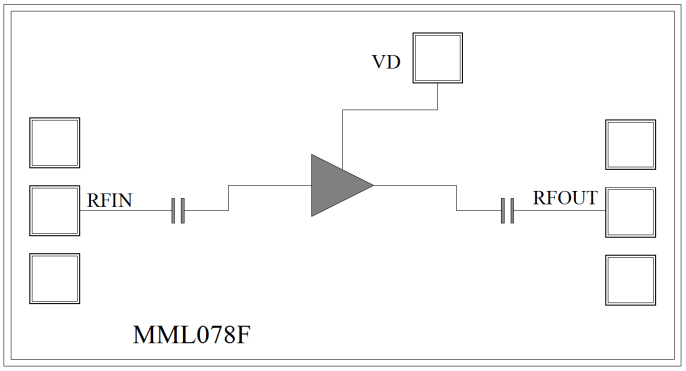
Features

- Single Biasing Voltage (Self Biased)
- Ultra Low Current 16mA
- Frequency: 20-44GHz
- Small Signal Gain: 15dBTypical
- Gain Flatness: ±2.0dB Typical
- Noise Figure:2.0dB Typical
- P1dB: 6.0dBm Typical
- Power Supply: +5V@16mA
- Input/Output: 50Ω
- Chip Size: 1.5 x 0.8 x 0.1mm

Functional Block Diagram



Typical Applications

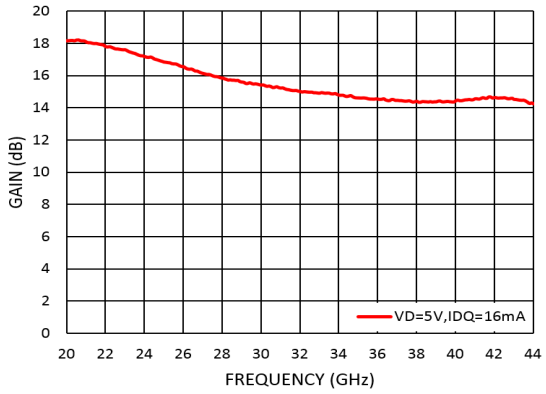
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

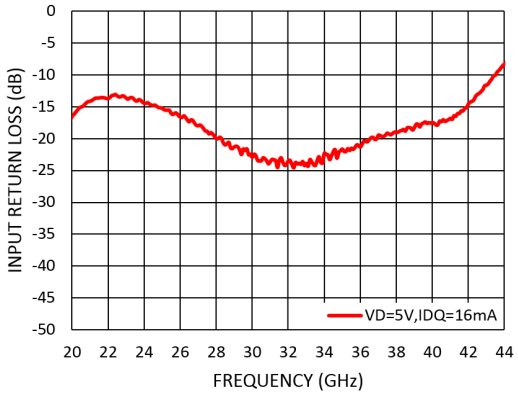
Electrical Specifications

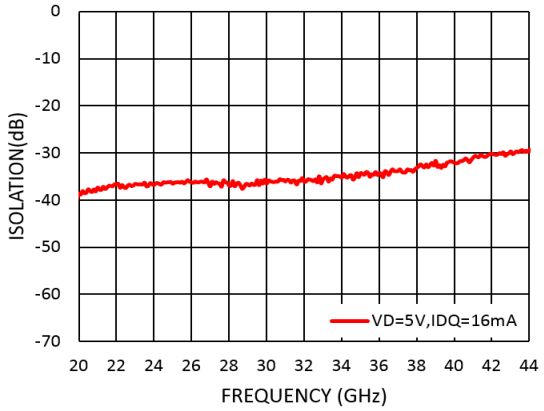
TA = +25°C, VD = +5V, IDD = 16mA Typical

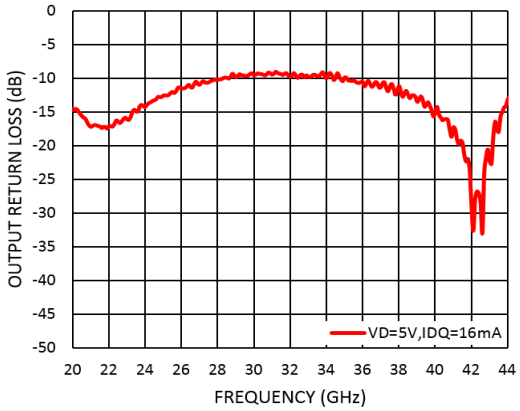
Parameters	Min.	Typ.	Max.	Units
Frequency	20		44	GHz
Small Signal Gain	13.5	15		dB
Gain Flatness		±2.0		dB
Noise Figure		1.8	3.0	dB
P1dB - Output 1dB Compression	4	6		dBm
Psat - Saturated Output Power		8		dBm
OIP3 - Output Third Order Intercept		16		dBm
Input Return Loss		-12		dB
Output Return Loss		-10		dB

Measurement Plots: S-parameters

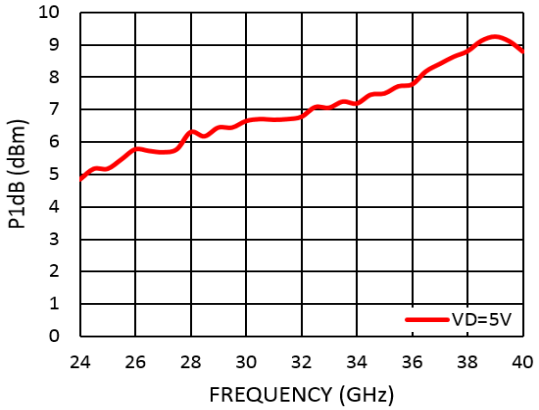




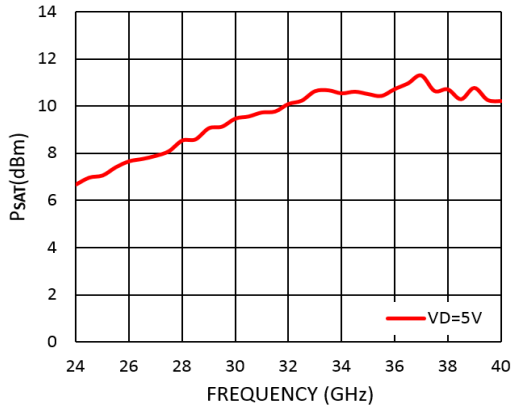




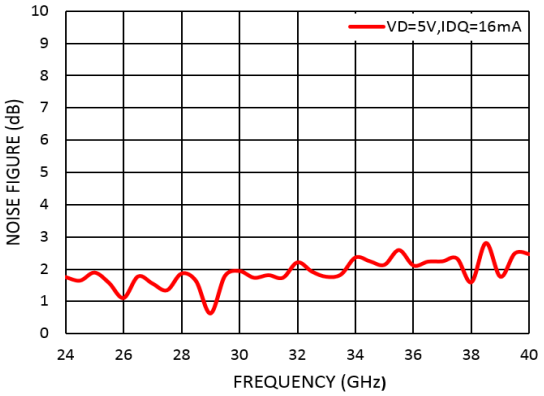
Measurement Plots: P1dB



Measurement Plots: PSAT



Measurement Plots: Noise Figure



Absolute Maximum Ratings

Drain Bias Voltage (VD)	+7V
RF Input Power (RFIN)@(+5V)	+10dBm
Channel Temperature	175°C
Continuous Pdiss (T = 85 °C) (derate 1.6mW/°C above 85 °C)	0.14W
Thermal Resistance (channel to die bottom)	60°C/W
Operating Temperature	-55°C to +85 °C
Storage Temperature	-65°C to +150 °C

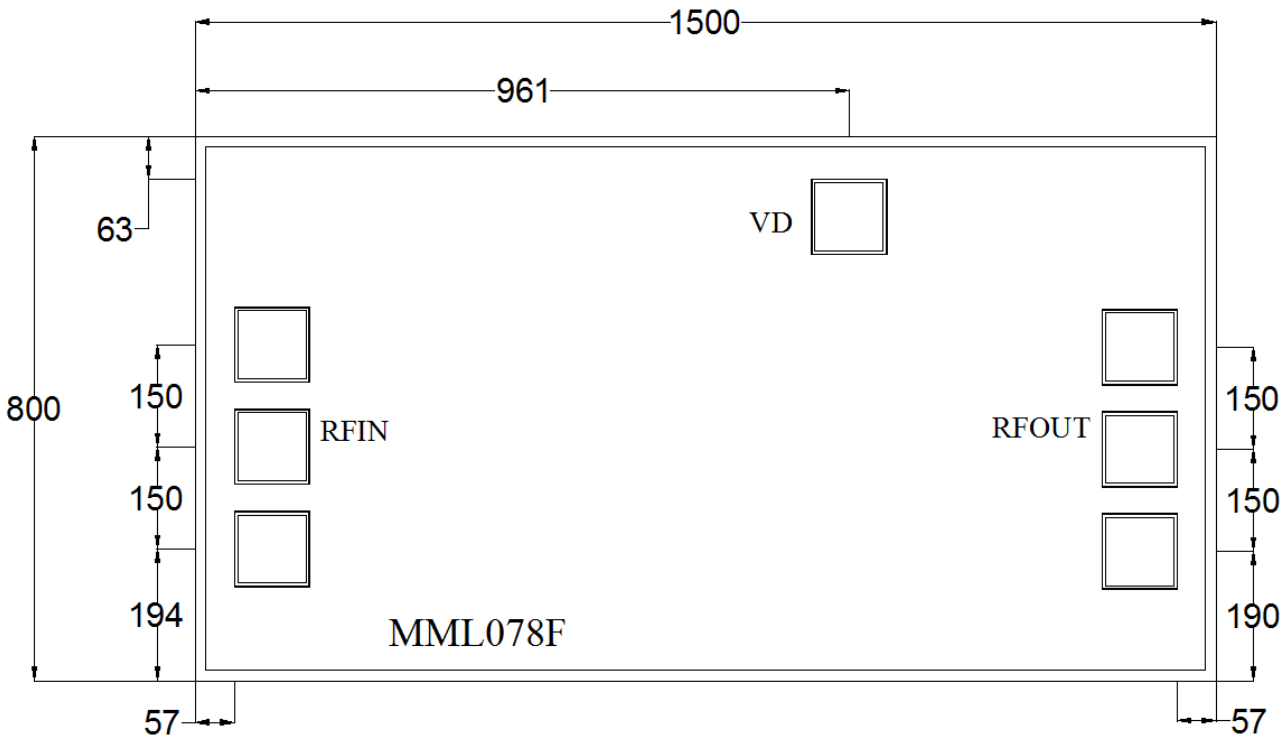
Typical Supply Current vs. VD

VD (V)	IDD (mA)
+5	16

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing:

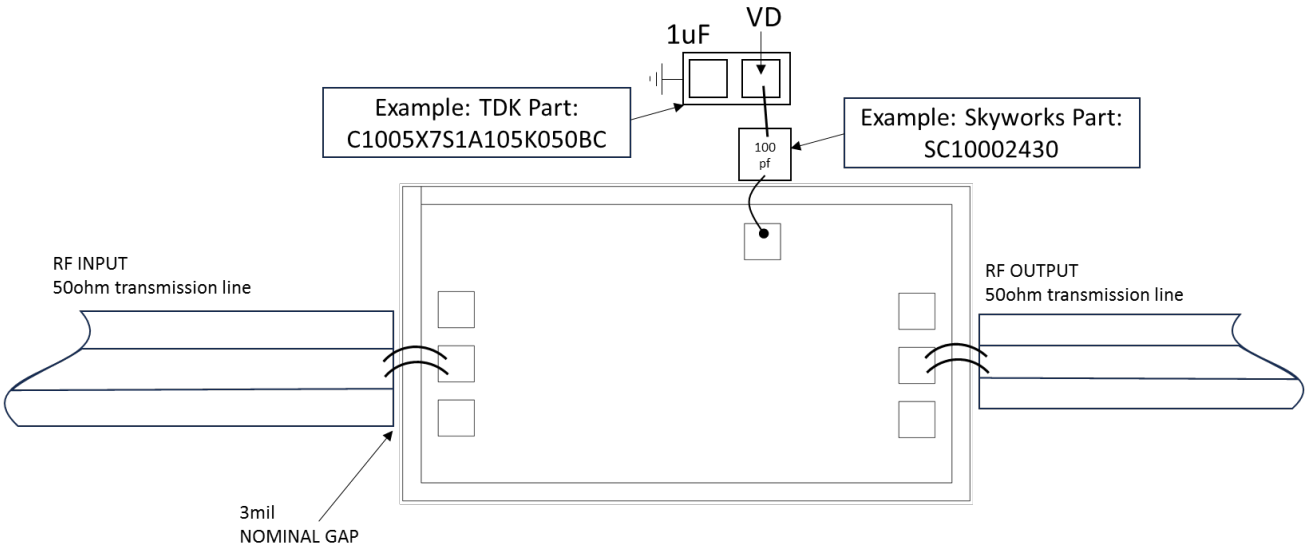
All Dimensions in µm



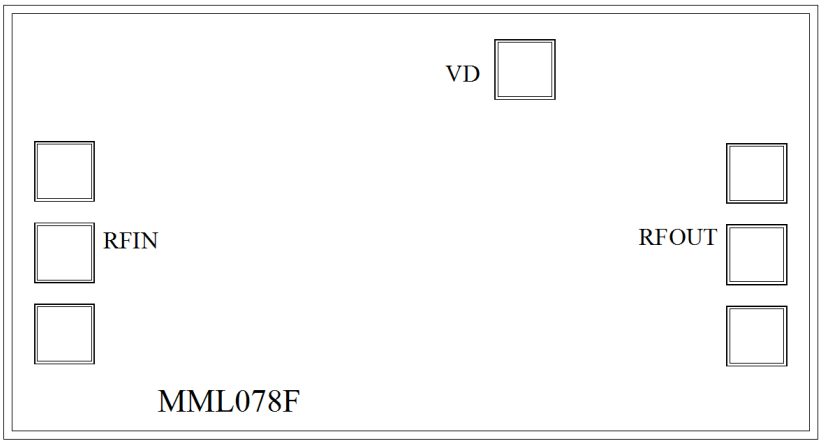
Notes:

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

Assembly Drawing



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 1µf and 100pf 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 +5V .
3. Apply RF signal.

Turn OFF procedure:

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