# VRFA0006 - BD

## WLAN 2.4GHz GaAs MMIC Dual Amplifier

*Preliminary Datasheet v2*

### Features

- Frequency Range: 2.4-2.5 GHz / 5.15-5.85 GHz
- Integrated Dual Amplifier on a single die
- Single Supply Voltage
- Die Size: 3mm x 1mm x 0.1 mm

### Description

The VRFA0030-BD The VRFA0006-BD is a single-chip solution for dual-band operation in WLAN applications. The MMIC operates at 2.4-2.5GHz, offering 26dB of gain and a 1dB compression point of 25dBm. In the 5.15-5.85GHz band, the device exhibits a small-signal gain of 28dB with a P1dB of 24dBm. The part can be readily integrated into a WIFI FEM fulfilling the EVM and ACP1-2 requirements for 802.11 a/b/g . The RF ports are DC blocked and matched to 50Ω.

### Electrical Specifications

*T=+25°C baseplate*

| Parameter | Typical Specification | | Unit |
|---|---|---|---|
| | 2.4 GHz Amplifier | 5 GHz Amplifier | |
| Frequency range | 2.4-2.5 | 5.15-5.85 | GHz |
| Gain | 26.5 | 28 | dB |
| Input Return Loss | -11 | -10 | dB |
| Output Return Loss | -12 | -11 | dB |
| Output power for 1dB compression | 25 | 24 | dBm |
| Drain supply | 3-4.8 | 3-4.8 | V |
| Gate supply | 0.6-0.7 | 0.6-0.7 | V |
| Drain current (class A) | 200 | 160 | mA |

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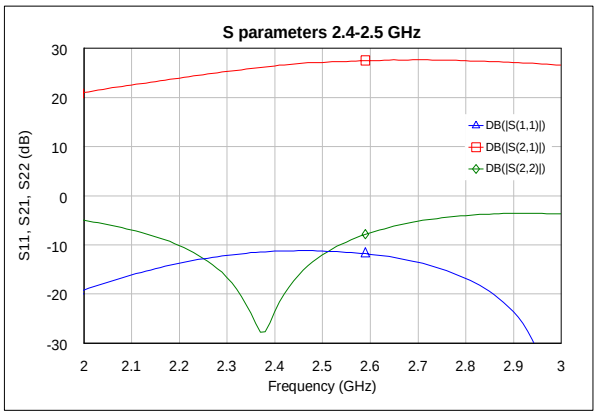
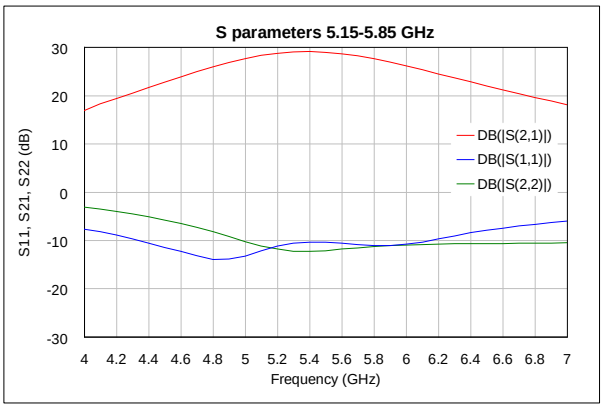
## Measured Performance (on wafer)

*T=+25°C baseplate, $V_{DD}$ = +3.3V, Id=300mA*




## Recommended Absolute Maximum Ratings [1]

| Parameter | Symbol | Value | Notes |
|---|---|---|---|
| Drain Bias Voltage | $V_d$ | +10V | |
| Gate Bias Voltage | $V_g$ | -5V | |
| Gate Current | $I_g$ | 5mA | |
| RF input power | $RF_{in}$ | +5dBm | |
| 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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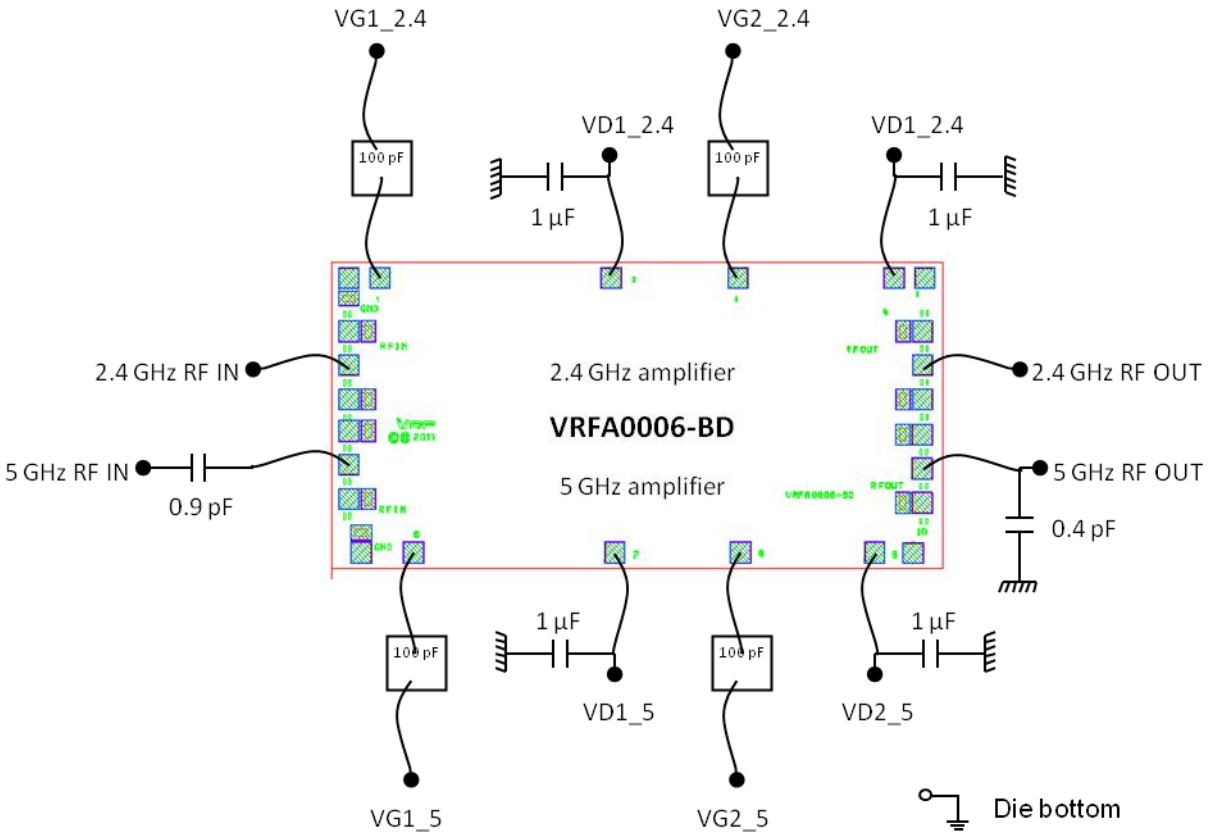
### Assembly & Bonding Diagram




| | |
|---|---|
| Die Size | 3mm x 1mm |
| 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.