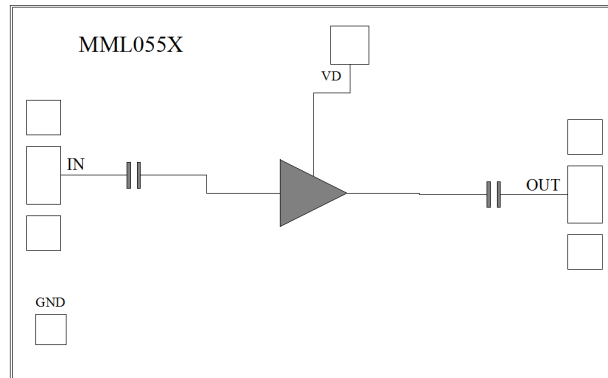


Features

- Single Biasing Voltage (Self Biased)
- Frequency: 1-14GHz
- Small Signal Gain: 18.5dB Typical
- Gain Flatness: ± 0.3 dB Typical
- Noise Figure: 1.1dB Typical
- P1dB: 19dBm Typical
- Power Supply: +5V@66mA
- Input/Output: 50 Ω
- Chip Size: 1.58 x 0.98 x 0.1mm

Typical Applications

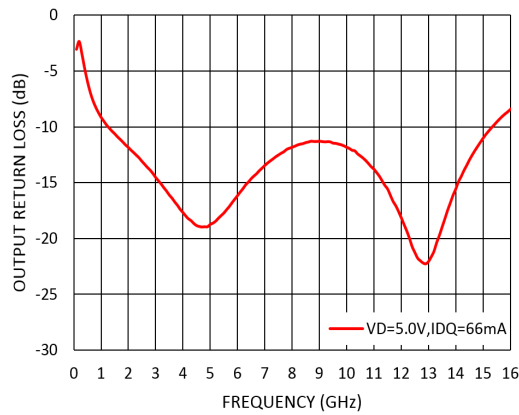
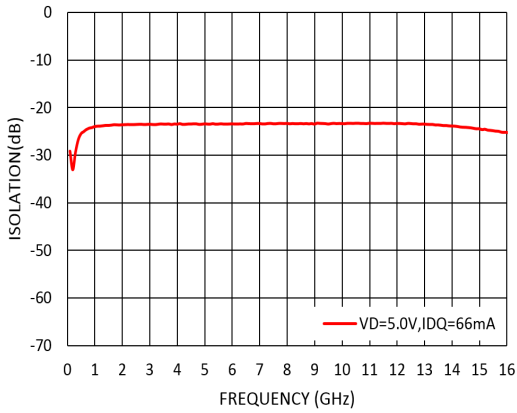
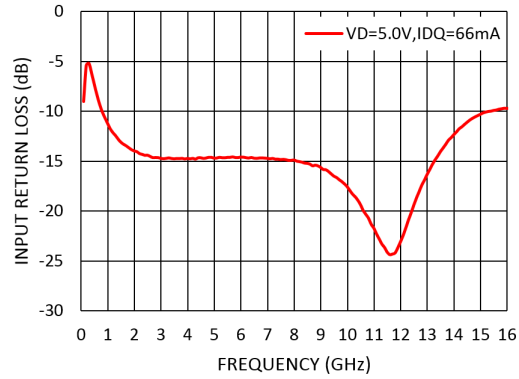
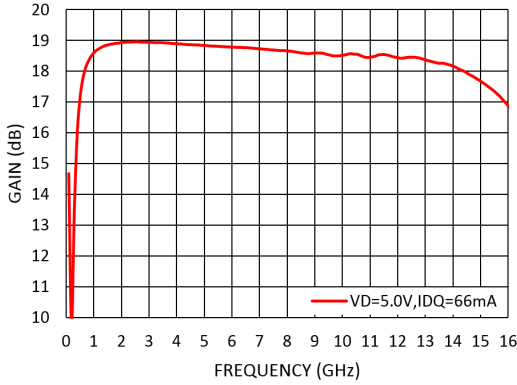
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Functional Block Diagram

Electrical Specifications
TA = +25°C, VD = +5V, IDD = 66mA Typical

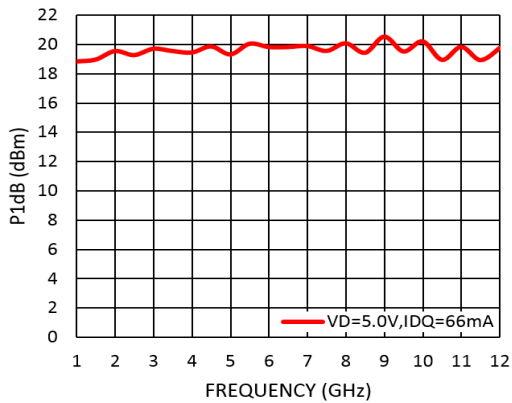
| Parameters | Min. | Typ. | Max. | Units |
|-------------------------------------|------|-----------|------|-------|
| Frequency | 1 | | 14 | GHz |
| Small Signal Gain | 18 | 18.5 | | dB |
| Gain Flatness | | ± 0.3 | | dB |
| Noise Figure | | 1.1 | 1.3 | dB |
| P1dB - Output 1dB Compression | 18 | 19 | | dBm |
| Psat - Saturated Output Power | | 20 | | dBm |
| OIP3 - Output Third Order Intercept | | 28 | | dBm |
| Input Return Loss | | -14 | | dB |
| Output Return Loss | | -12 | | dB |



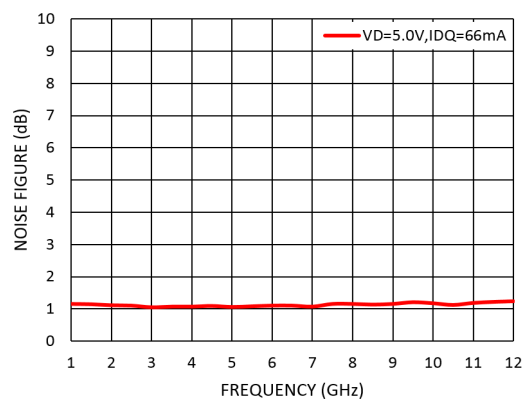
Measurement Plots: S-parameters



Measurement Plots: P1dB



Measurement Plots: Noise Figure



Absolute Maximum Ratings

| | |
|---|------------------|
| Drain Bias Voltage (VD) | +7V |
| RF Input Power (RFIN) | +18dBm |
| Channel Temperature | 165°C |
| Continuous P _{diss} (T = 85 °C) (derate 5.9mW/°C above 85 °C) | 0.53W |
| 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

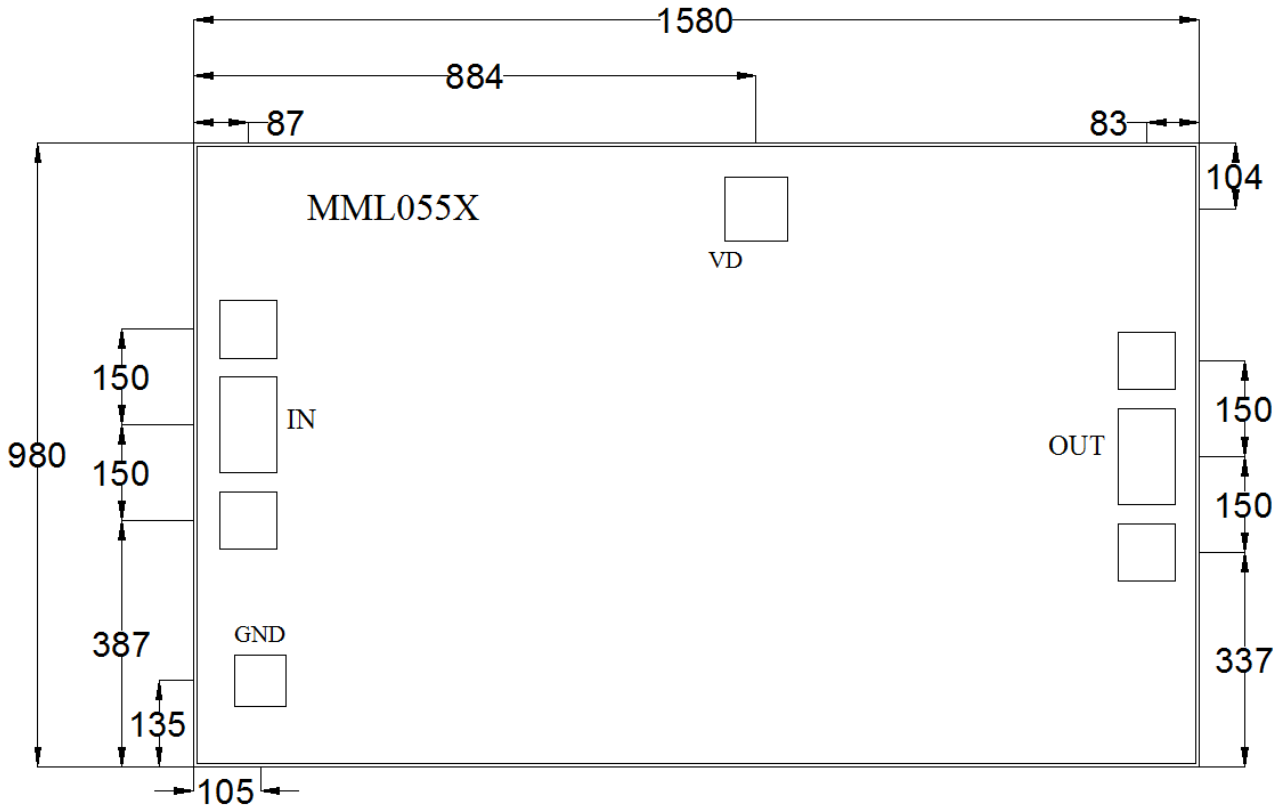
| VD (V) | IDD (mA) |
|--------|----------|
| +5 | 66 |



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS



Outline Drawing:
All Dimensions in μm

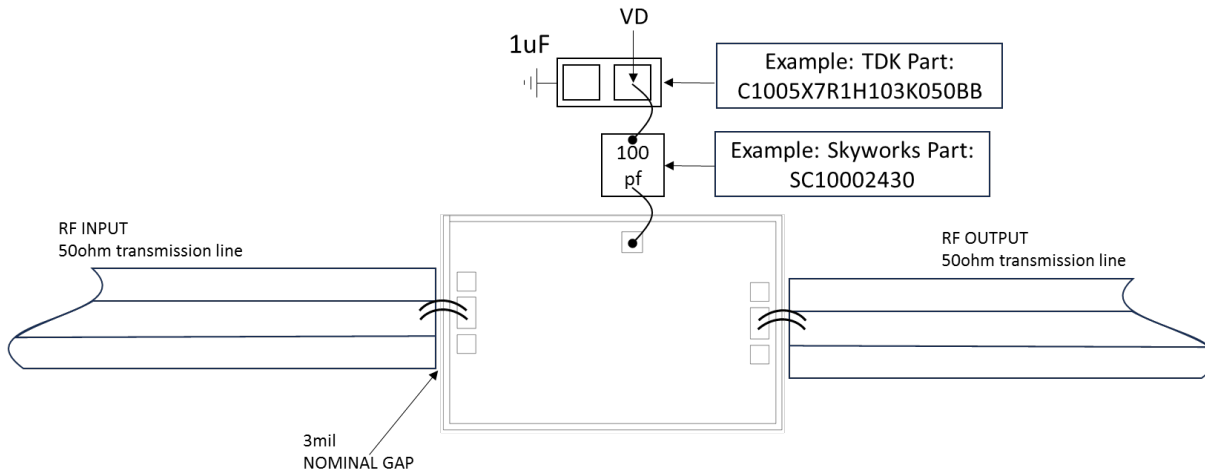


Notes:

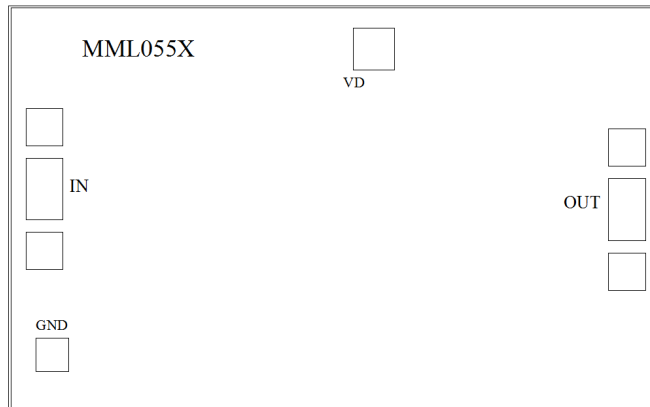
1. Die thickness: 100 μm
2. DC bond pad is 100*100 μm^2
3. RF IN/OUT bond pad is 90*150 μm^2
4. Bond pad metalization: Gold
5. Backside metalization: Gold



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 | Drain Biases for the Amplifier. Connect to external 100pf and 1uf bypass capacitors. |
| 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 +5V .
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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