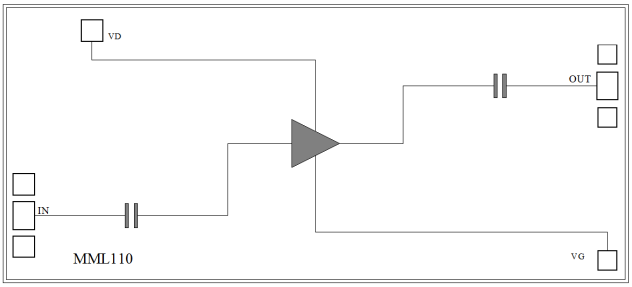
Features

- Single Biasing Voltage (Self Biased)
- Frequency: 2-24GHz
- Small Signal Gain: 18.5dB Typical
- Gain Flatness: ⊥0.5dB Typical
- Noise Figure:2.0dB Typical
- P1dB: 20dBm Typical
- Power Supply: +7V@156mA
- Input/Output: 50Ω
- Chip Size: 3.0 x 1.33 x 0.1mm

Functional Block Diagram



Typical Application

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

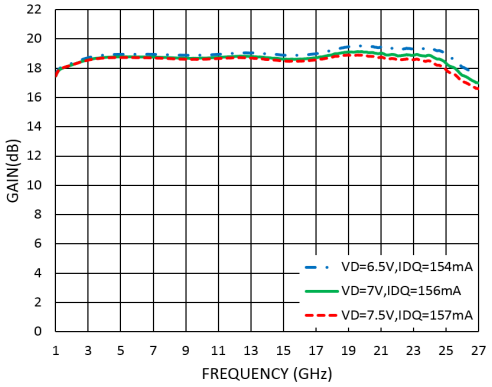
Electrical Specifications

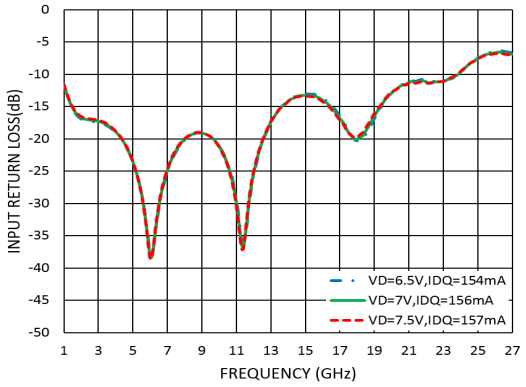
TA = +25°C, VD = +7V, IDD = 156mA Typical

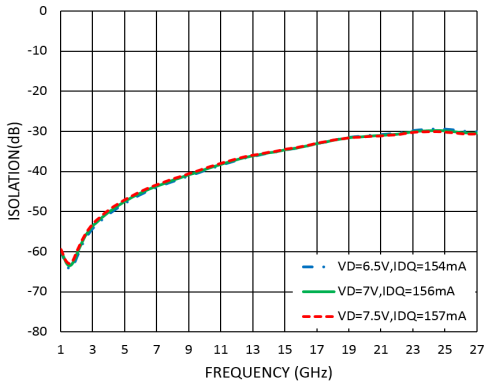
Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency	2		12	12		24	GHz
Small Signal Gain	17.5	18.5		18	19		dB
Gain Flatness		±0.5			±0.5		dB
Noise Figure		2.0			2.5		dB
P1dB - Output 1dB Compression	20	22		17	20		dBm
Psat - Saturated Output Power		24			22		dBm
OIP3 - Output Third Order Intercept		30			26		dBm
Input Return Loss		-17			-12		dB
Output Return Loss		-20			-15		dB

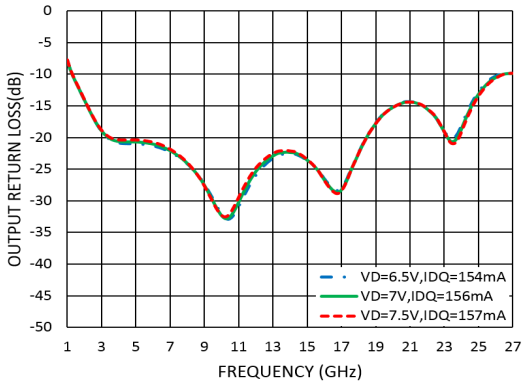
Measurement Plots: S-parameters

TA = +25°C



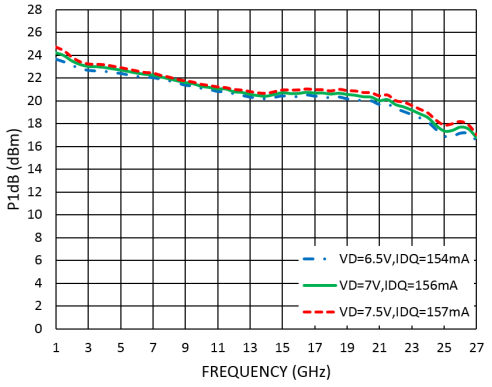






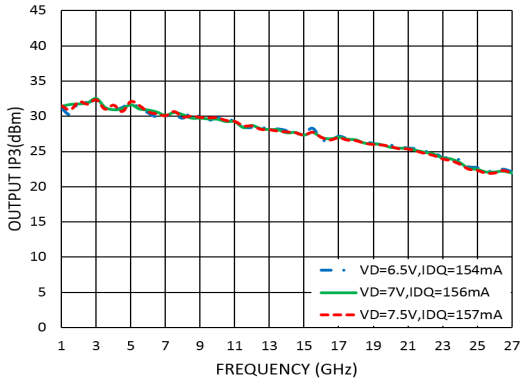
Measurement Plots: P1dB

TA = +25°C

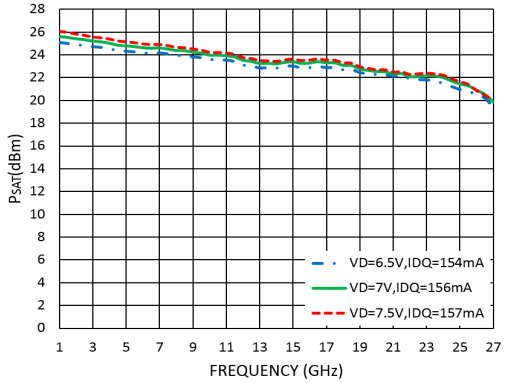


Measurement Plots: OIP3

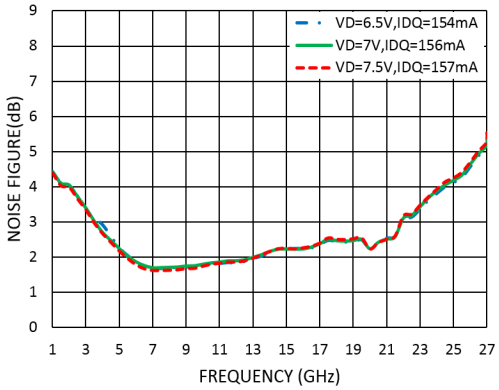
TA = +25°C



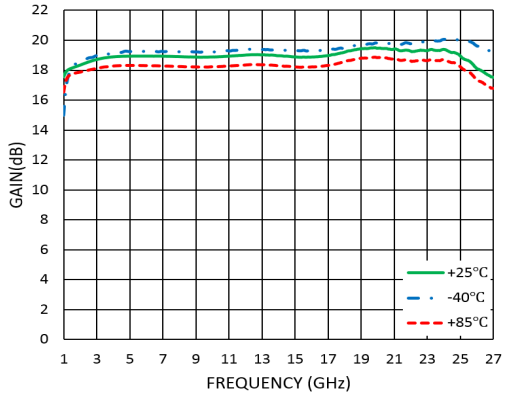
Measurement Plots: PSAT
TA = +25°C

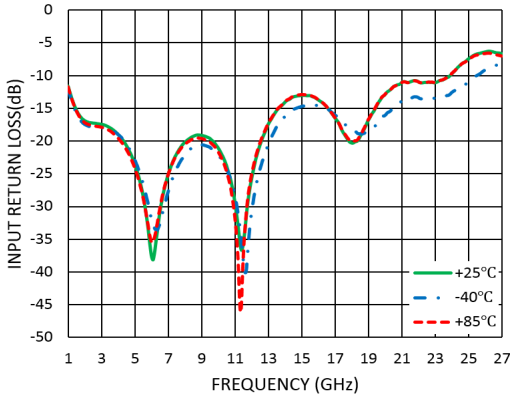


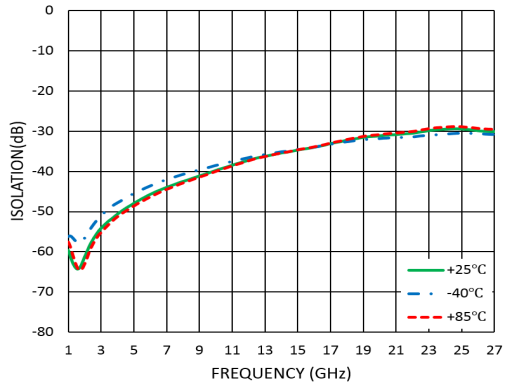
Measurement Plots: Noise Figure
TA = +25°C

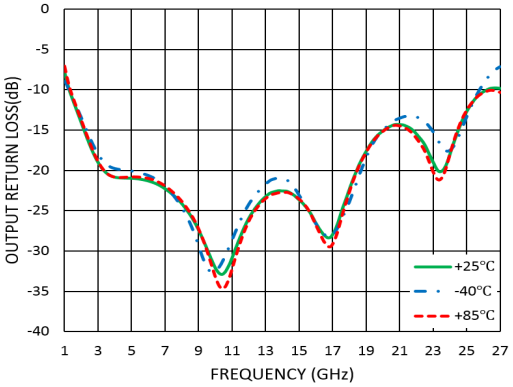


Measurement Plots: S-parameters
VD=6.5V

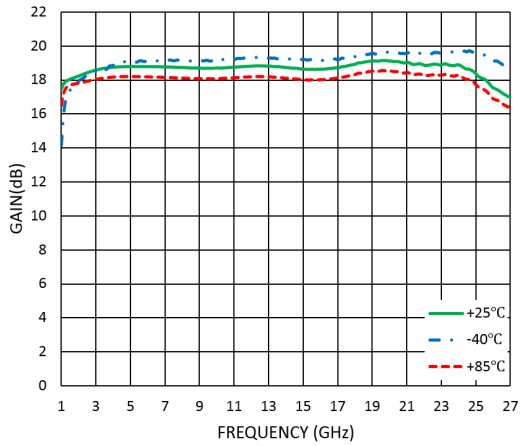


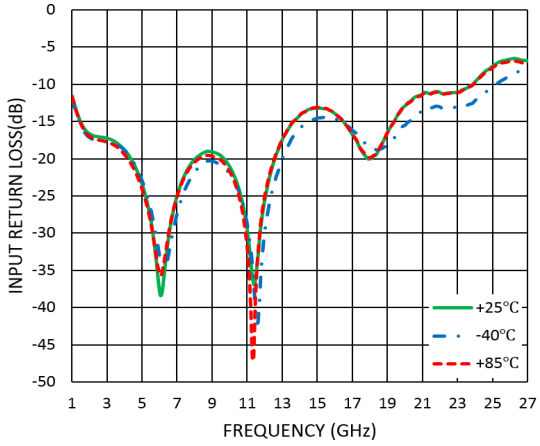


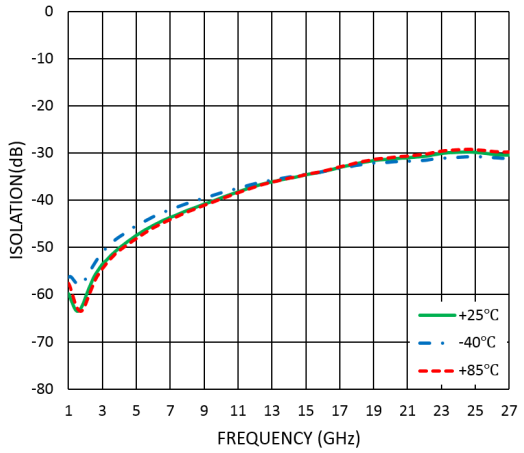


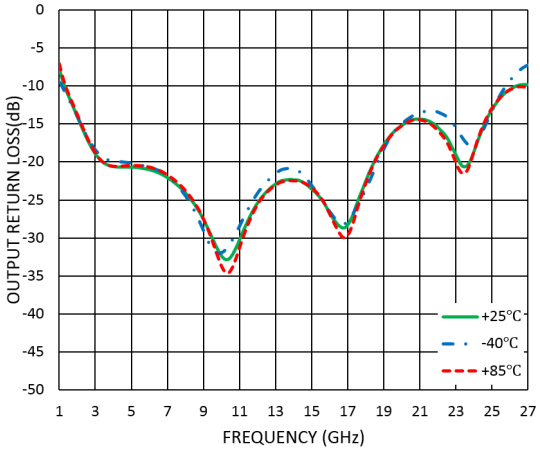


Measurement Plots: S-parameters VD=7V

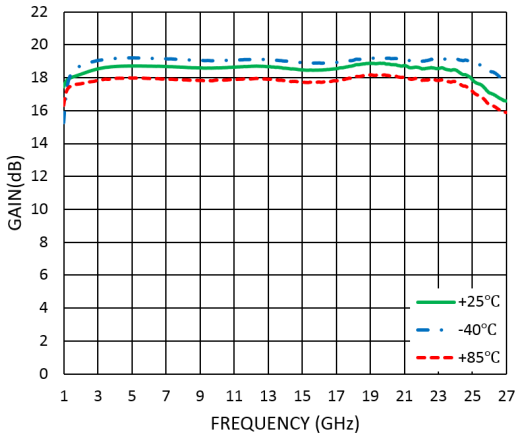


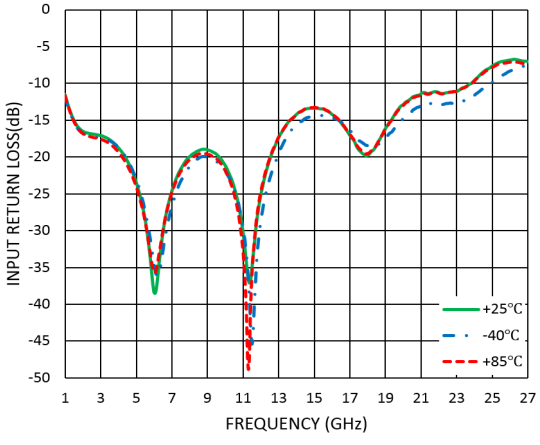


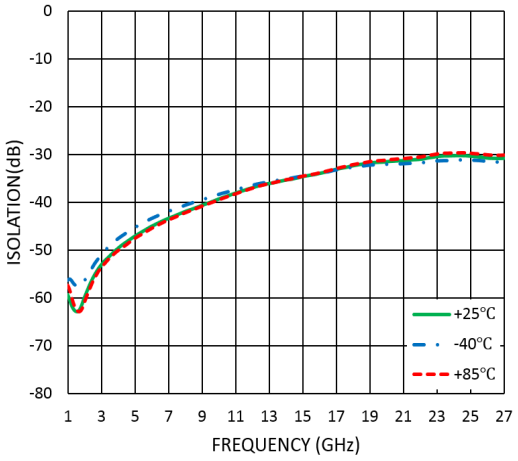


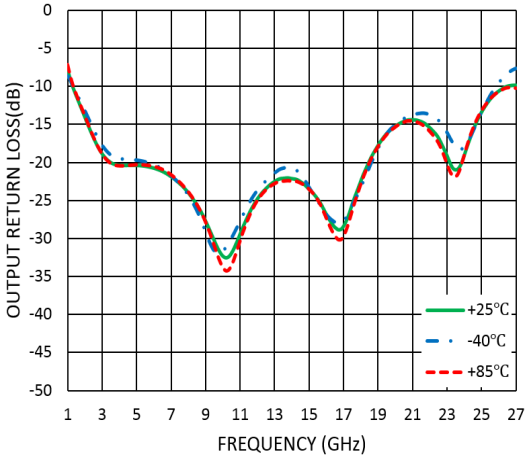


Measurement Plots: S-parameters VD=7.5V

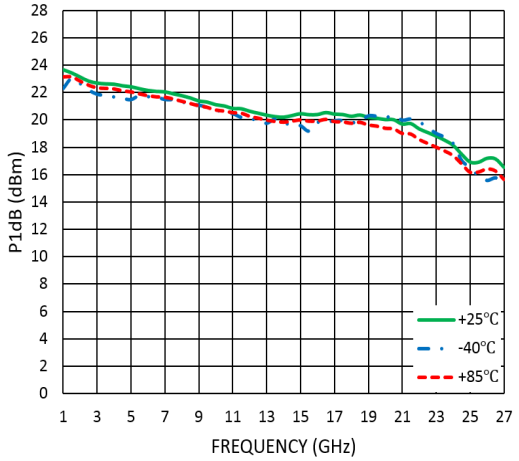




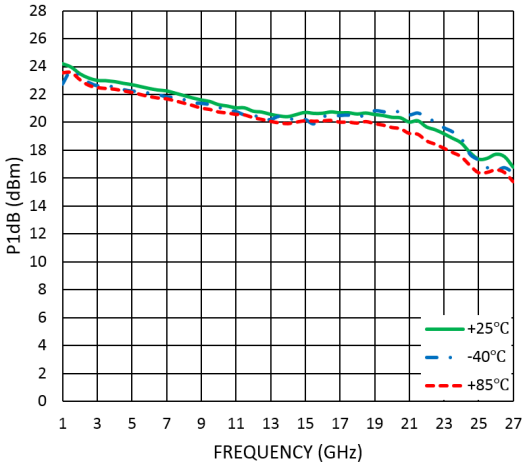




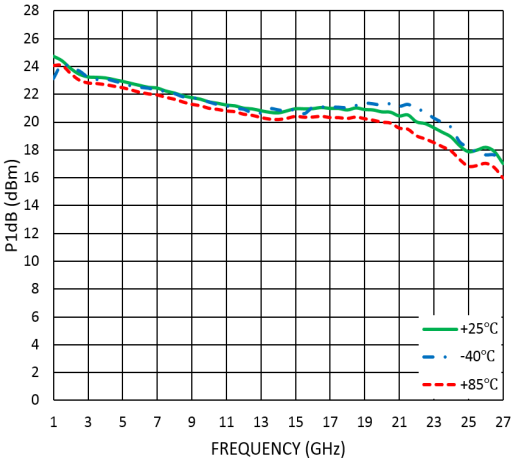
Measurement Plots: P1dB VD=6.5V



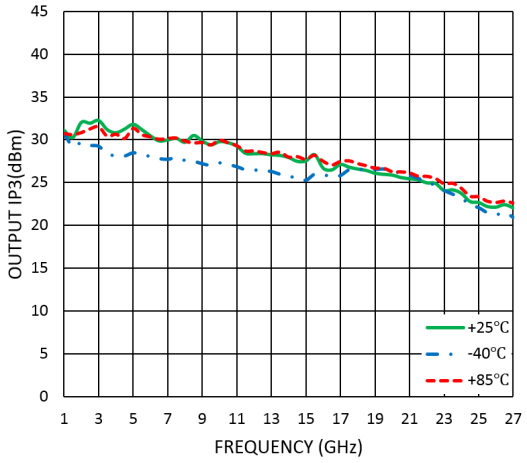
Measurement Plots: P1dB VD=7V



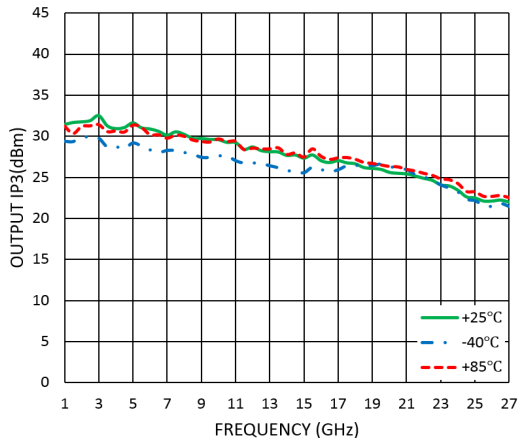
Measurement Plots: P1dB VD=7.5V



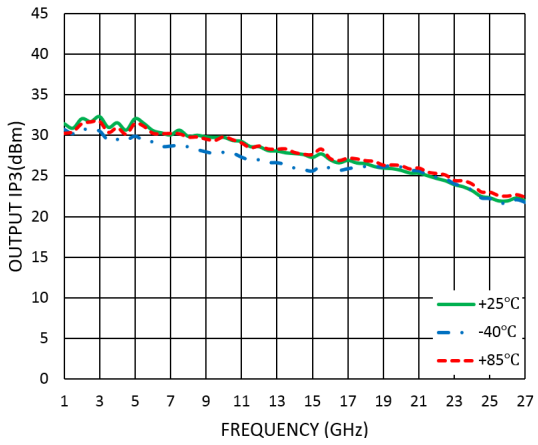
Measurement Plots: OIP3 VD=6.5V



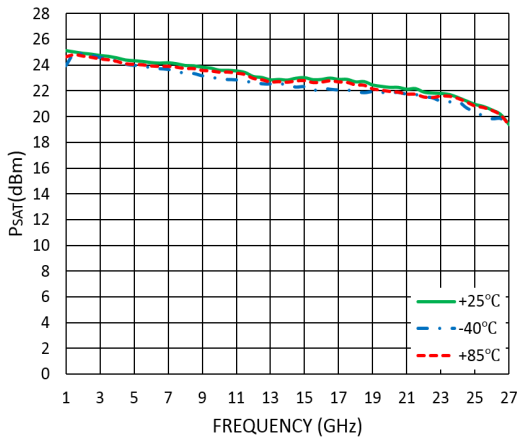
Measurement Plots: OIP3 VD=7V



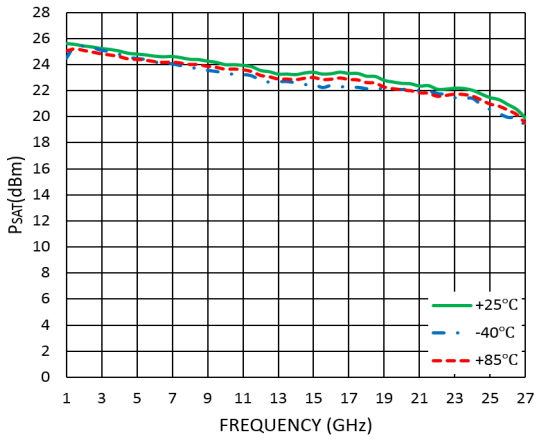
Measurement Plots: OIP3 VD=7.5V



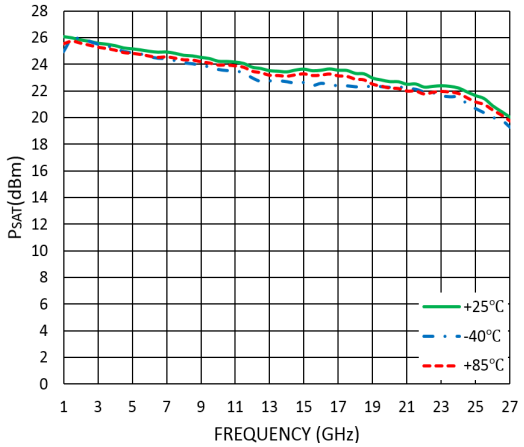
Measurement Plots: PSAT VD=6.5V



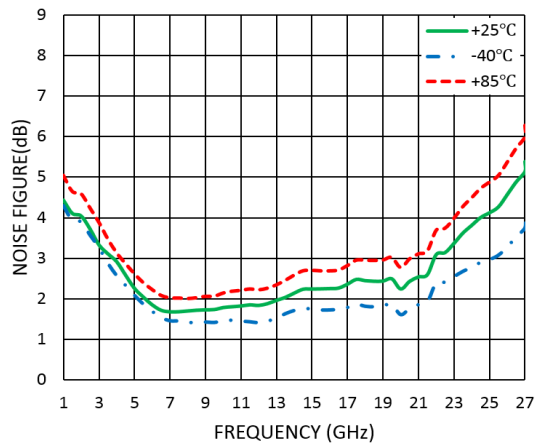
Measurement Plots: PSAT VD=7V



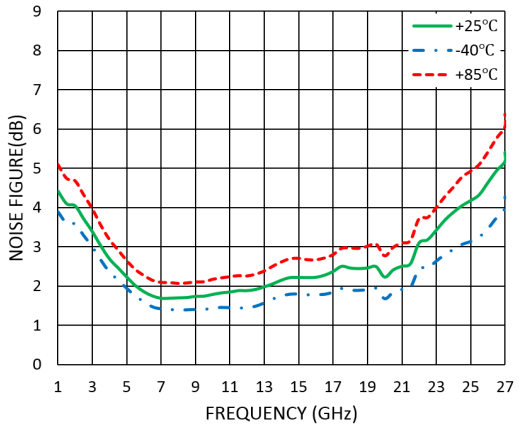
Measurement Plots: PSAT VD=7.5V



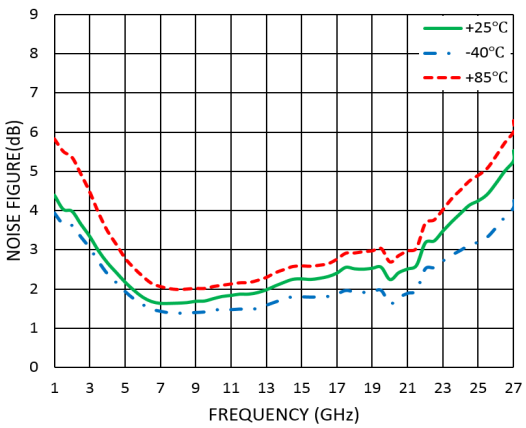
Measurement Plots: Noise Figure VD=6.5V



Measurement Plots: Noise Figure VD=7V



Measurement Plots: Noise Figure VD=7.5V



Absolute Maximum Ratings

Drain Bias Voltage (VD)	+8V
RF Input Power (RFIN)@(+7V)	+13dBm
Channel Temperature	175°C
Continuous Pdiss (T = 85 °C) (derate 14.2mW/°C above 85 °C)	1.28W
Thermal Resistance (channel to die bottom)	50°C/W
Operating Temperature	-55°C to +85 °C
Storage Temperature	-65°C to +125 °C

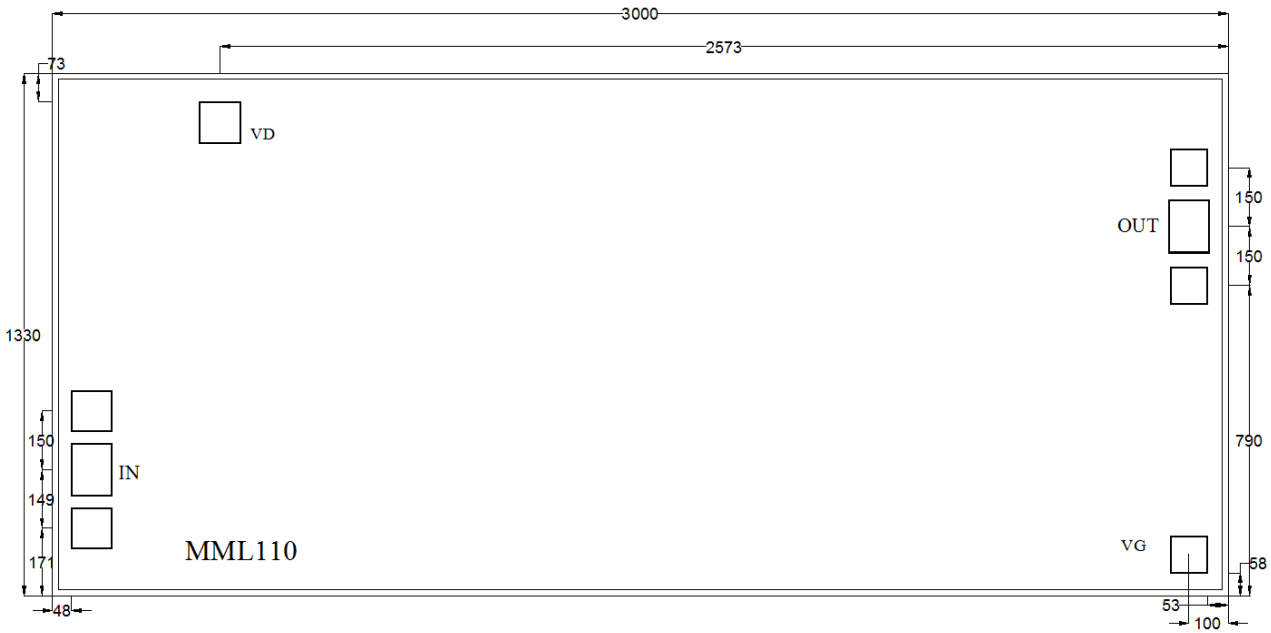
Typical Supply Current vs. VD

VD (V)	IDD (mA)
+6.5	154
+7.0	156
+7.5	157

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing:

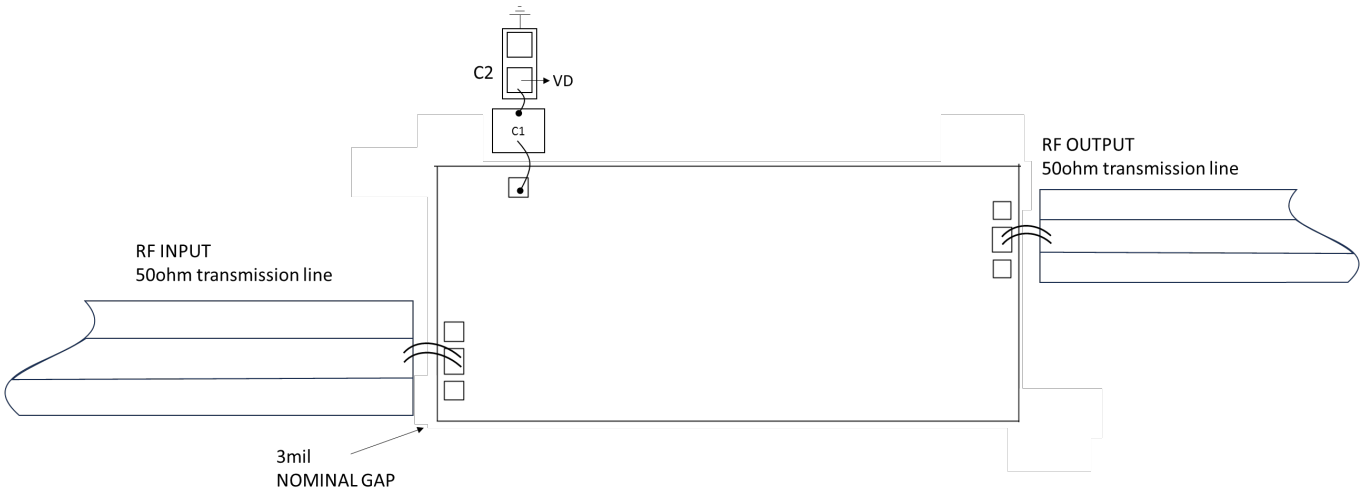
All Dimensions in µm



Notes:

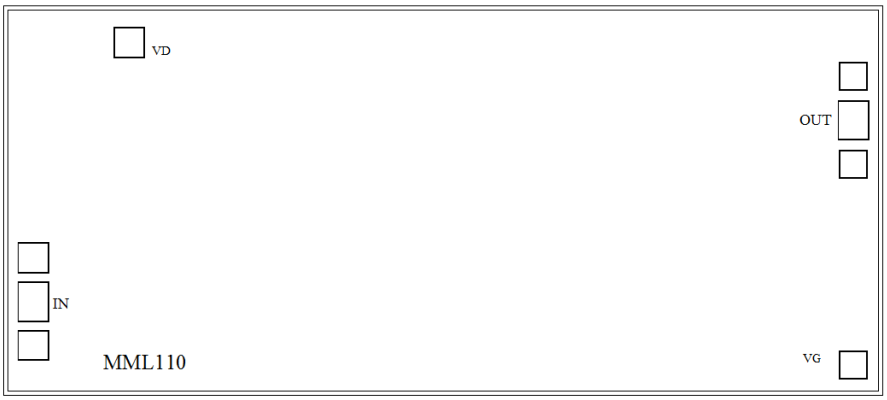
1. **Die thickness: 100µm**
2. **VD bond pad is 98*98µm^2**
3. **RF IN/OUT bond pad is 98*128µm^2**
4. **Bond pad metalization: Gold**
5. **Backside metalization: Gold**

Assembly Drawing



Item	Description
C1	100pF Example: Presidio Part: MVB3030X103M2H5C1
C2	1µF Example: TDK Part: C1005X7S1A105K050BC (0402)

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 100pF and 1µF 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 +7V .
3. Apply RF signal.

Turn OFF procedure:

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