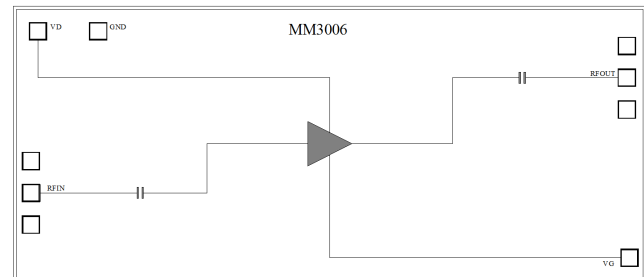


## Features

- Frequency: 2-20GHz
- Small Signal Gain: 20dB Typical
- Gain Flatness:  $\pm 0.5$ dB Typical
- Noise Figure: 2.0dB Typical
- Psat: 24.5dBm Typical
- Supply voltage:
  - VD = +5V to +7V
  - VG = Floating or (-1V to 0 to +1V)
- Input/Output: 50 $\Omega$
- Die Size: 3.0 x 1.3 x 0.1mm

## Functional Block Diagram



## Typical Applications

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

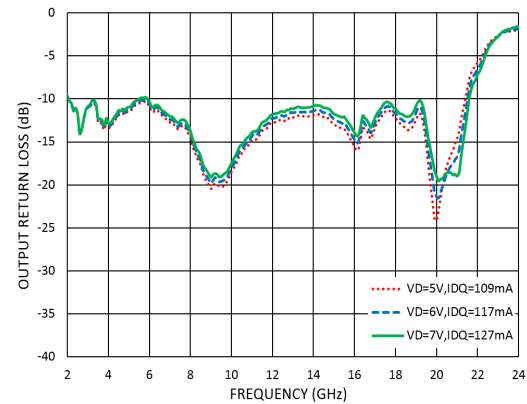
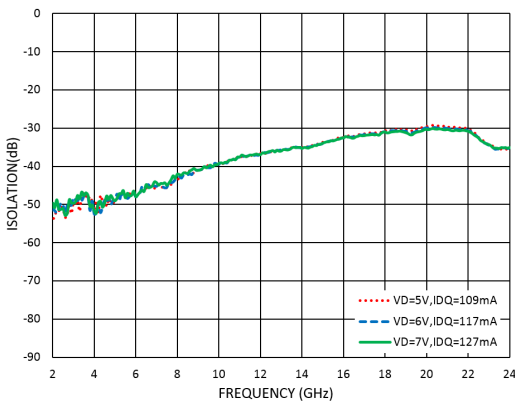
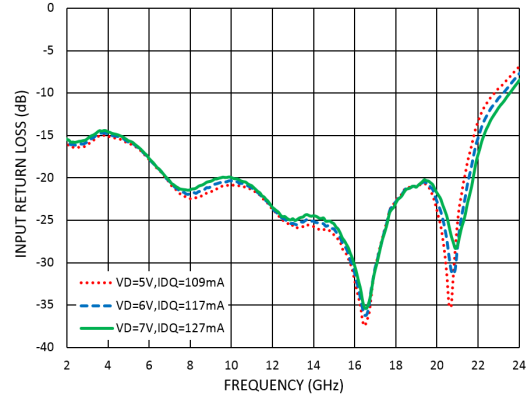
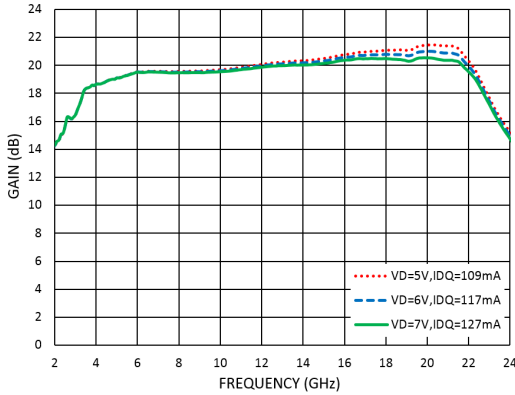
## Electrical Specifications

TA = +25°C, VD=+7V, VG = Floating, IDD = 127mA Typical

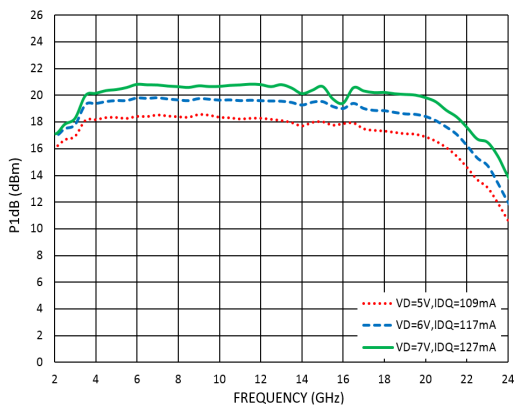
Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency	2		6	6		20	GHz
Small Signal Gain		18.5		18	20		dB
Gain Flatness		$\pm 1.0$			$\pm 0.5$		dB
Noise Figure		2.5			2.0		dB
P1dB - Output 1dB Compression		19		18	20		dBm
Psat - Saturated Output Power		21			21		dBm
OIP3 - Output Third Order Intercept		30			30		dBm
Input Return Loss		-16			-20		dB
Output Return Loss		-12			-12		dB



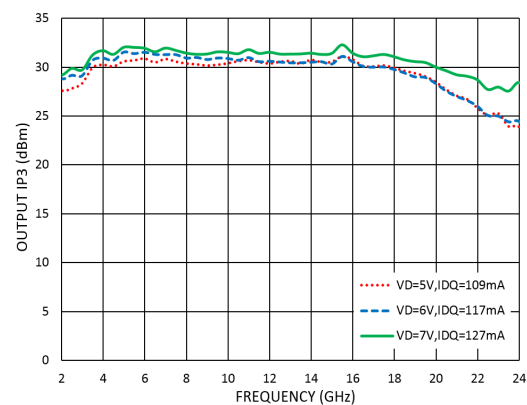
### Measurement Plots: S-parameters



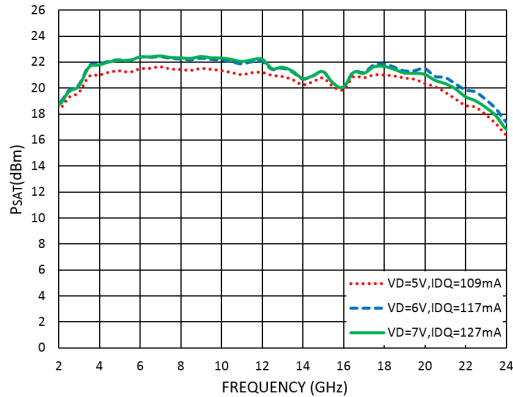
### Measurement Plots: P1dB



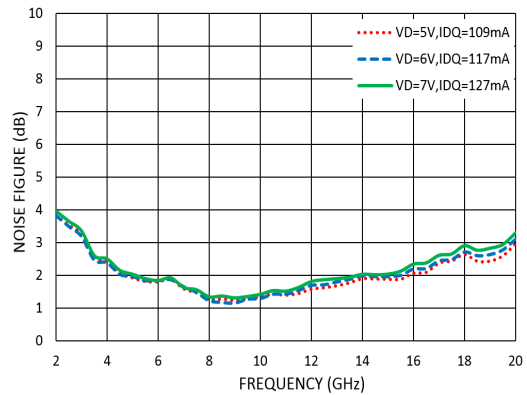
### Measurement Plots: OIP3



**Measurement Plots: P<sub>SAT</sub>**



**Measurement Plots: Noise Figure**



**Absolute Maximum Ratings**

Drain Bias Voltage (VD)	+8V
RF Input Power (RFIN)	+18dBm
Channel Temperature	175°C
Continuous Pdiss (T = 85 °C) (derate 12.2mW/°C above 85 °C)	1.1W
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**

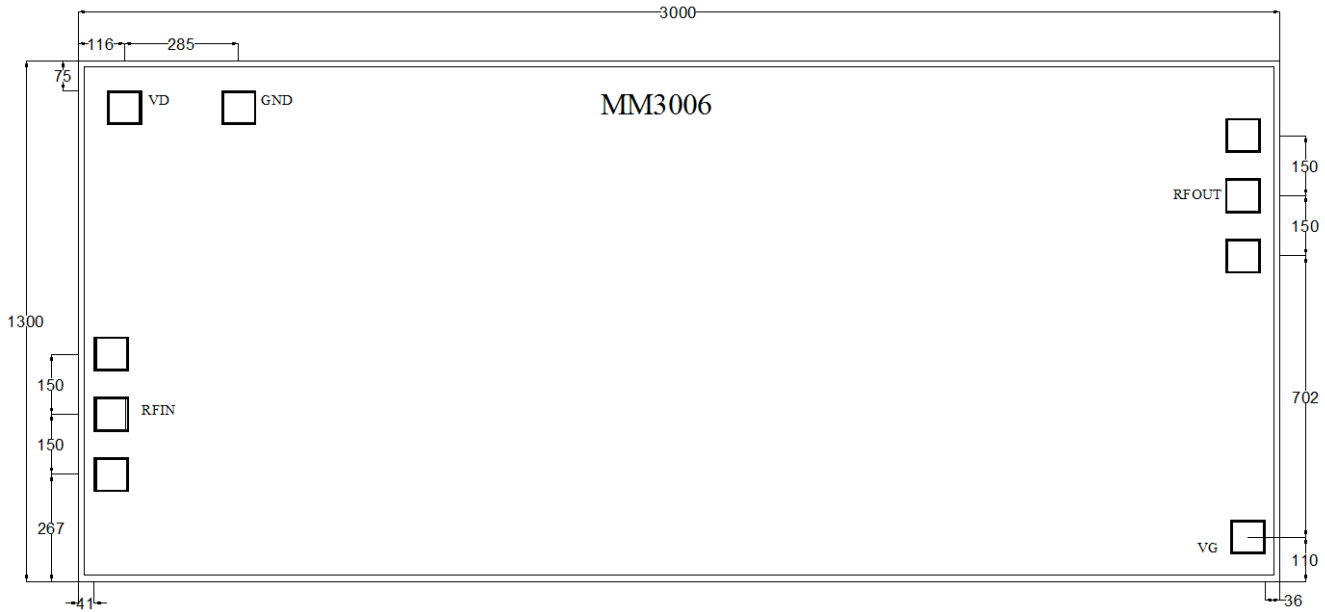
VD (V)	VG	IDD (mA)
+5	Floating	109
+6		117
+7		127



ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS



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

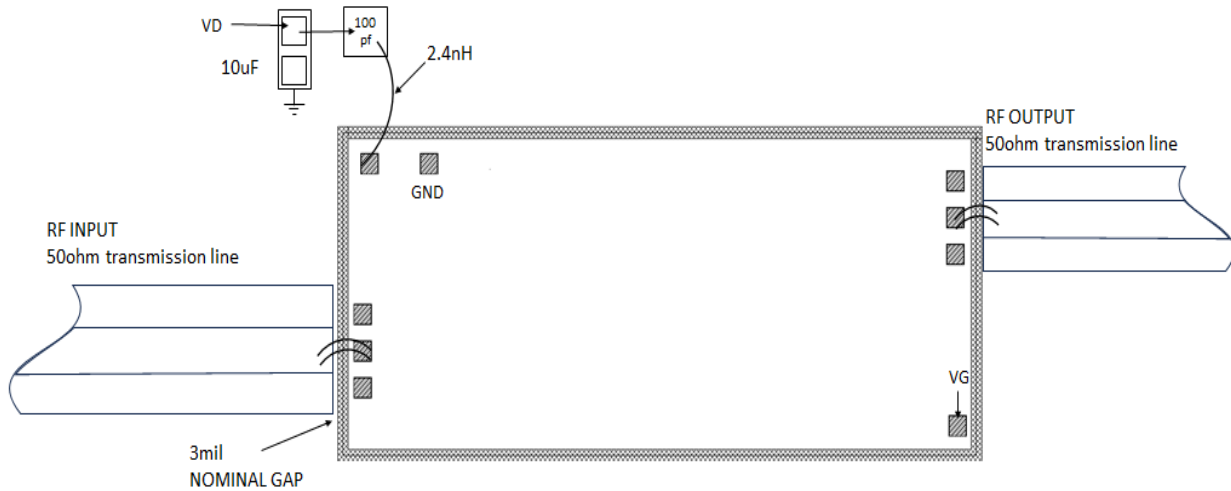


**Notes:**

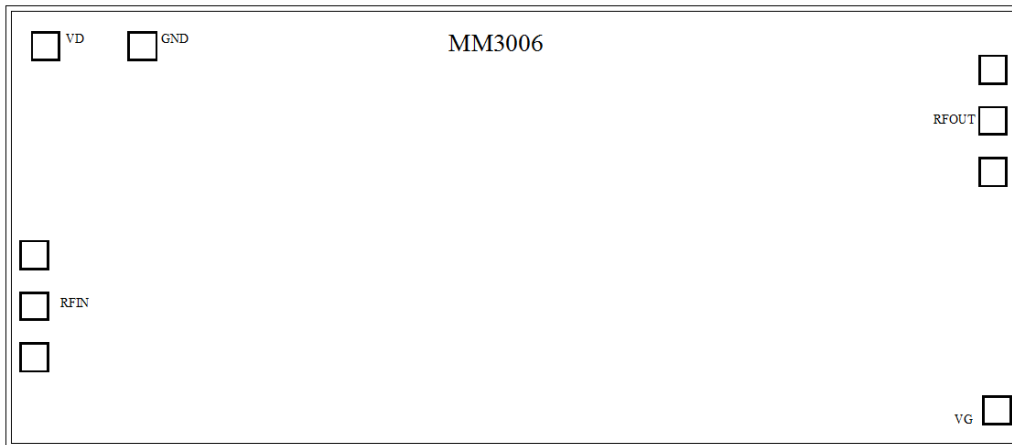
1. Die thickness: 100 $\mu\text{m}$
2. DC bond pad is 100\*100 $\mu\text{m}^2$
3. RF IN/OUT bond pad is 100\*100 $\mu\text{m}^2$
4. Bond pad metalization: Gold
5. Backside metalization: Gold



### 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 and 10uf bypass capacitors and 2.4nh inductance.
4	VG	This pad is floating in normal use. If the chip current needs to be adjusted, it can be adjusted within the range of -1V to+1V.
	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. Set the gate bias voltages, VG set to  $-1.0V$  or Floating.
3. Apply drain bias voltage, VD set to  $+7.0 V$ .
4. Apply RF signal.

### Turn OFF procedure:

1. Turn off the RF signal.
2. Turn off the drain bias voltage VD.
3. Turn off the gate bias voltages VG or Floating.

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