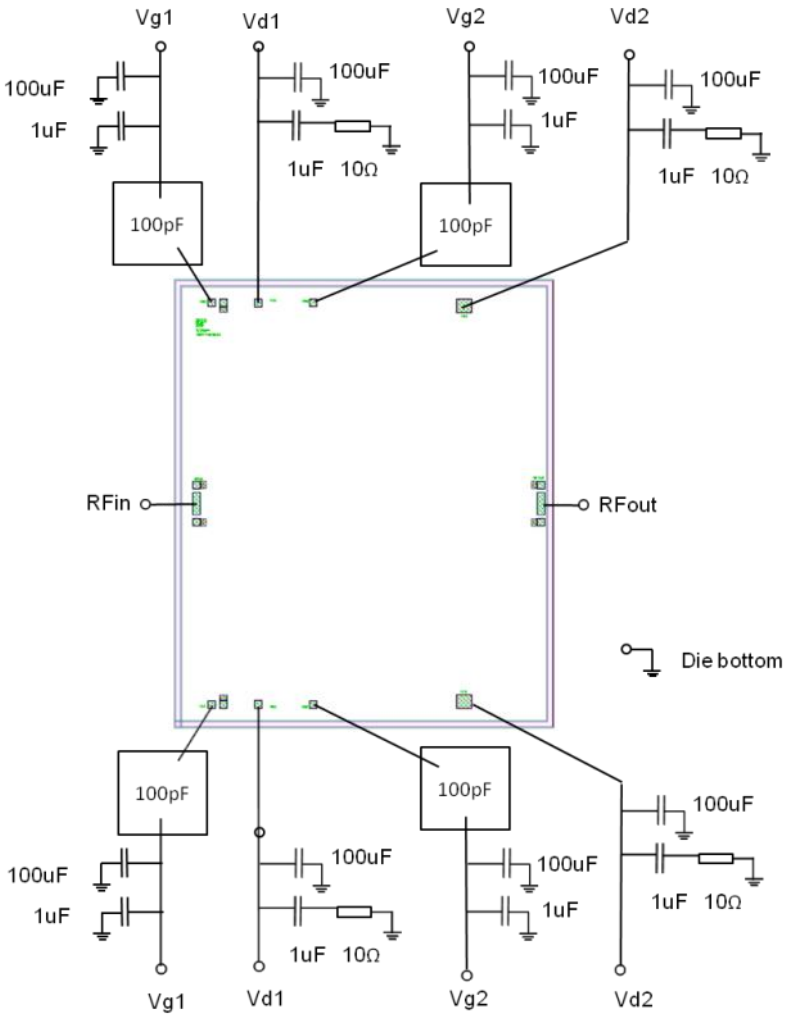
Assembly & Bonding Diagram



Die Size	5mm x 5.94mm
Die Thickness	100µm
Minimum Bondpad opening	70µm x 70µm

Minimal length (0.15nH) are recommended for RF bondwires. The RF input and output ports are DC blocked.

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