



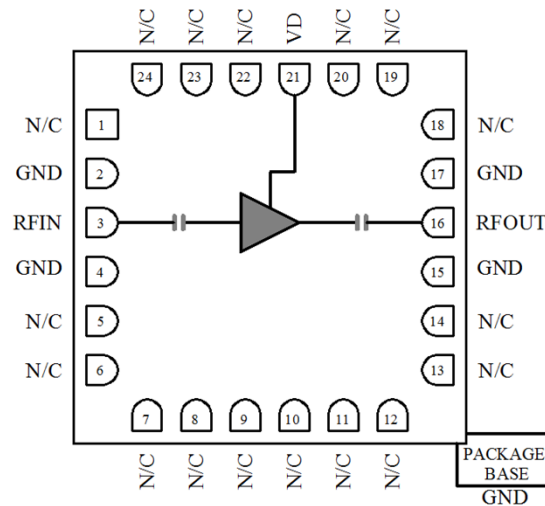
Features

- Single Biasing Voltage (Self Biased)
- Frequency: 6 - 18GHz
- Small Signal Gain: 24dB Typical
- Gain Flatness: ± 1.0 dB Typical
- Noise Figure: 1.5dB Typical
- P1dB: 14dBm Typical
- Power Supply: +5V/35mA
- Input/Output: 50 Ω
- Package Size : 4 x 4x 0.8mm

Typical Applications

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

Functional Block Diagram



Electrical Specifications

TA = +25°C, VD = +5V, IDD = 35mA Typical

Parameters	Min.	Typ.	Max.	Units
Frequency	6		18	GHz
Small Signal Gain	21.5	24		dB
Gain Flatness		± 1.0		dB
Noise Figure		1.5		dB
P1dB - Output 1dB Compression	12	14		dBm
Past - Saturated Output Power		15		dBm
OIP3 - Output Third Order Intercept		23		dBm
Input Return Loss		12		dB
Output Return Loss		10		dB



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MML040Q4A

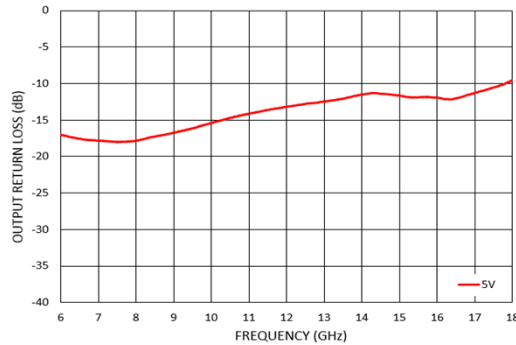
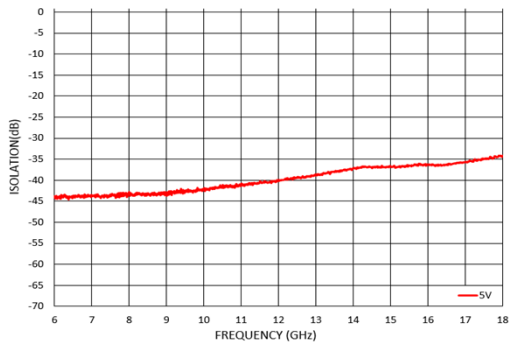
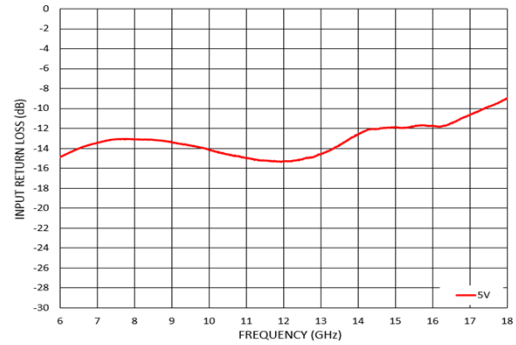
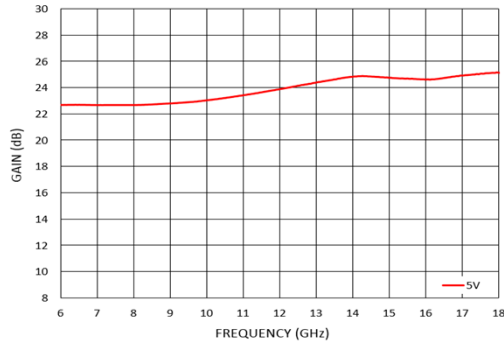
V1.0.0

GaAs QFN 4x4mm
Low Noise Amplifier 6-18GHz

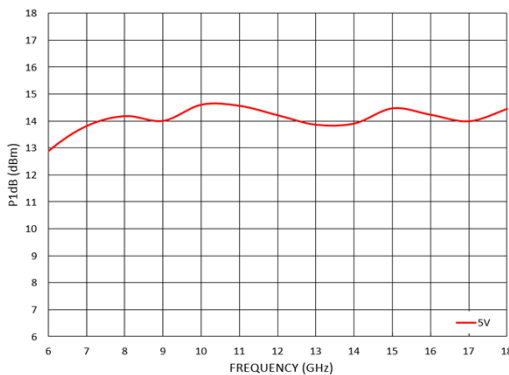
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GaAs QFN 4x4mm Low Noise Amplifier 6-18GHz

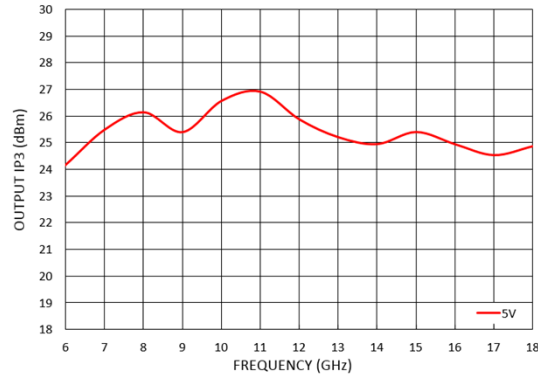
Measurement Plots: S-parameters

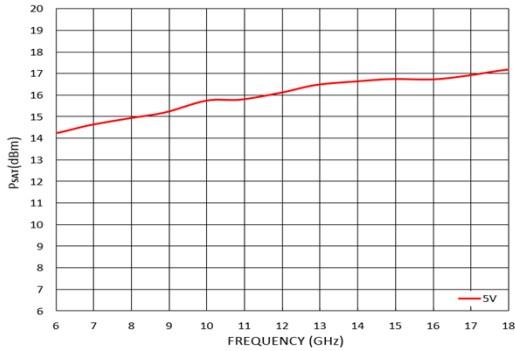
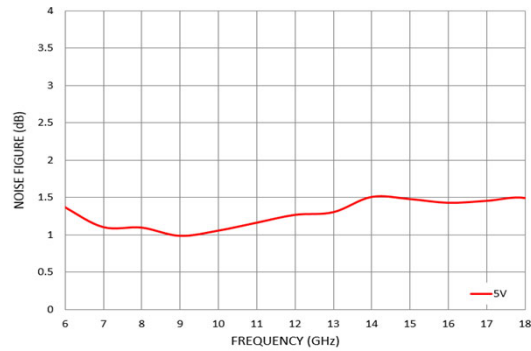


Measurement Plots: P1dB



Measurement Plots: OIP3



Measurement Plots: PSAT

Measurement Plots: Noise Figure

Absolute Maximum Ratings

Drain Bias Voltage (VD)	+7V
RF Input Power (RFIN)(VDD=+5V)	+20dBm
Channel Temperature	175°C
Continuous P _{diss} (T = 85 °C) (derate 3.3mW/°C above 85 °C)	0.3W
Thermal Resistance (channel to die bottom)	50°C/W
Operating Temperature	-55°C to +85 °C
Storage Temperature	-55°C to +150 °C

Typical Supply Current vs. VD

VD (V)	IDD (mA)
+5	35



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**



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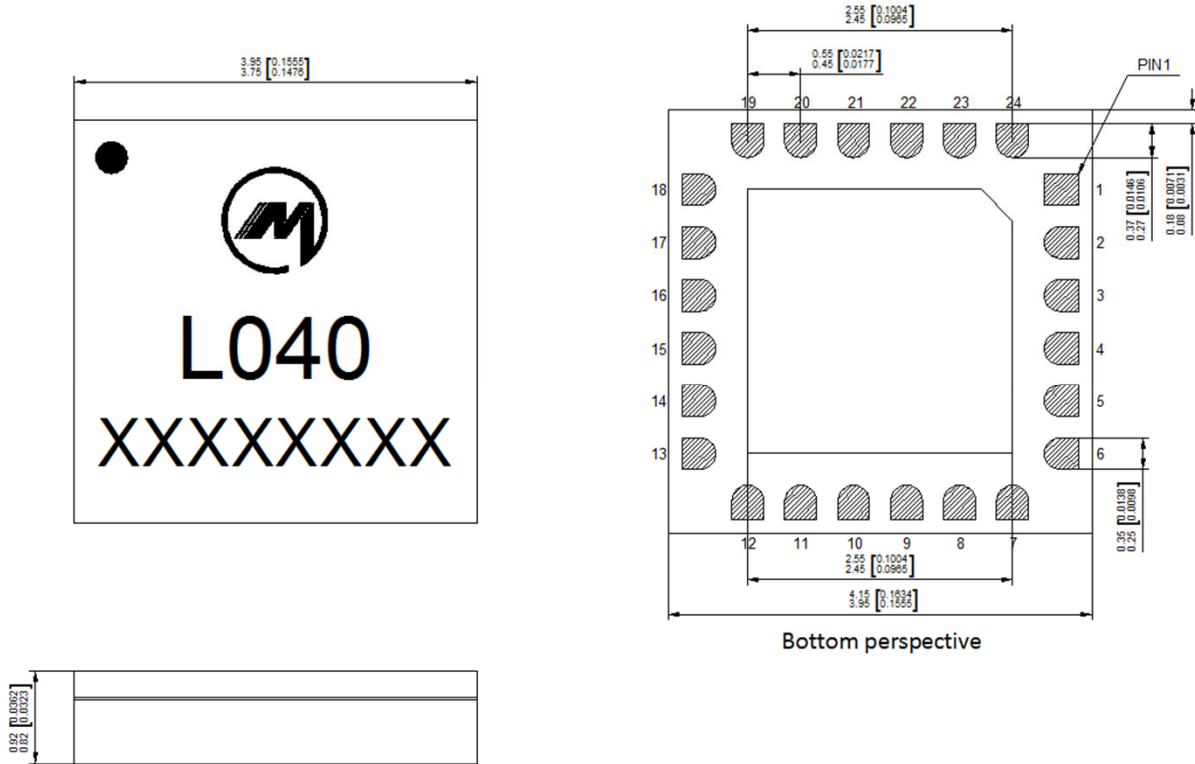
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V1.0.0

GaAs QFN 4x4mm
Low Noise Amplifier 6-18GHz

Outline Drawing:

All Dimensions in mm[inches]



Notes:

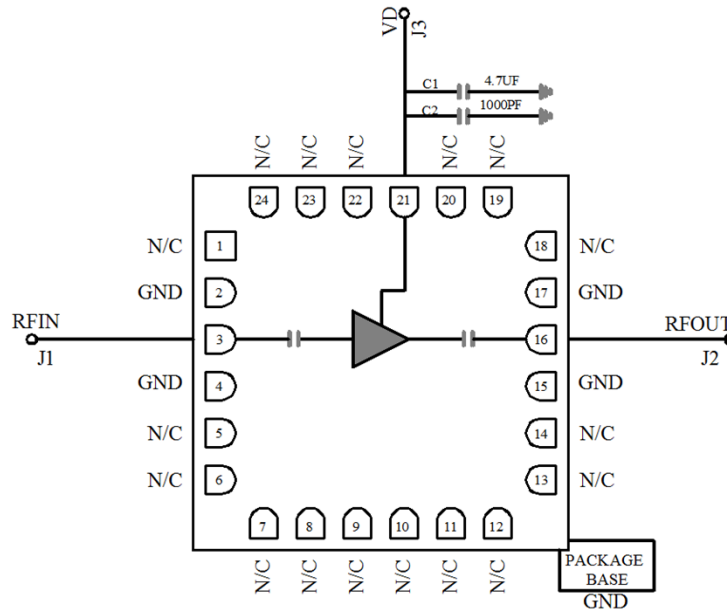
1. Package body material : Alumina.
2. Lead and ground paddle plating: Gold flash over nickel.
3. Dimensions are in millimeters(inches).
4. Lead spacing tolerance is non-cumulative.

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GaAs QFN 4x4mm Low Noise Amplifier 6-18GHz

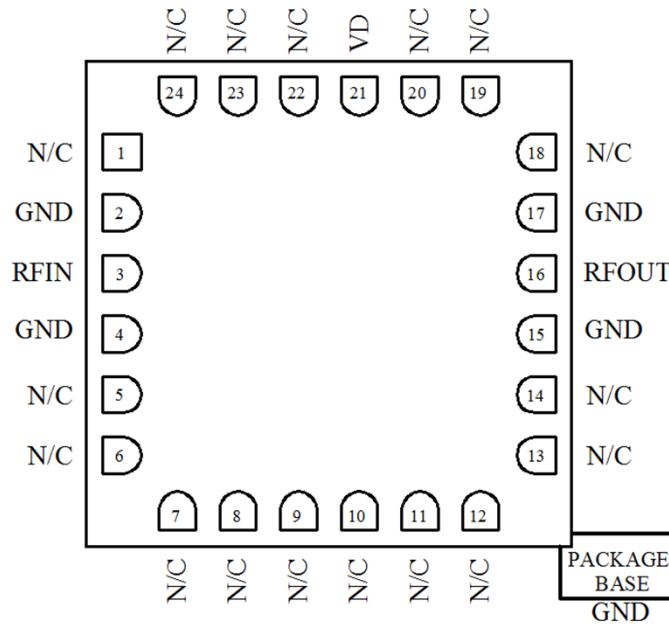


Assembly Drawing



Pin Descriptions

No	Function	Description
1,5,6,7,8,9,10,11,12,13,14,18,19,20,22,23,24	NC	No connection. These pins may be connected to RF ground. Performance will not be affected.
3	RF IN	RF Signal Input. This pad is ac-coupled and matched to 50 Ω .
16	RF OUT	RF Signal Output. This pad is ac-coupled and matched to 50 Ω .
21	VD	Connect to external 1000pF and 4.7uF bypass capacitors.
2,4,15,17	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. Apply positive drain voltage V_D and set to +5.0 V .
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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