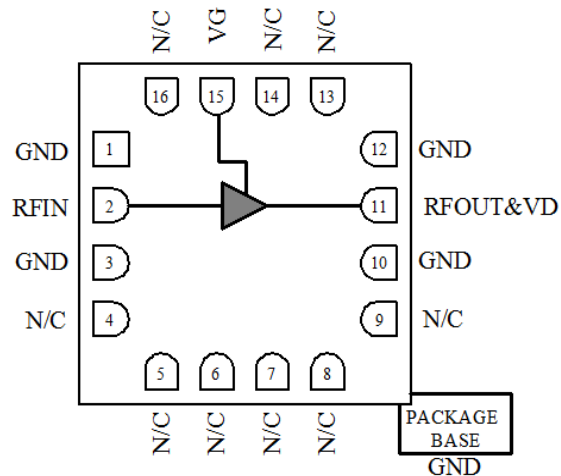


Features

- Frequency: DC-6GHz
- Small Signal Gain: 21dB Typical
- Gain Flatness: ± 0.3 dB Typical
- Noise Figure: 1.0dB Typical
- P1dB: +28 dBm @VD=+10V
- Psat: +29 dBm @VD=+10V
- Supply voltage:
 - VD = +5V/+8V/+10V@125mA
 - VG = -0.8V to -0.2V
- Input/Output: 50 Ω
- Package Size : 3x3x0.7mm

Typical Applications

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

Functional Block Diagram

Electrical Specifications

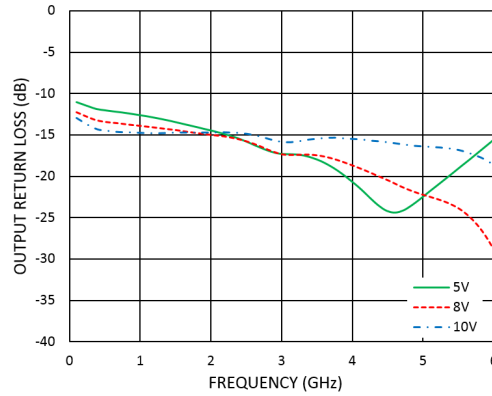
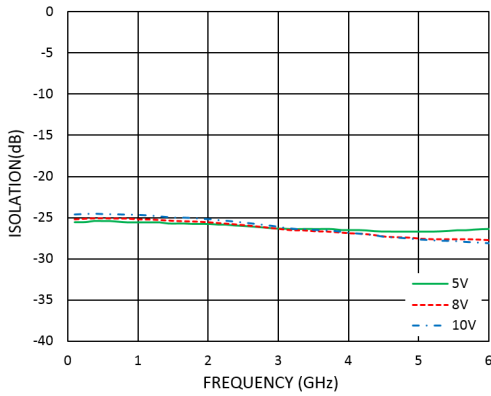
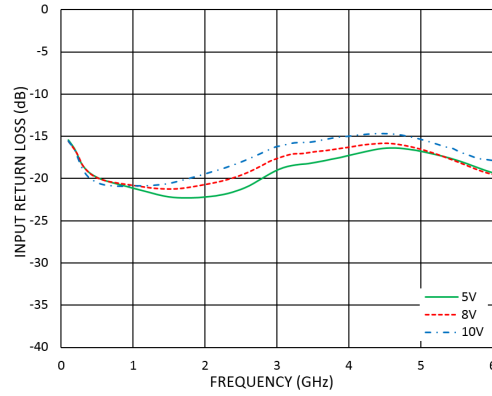
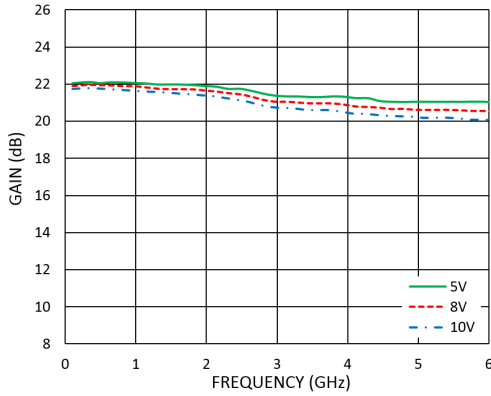
TA = +25°C, VD= +5V/+8V/10V, VG=-0.8 to -0.2V, IDD = 125mA* Typical

Parameters	VD=+5V			VD=+8V			VD=+10V			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency	DC - 6									GHz
Small Signal Gain		21			21			21		dB
Gain Flatness		± 0.3			± 0.4			± 0.4		dB
Noise Figure		1.0			1.0			1.0		dB
P1dB - Output 1dB Compression		22.5			26.5			28		dBm
Psat - Saturated Output Power		23.5			27.5			29		dBm
OIP3 - Output Third Order Intercept		35			39			40.5		dBm
Input Return Loss		15			15			15		dB
Output Return Loss		15			15			15		dB

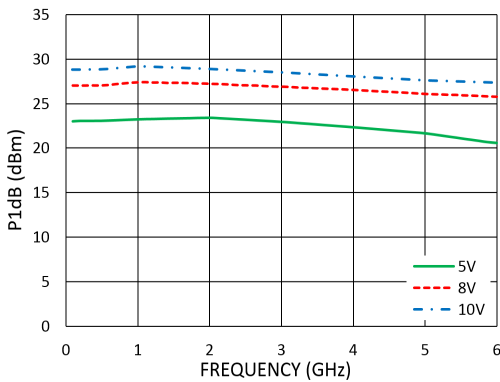
*The operating current can be controlled around 125mA by adjusting the VG voltage, and the VG regulation range: -0.8V ~-0.2V.



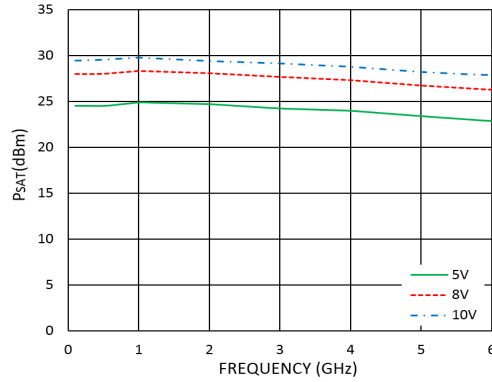
Measurement Plots: S-parameters

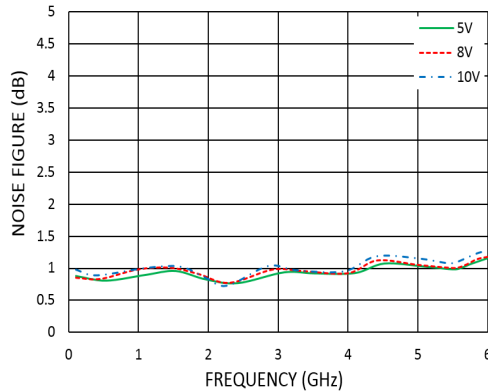


Measurement Plots: P1dB



Measurement Plots: Psat



Measurement Plots: Noise Figure

Absolute Maximum Ratings

Drain Bias Voltage (VD)	+12V
Gate Bias Voltages(VG)	-3V
RF Input Power (RFIN)(VD=+10V)	+20 dBm
Channel Temperature	175°C
Continuous Pdiss (T = 85 °C) (derate 16.7mW/°C above 85 °C)	1.5W
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

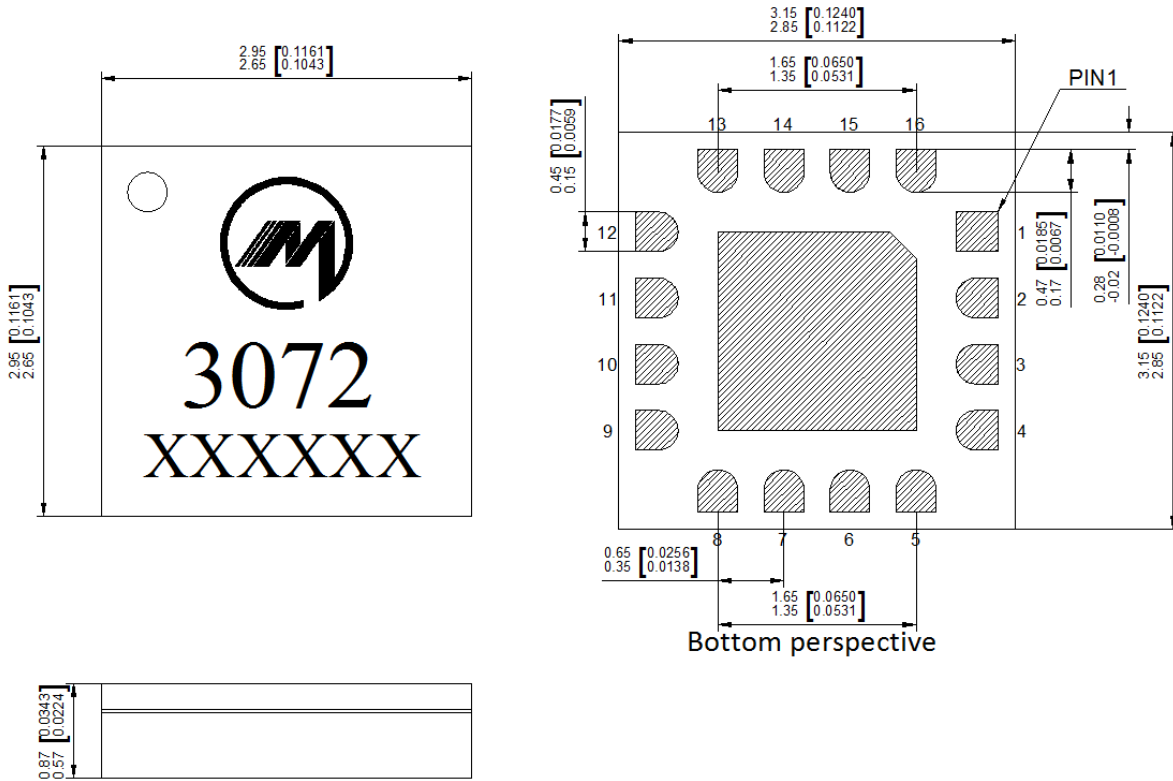
VG (V)	VD (V)	IDD (mA)
-0.8 to -0.2	+5/+8/+10	125



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**



Outline Drawing: All Dimensions in mm[inches]

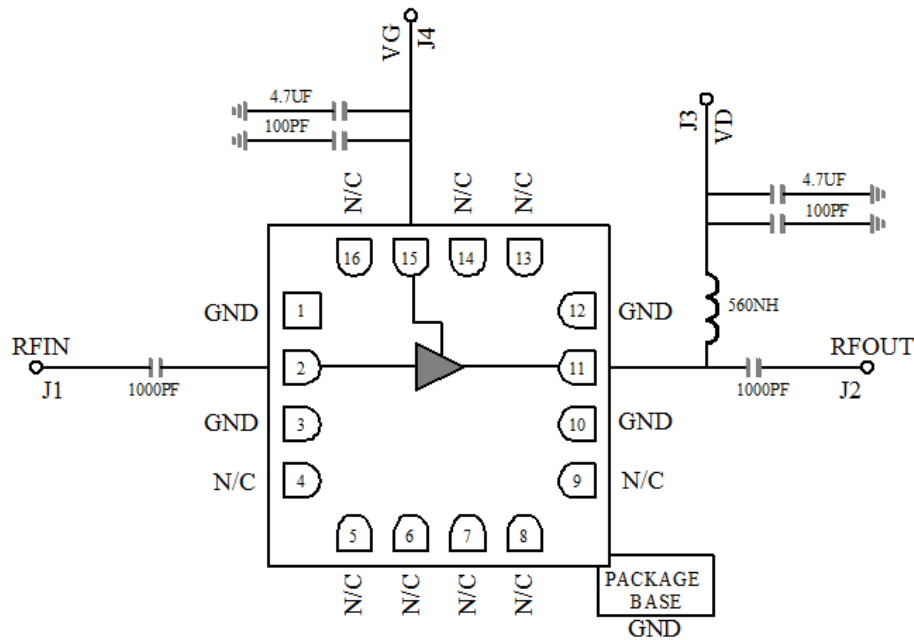


Notes:

1. Package body material : Alumina.
2. Lead and ground paddle plating: Gold flash over nickel.
3. Dimensions are in millimeters(inches).
4. Lead spacing tolerance is non-cumulative.

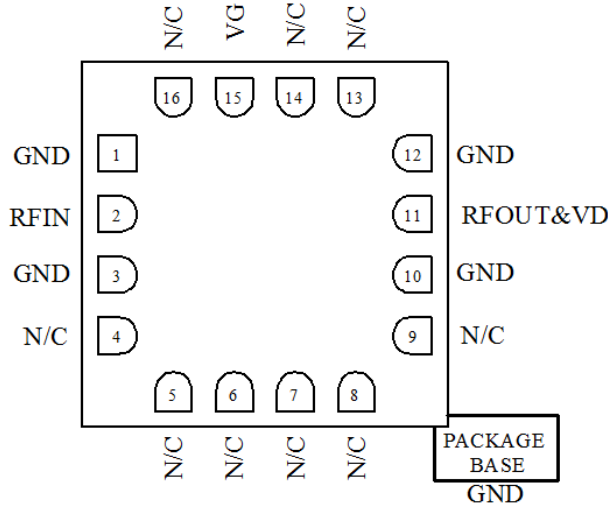


Assembly Drawing



Pin Descriptions

No	Function	Description
4,5,6,7,8,9,13,14,16	NC	No connection. These pins may be connected to RF ground. Performance will not be affected.
2	RF IN	Signal input terminal, connected to 50Ω circuit; blocking capacitor required.
11	RF OUT & VD	Signal output terminal, connected to 50Ω circuit; blocking capacitor required; external DC biasing network required; drain current provided.
15	VG	Connect to external 100pf and 4.7uf bypass capacitors.
1,3,10,12	GND	These pins & exposed ground paddle must be connected to RF/DC ground
	GND	Package bottom must be connected to RF/DC ground



Biasing and Operation

Turn ON procedure:

1. Connect GND to RF and dc ground.
2. Set all the gate bias voltages, VG to -3V .
3. Set the drain bias voltages VD to +5V/+8V/+10V .
4. Increase the gate bias voltages to achieve a quiescent supply current of 125 mA.
5. Apply RF signal.

Turn OFF procedure:

1. Turn off the RF signal.
2. Decrease the gate bias voltages, VG to -3V to achieve a $I_{DQ} = 0$ mA (approximately).
3. Decrease the drain bias voltages to 0 V.
4. Increase the all gate bias voltages to 0 V.

Miller MMIC Inc. All rights reserved

Miller MMIC, Inc. holds exclusive rights to the information presented in its Data Sheet and any accompanying materials. As a premier supplier of cutting-edge RF solutions, Miller MMIC has made this information easily accessible to its clients.

Although Miller MMIC believes the information provided in its Data Sheet to be trustworthy, the company does not offer any guarantees as to its accuracy. Therefore, Miller MMIC bears no responsibility for the use of this information. It is worth mentioning that the information within the Data Sheet may be altered without prior notification.

Customers are encouraged to obtain and verify the most recent and pertinent information before placing any orders for Miller MMIC products. The information in the Data Sheet does not confer, either explicitly or implicitly, any rights or licenses with regards to patents or other forms of intellectual property to any third party.

The information provided in the Data Sheet, or its utilization, does not bestow any patent rights, licenses, or other forms of intellectual property rights to any individual or entity, whether in regards to the information itself or anything described by such information. Furthermore, Miller MMIC products are not intended for use as critical components in applications where failure could result in severe injury or death, such as medical or life-saving equipment, or life-sustaining applications, or in any situation where failure could cause serious personal injury or death.