



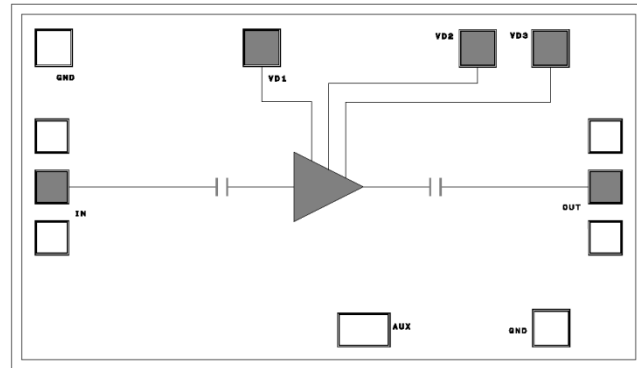
Features

- Low Noise Amplifier (Single DC Biased)
- Frequency: 20 - 44GHz
- Small Signal Gain:
23dB@20GHz
15dB@44GHz Typical
- Gain Flatness: ± 3.0 dB Typical
- Noise Figure: 2.8dB Typical
- P1dB: 13dBm Typical
- Power Supply: +2.5V/160mA
- Input/Output: 50 Ω
- Chip Size: 1.85 x 1.05 x 0.1mm

Typical Applications

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

Functional Block Diagram



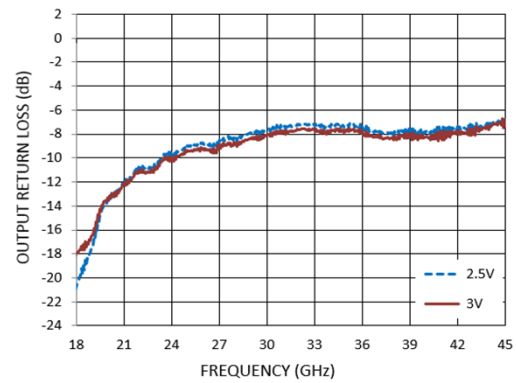
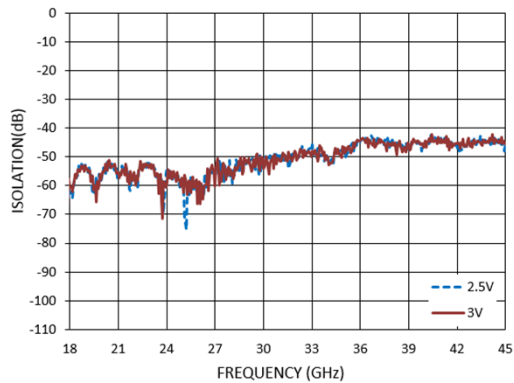
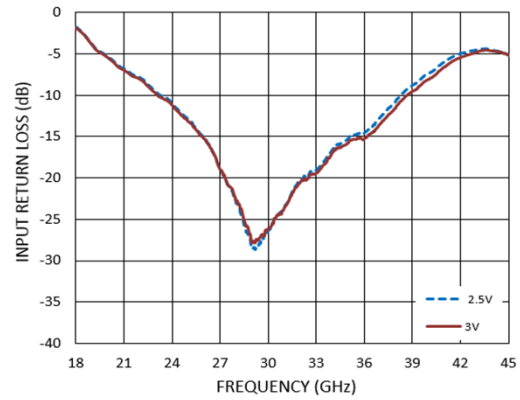
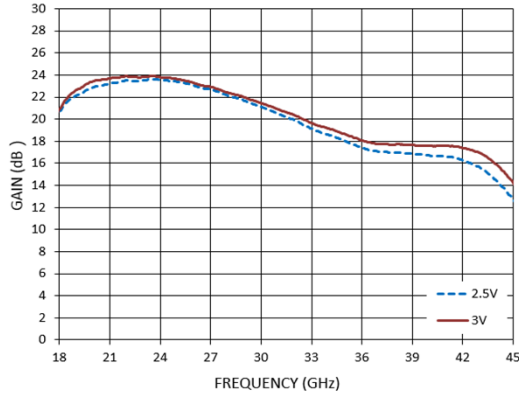
Electrical Specifications

TA = +25°C, VD1 = VD2 = VD3 = 2.5V, IDD = 160mA Typical

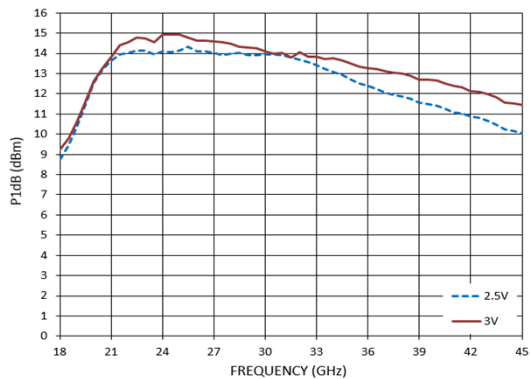
Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency	20-30			30-44			GHz
Small Signal Gain	20.0	23.5			18.5		dB
Gain Flatness		± 1.5			± 2.5		dB
Noise Figure		2.8			3.2		dB
P1dB - Output 1dB Compression	11	14		9	11		dBm
Past - Saturated Output Power		15			12		dBm
OIP3 - Output Third Order Intercept		28			24		dBm
Input Return Loss		10			10		dB
Output Return Loss		10			8		dB



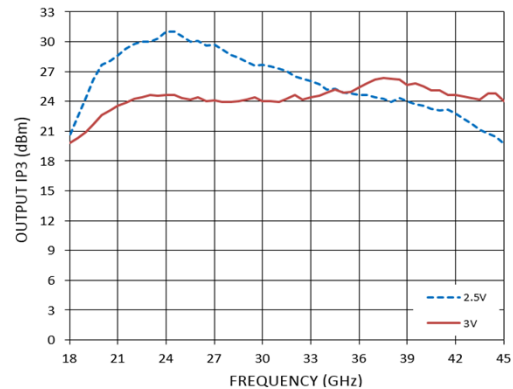
Measurement Plots: S-parameters

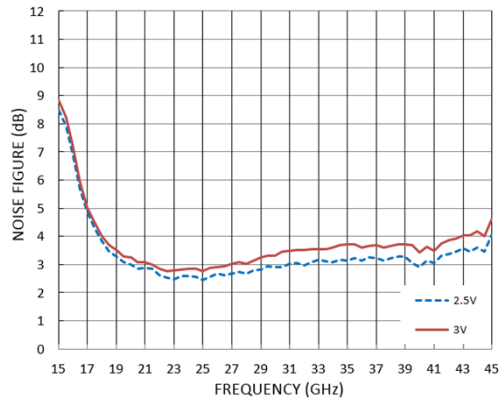
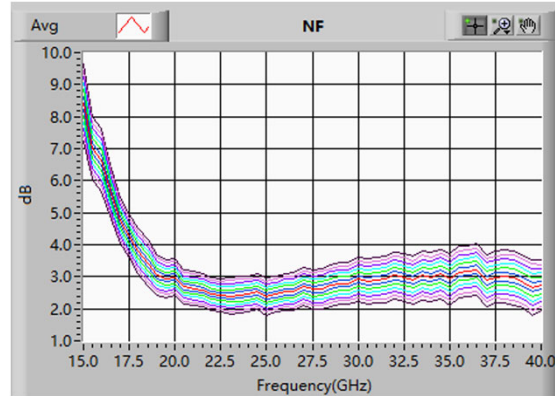


Measurement Plots: P1dB



Measurement Plots: OIP3



**Measurement Plots: Noise Figure
(6 Sigma Worst Case)**

**Measurement Plots: Noise Figure
(Statistic 6000pcs)**


Absolute Maximum Ratings

Drain Bias Voltage (VD)	+4V
RF Input Power (RFIN)(VD=+2.5V)	+10 dBm
Channel Temperature	150 °C
Continuous Pdiss (T = 85 °C)(derate 24 mW/°C above 85 °C)	+25dBm
Thermal Resistance (channel to die bottom)	50°C/W
Operating Temperature	-55 to +85 °C
Storage Temperature	-55 to +150 °C

Typical Supply Current vs. VD

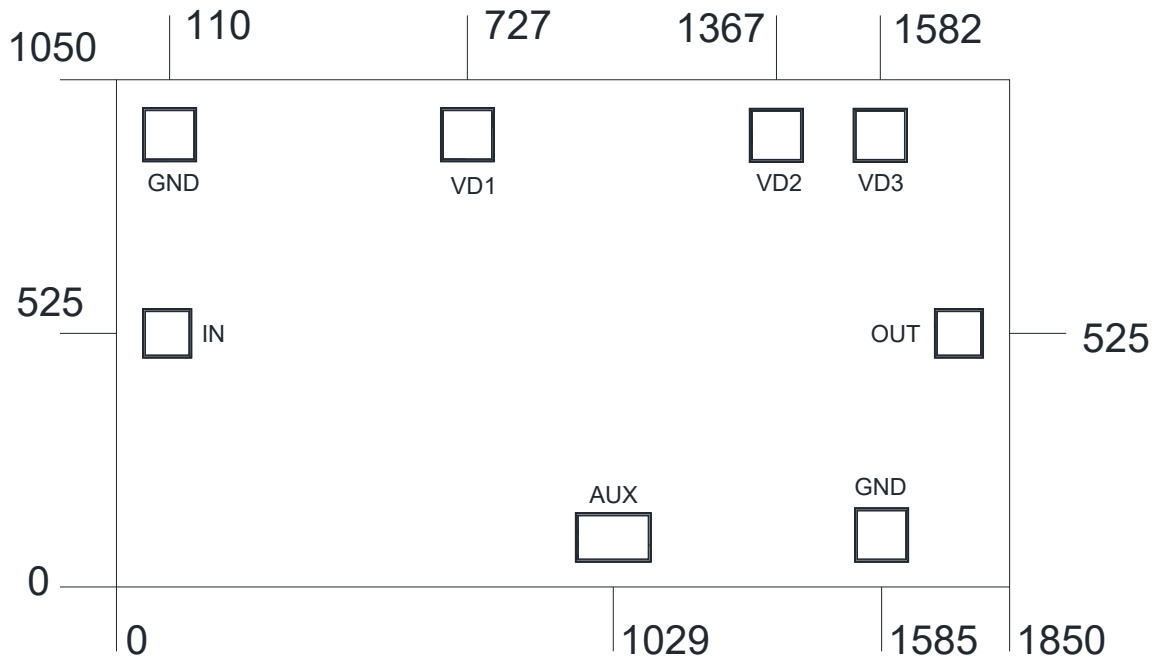
VD (V)	IDD (mA)
+2.5	160
+3	205



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**



Outline Drawing:
All Dimensions in μm

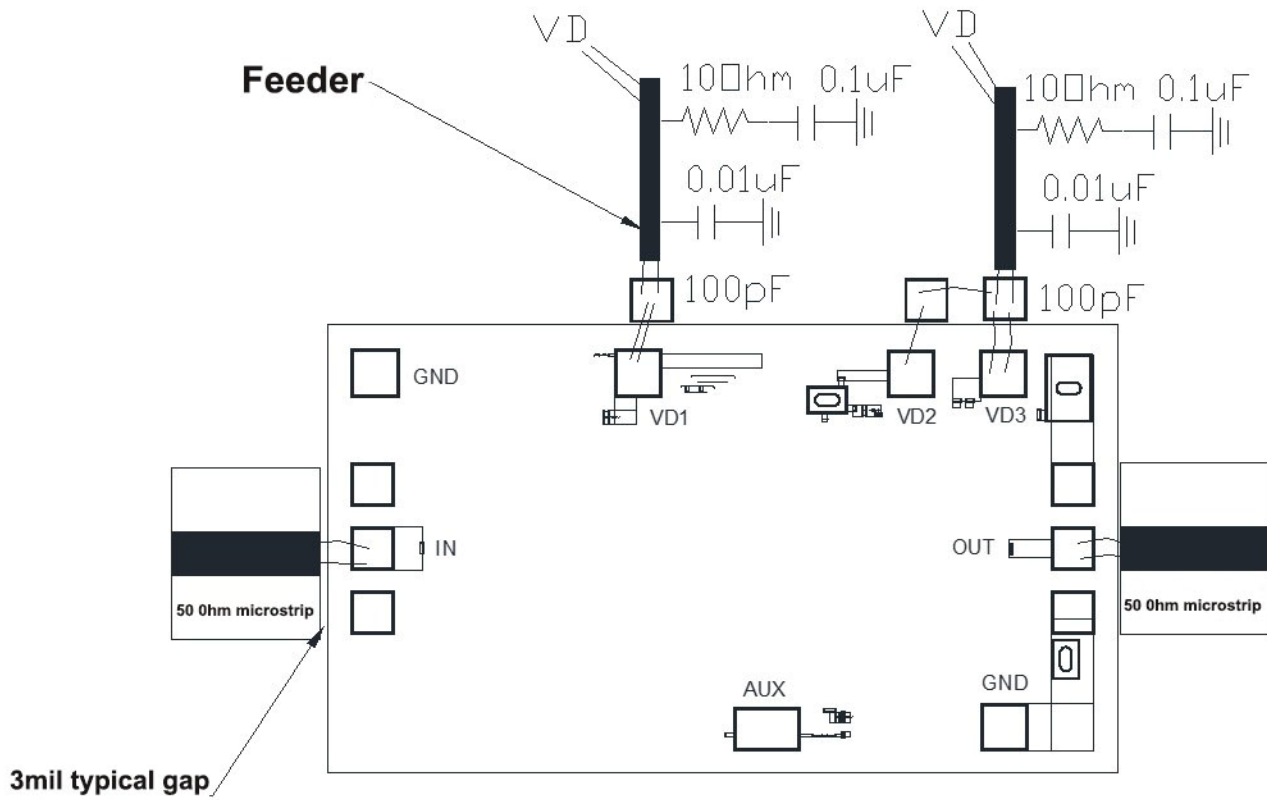


Notes:

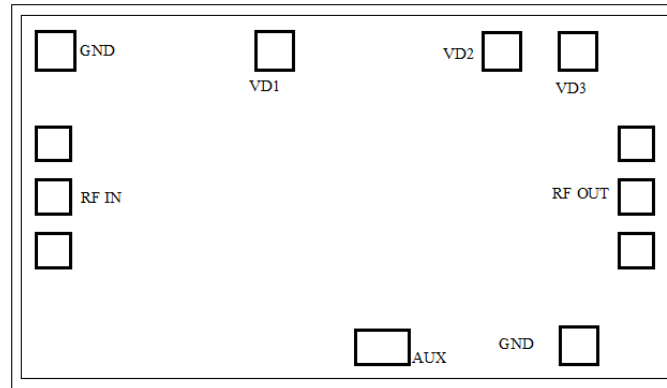
1. Die thickness: 100 μm
2. DC bond pad is 100 x 100 μm^2
3. RF IN/OUT bond pad is 100 x 100 μm^2
4. DC bond pad is 100 x 100 μm^2
5. No DC Blocking Capacitor needed for RF input & RF output
6. Bond pad metalization: Gold
7. Backside metalization: Gold
8. Backside of the die (GND)



Assembly Drawing



No	Function	Description
1	RF IN	Signal input terminal, connected to 50Ω circuit
2	RF OUT	Signal output terminal, connected to 50Ω circuit
3	VD1,VD2,VD3	Connect to external 100pF and 0.01uF bypass capacitors.
9	GND1, GND2	Ground pad.



Biasing and Operation

Performance is optimized when the drain voltage VD1 and VD2 and VD3 is set to +2.5 V.

Turn ON procedure:

1. Connect Input and Output with 50 Ohm source/load.
2. Apply positive drain voltage VD1 and VD2 and VD3 set to +2.5V
3. Apply RF signal

Turn OFF procedure:

1. Turn off RF signal
2. Turn off positive drain voltage VD1 and VD2 and VD3

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