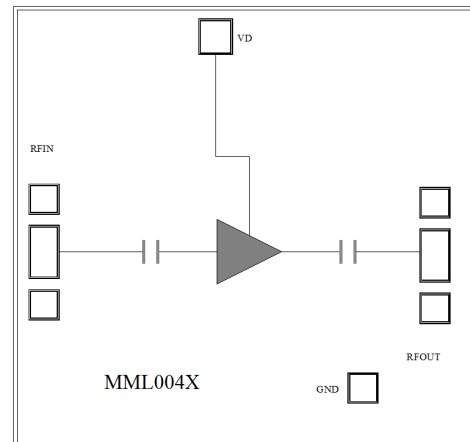


**Features**

- Single Biasing Voltage (Self Biased)
- Frequency: 2-9GHz
- Small Signal Gain: 29dB Typical
- Gain Flatness:  $\pm 0.5$ dB Typical
- Noise Figure: 0.6dB Typical
- P1dB: 19dBm Typical
- Power Supply: +5V/85mA
- Input/Output: 50 $\Omega$
- Chip Size: 1.33 x 1.25 x 0.1mm

**Typical Applications**

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

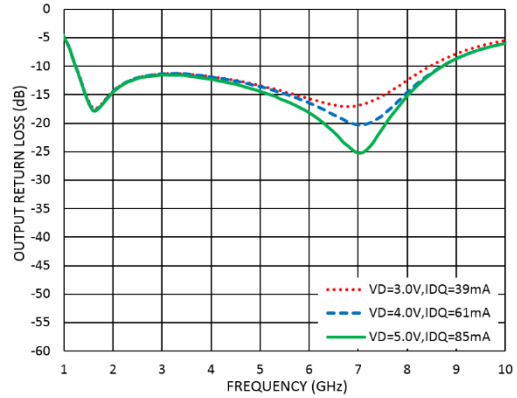
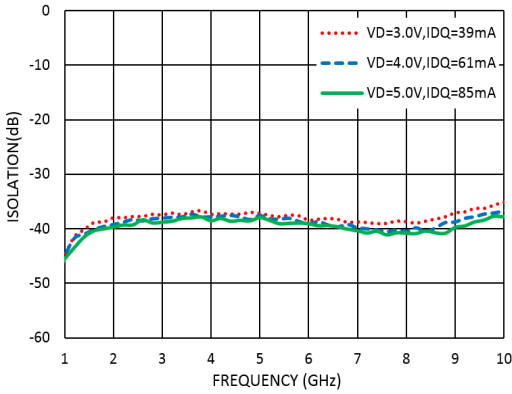
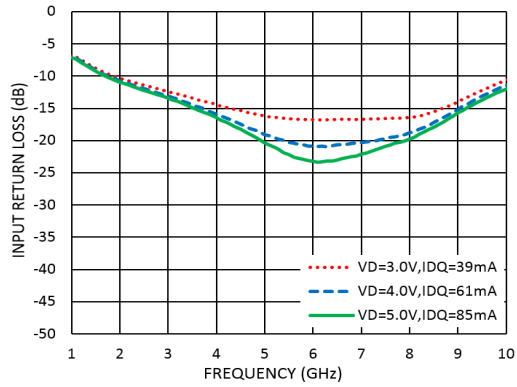
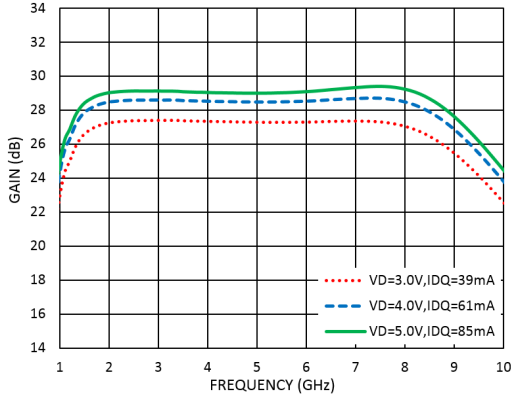
**Functional Block Diagram**

**Electrical Specifications**
**TA = +25°C, VD = +5V, IDD = 85mA Typical**

Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency	2		6	6		9	GHz
Small Signal Gain	28	29		26	28.5		dB
Gain Flatness		$\pm 0.5$			$\pm 1.0$		dB
Noise Figure		0.6	0.8		0.8	1.0	dB
P1dB - Output 1dB Compression	17	19		16	17.5		dBm
Psat - Saturated Output Power		20			20		dBm
OIP3 - Output Third Order Intercept		31			30		dBm
Input Return Loss		-15			-20		dB
Output Return Loss		-12			-15		dB



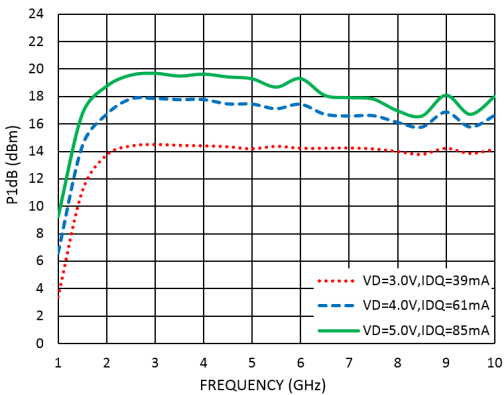
### Measurement Plots: S-parameters

TA = +25°C



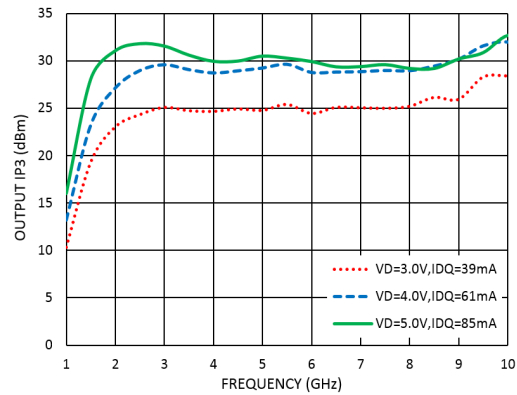
### Measurement Plots: P1dB

TA = +25°C



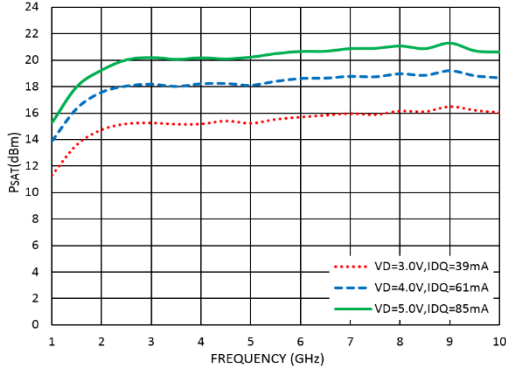
### Measurement Plots: OIP3

TA = +25°C

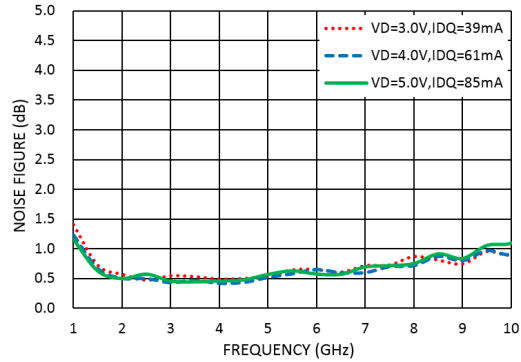




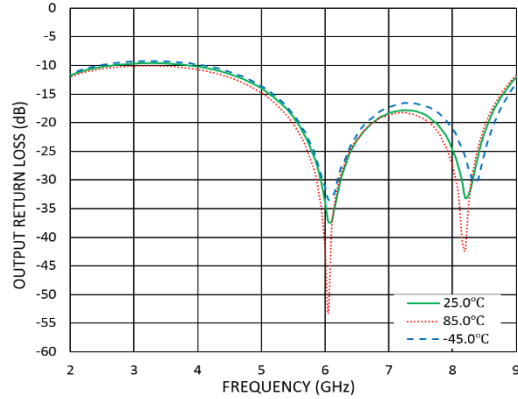
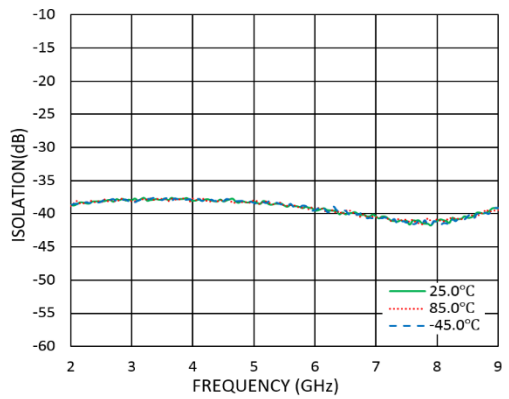
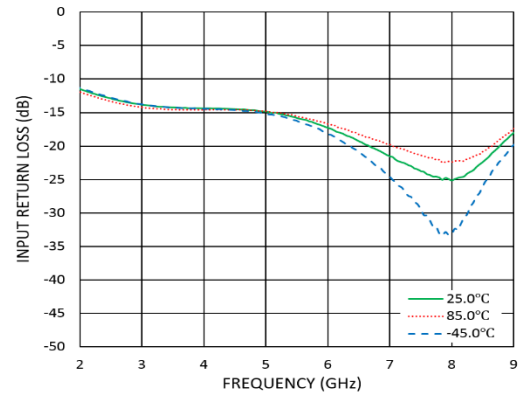
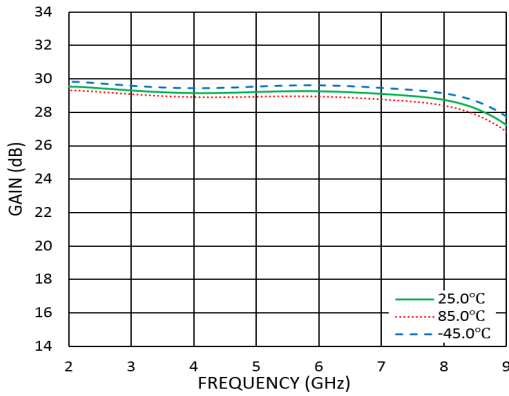
### Measurement Plots: PSAT TA = +25°C



### Measurement Plots: Noise Figure TA = +25°C

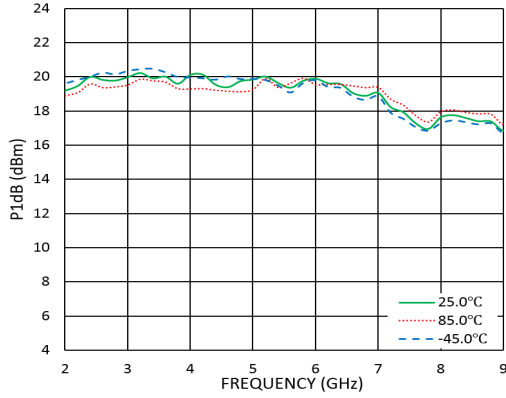


### Measurement Plots: S-parameters VD=+5V

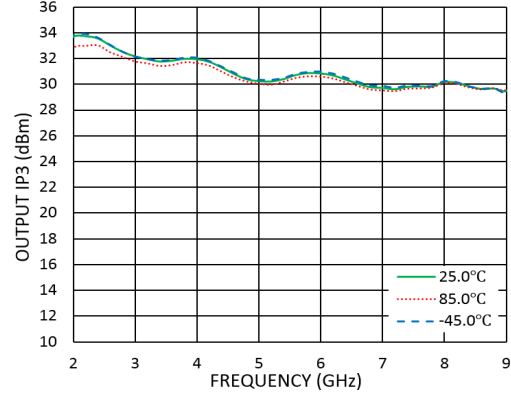




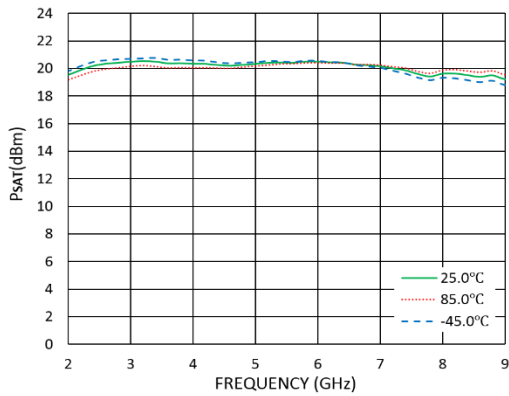
**Measurement Plots: P1dB**  
**VD=+5V**



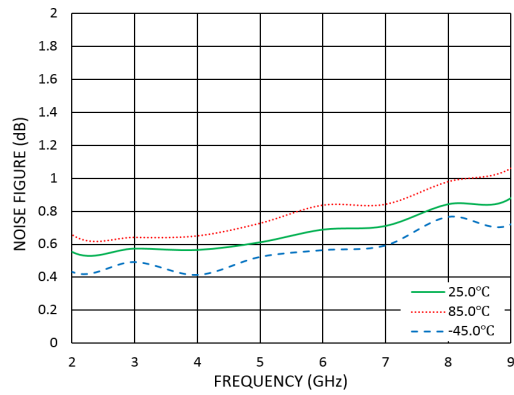
**Measurement Plots: OIP3**  
**VD=+5V**



**Measurement Plots: PsAT**  
**VD=+5V**



**Measurement Plots: Noise Figure**  
**VD=+5V**





### Absolute Maximum Ratings

Drain Bias Voltage (VD)	+7V
RF Input Power (RFIN)(VD=+5V)	+20dBm
Channel Temperature	175°C
Continuous Pdiss (T = 85 °C) (derate 7.8mW/°C above 85 °C)	0.7W
Thermal Resistance (channel to die bottom)	50°C/W
Operating Temperature	-55°C to +85 °C
Storage Temperature	-65°C to +150 °C

### Typical Supply Current vs. VD

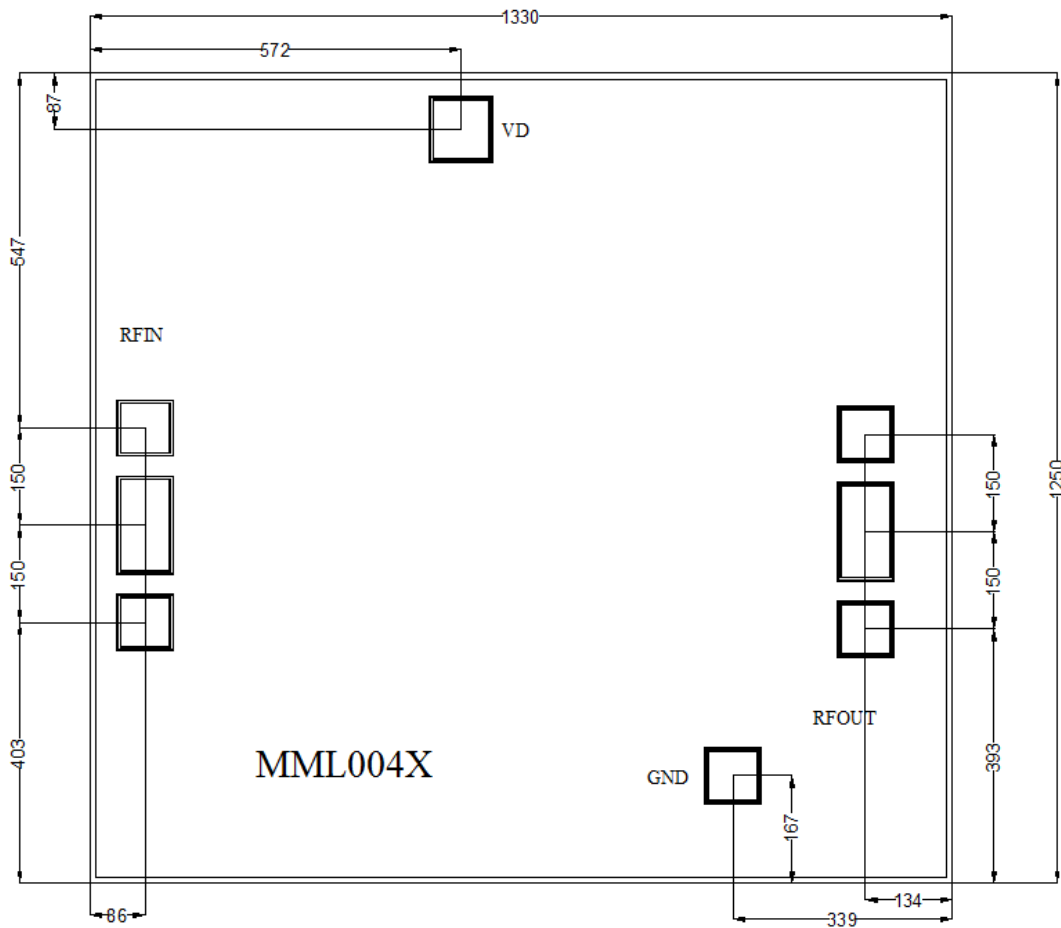
VD (V)	IDD (mA)
+3	39
+4	61
+5	85



ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS



**Outline Drawing:**  
All Dimensions in  $\mu\text{m}$

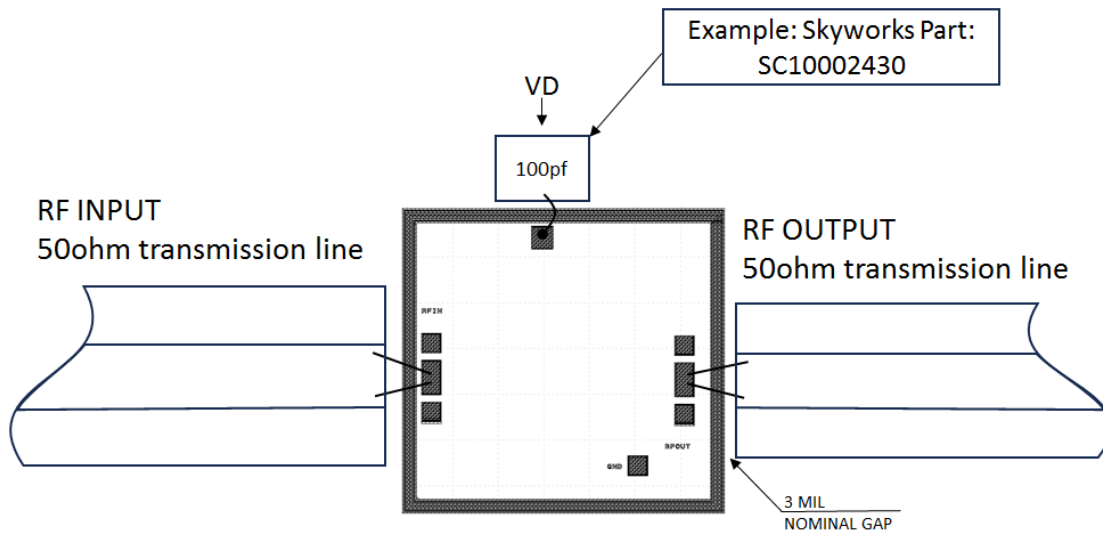


**Notes:**

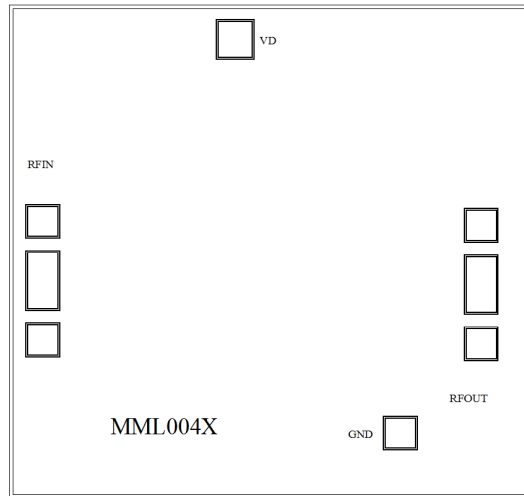
1. Die thickness: 100 $\mu\text{m}$
2. DC bond pad is 100\*100  $\mu\text{m}^2$
3. RF IN/OUT bond pad is 100 \*100 $\mu\text{m}^2$
4. Bond pad metalization: Gold
5. Backside metalization: Gold



### Assembly Drawing



No	Function	Description
1	RF IN	RF Signal Input. This pad is ac-coupled and matched to 50 Ω.
2	RF OUT	RF Signal Output. This pad is ac-coupled and matched to 50 Ω.
3	VD	Connect to external 100pf bypass capacitors.
4	Die Bottom	Die bottom must be connected to RF and dc ground.



## Biasing and Operation

### Turn ON procedure:

1. Connect GND to RF and dc ground.
2. Apply positive drain voltage VD and set to +5.0 V .
3. Apply RF signal.

### Turn OFF procedure:

1. Turn off the RF signal.
2. Turn off the positive drain voltage VD.

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