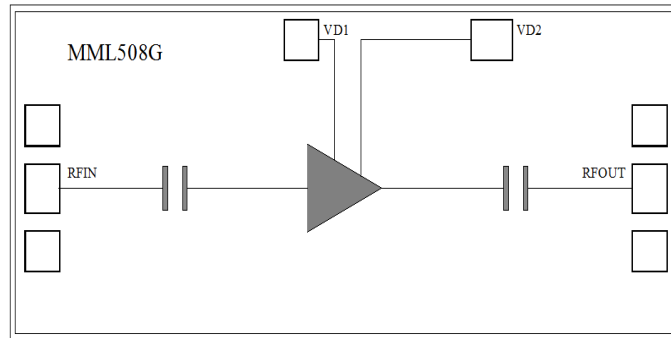## Features

- Single Biasing Voltage (Self Biased)
- Frequency: 18-40GHz
- Small Signal Gain: 22dBTypical
- Gain Flatness: $\pm$0.3dB Typical
- Noise Figure:2.3dB Typical
- P1dB: 14.5dBm Typical
- Power Supply: +5V@67mA
- Input/Output: 50Ω
- Chip Size: 1.9 x 0.8 x 0.1mm

Typical Applications

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

Functional Block Diagram


Electrical Specifications
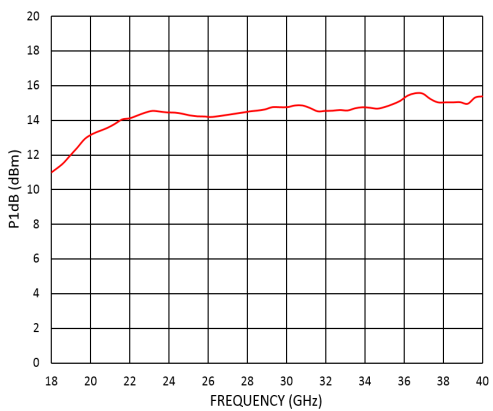
TA = +25°C, VD = +5V, IDD = 67mA Typical

Parameters	Min.	Typ.	Max.	Units
Frequency	18		40	GHz
Small Signal Gain	21	22		dB
Gain Flatness		±0.3		dB
Noise Figure		2.3	3.2	dB
P1dB - Output 1dB Compression	10	14.5		dBm
Psat - Saturated Output Power		15.5		dBm
OIP3 - Output Third Order Intercept		24		dBm
Input Return Loss		12		dB
Output Return Loss		12		dB

Measurement Plots: S-parameters
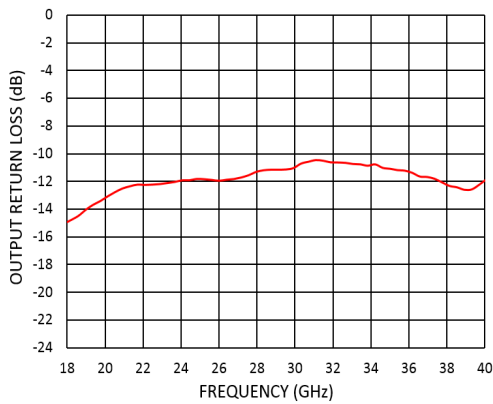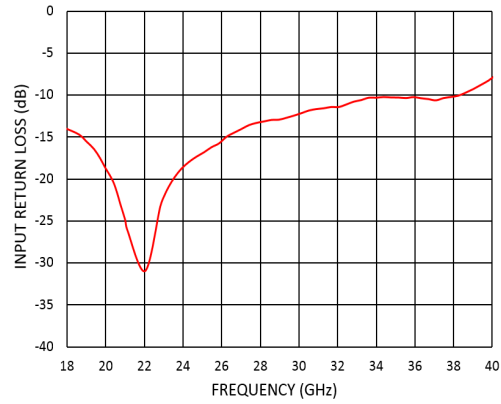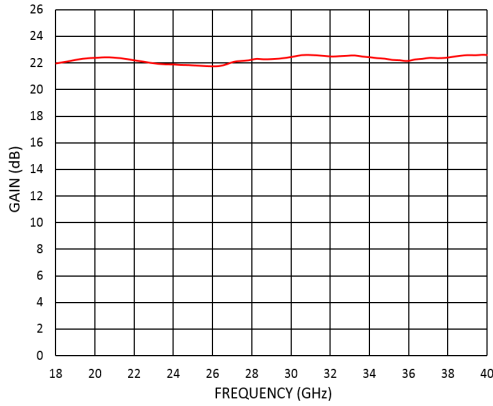
Measurement Plots: P1dB

Measurement Plots: Noise Figure

MML508G

GaAs MMIC Low Noise Amplifier 18-40GHz
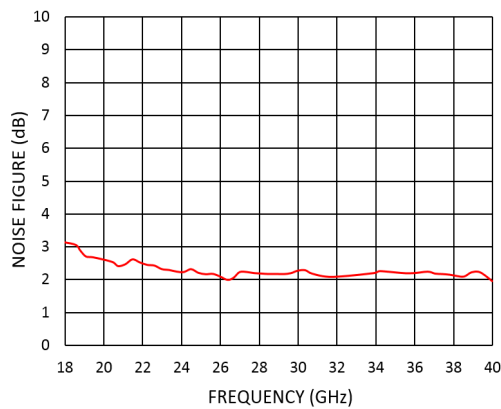
Absolute Maximum Ratings

Drain Bias Voltage (VD)	+7V
RF Input Power (RFIN)	+15dBm
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 +125 °C
Storage Temperature	-65°C to +150 °C

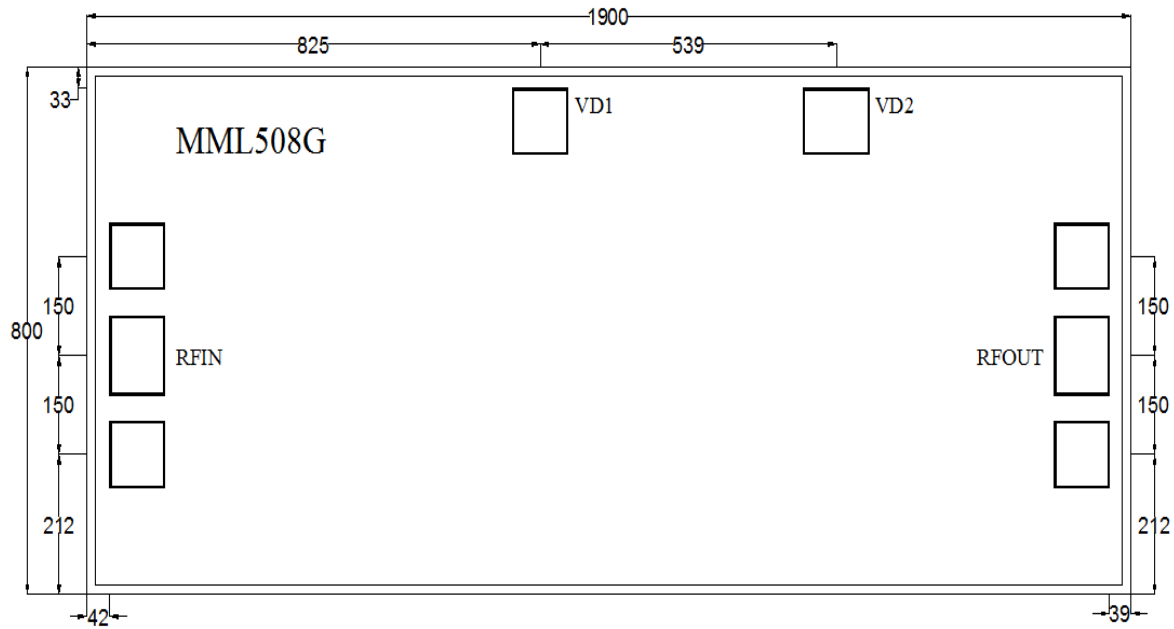## Typical Supply Current vs. VD

VD (V)	IDD (mA)
+5	67

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing:

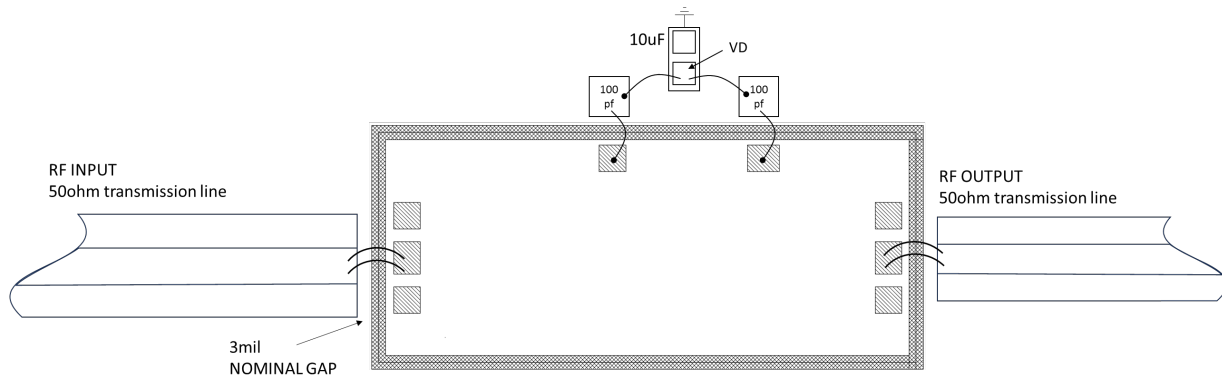All Dimensions in µm

Notes:
1. **Die thickness: 100µm**
2. **DC bond pad is 100*100µm²**
3. **RF IN/OUT bond pad is 100*100µm²**
4. **Bond pad metalization: Gold**
5. **Backside metalization: Gold**

MML508G

V1.0.0   GaAs MMIC Low Noise Amplifier 18-40GHz

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.
	Die Bottom	Die bottom must be connected to RF and dc ground.
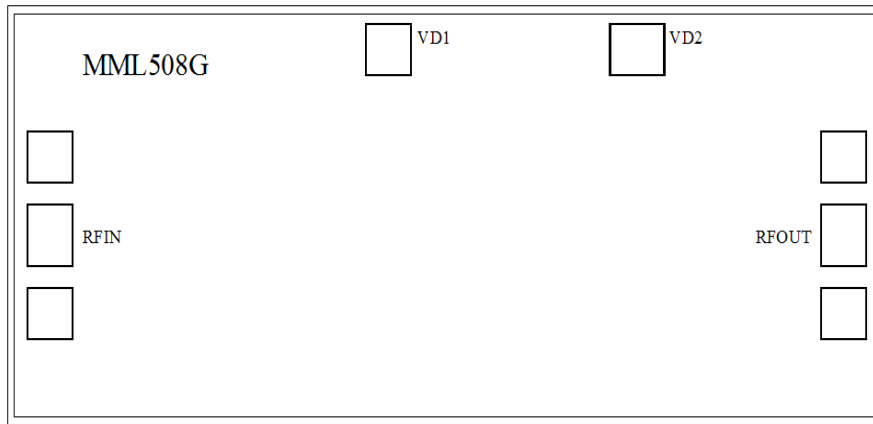
Biasing and Operation

Turn ON procedure:

1. Connect GND to RF and dc ground.
2. Apply positive drain voltage VD and set to +5V .
3. Apply RF signal.

Turn OFF procedure:

1. Turn off the RF signal.
2. Turn off the positive drain voltage VD.