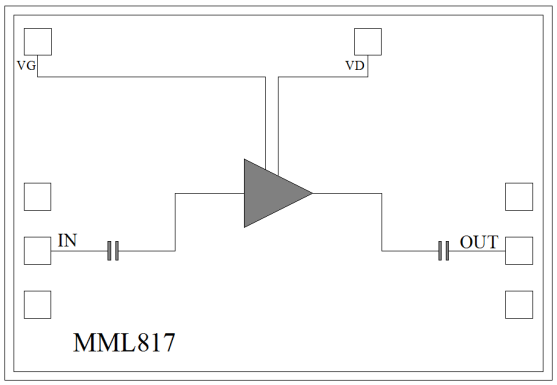
Features

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

Functional Block Diagram



Typical Applications

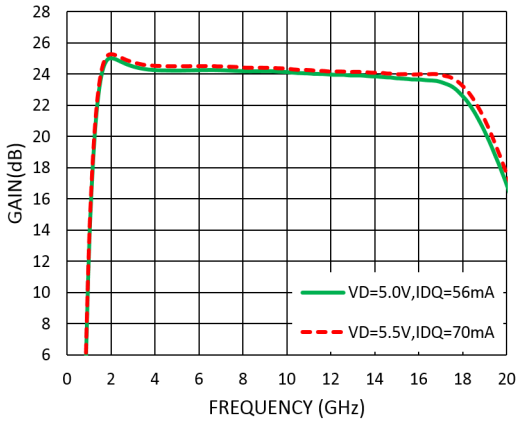
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

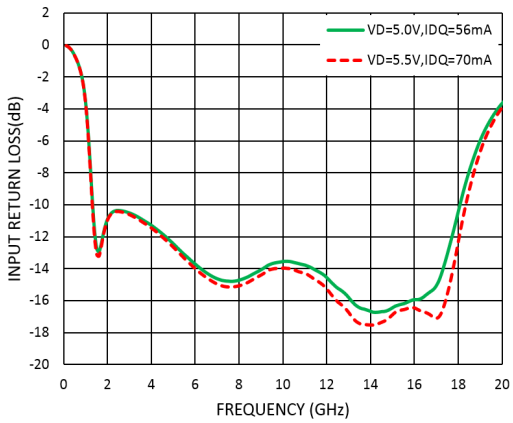
Electrical Specifications

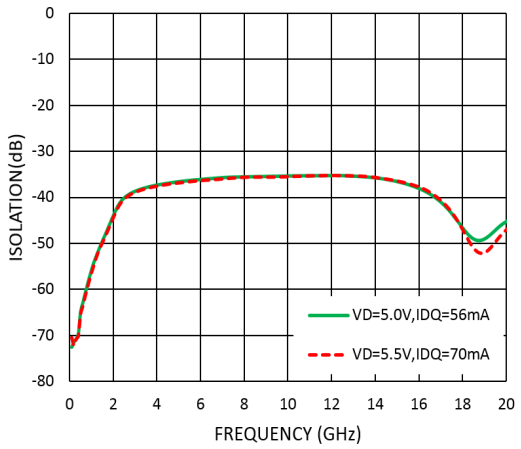
TA = +25°C, VD = +5.5V, IDD = 70mA/47mA Typical

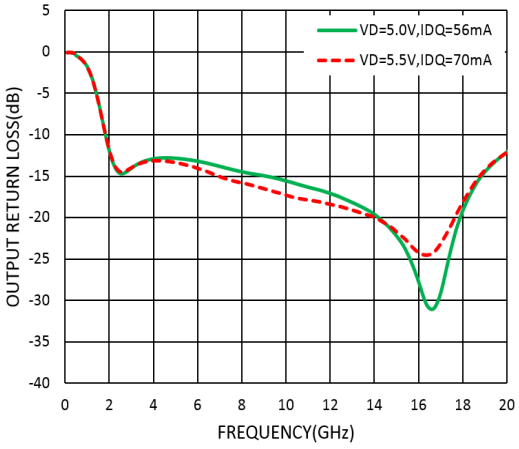
Parameters	VG- FLOATING			VG - GROUNDING			
	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency	2		18	2		18	GHz
Small Signal Gain	22	24		20.5	23		dB
Gain Flatness		±1.0			±1.0		dB
Noise Figure		1.0	1.8		1.0	1.6	dB
P1dB - Output 1dB Compression	12	17		14	16		dBm
Psat - Saturated Output Power		17			16		dBm
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

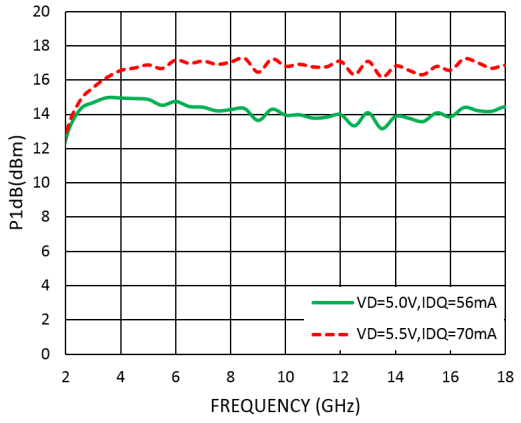




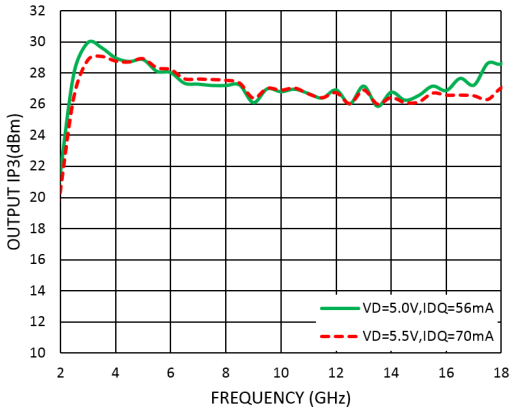




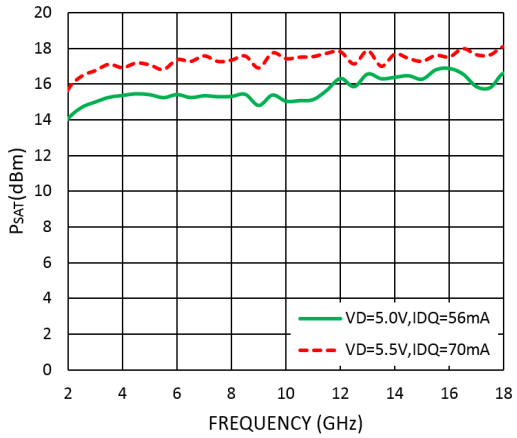
Measurement Plots: P1dB
VG is floating



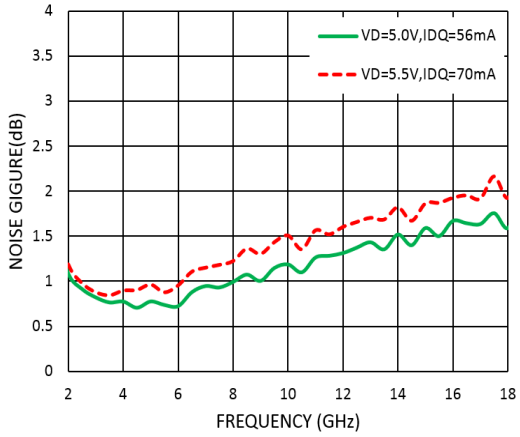
Measurement Plots: OIP3
VG is floating



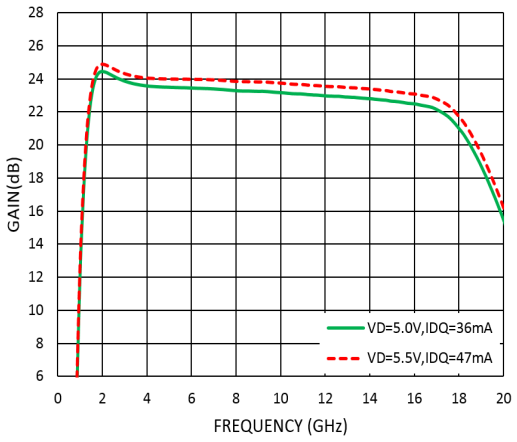
Measurement Plots: P_{SAT} VG is floating

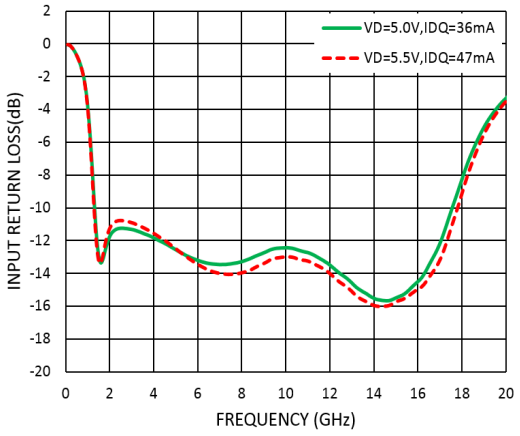


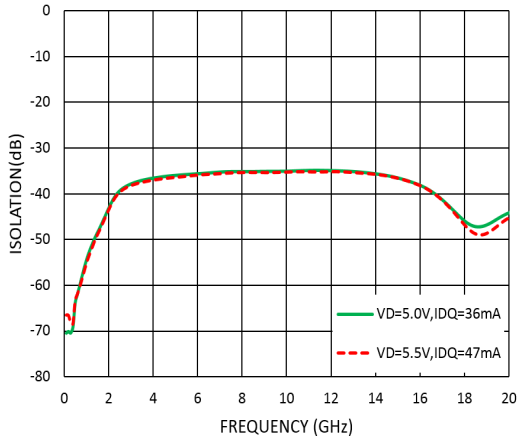
Measurement Plots: Noise Figure VG is floating

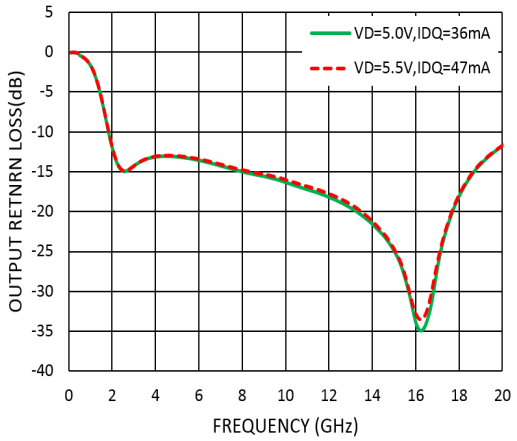


Measurement Plots: S-parameters VG connected to GND

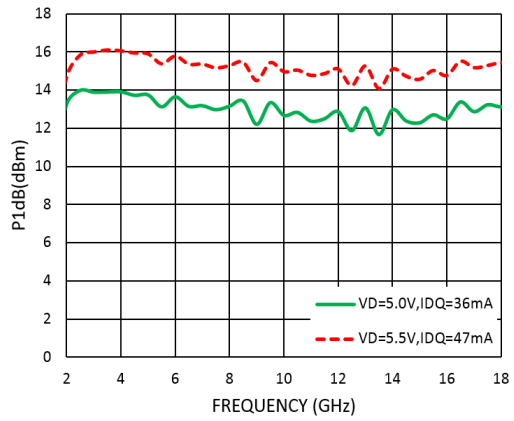




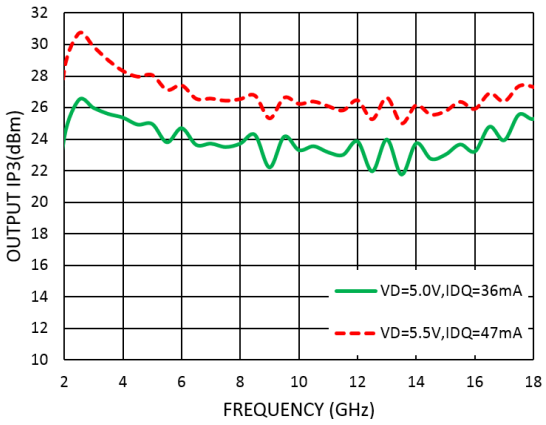




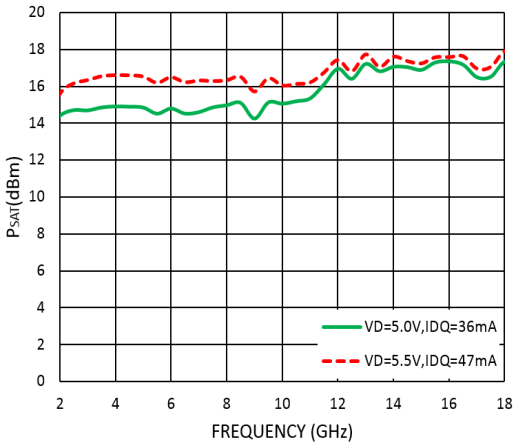
Measurement Plots: P1dB VG connected to GND



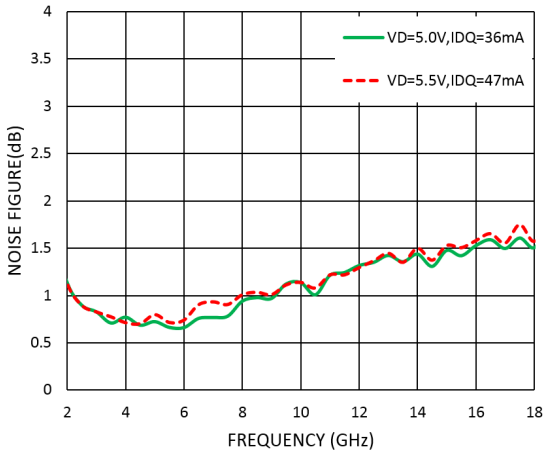
Measurement Plots: OIP3 VG connected to GND



Measurement Plots: P_{SAT} 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 Pdiss (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

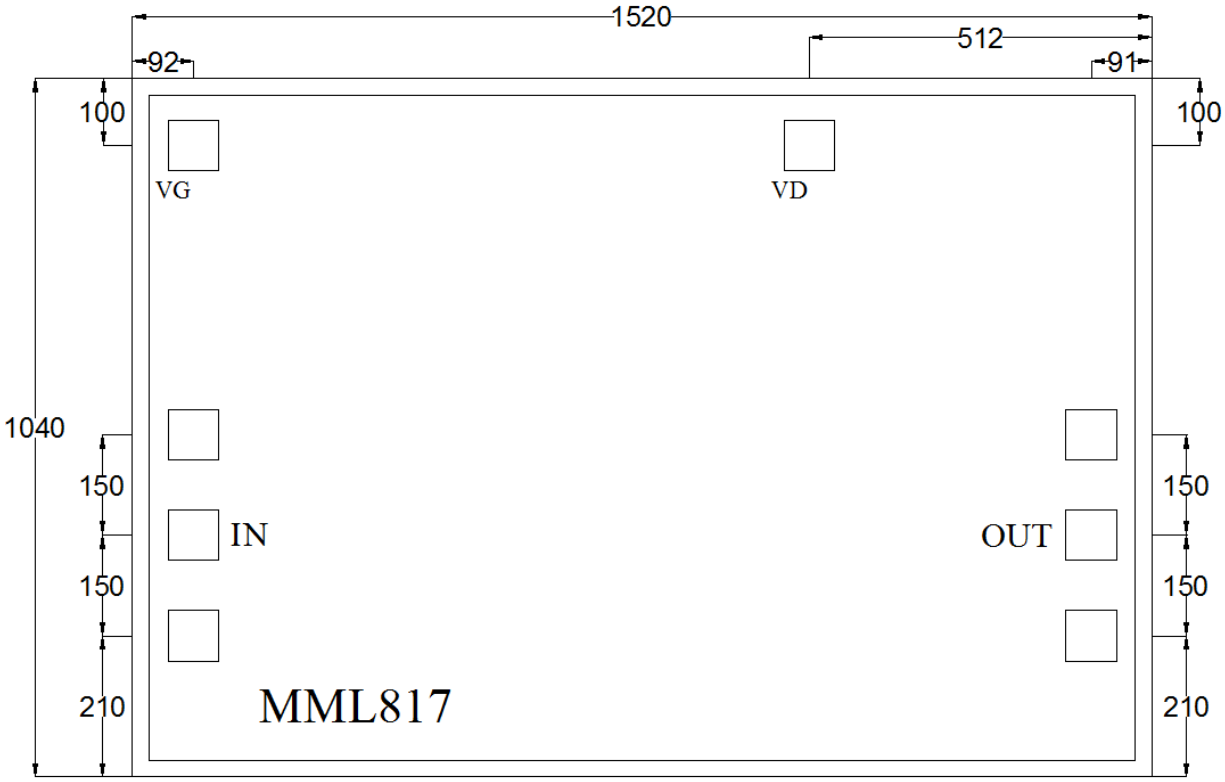
Typical Supply Current vs. VD,VG

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 µm

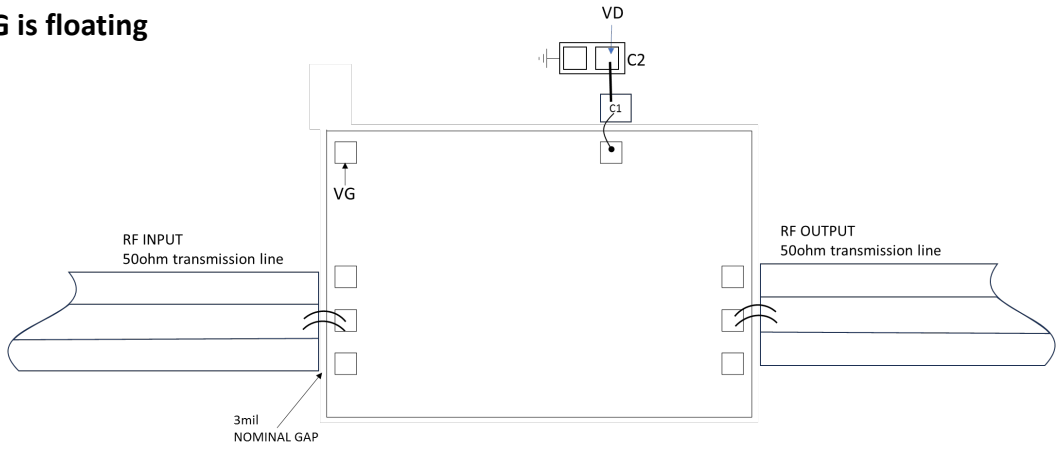


Notes:

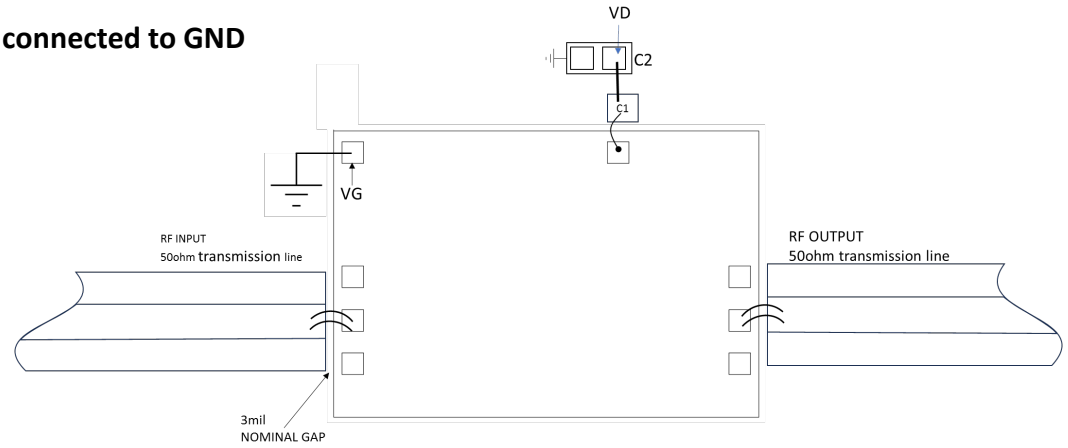
1. **Die thickness: 100µm**
2. **VD,VG bond pad is 75*75µm^2**
3. **RF IN/OUT bond pad is 75*75µm^2**
4. **Bond pad metalization: Gold**
5. **Backside metalization: Gold**

Assembly Drawing

VG is floating

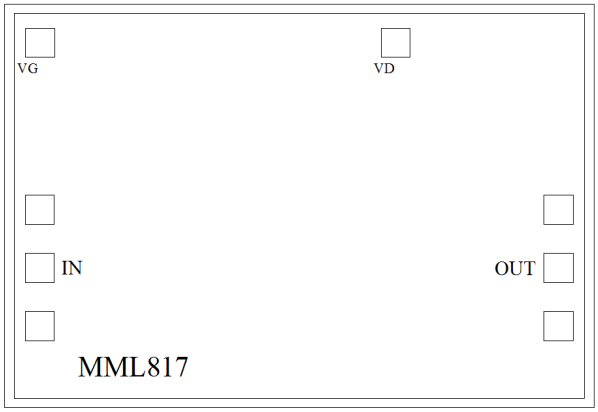


VG connected to GND



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.