

## Wide Band GaAs MMIC Amplifier 0.2 - 3.0 GHz

Rev. V3

### Features

- High Gain: 18 dB
- Output Power: +14 dBm
- Noise Figure: 4 dB
- Single Supply: +6 V
- Gain Flatness:  $\pm 0.75$  dB
- Lead-Free 8-lead Ceramic Package
- RoHS\* Compliant and 260°C Reflow Compatible

### Description

M/A-COM's MAAM02350-A2 is a wide band, MMIC amplifier housed in a small, lead-free, 8-lead ceramic package. It includes two integrated gain stages and employs resistive feedback to obtain flat gain and a good, 50-ohm, input and output impedance match over a very wide bandwidth. The MAAM02350-A2 operates from a single +6 V supply. It is monolithic, requiring only DC blocking capacitors, no other external components are needed.

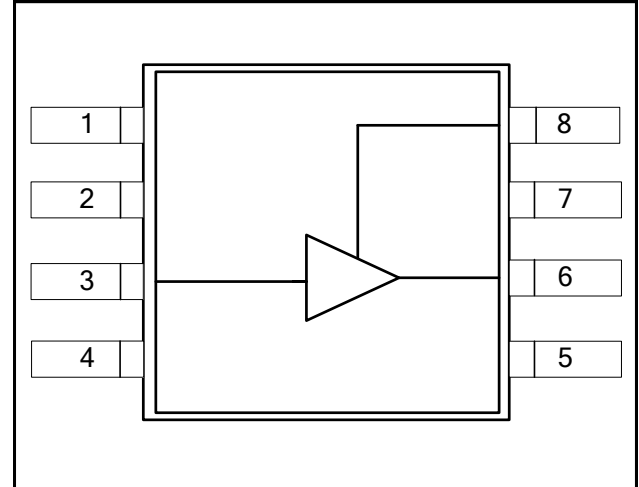
The MAAM02350-A2 functions well as a generic IF, driver or buffer amplifier where high gain, low noise figure, excellent linearity and low power consumption are important. Because of its wide bandwidth, the MAAM02350-A2 can be used in numerous commercial and government system applications, such as wireless communications, EW and radar.

The MAAM02350-A2 is manufactured in-house using a reliable, 0.5-micron, GaAs MESFET process. This product is 100% RF tested to ensure compliance to performance specifications.

### Ordering Information

Part Number	Package
MAAM02350-A2	8-Lead Ceramic (CR-3)
MAAM02350-A2G	Gull Wing (CR-10)

### Functional Schematic



### Pin Configuration<sup>1</sup>

Pin No.	Function	Pin No.	Function
1	Ground	5	Ground
2	Ground	6	RF Output
3	RF Input	7	Ground
4	Ground	8	V <sub>DD</sub>

1. The package bottom must be connected to RF and DC ground.

### Absolute Maximum Ratings<sup>2,3</sup>

Parameter	Absolute Maximum
V <sub>DD</sub>	+10 V
Input Power	+20 dBm
Current	150 mA
Channel Temperature <sup>4</sup>	+150°C
Operating Temperature	-55°C to +100°C
Storage Temperature	-65°C to +150°C

2. Exceeding any one or combination of these limits may cause permanent damage to this device.
3. M/A-COM does not recommend sustained operation near these survivability limits.
4. Typical thermal resistance ( $\theta_{jc}$ ) = +80°C/W

\* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

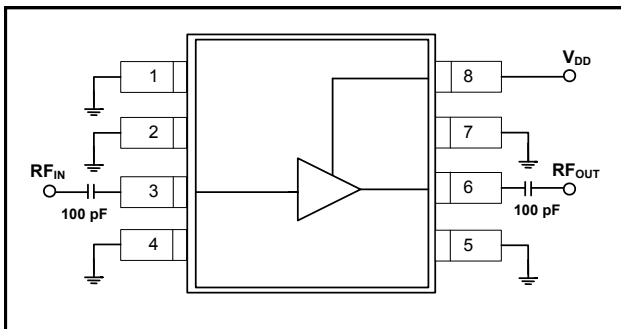
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**Electrical Specifications:**  $T_A = 25^\circ\text{C}$ ,  $V_{DD} = +6\text{ V}$ ,  $Z_0 = 50\ \Omega$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Gain	0.2 - 3.0 GHz, $P_{IN} = -30\text{ dBm}$	dB	16	18	—
Noise Figure	0.2 - 3.0 GHz	dB	—	4.0	4.5
Gain Flatness	0.2 - 3.0 GHz, $P_{IN} = -30\text{ dBm}$	dB	—	$\pm 0.5$	—
Input VSWR	0.2 - 3.0 GHz, $P_{IN} = -30\text{ dBm}$	Ratio	—	1.7:1	—
Output VSWR	0.2 - 3.0 GHz, $P_{IN} = -30\text{ dBm}$	Ratio	—	1.3:1	—
Output 1 dB Compression	0.2 - 3.0 GHz	dBm	—	+14	—
Input IP3	0.2 - 3.0 GHz, $P_{IN} = -30\text{ dBm}$	dBm	—	+6	—
Reverse Isolation	0.2 - 3.0 GHz, $P_{IN} = -30\text{ dBm}$	dB	—	30	—
Bias Current	—	mA	—	65	100

### Application Schematic



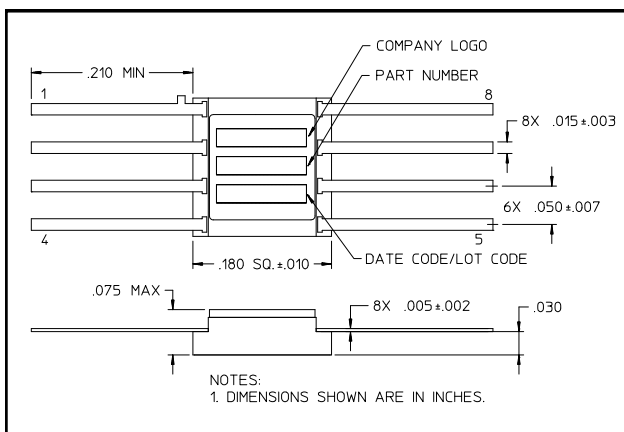
### Handling Procedures

Please observe the following precautions to avoid damage:

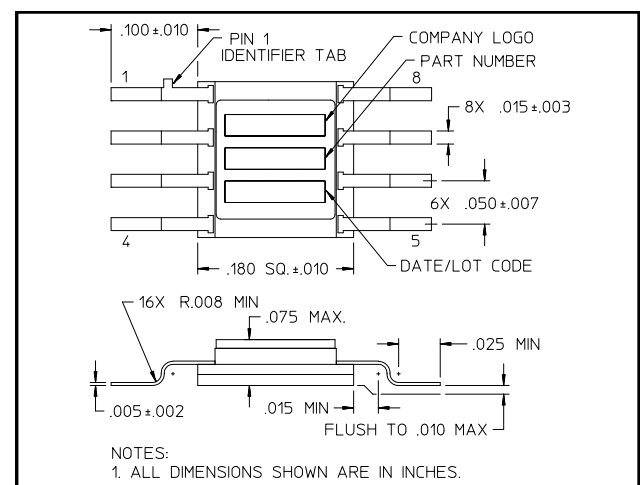
### Static Sensitivity

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.

### Lead-Free CR-3 (MAAM02350-A2)<sup>†</sup>



### Lead-Free CR-10 (MAAM02350-A2G)<sup>†</sup>

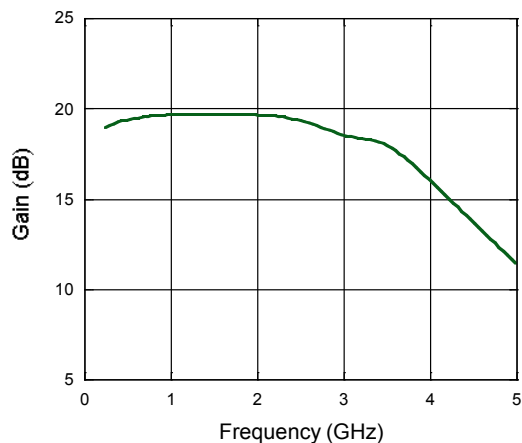


<sup>†</sup> Reference Application Note M538 for lead-free solder reflow recommendations.

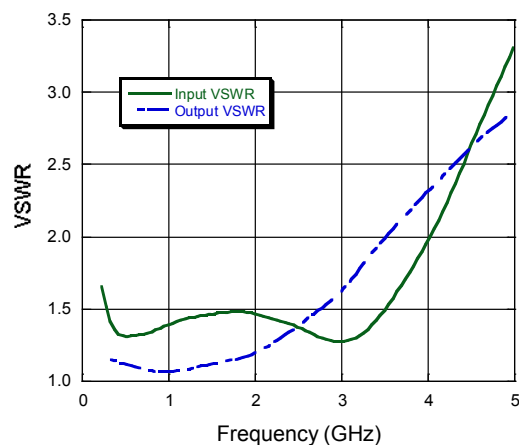
Meets JEDEC moisture sensitivity level 1 requirements.

### Typical Performance @ +25°C

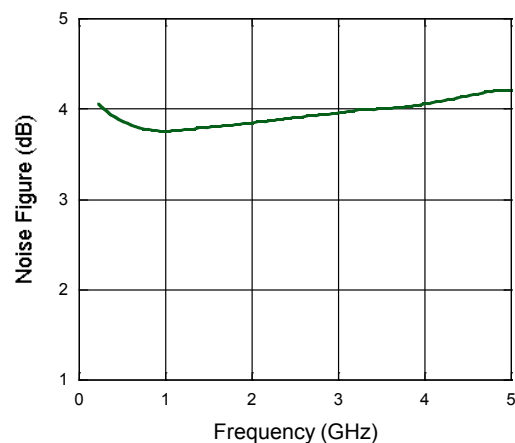
**Gain**



**VSWR**



**Noise Figure**



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