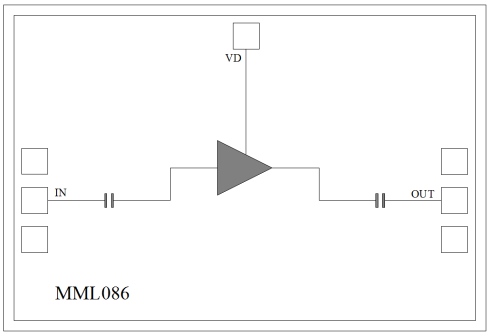
Features

- Single Biasing Voltage (Self Biased)
- Ultra Low Current
- Frequency: 10-20GHz
- Small Signal Gain: 26.5dB Typical (positive slope)
- Gain Flatness: ±1.0dB Typical
- Noise Figure:1.2dB Typical
- P1dB: 1.5dBm Typical
- Power Supply:VD=+5V@10mA
- Input/Output: 50Ω
- Chip Size: 1.85 x 1.25x 0.1mm

Functional Block Diagram



Typical Applications

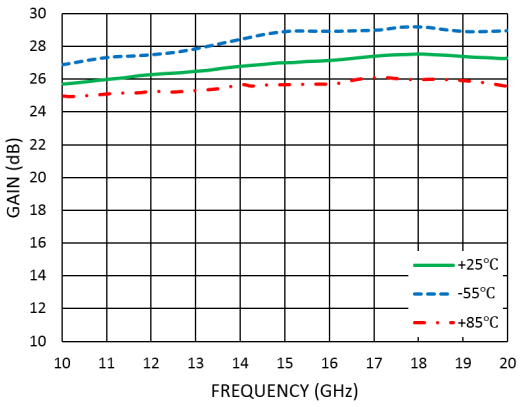
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

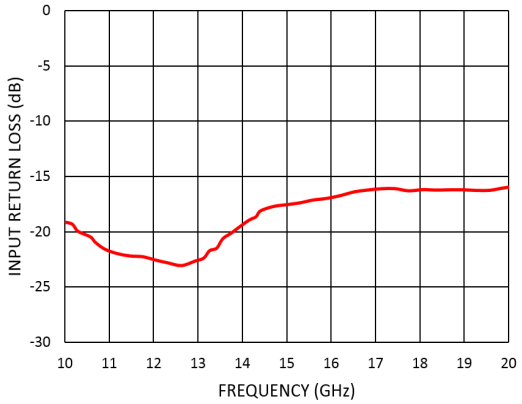
Electrical Specifications

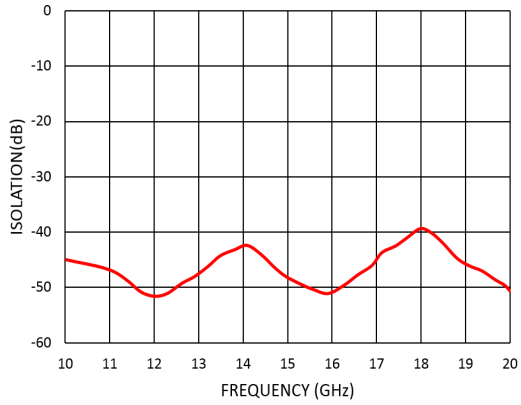
TA = +25°C, VD = +5V , IDD = 10mA Typical

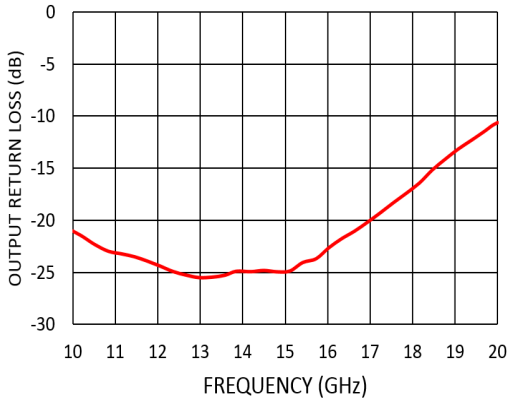
Parameters	Min.	Typ.	Max.	Units
Frequency	10		20	GHz
Small Signal Gain	25	26.5		dB
Gain Flatness		±1.0		dB
Noise Figure		1.3	1.5	dB
P1dB - Output 1dB Compression		1.5		dBm
Psat - Saturated Output Power		3.5		dBm
OIP3 - Output Third Order Intercept		12		dBm
Input Return Loss		-17		dB
Output Return Loss		-20		dB

Measurement Plots: S-parameters

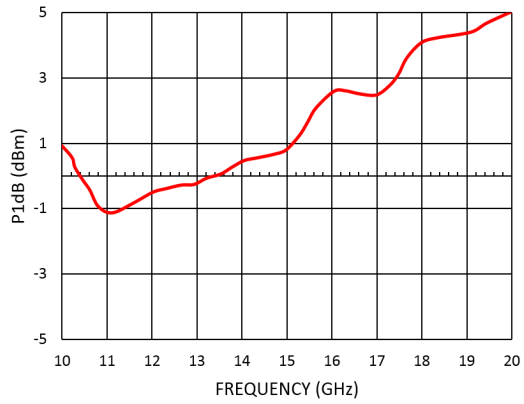




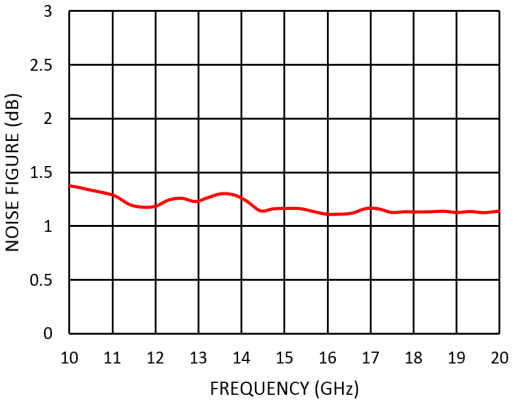




Measurement Plots: P1dB



Measurement Plots: Noise Figure



Absolute Maximum Ratings

Drain Bias Voltage (VD)	+7V
RF Input Power (RFIN))@(+5V)	+20dBm
Channel Temperature	175°C
Continuous Pdiss (T = 85 °C) (derate 1.6mW/°C above 85 °C)	0.14W
Thermal Resistance (channel to die bottom)	50°C/W
Operating Temperature	-55°C to +85 °C
Storage Temperature	-65°C to +150 °C

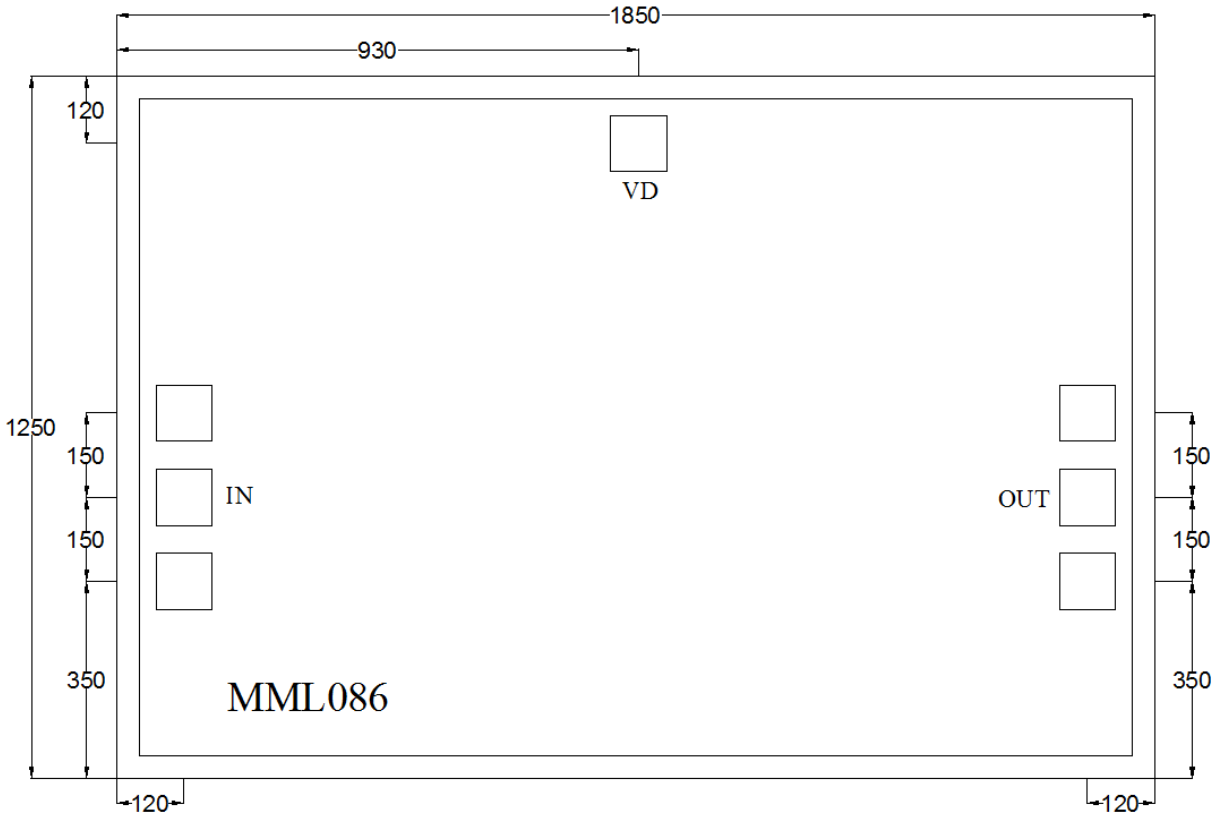
Typical Supply Current vs. VD

VD (V)	IDD (mA)
+5	10

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing:

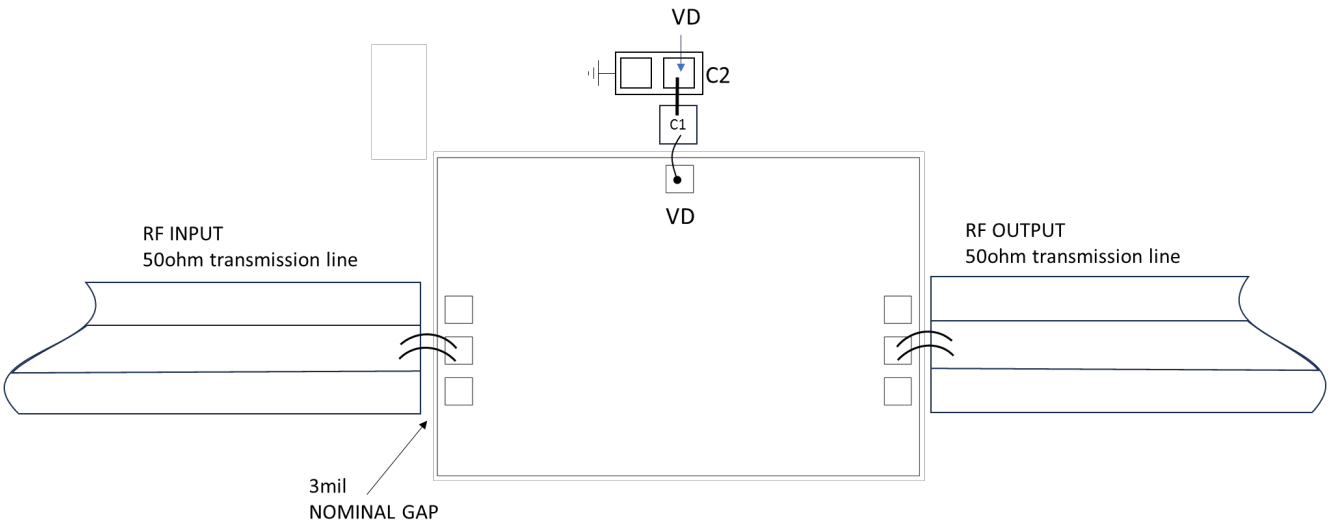
All Dimensions in µm



Notes:

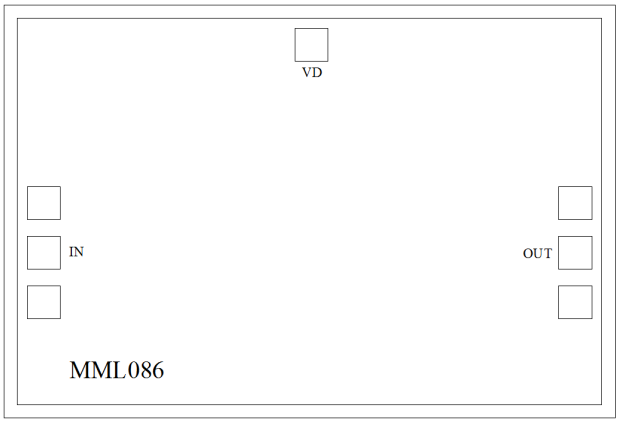
1. **Die thickness: 100µm**
2. **DC bond pad is 100*100µm^2**
3. **RF IN/OUT bond pad is 100*100µm^2**
4. **Bond pad metalization: Gold**
5. **Backside metalization: Gold**

Assembly Drawing



Item	Description
C1	100pF Example: Presidio Part: MVB3030X103M2H5C1
C2	1µF Example: KYOCERA AVX Part:116XK102M100TT

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.