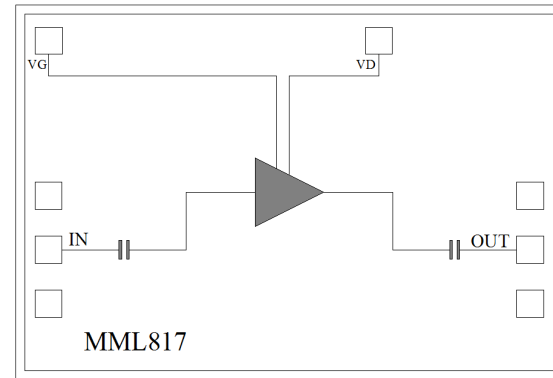


**Features**

- Single Biasing Voltage (Self Biased)
- Frequency: 2-18GHz
- Small Signal Gain: 24dB Typical
- Gain Flatness:  $\pm 1.0$ dB Typical
- Noise Figure: 1.0dB Typical
- P1dB: 16dBm Typical
- Power Supply:
  - +5V/56mA @VG is floating
  - +5V/36mA @VG connected to GND
- Input/Output: 50 $\Omega$
- Chip Size: 1.52 x 1.04 x 0.1mm

**Typical Applications**

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

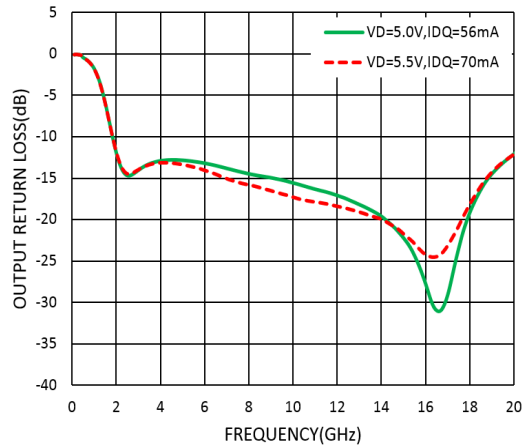
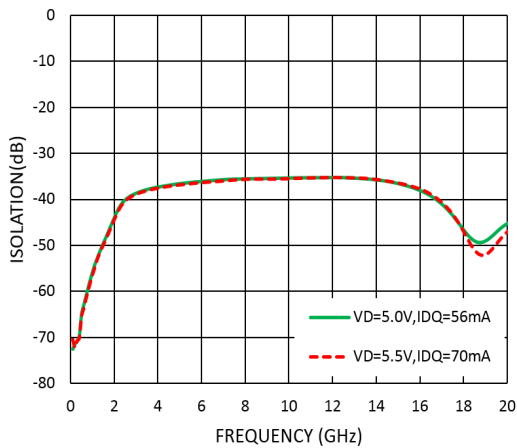
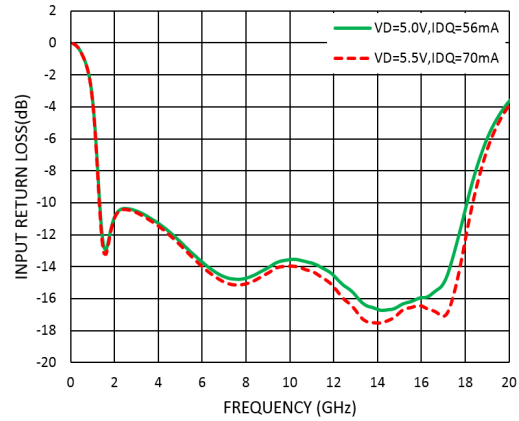
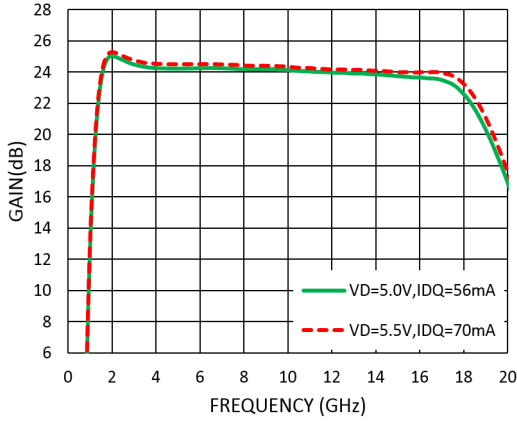
**Functional Block Diagram**

**Electrical Specifications**

TA = +25°C, VD = +5.5V, IDD = 70mA/47mA Typical

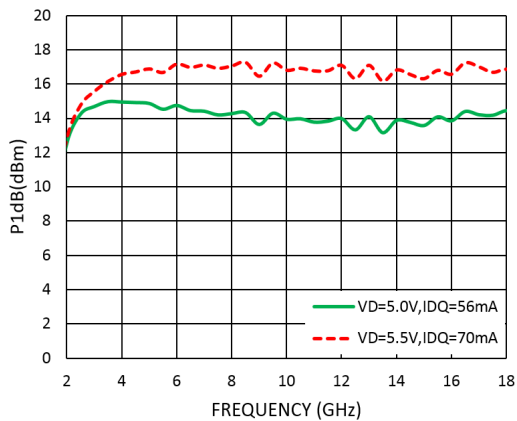
Parameters	VG- FLOATING			VG - GROUNDING			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency	2		18	2		18	GHz
Small Signal Gain	22	24		20.5	23		dB
Gain Flatness		$\pm 1.0$			$\pm 1.0$		dB
Noise Figure		1.0	1.8		1.0	1.6	dB
P1dB - Output 1dB Compression	12	17		14	16		dBm
Psat - Saturated Output Power		17			16		dBm
OIP3 - Output Third Order Intercept		26			26		dBm
Input Return Loss		-14			-13		dB
Output Return Loss		-15			-15		dB



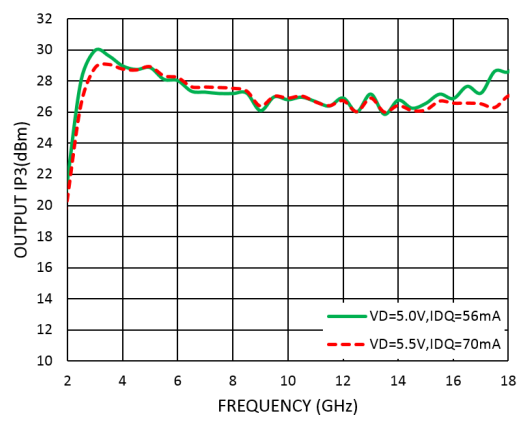
### Measurement Plots: S-parameters VG is floating



### Measurement Plots: P1dB VG is floating

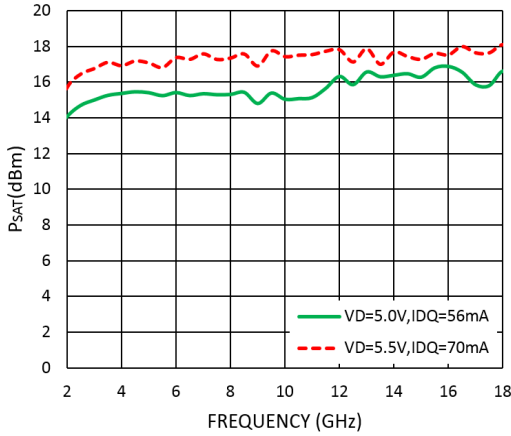


### Measurement Plots: OIP3 VG is floating

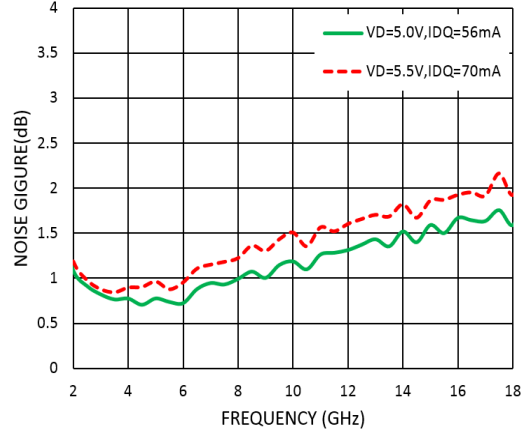




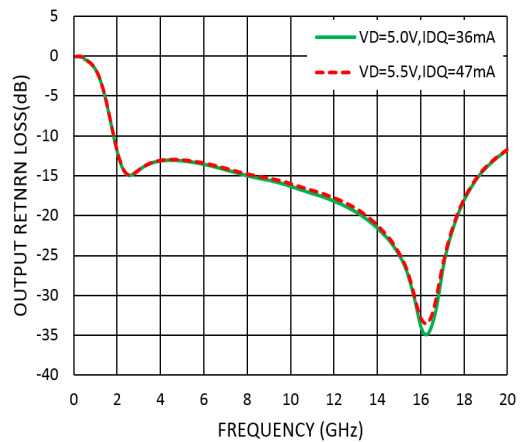
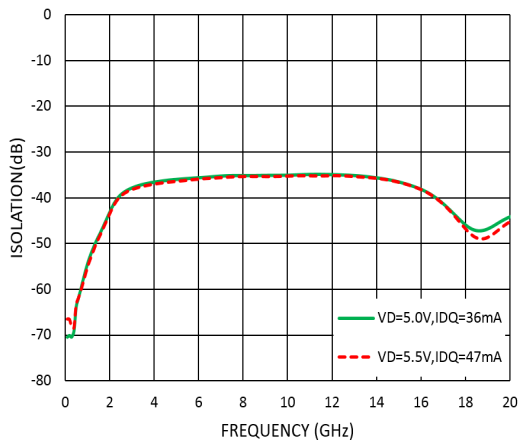
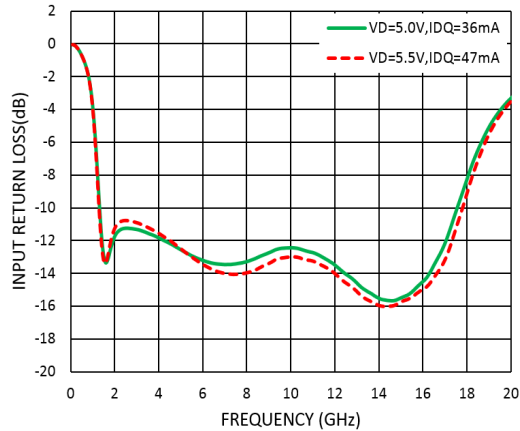
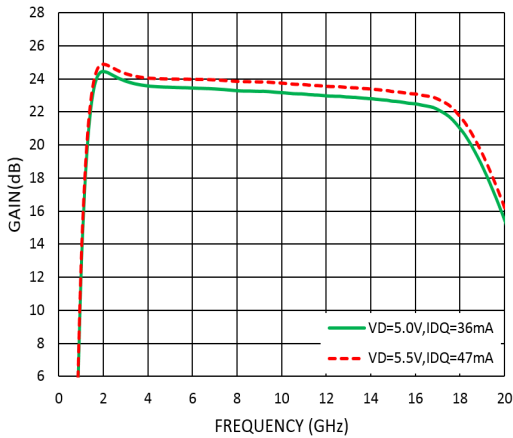
#### Measurement Plots: P<sub>SAT</sub> VG is floating



#### Measurement Plots: Noise Figure VG is floating

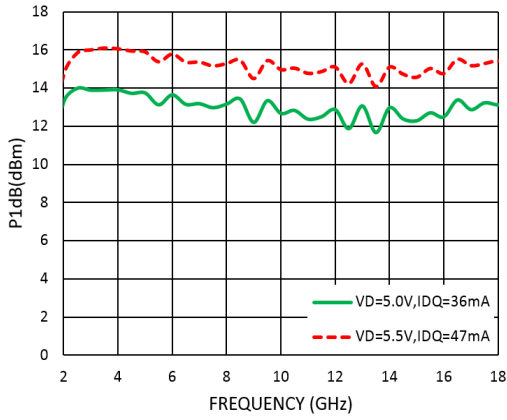


#### Measurement Plots: S-parameters VG connected to GND

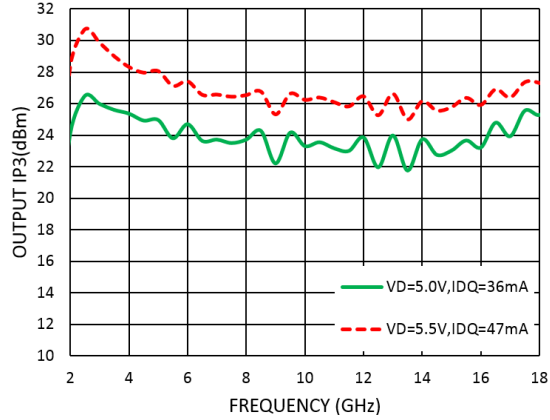




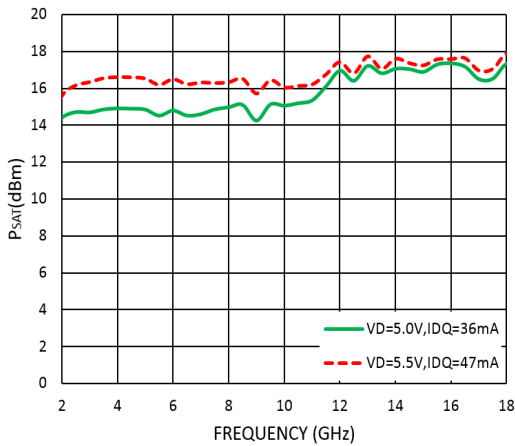
**Measurement Plots: P1dB**  
**VG connected to GND**



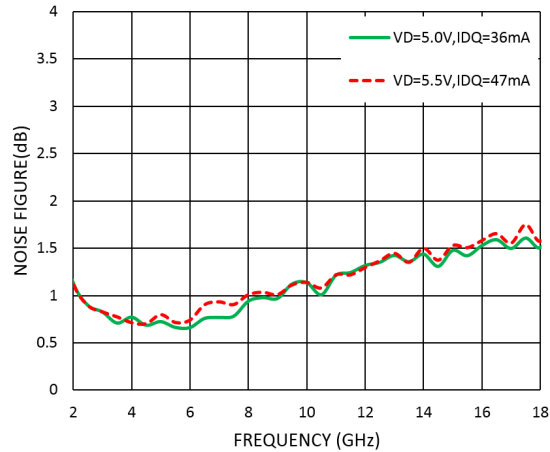
**Measurement Plots: OIP3**  
**VG connected to GND**



**Measurement Plots: P<sub>SAT</sub>**  
**VG connected to GND**



**Measurement Plots: Noise Figure**  
**VG connected to GND**



**Absolute Maximum Ratings**

Drain Bias Voltage (VD)	+6V
RF Input Power (RFIN)@(+5V)	+18dBm
Channel Temperature	175°C
Continuous P <sub>diss</sub> (T = 85 °C) (derate 5.6mW/°C above 85 °C)	0.5W
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,VG**

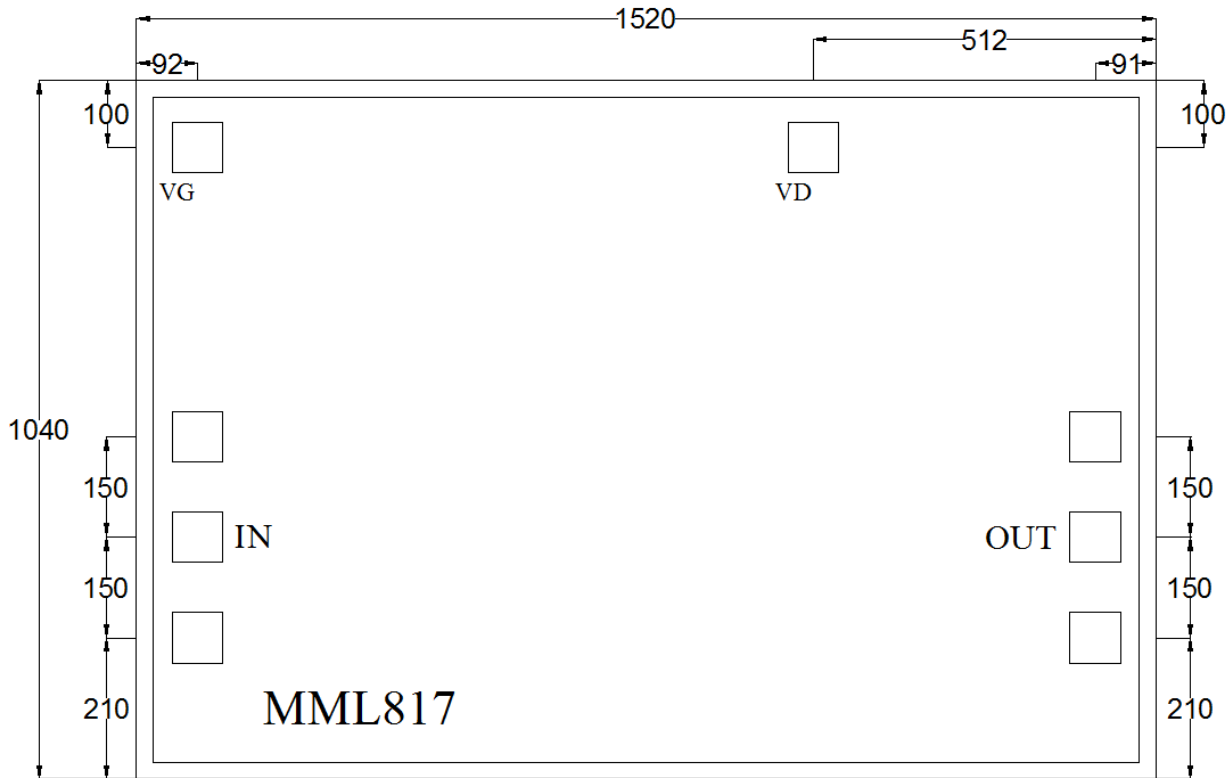
VD (V)	VG	IDD (mA)
+5	FLOATING	56
+5.5		70
+5	GROUNDING	36
+5.5		47



ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS



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



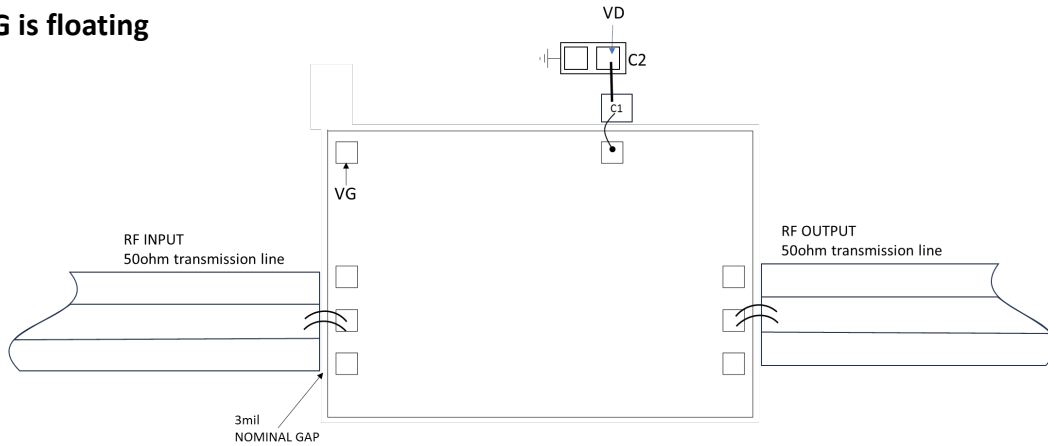
**Notes:**

1. Die thickness: 100 $\mu\text{m}$
2. VD, VG bond pad is 75\*75 $\mu\text{m}^2$
3. RF IN/OUT bond pad is 75\*75 $\mu\text{m}^2$
4. Bond pad metalization: Gold
5. Backside metalization: Gold

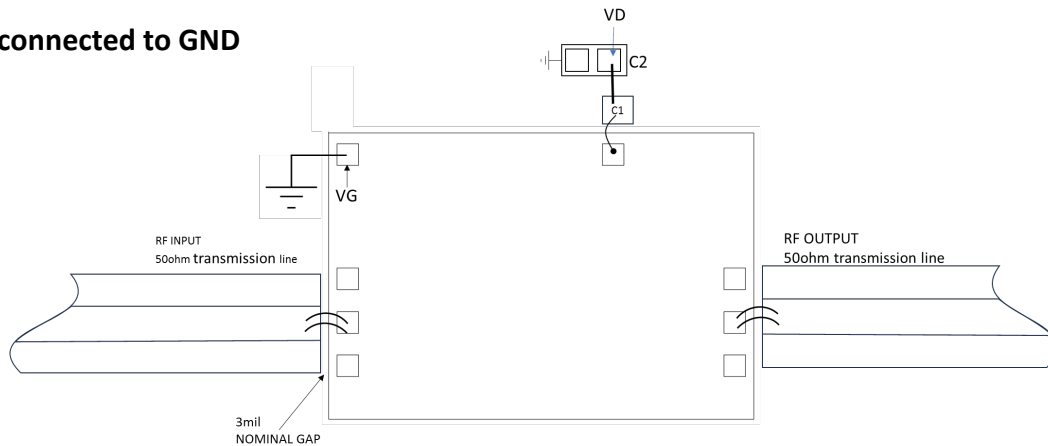


### Assembly Drawing

**VG is floating**

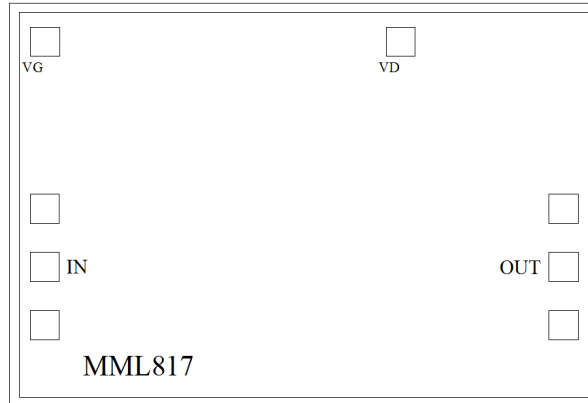


**VG connected to GND**



Item	Description
C1	100pF Example: Presidio Part: MVB3030X103M2H5C1
C2	1μF Example: KYOCERA AVX Part:116XK102M100TT

No	Function	Description
1	RF IN	RF signal input terminal; no blocking capacitor required.
2	RF OUT	RF signal output terminal; no blocking capacitor required.
3	VD	Drain Biases for the Amplifier. External bypass capacitors of 1μf and 100pf are required for these pads.
4	VG	Floating for high power mode, grounding for low power mode.
5	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 GND or Floating.
3. Apply positive drain voltage VD and set to +5V .
4. Apply RF signal.

### Turn OFF procedure:

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

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