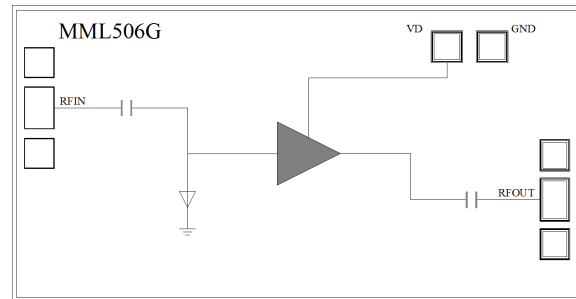


Features

- Single Biasing Voltage (Self Biased)
- Frequency: 10-20GHz
- Small Signal Gain: 19.5dB Typical
- Gain Flatness: ± 1.0 dB Typical
- Noise Figure: 2.2dB Typical
- P1dB: 15dBm Typical
- Power Supply:
 - VD = +3.3V@76mA
 - or VD = +5V@95mA
- Input/Output: 50 Ω
- Chip Size: 1.9x 0.98x 0.1mm

Typical Applications

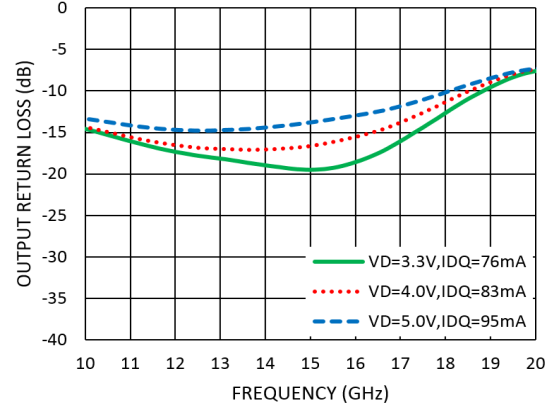
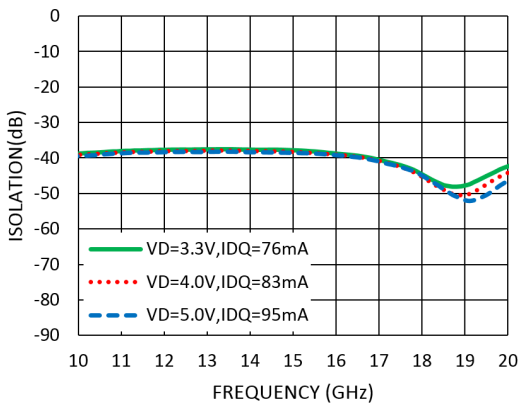
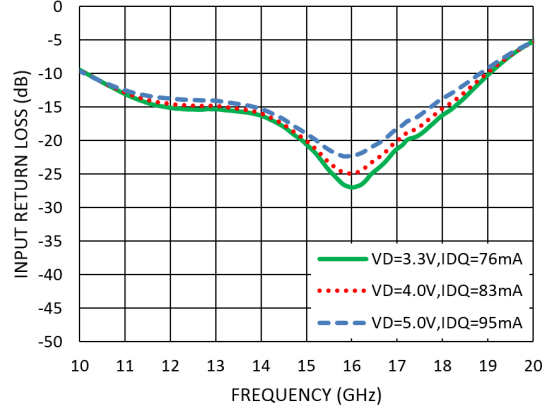
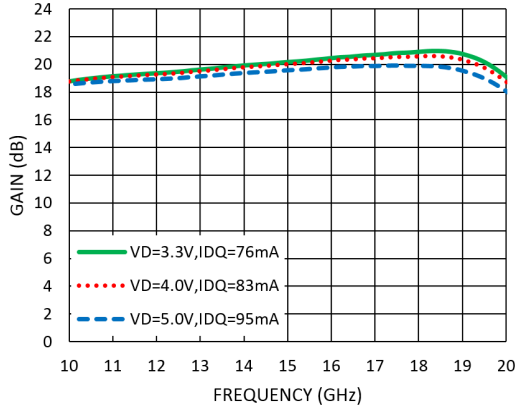
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Functional Block Diagram

Electrical Specifications
TA = +25°C, VD = +3.3V or +5V, IDD = 76mA or 95mA Typical

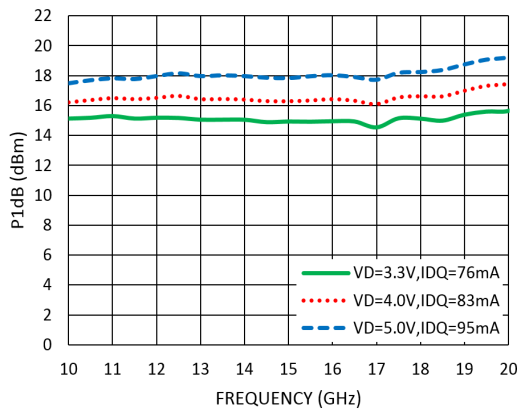
Parameters	VD=+3.3V			VD=+5V			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency	10		20	10		20	GHz
Small Signal Gain	18	19.5		17	18.5		dB
Gain Flatness		± 1.0			± 1.0		dB
Noise Figure		2.0			2.5		dB
P1dB - Output 1dB Compression	13	15		16	18		dBm
Psat - Saturated Output Power		17			20		dBm
OIP3 - Output Third Order Intercept		26			27		dBm
Input Return Loss		-13			-12		dB
Output Return Loss		-15			-13		dB



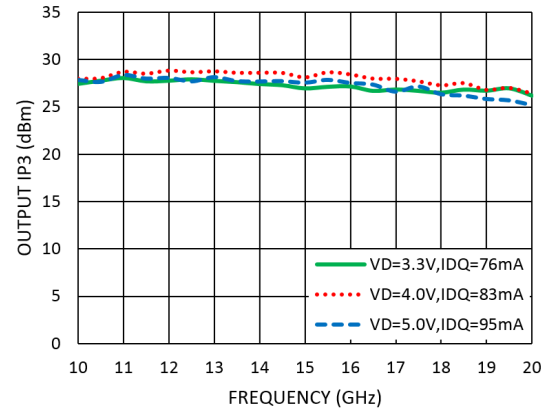
Measurement Plots: S-parameters

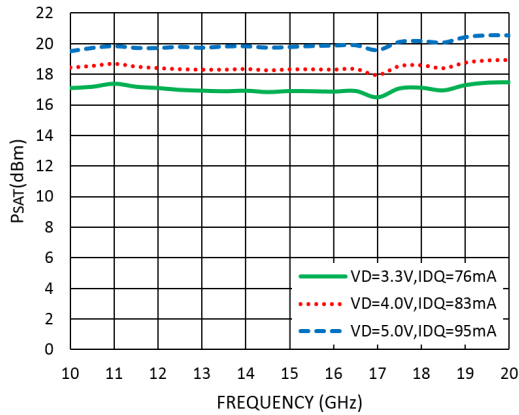
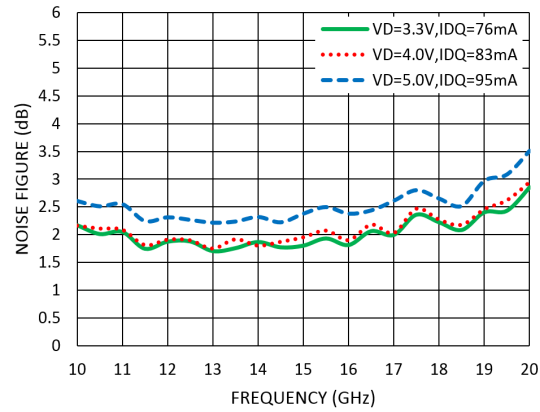


Measurement Plots: P1dB



Measurement Plots: OIP3



Measurement Plots: PsAT

Measurement Plots: Noise Figure

Absolute Maximum Ratings

Drain Bias Voltage (VD)	+8V
RF Input Power (RFIN)	+40dBm
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 +105 °C
Storage Temperature	-65°C to +150 °C

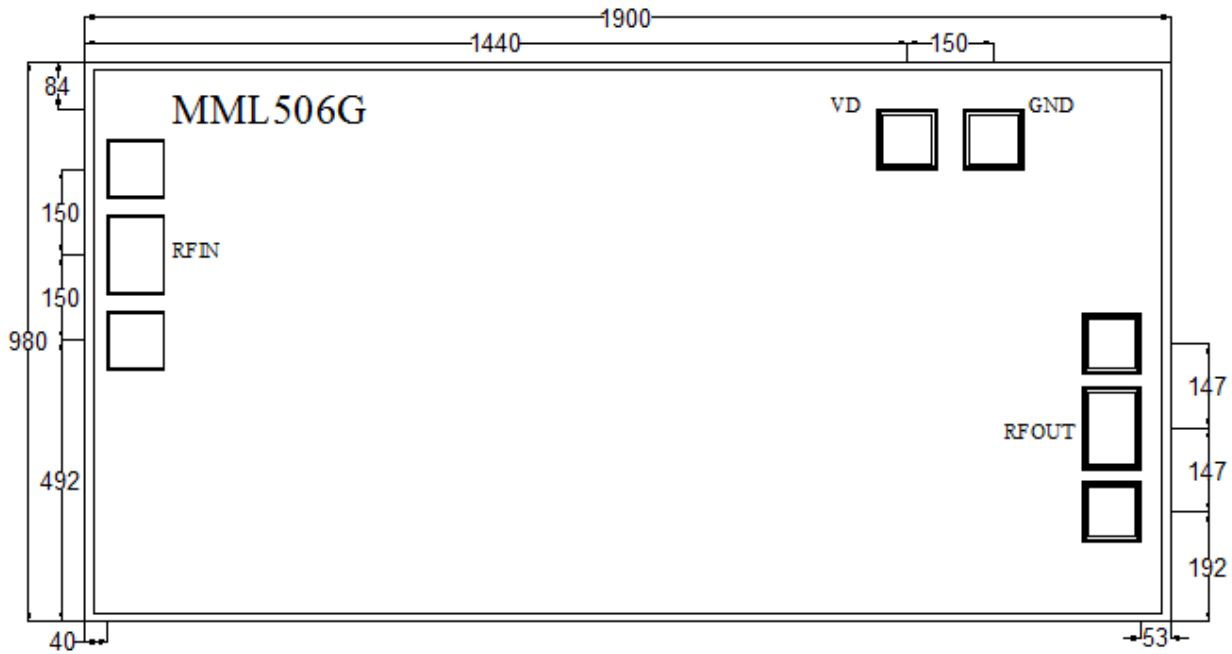
Typical Supply Current vs. VD

VD (V)	IDD (mA)
+3.3/+5	76/95


**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**



Outline Drawing:
All Dimensions in μm

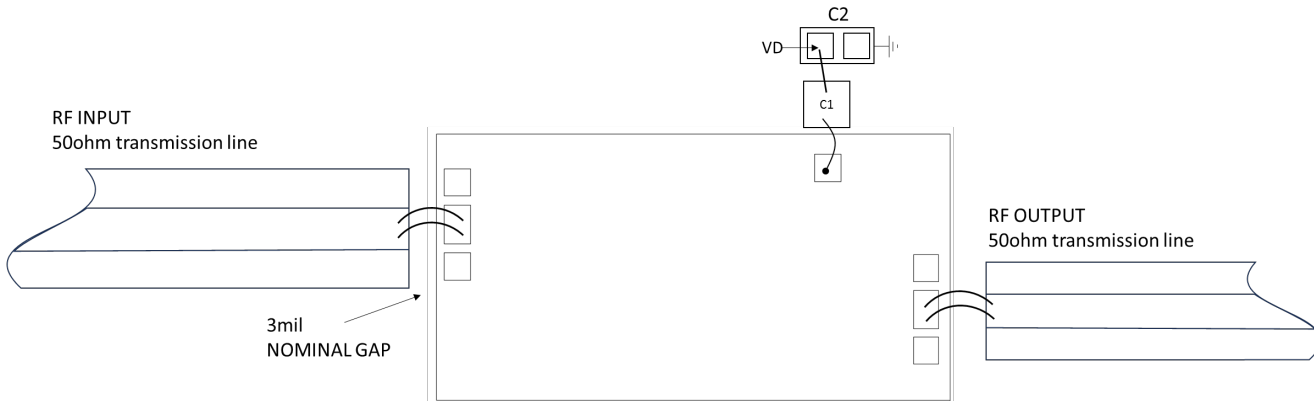


Notes:

1. Die thickness: 100 μm
2. DC bond pad is 97*97 μm^2
3. RF IN/OUT bond pad is 97*137 μm^2
4. Bond pad metalization: Gold
5. Backside metalization: Gold

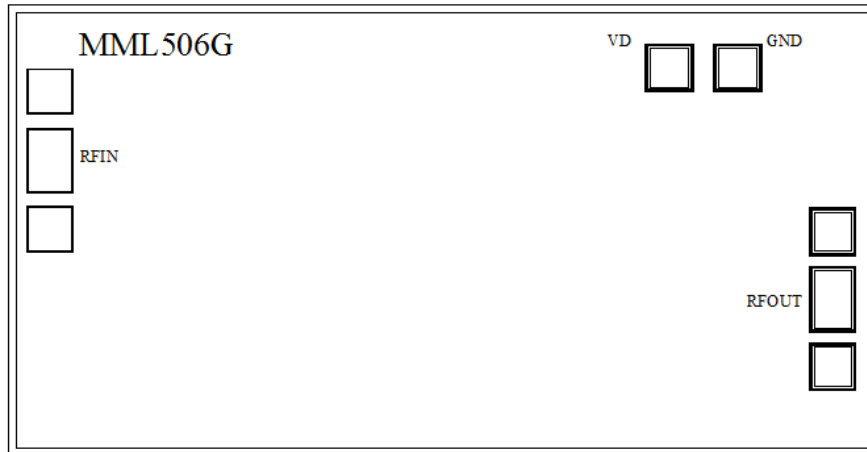


Assembly Drawing



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 VD and set to +3.3V or 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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