

Electrical Specifications: Freq: 22 - 38 GHz, $V_D = 3.3\text{ V}$, $T_A = +25^\circ\text{C}$

Parameter	Units	Min.	Typ.	Max.
Small Signal Gain ⁴	dB	17	19	—
Gain Flatness	dB	—	±2	—
Input Return Loss	dB	—	10	—
Output Return Loss	dB	—	13	—
Reverse isolation	dB	—	45	—
Noise Figure	dB	—	2.5	—
Output P1dB	dBm	—	5	—
Supply Current (I_D)	mA	—	55	65

4. Specified over 24-36 GHz

Absolute Maximum Ratings^{5,6}

Parameter	Absolute Maximum
Supply Voltage	7 VDC
Supply Current	70 mA
Input Power	12.0 dBm
Storage Temperature	-65°C to +165°C
Operating Temperature	-40°C to +85°C
Channel Temperature ⁷	+150°C

5. Exceeding any one or combination of these limits may cause permanent damage to this device.
6. MACOM does not recommend sustained operation near these survivability limits.
7. Channel temperature directly affects a device's MTTF. It is recommended to keep channel temperature as low as possible to maximize lifetime.

Handling Procedures

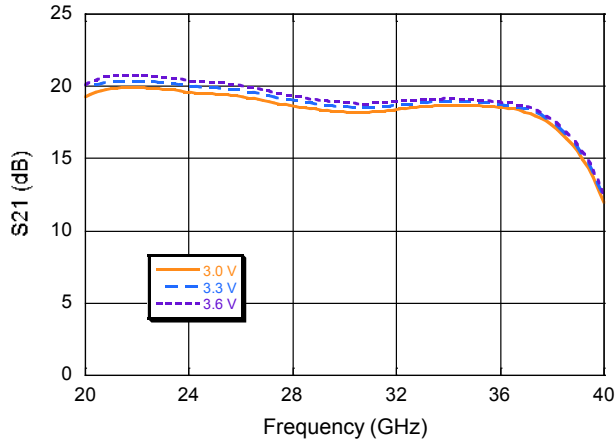
Please observe the following precautions to avoid damage:

Static Sensitivity

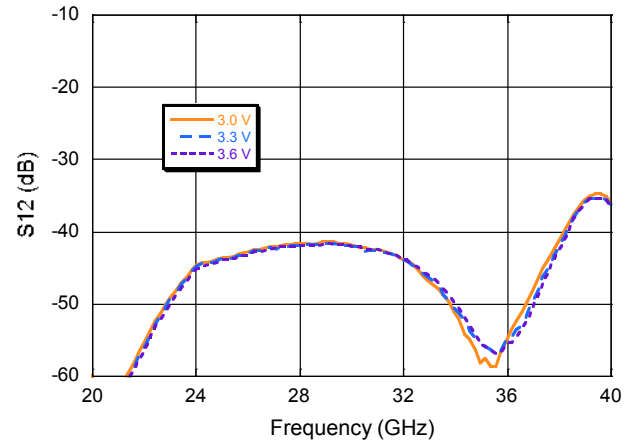
Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these Class 1A devices.

Typical Performance Curves

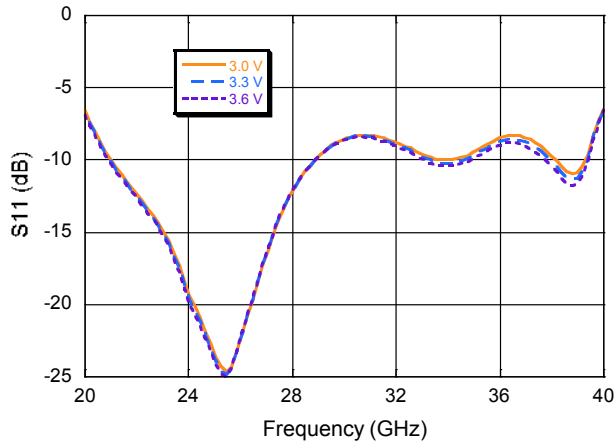
Gain



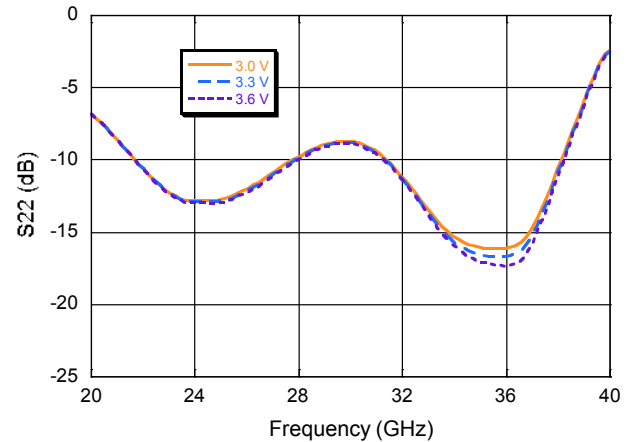
Reverse Isolation



Input Return Loss

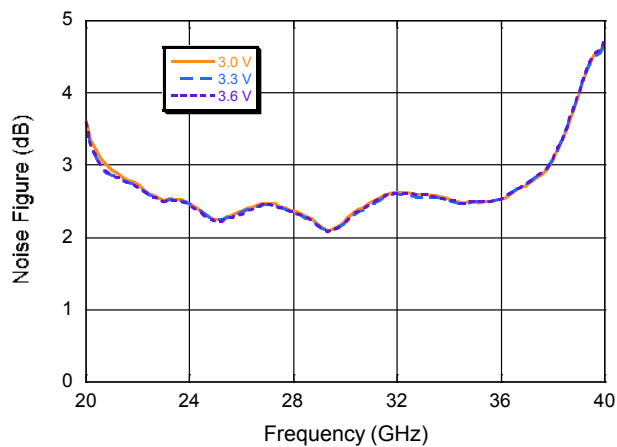


Output Return Loss

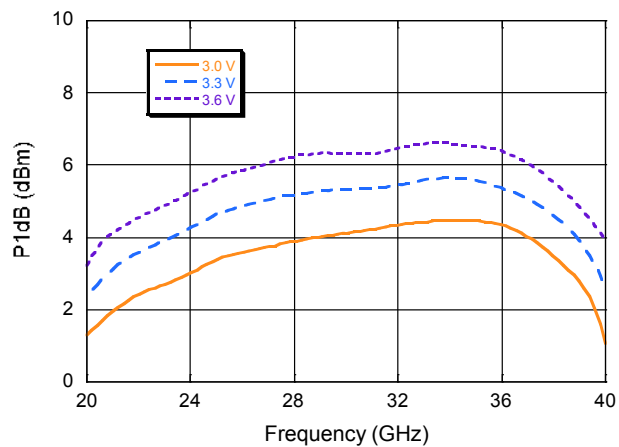


Typical Performance Curves

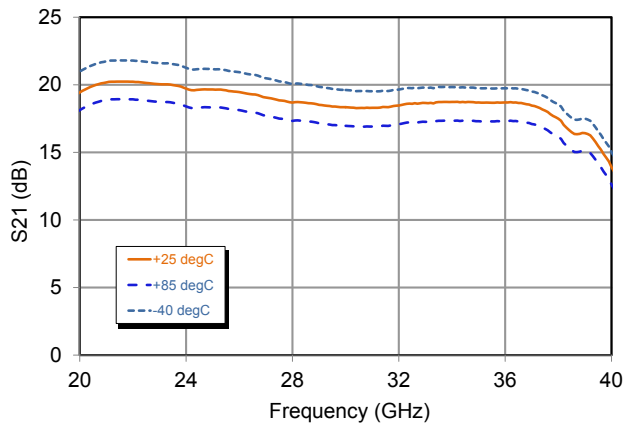
Noise Figure



P1dB

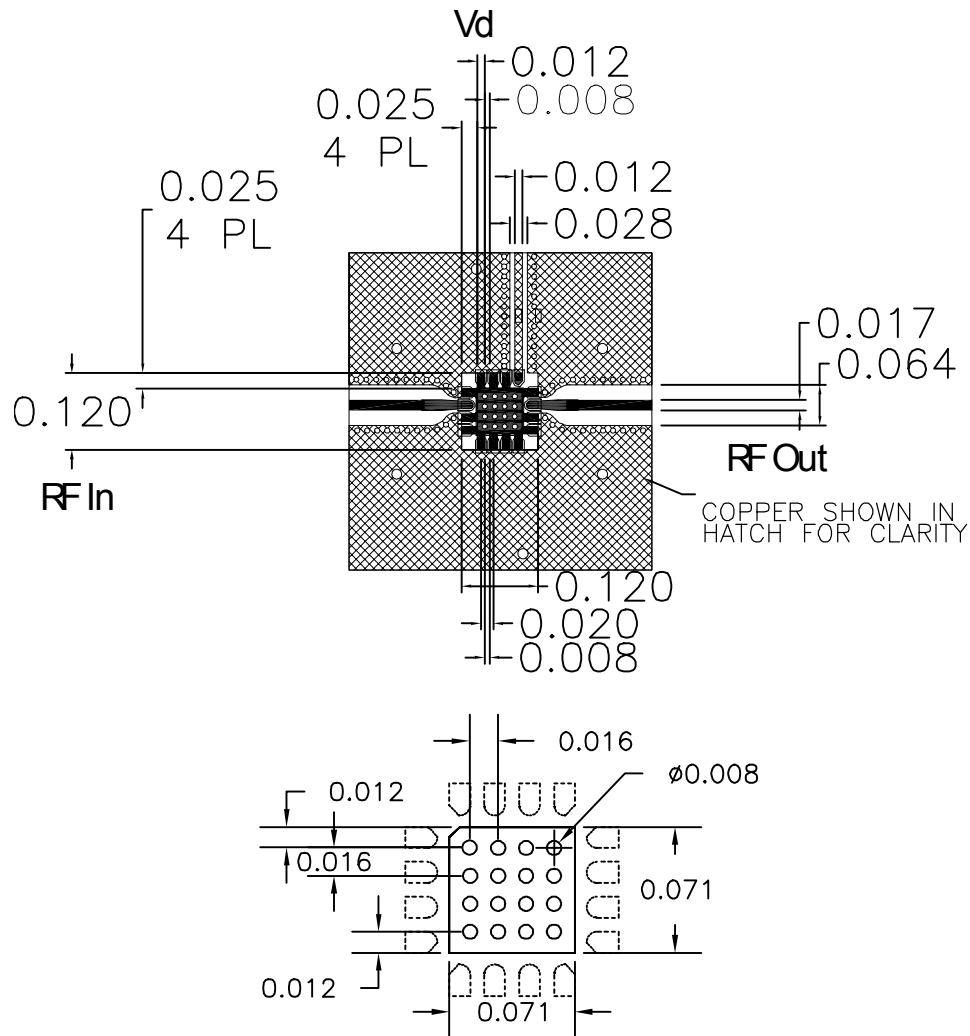


Gain Over Temperature



Recommended Board Layout⁸

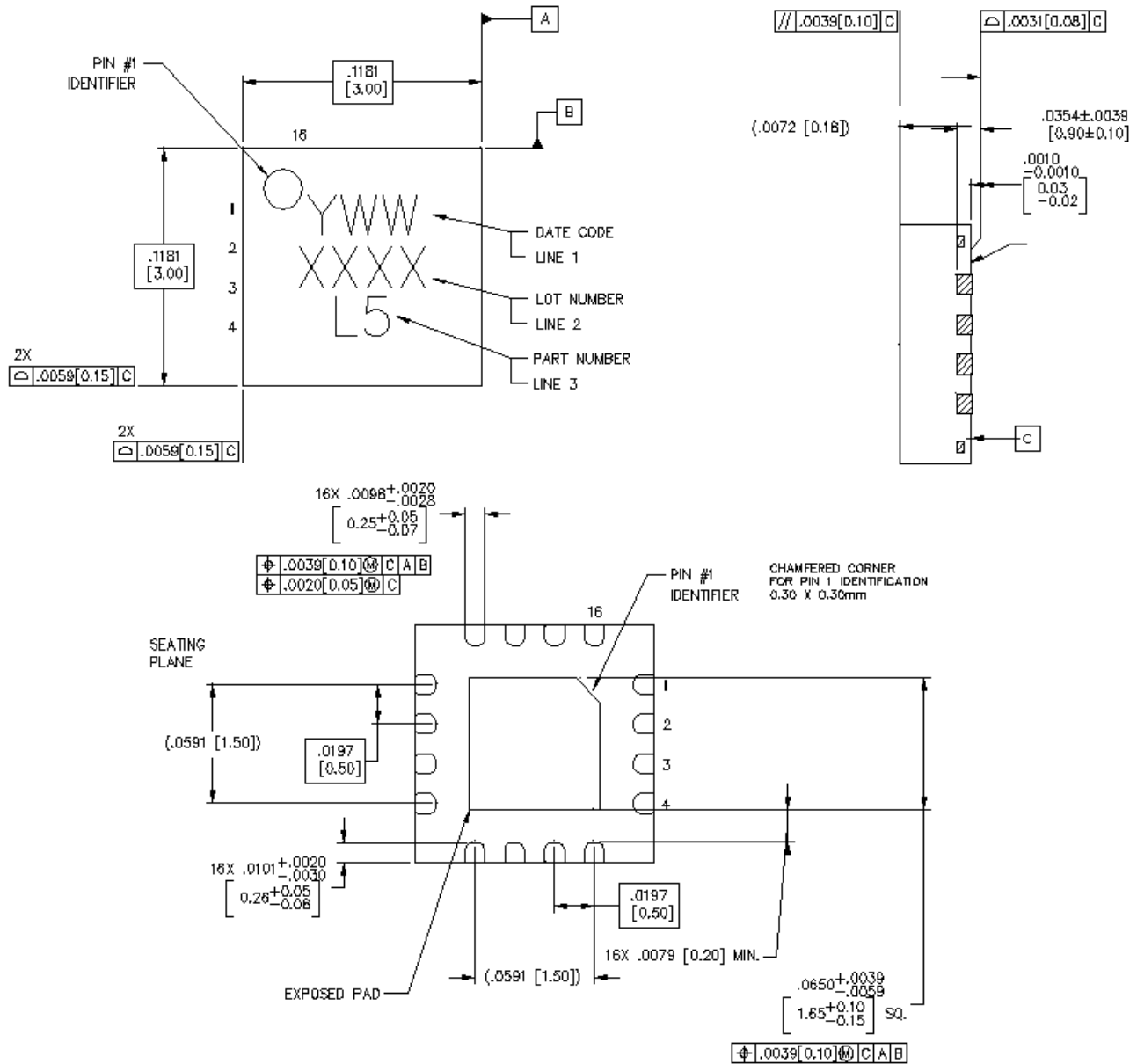
(DXF file available from website)



8. Ground plane conductor should be removed under the corners of the package, as shown.

Biasing - The device is operated with a single, positive bias supply. The device performance is insensitive to changes in bias condition; however, gain and power handling can be slightly improved with higher bias conditions without significantly affecting the noise figure performance. Typical biasing conditions within the specified performance ranges are $V_D = 3\text{ V}$, 50 mA, $V_D = 3.3\text{ V}$, 55 mA, $V_D = 3.6\text{ V}$, 60 mA.

Lead-Free 3 mm 16-Lead PQFN[†]



[†] Reference Application Note S2083 for lead-free solder reflow recommendations.
Meets JEDEC moisture sensitivity level 1 requirements.
Plating is NiPdAuAg

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