

Low Noise GaAs MMIC Power Amplifier 7.5 - 12.0 GHz

Rev. V7

Features

Noise Figure: 2.7 dB Typical

Gain: 15.5 dB TypicalSingle Bias Supply

Low Current Consumption

· DC Decoupled RF Input and Output

Ceramic Package

Description

The MAAM71200-H1 is a wide band, low noise GaAs MMIC amplifier enclosed in a leadless ceramic package. The MAAM71200-H1 is a packaged version of The MAAM71200 low noise MMIC amplifier chip. The fully monolithic design operates in 50 Ω without the need for external components.

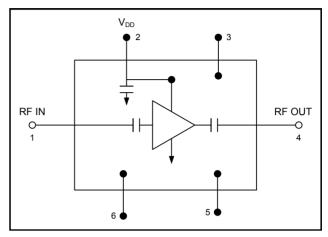
The MAAM71200-H1 is ideally suited for microstrip assemblies where wire or ribbon bonds are used for interconnects. Typical applications include radar, EW and communication systems.

The MAAM71200-H1 is fabricated using a mature 0.5-micron gate length GaAs process for increased reliability and performance repeatability.

Ordering Information

Part Number	Package		
MAAM71200-H1	Bulk Packaging		

Functional Diagram



- 1. Case must be electrically connected to RF and DC ground.
- The RF bond inductance from the transmission line to the package is assumed to be 0.25 nH. Variations in bond inductance will result in variations in VSWR and gain slope.
 A small capacitive stub may be needed depending on the inductance realized in the final assembly.
- 3. Nominal bias is obtained by setting $V_{DD} = 4 \text{ V}$.
- Increasing V_{DD} from 4 volts to 6 volts increases output power and high frequency bandwidth.

Absolute Maximum Ratings 5,6

Parameter	Absolute Maximum			
Input Power	+20 dBm			
V _{DD}	+7 V			
Junction Temperature	+150°C			
Thermal Resistance	+175°C/W			
Storage Temperature	-65°C to +150°C			

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- M/A-COM Technology does not recommend sustained operation near these survivability limits.



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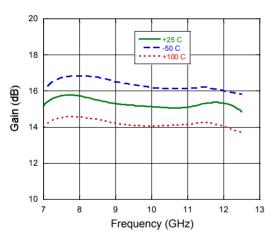
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Electrical Specifications: $T_A = 25$ °C, $V_{DD} = 4$ V

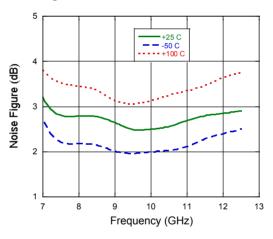
Parameter	Test Conditions	Units	Min.	Тур.	Max.
Gain	_	dB	14.5	15.5	_
Noise Figure	_	dB	_	2.7	3.5
Input VSWR Output VSWR	<u> </u>	Ratio Ratio	_	2.0:1 1.8:1	
Output 1 dB Compression Point	_	dBm	_	11	_
Third Order Intercept Point	_	dBm	_	21	_
Reverse Isolation	_	dB	_	30	_
Bias Current (I _{DD})		mA	_	40	55

Typical Performance Curves

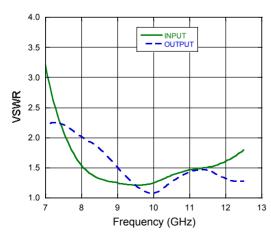
Gain



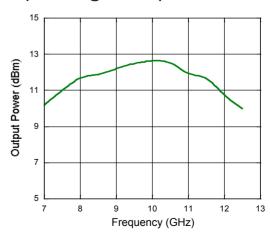
Noise Figure



Input and Output VSWR



Output Power @ 1 dB Compression

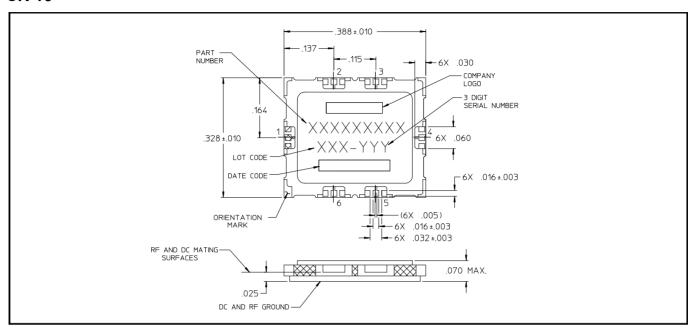




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Handling Procedures

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 devices.



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