

Features

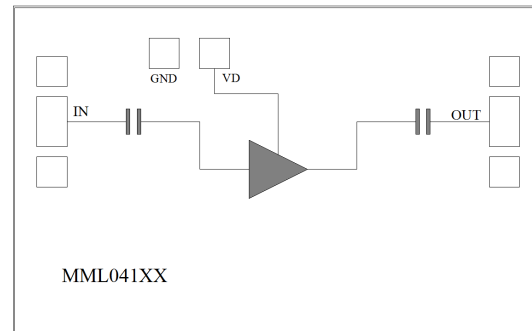
- Single Biasing Voltage (Self Biased)
- Frequency: 2-22GHz
- Small Signal Gain: 16dB Typical
- Gain Flatness: ± 0.5 dB Typical
- Noise Figure: 1.6dB Typical
- P1dB: 18dBm Typical
- Power Supply: +5V@78mA
- Input/Output: 50 Ω
- Chip Size: 1.58 x 0.98 x 0.1mm

Typical Applications

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

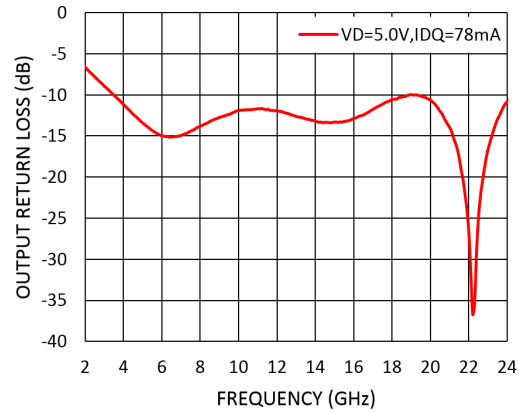
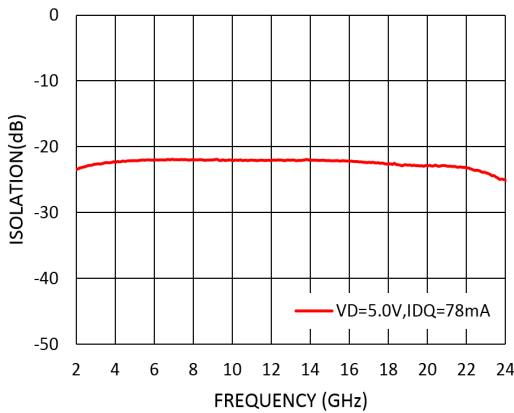
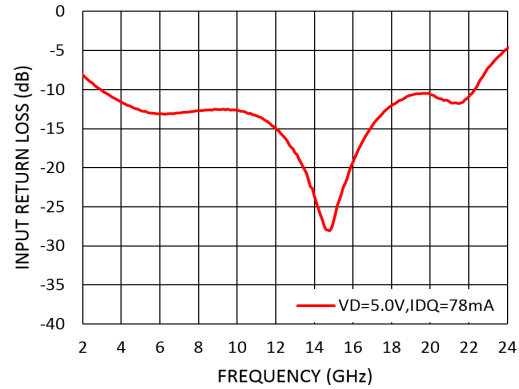
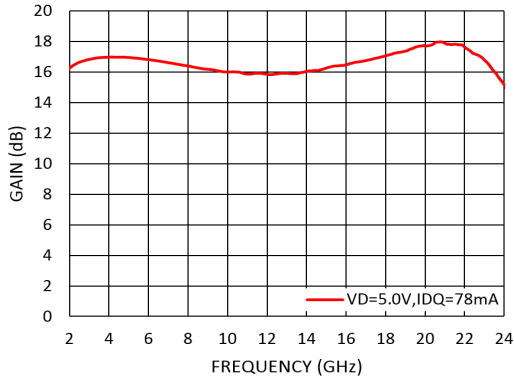
Electrical Specifications
TA = +25°C, VD = +5V, IDD = 78mA Typical

Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency	2		12	12		22	GHz
Small Signal Gain	15	16		15	16.5		dB
Gain Flatness		± 0.5			± 1.0		dB
Noise Figure		1.5	1.8		1.9	2.4	dB
P1dB - Output 1dB Compression	16	18		15	18		dBm
Psat - Saturated Output Power		19			19		dBm
OIP3 - Output Third Order Intercept		28			28		dBm
Input Return Loss		-12			-11		dB
Output Return Loss		-10			-10		dB

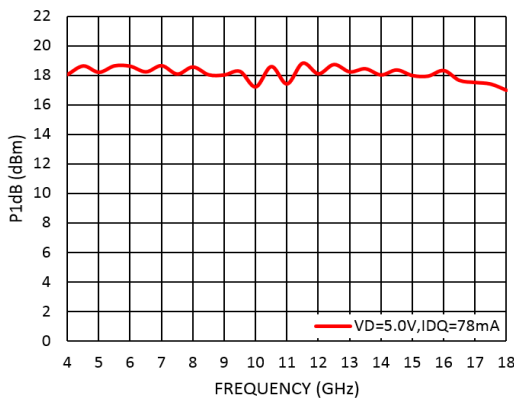
Functional Block Diagram




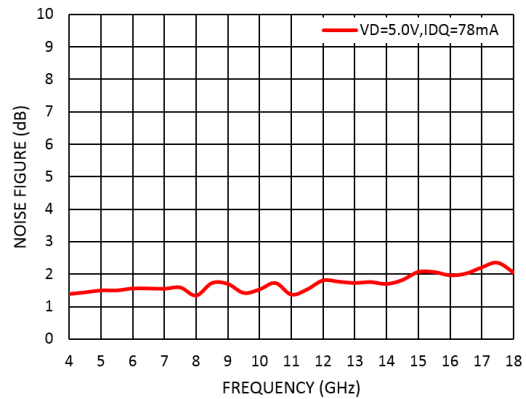
Measurement Plots: S-parameters



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 Pdiss (T = 85 °C) (derate 6.7mW/°C above 85 °C)	0.6W
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

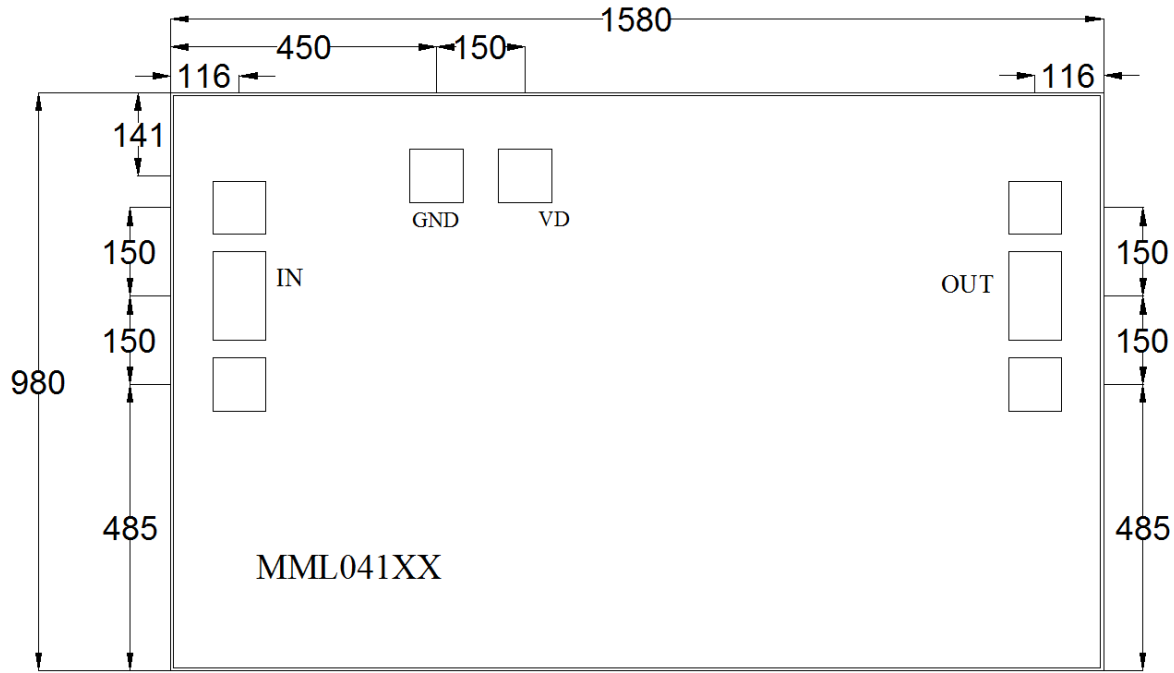
VD (V)	IDD (mA)
+5	78



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS



Outline Drawing:
All Dimensions in μm

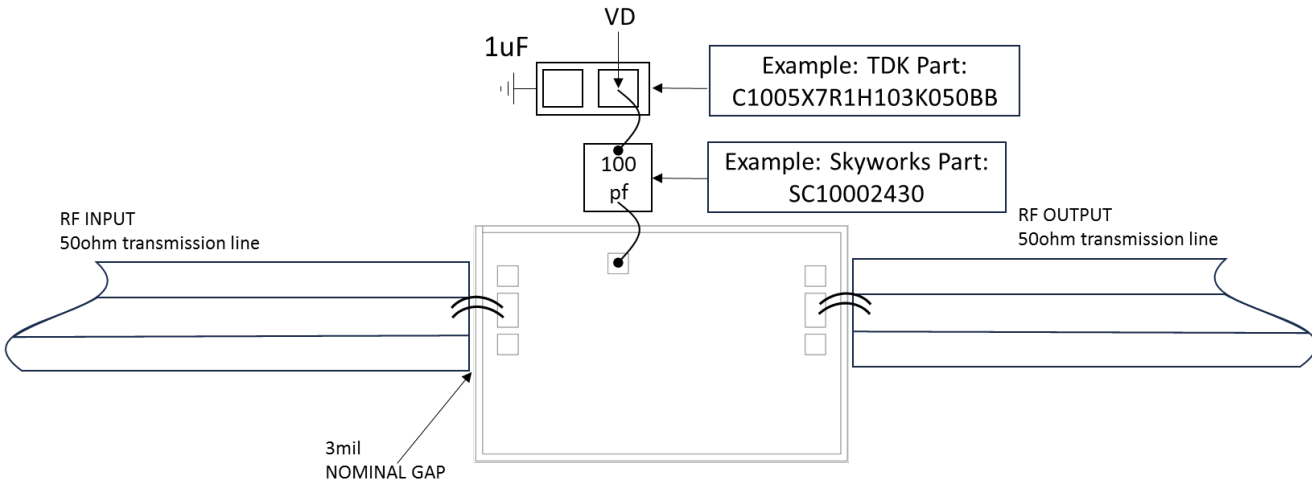


Notes:

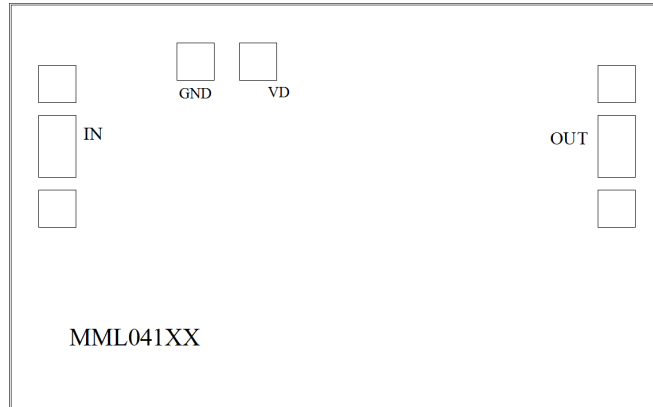
1. Die thickness: $100\mu\text{m}$
2. DC bond pad is $90*90\mu\text{m}^2$
3. RF IN/OUT bond pad is $90*150\mu\text{m}^2$
4. Bond pad metalization: Gold
5. Backside metalization: Gold



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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