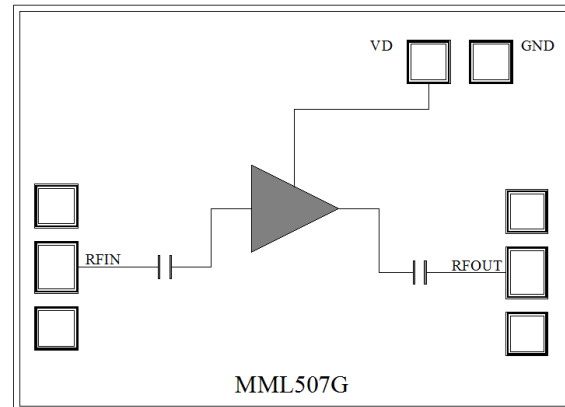


**Features**

- Single Biasing Voltage (Self Biased)
- Frequency: 6-18GHz
- Small Signal Gain: 19.5dB Typical
- Gain Flatness:  $\pm 0.75$ dB Typical
- Noise Figure: 1.0dB Typical
- P1dB: 15dBm Typical
- Power Supply: +4V@84mA
- Input/Output: 50 $\Omega$
- Chip Size: 1.35 x 0.98 x 0.1mm

**Typical Applications**

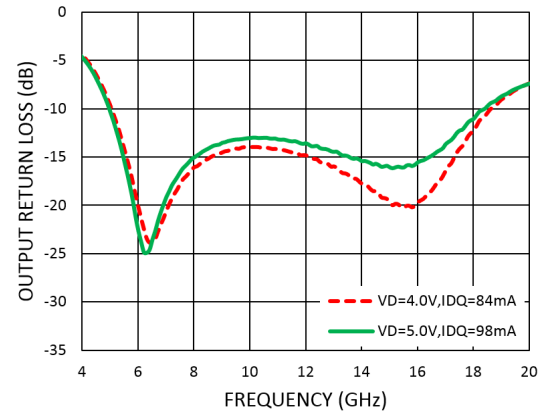
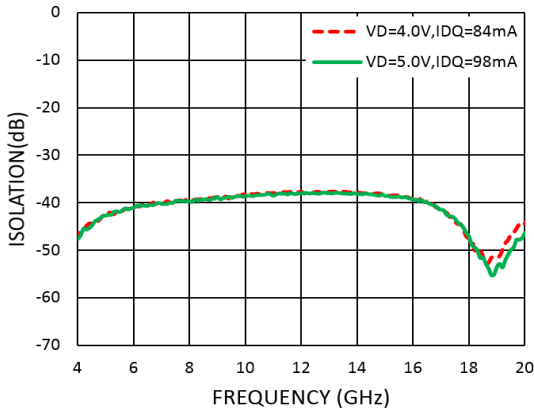
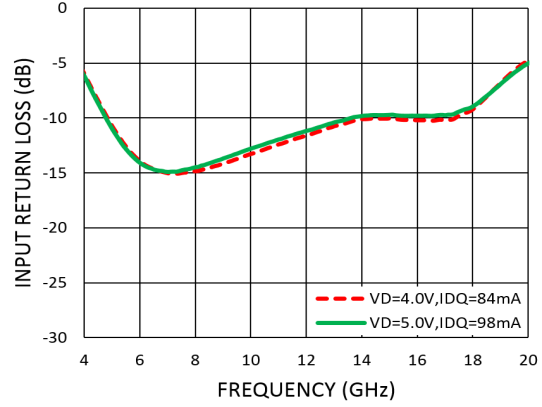
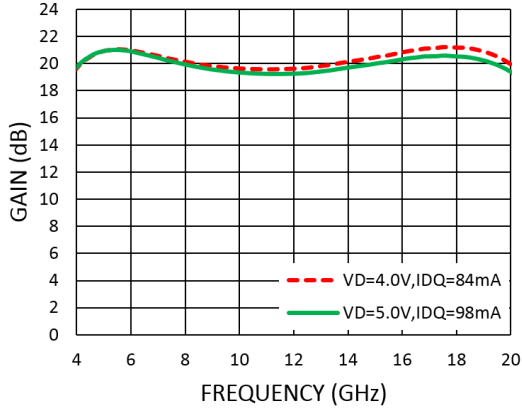
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

**Functional Block Diagram**

**Electrical Specifications**
**TA = +25°C, VD = +4V, IDD = 84mA Typical**

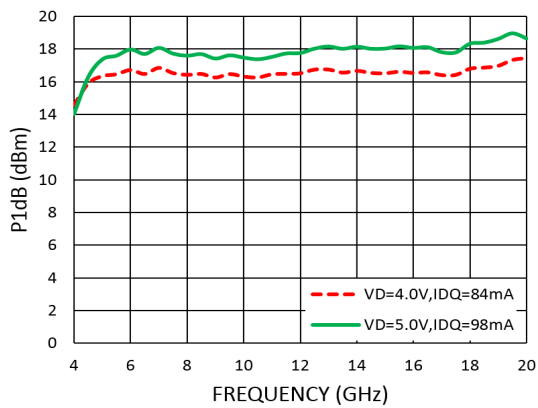
Parameters	Min.	Typ.	Max.	Units
Frequency	6		18	GHz
Small Signal Gain	18	20		dB
Gain Flatness		$\pm 0.75$		dB
Noise Figure		1.3	1.7	dB
P1dB - Output 1dB Compression	15	16		dBm
Psat - Saturated Output Power		18		dBm
OIP3 - Output Third Order Intercept		27		dBm
Input Return Loss		-10		dB
Output Return Loss		-14		dB



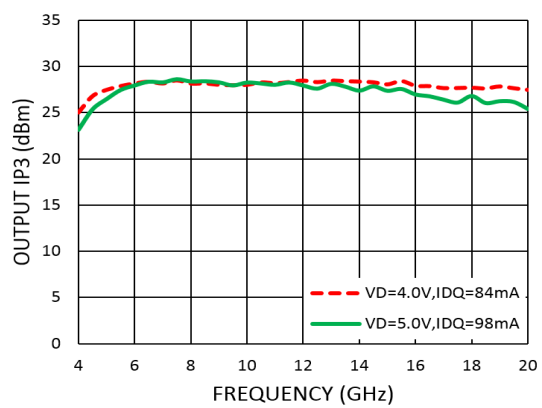
### Measurement Plots: S-parameters

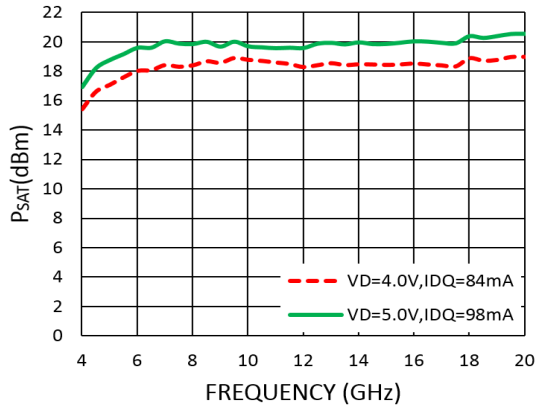
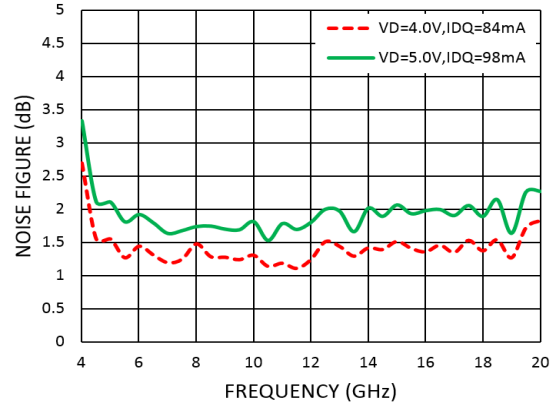


### Measurement Plots: P1dB



### Measurement Plots: OIP3



**Measurement Plots: Psat**

**Measurement Plots: Noise Figure**

**Absolute Maximum Ratings**

Drain Bias Voltage (VD)	+7V
RF Input Power (RFIN)@(+5V)	+15dBm
Channel Temperature	175°C
Continuous Pdiss (T = 85 °C) (derate 9.6mW/°C above 85 °C)	0.86W
Thermal Resistance (channel to die bottom)	50°C/W
Operating Temperature	-55°C to +125 °C
Storage Temperature	-65°C to +150 °C

**Typical Supply Current vs. VD**

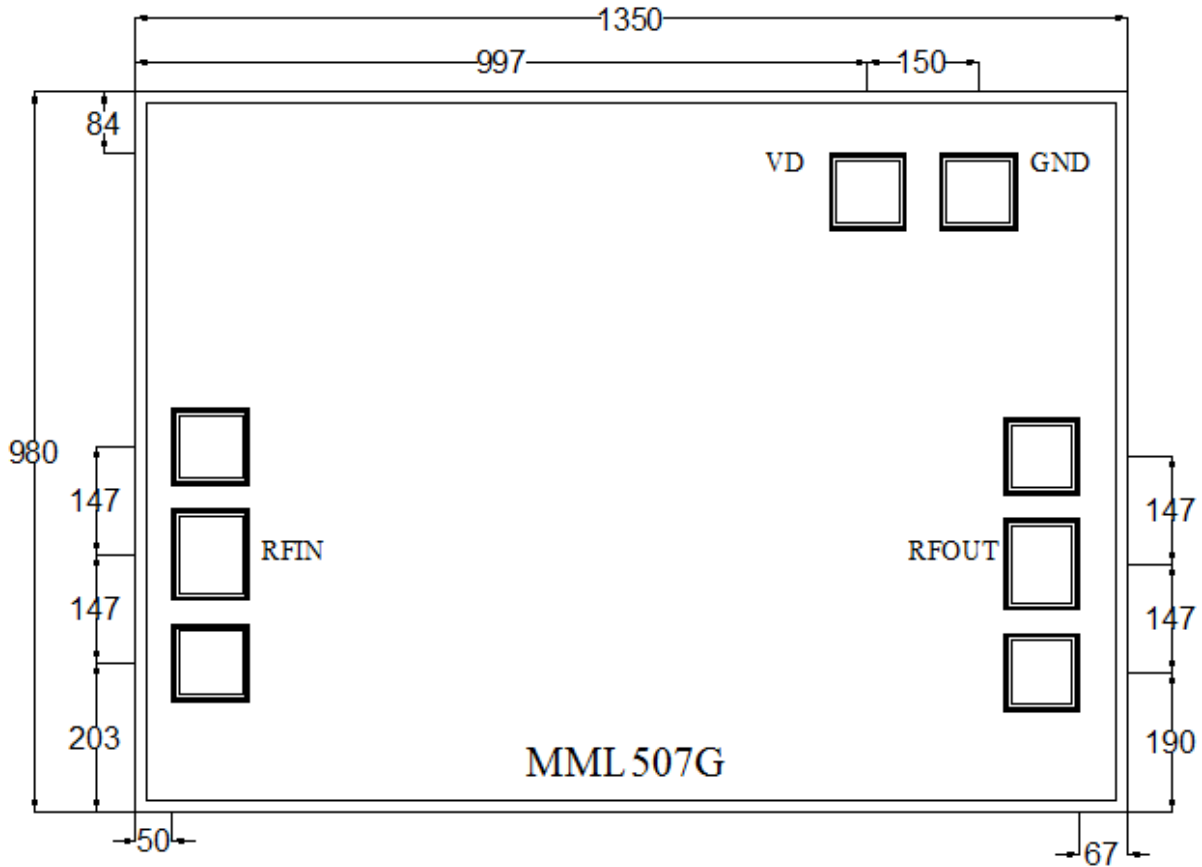
VD (V)	IDD (mA)
+4	84



**ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS**



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

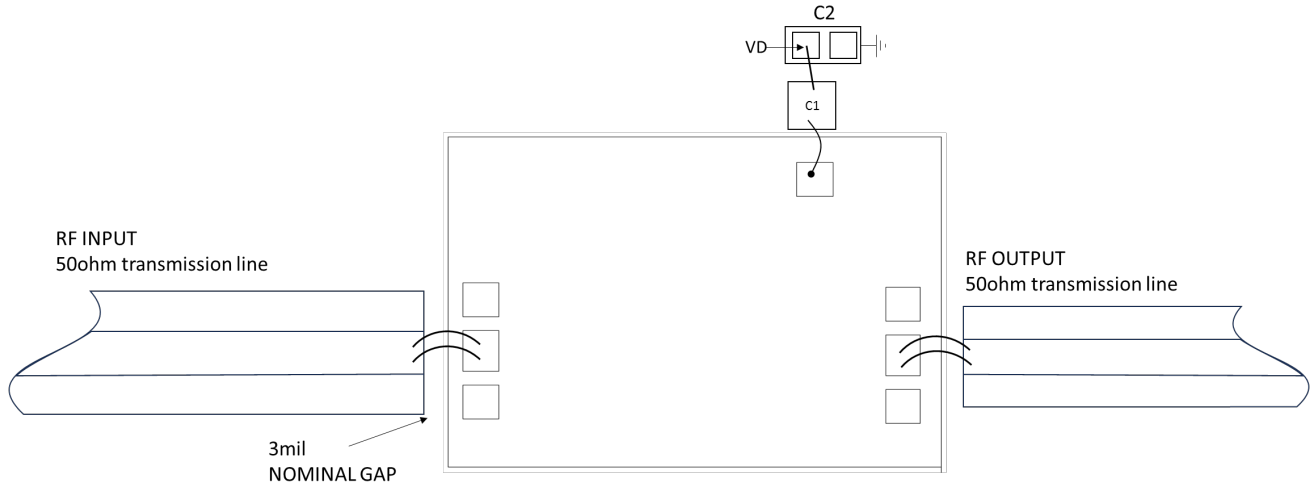


**Notes:**

1. Die thickness: 100 $\mu\text{m}$
2. DC bond pad is 97\*97 $\mu\text{m}^2$
3. RF IN/OUT bond pad is 97\*117 $\mu\text{m}^2$
4. Bond pad metalization: Gold
5. Backside metalization: Gold

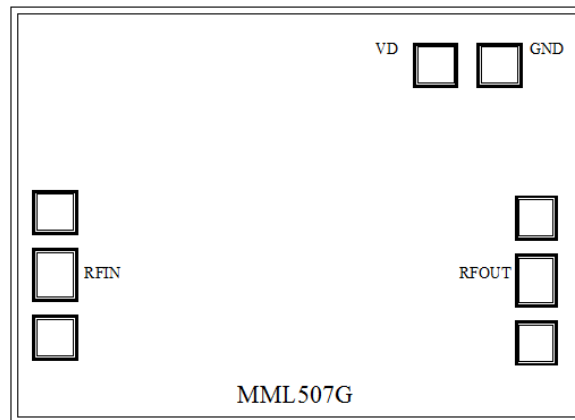


### Assembly Drawing



Item	Description
C1	1000 pF Example:KYOCERA AVX Part:116XK102M100TT
C2	10 µF Example: Murata Electronics Part: GRM188C81C106MA73D (0603)

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 10 µf and 1000 pf are required for these pads.
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  $V_D$  and set to +4V .
3. Apply RF signal.

### Turn OFF procedure:

1. Turn off the RF signal.
2. Turn off the positive drain voltage  $V_D$ .

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