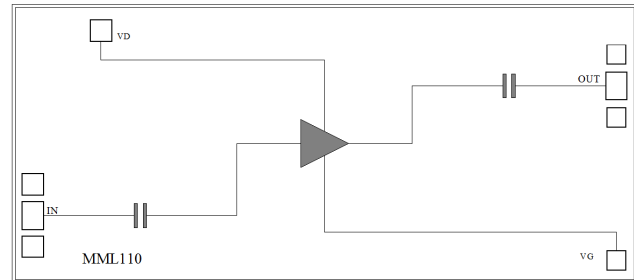


**Features**

- Single Biasing Voltage (Self Biased)
- Frequency: 2-24GHz
- Small Signal Gain: 18.5dB Typical
- Gain Flatness:  $\pm 0.5$ dB Typical
- Noise Figure: 2.0dB Typical
- P1dB: 20dBm Typical
- Power Supply: +7V@156mA
- Input/Output: 50 $\Omega$
- 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

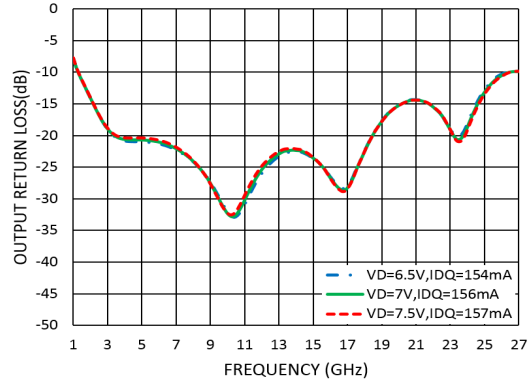
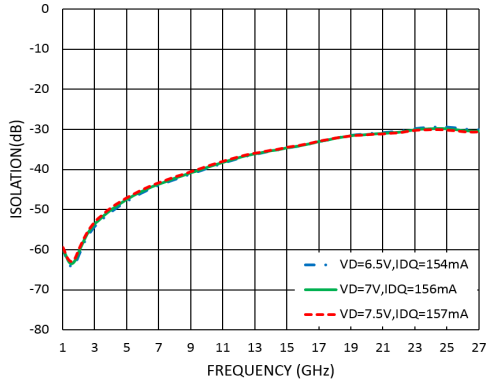
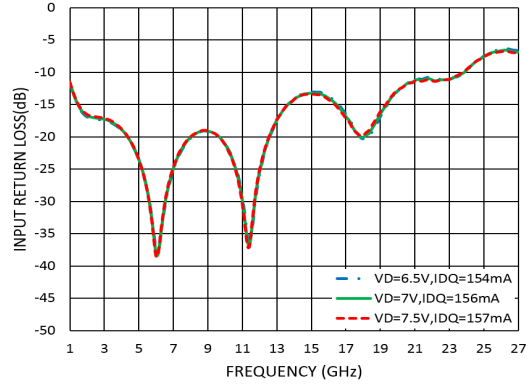
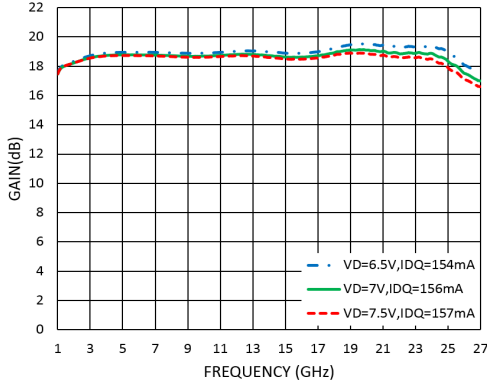
**Electrical Specifications**
**TA = +25°C, VD = +7V, IDD = 156mA Typical**

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		$\pm 0.5$			$\pm 0.5$		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



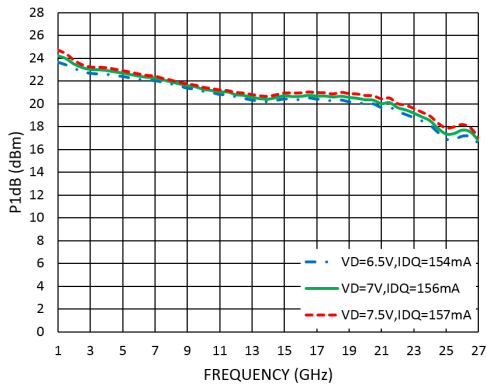
### Measurement Plots: S-parameters

TA = +25°C



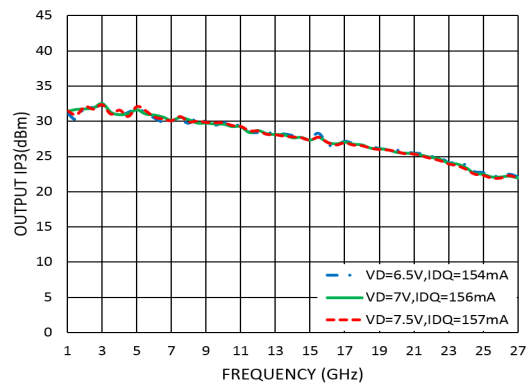
### Measurement Plots: P1dB

TA = +25°C

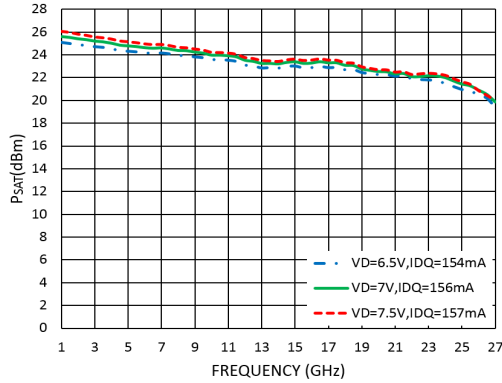


### Measurement Plots: OIP3

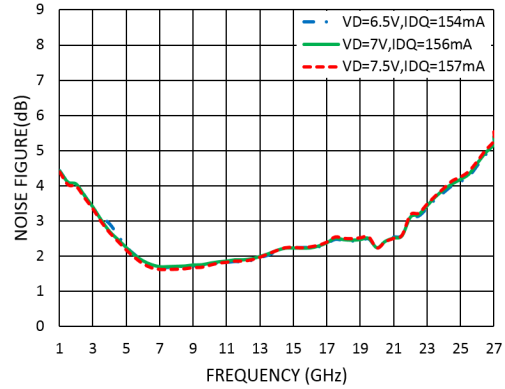
TA = +25°C



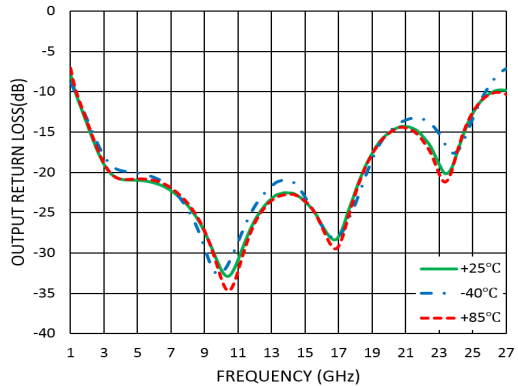
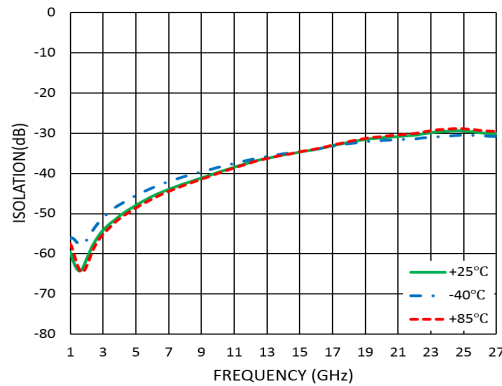
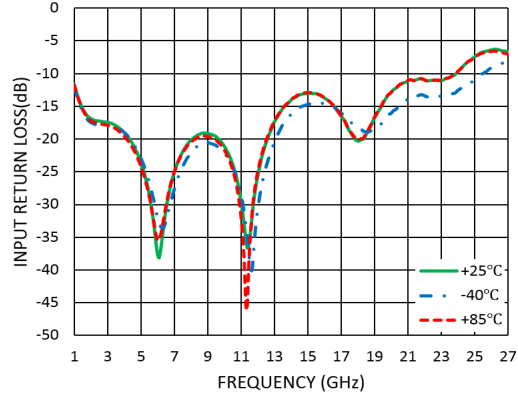
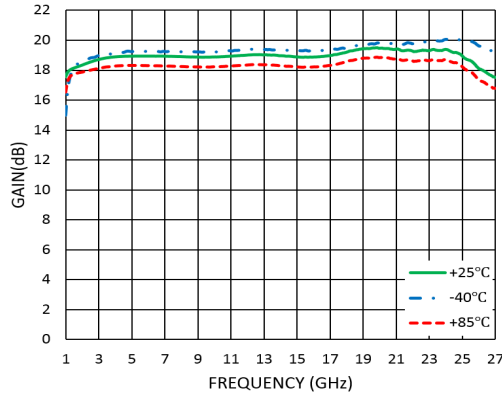
**Measurement Plots: P<sub>SAT</sub>**  
TA = +25°C



**Measurement Plots: Noise Figure**  
TA = +25°C

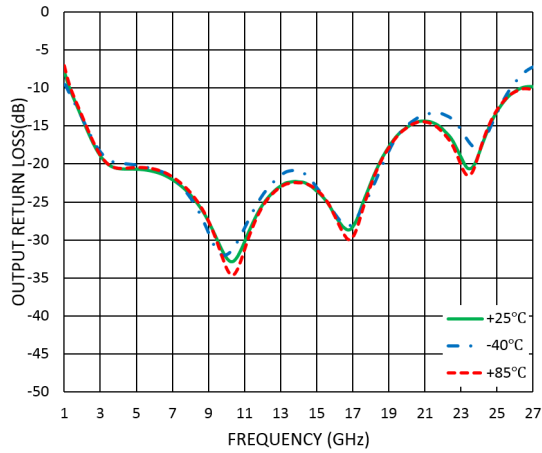
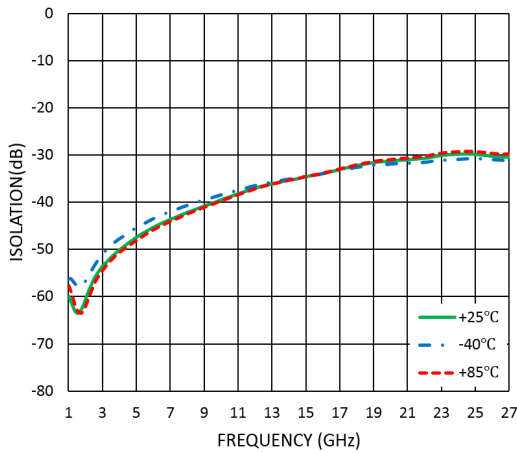
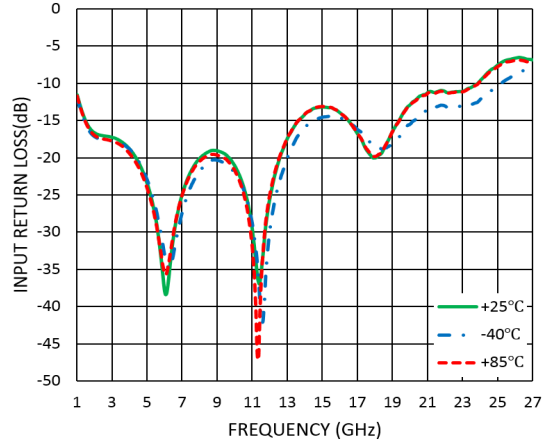
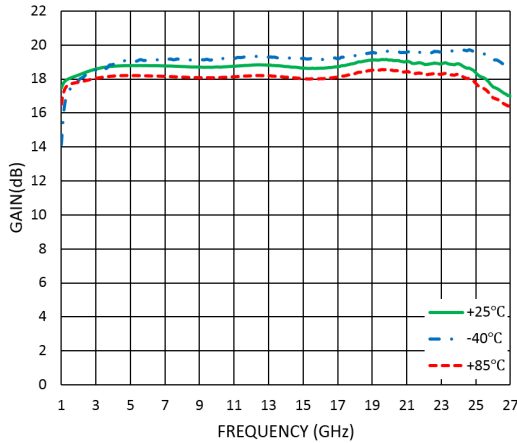


**Measurement Plots: S-parameters**  
VD=6.5V

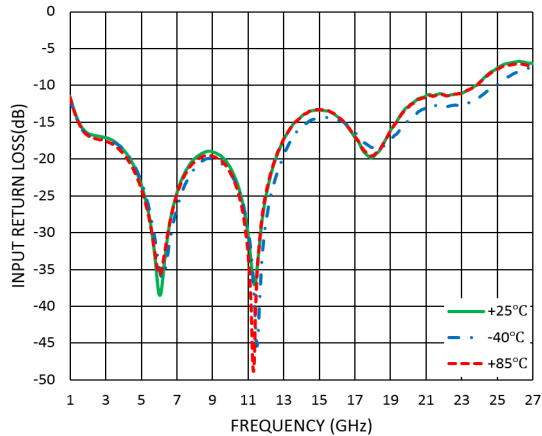
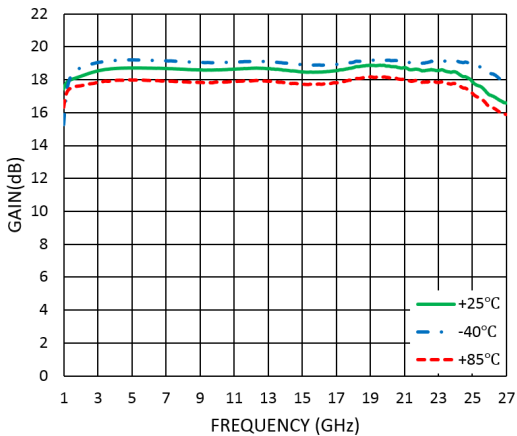


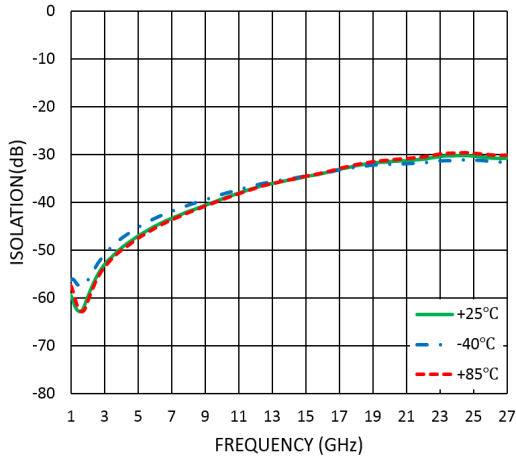


### Measurement Plots: S-parameters VD=7V

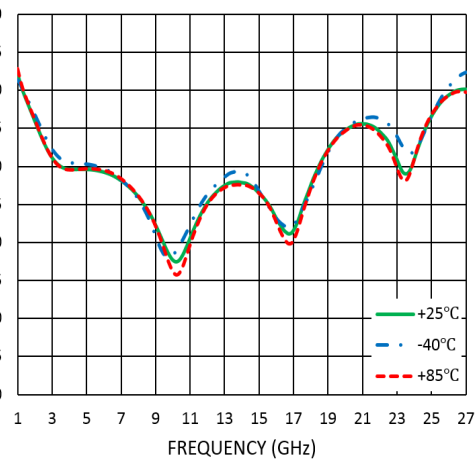
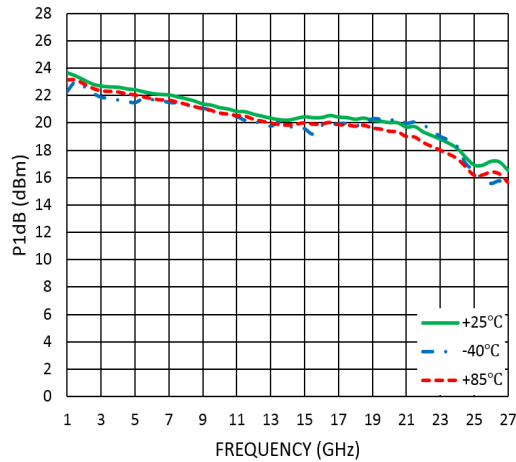


### Measurement Plots: S-parameters VD=7.5V

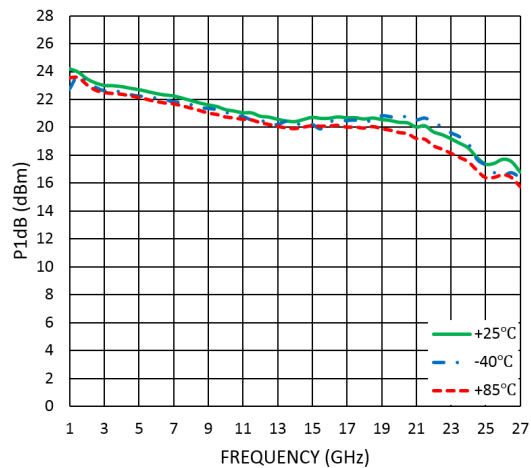




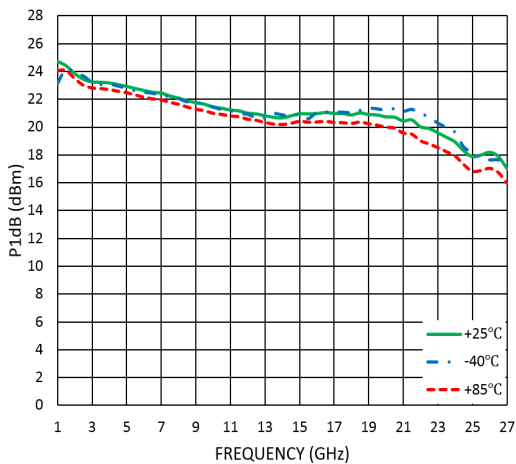
**Measurement Plots: P1dB**  
**VD=6.5V**



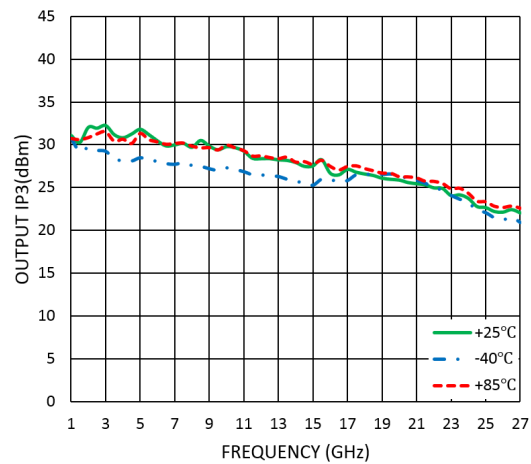
**Measurement Plots: P1dB**  
**VD=7V**



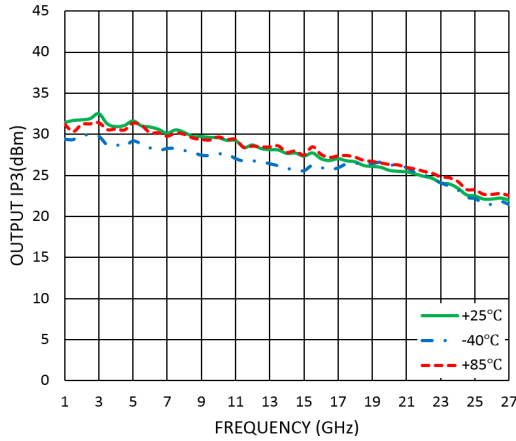
**Measurement Plots: P1dB**  
**VD=7.5V**



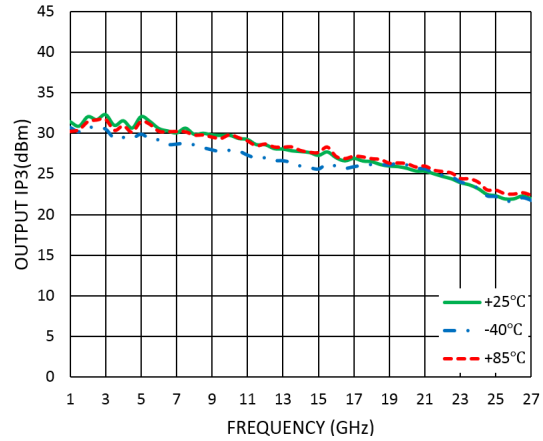
**Measurement Plots: OIP3**  
**VD=6.5V**



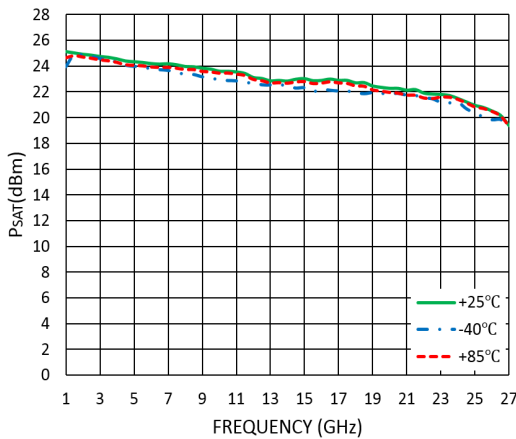
**Measurement Plots: OIP3**  
**VD=7V**



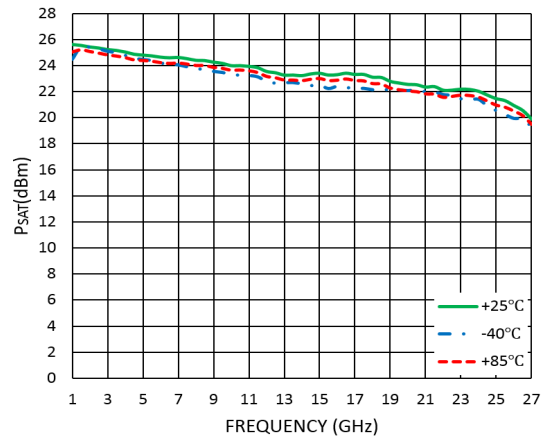
**Measurement Plots: OIP3**  
**VD=7.5V**



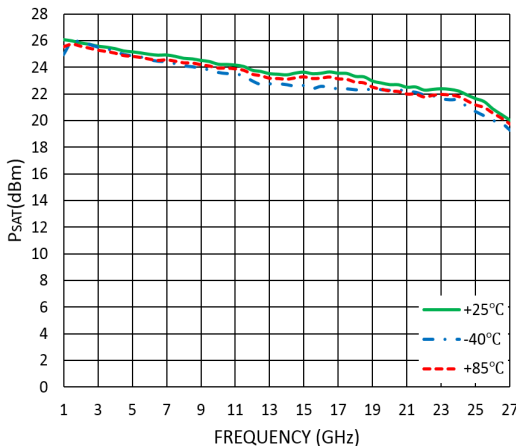
**Measurement Plots: PSAT**  
**VD=6.5V**



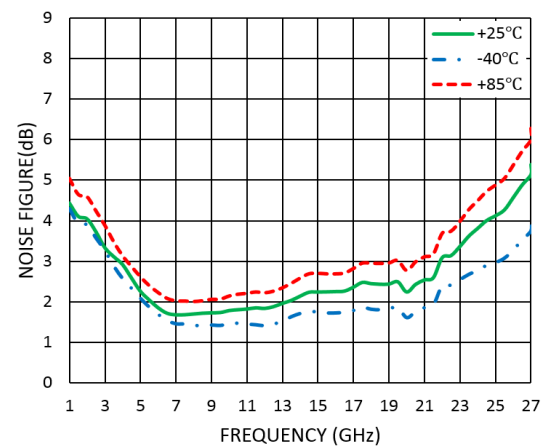
**Measurement Plots: PSAT**  
**VD=7V**

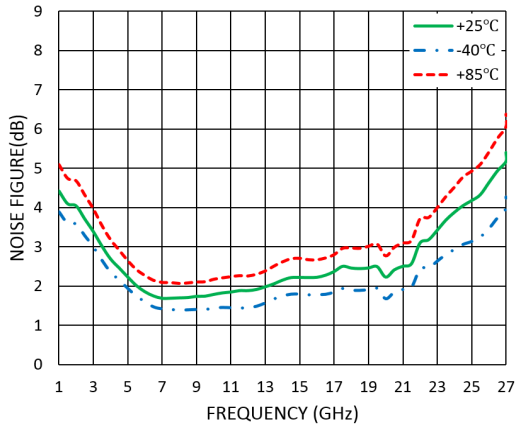
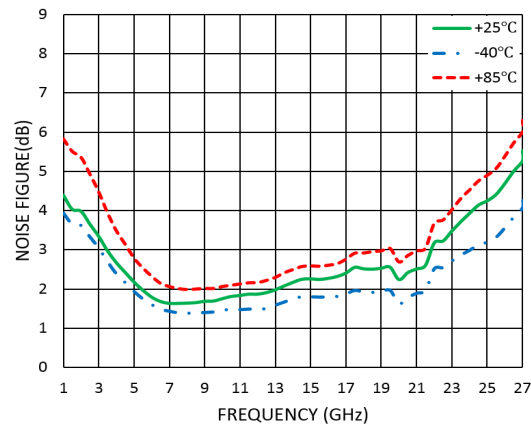


**Measurement Plots: PSAT**  
**VD=7.5V**



**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**

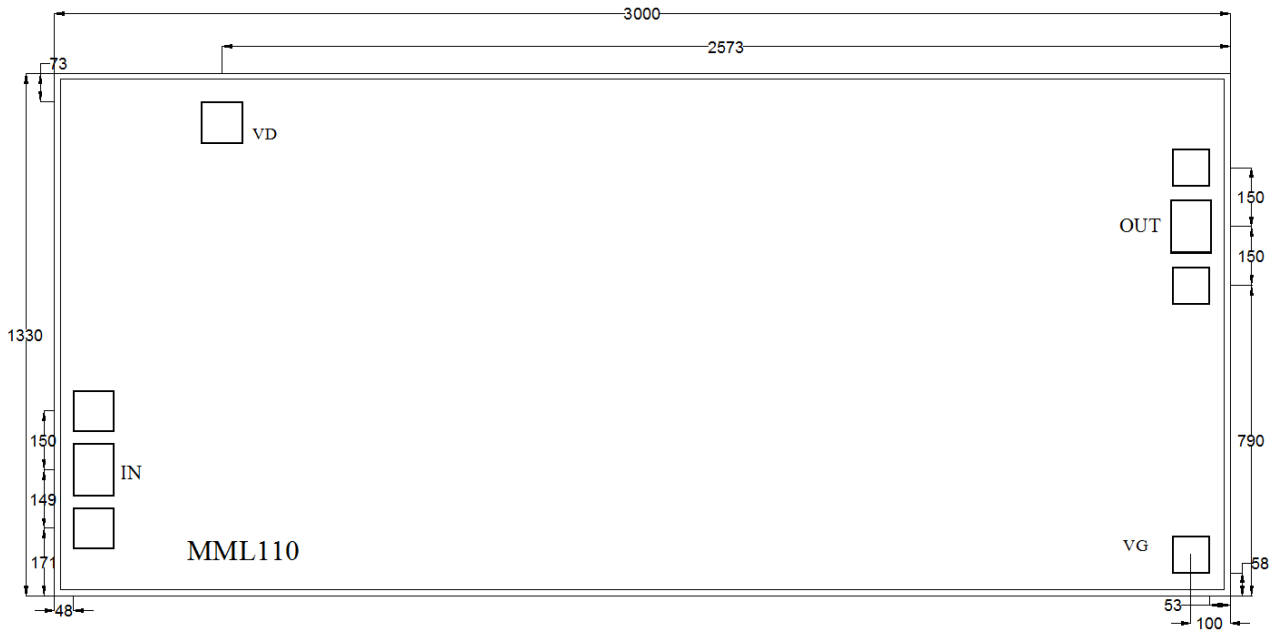
VD (V)	IDD (mA)
+6.5	154
+7.0	156
+7.5	157



**ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS**



**Outline Drawing:**  
All Dimensions in  $\mu\text{m}$



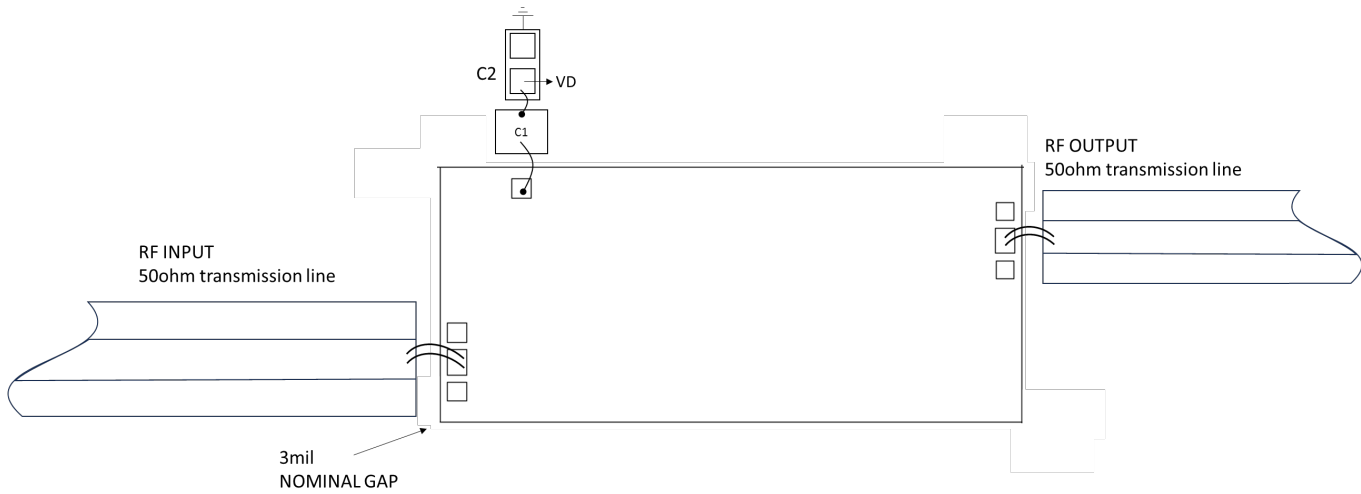
**Notes:**

1. Die thickness: 100  $\mu\text{m}$
2. VD bond pad is 98\*98  $\mu\text{m}^2$
3. RF IN/OUT bond pad is 98\*128  $\mu\text{m}^2$
4. Bond pad metalization: Gold
5. Backside metalization: Gold



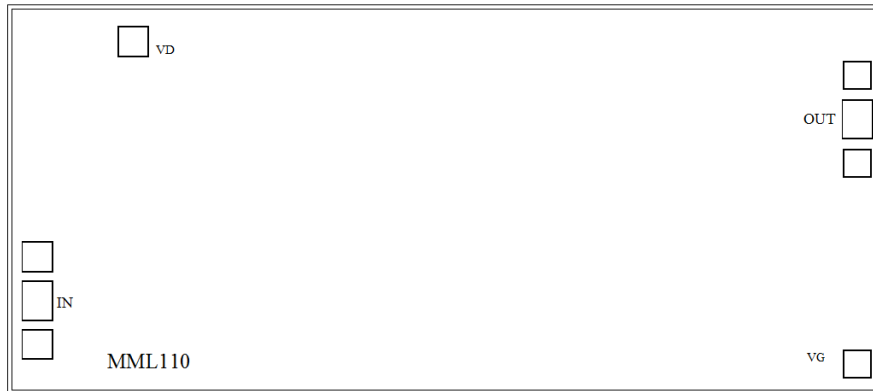


### Assembly Drawing



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  $V_D$  and set to +7V .
3. Apply RF signal.

### Turn OFF procedure:

1. Turn off the RF signal.
2. Turn off the positive drain voltage  $V_D$ .

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