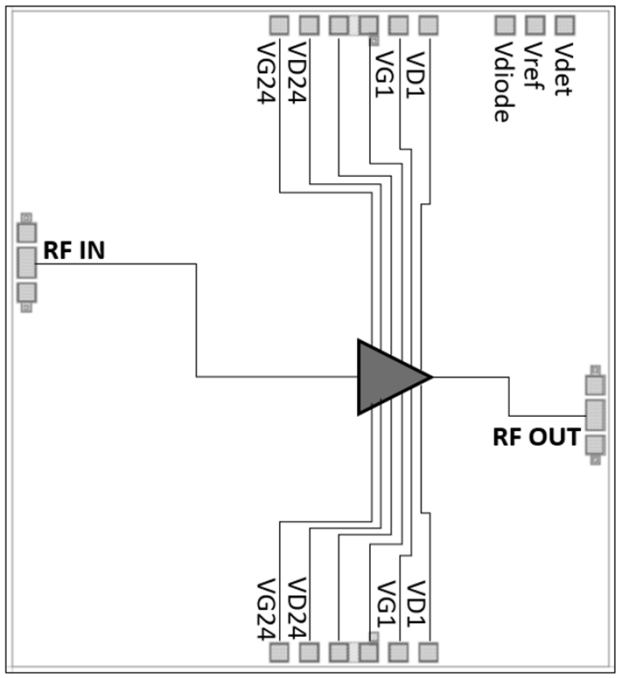
V1.0.2

GaAs MMIC
Power Amplifier
20GHz – 44GHz

Features

- Frequency: 20GHz - 44GHz
- Small Signal Gain: 19dB
- Gain Flatness: ±2.0dB
- P1dB = 25 dBm to 26.5 dBm
- Power Supply: +6V/625mA
- Input/Output: 50Ω
- Die Size: 3.0 x 3.3 x 0.07 mm

Functional Block Diagram



Typical Applications

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

TA = +25°C, VD1, VD24 = +6V, VG1, VG24 = -0.4V, ID1 = 337mA, ID24 = 288mA

Parameters	Min.	Typ.	Max.	Units
Frequency		20 - 44		GHz
Small Signal Gain		19		dB
Gain Flatness		±2		dB
Output 1dB Compression (P1dB)	25.0		27.5	dBm
Saturated Output Power (Psat)	26.7		28.9	dBm
Input Return Loss		> 10		dB
Output Return Loss		> 10		dB
* Adjust VG1, VG24 slightly to obtain total drain currents of 630 mA.				

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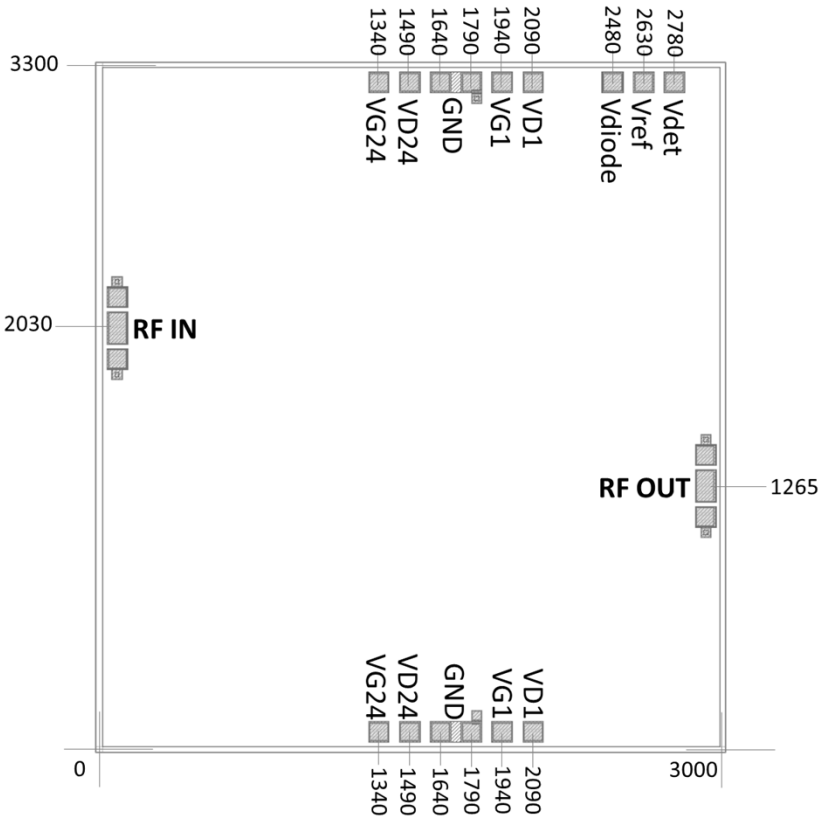
Outline Drawing:

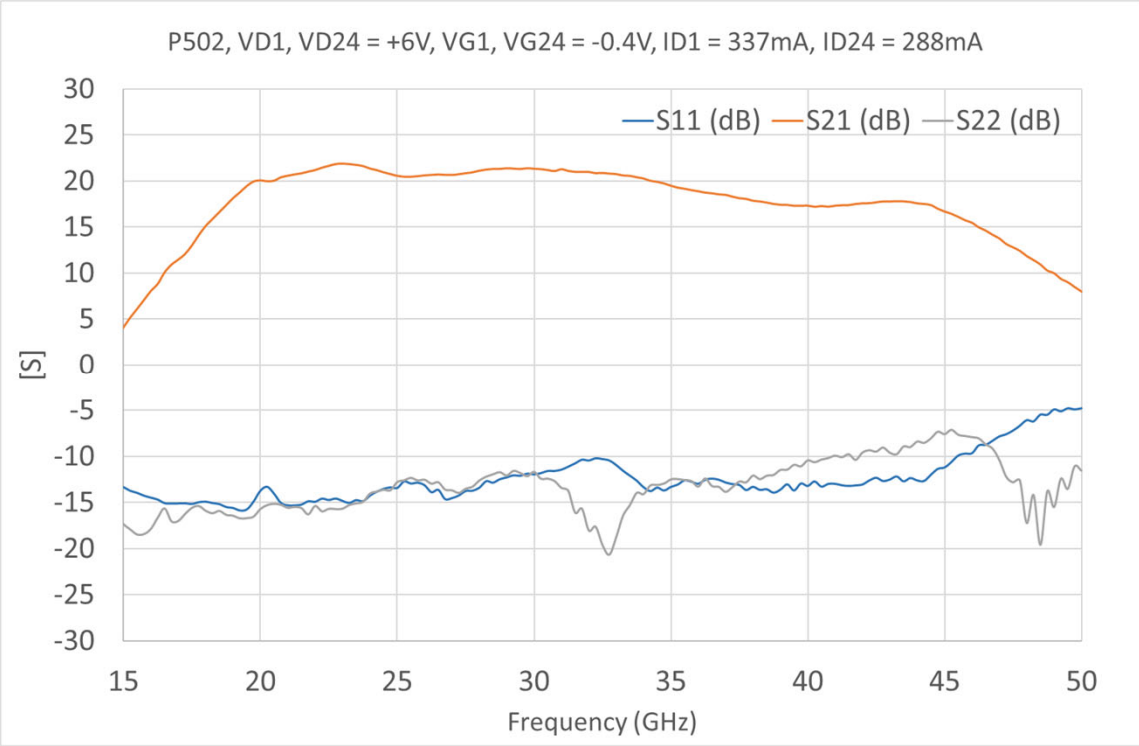
All Dimensions in µm



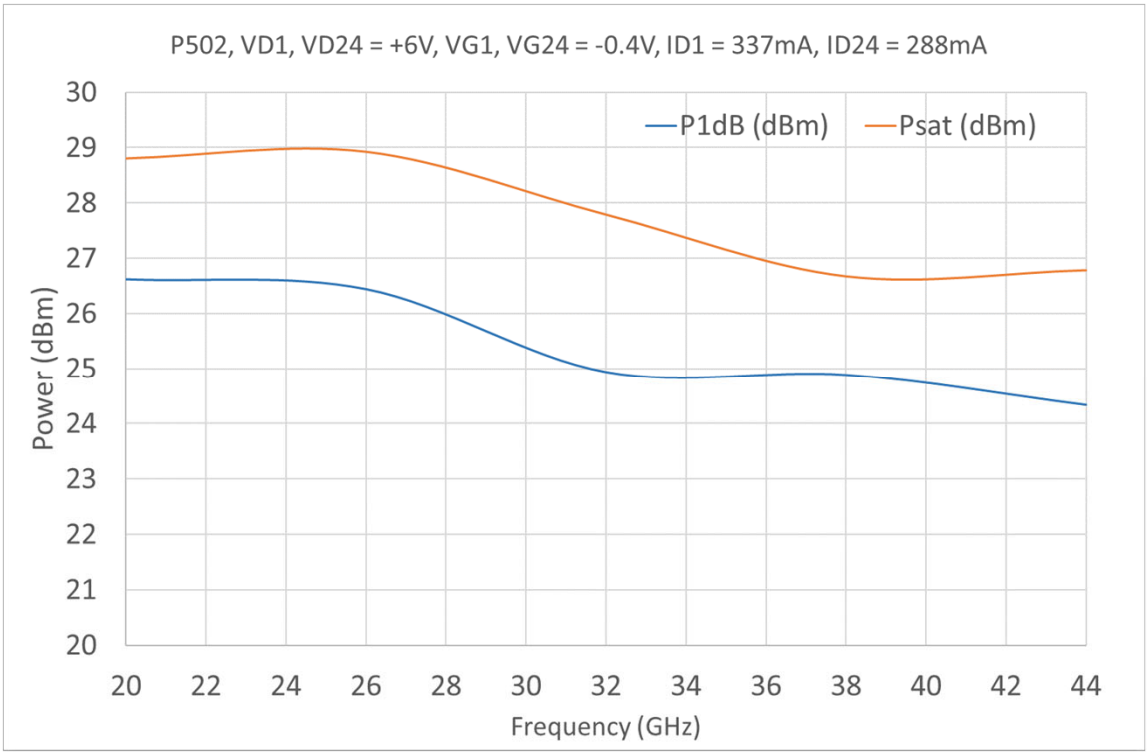
Pad Description

No	Function	Description
1	RF IN	Signal input terminal, connected to 50Ω circuit
2	RF OUT	Signal output terminal, connected to 50Ω circuit
3	VG1, VG24	Amplifier gate bias; connect to external 1000pF and 0.01uF bypass capacitors.
4	VD1, VD24	Amplifier drain bias; connect to external 1000pF and 0.01uF bypass capacitors.
5	Vdiode	Diode biasing voltage
6	Vref	Reference diode output voltage
7	Vdet	Detector output voltage
8	GND	Ground pads

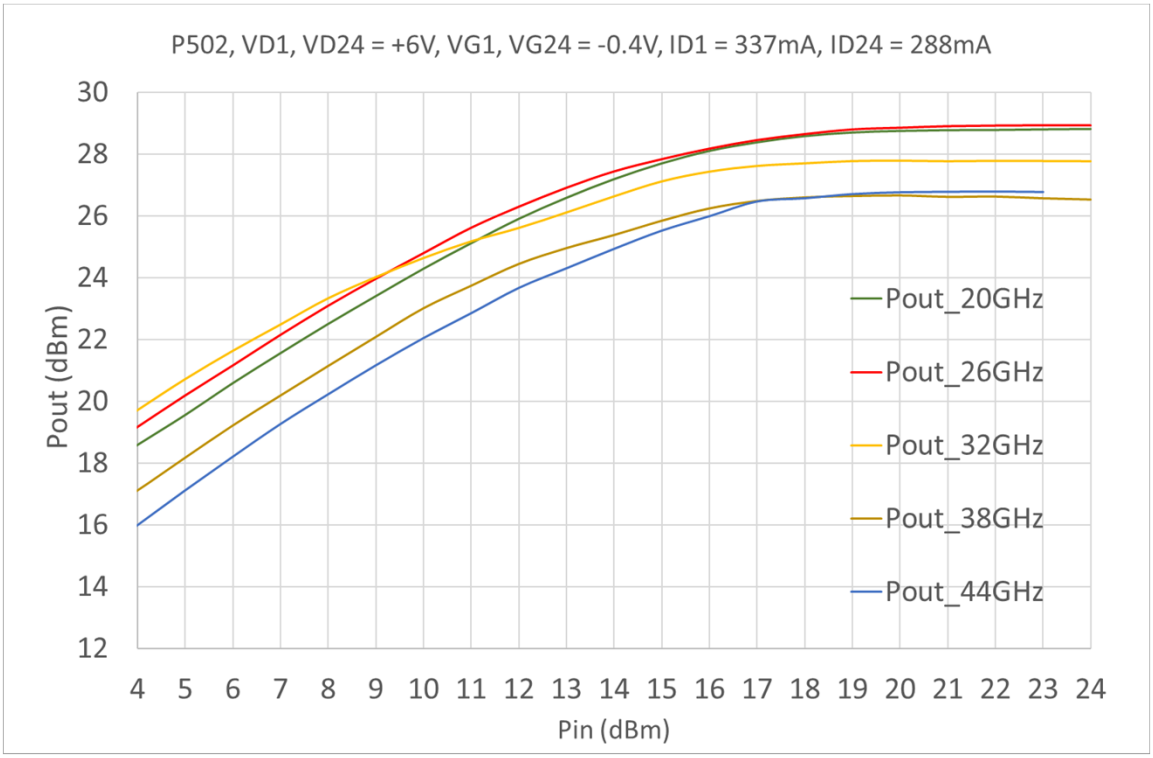
Measurement Plots: S-parameters



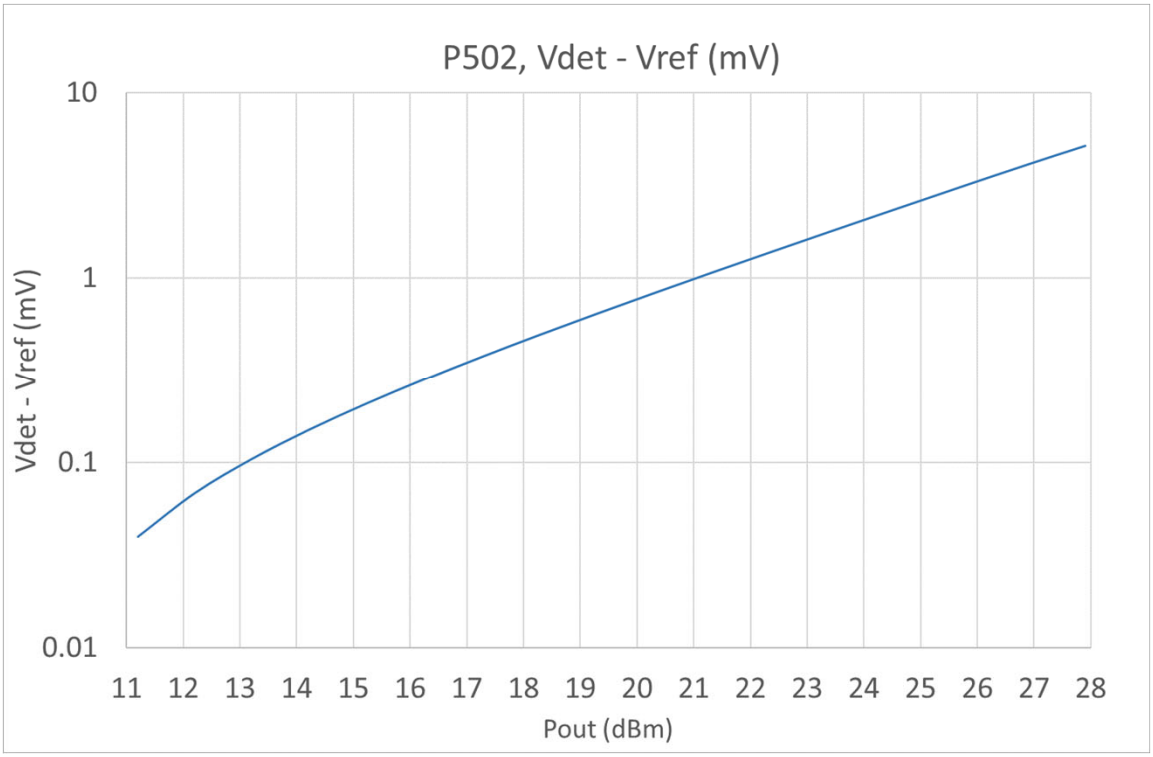
Measurement Plots: P1dB and Psat



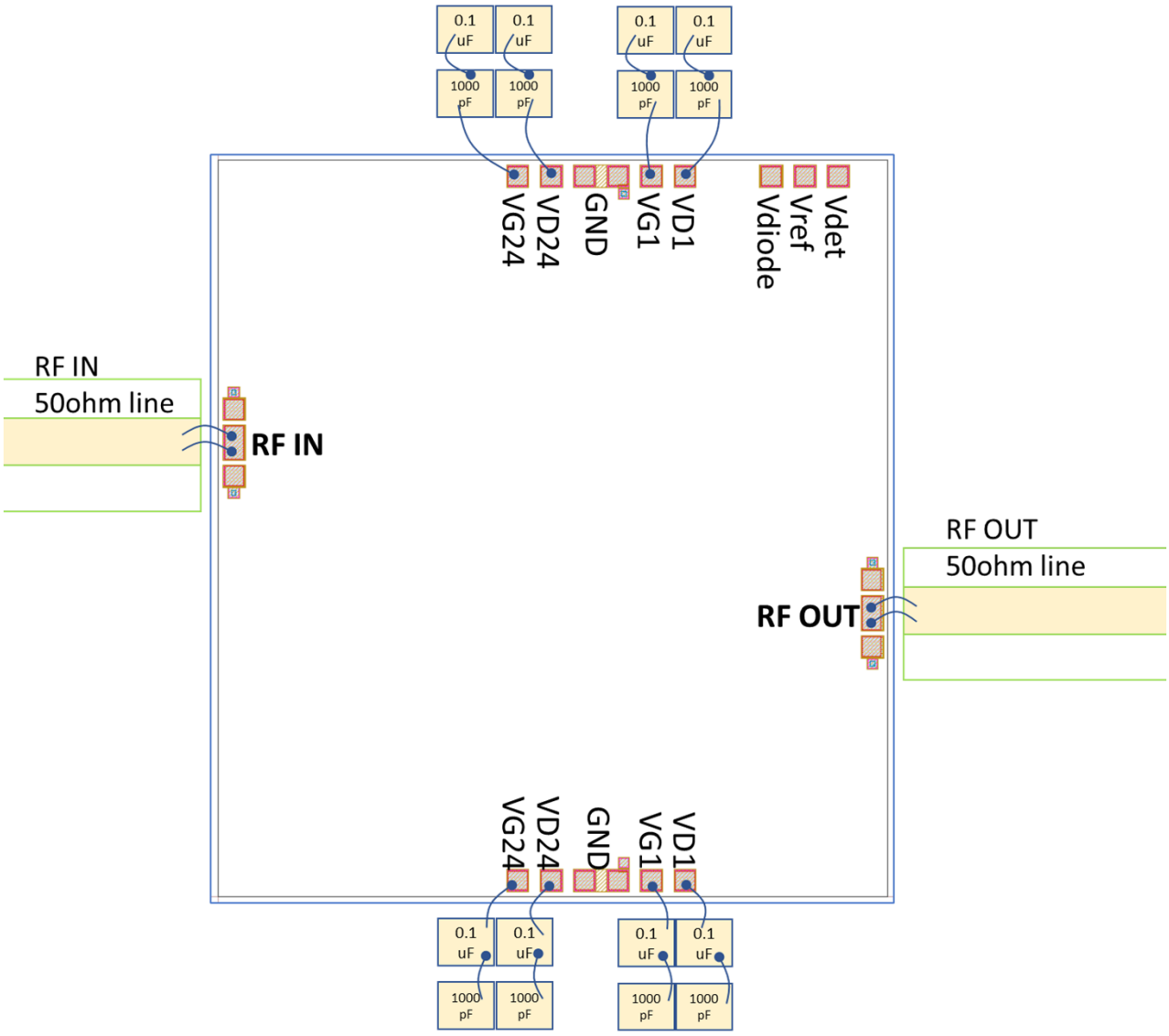
Measurement Plots: Pout vs Pin



Measurement Plots: Vdet - Vref



Assembly Drawing



Notes:

1. Die thickness: 70um
2. DC bond pad is 100 x 100 μm^2
3. RF IN/OUT bond pad is 100 x 160 μm^2
4. Bond pad metalization: Gold
5. Backside metalization: Gold
6. Backside of the die (GND)