

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: ± 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.

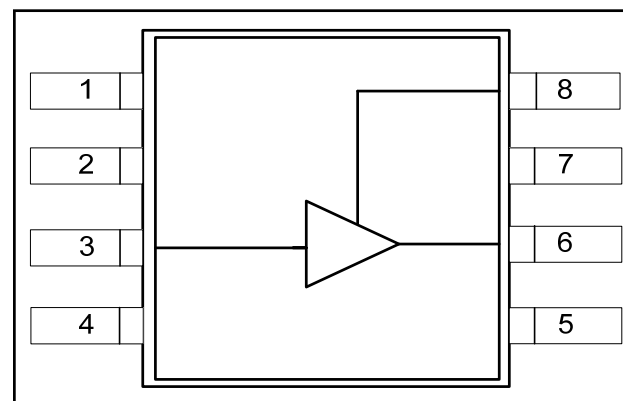
The MAAM02350-A2 functions well as a generic IF, driver or buffer amplifier where high gain, low noise figure, excellent linearity and low power consumption are important. Because of its wide bandwidth, the MAAM02350-A2 can be used in numerous commercial and government system applications, such as wireless 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 Configuration¹

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|-----------------|
| 1 | Ground | 5 | Ground |
| 2 | Ground | 6 | RF Output |
| 3 | RF Input | 7 | Ground |
| 4 | Ground | 8 | V _{DD} |

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

Absolute Maximum Ratings^{2,3}

| Parameter | Absolute Maximum |
|----------------------------------|------------------|
| V _{DD} | +10 V |
| Input Power | +20 dBm |
| Current | 150 mA |
| Channel Temperature ⁴ | +150°C |
| Operating Temperature | -55°C to +100°C |
| 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 does not recommend sustained operation near these survivability limits.
- Typical thermal resistance (θ_{JC}) = +80°C/W

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

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

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• **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300

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Visit www.macomtech.com for additional data sheets and product information.

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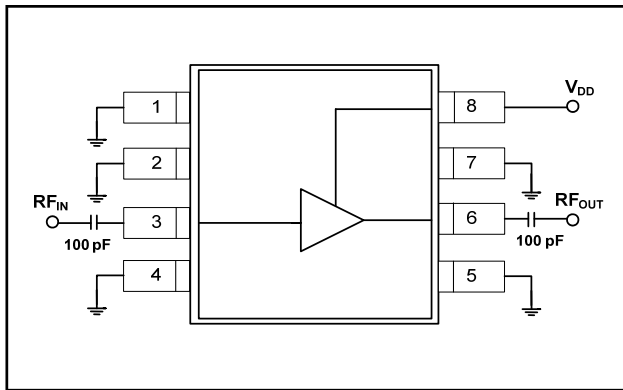
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Electrical Specifications: $T_A = 25^\circ\text{C}$, $V_{DD} = +6\text{ V}$, $Z_0 = 50\ \Omega$

| 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 | — | ± 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



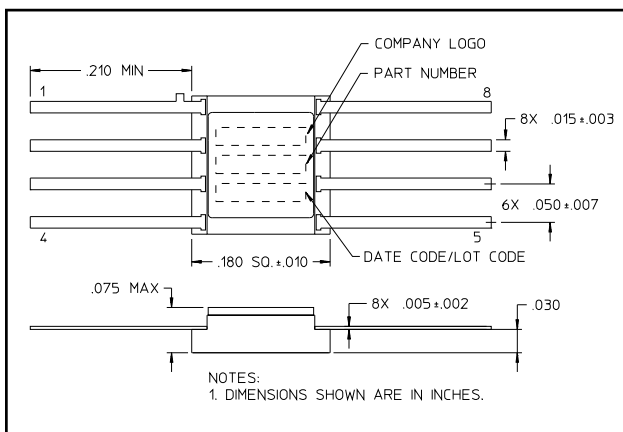
Handling Procedures

Please observe the following precautions to avoid damage:

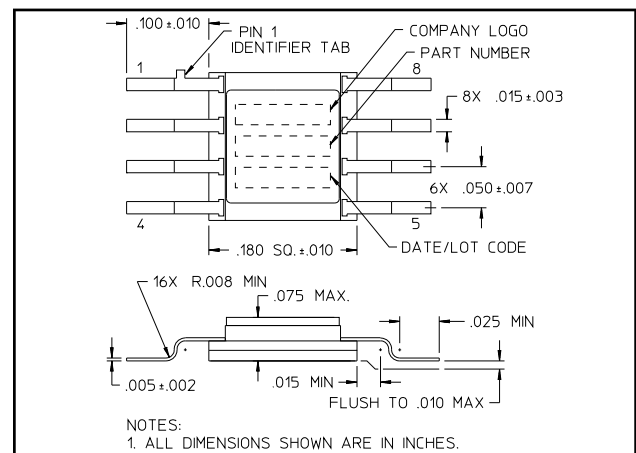
Static Sensitivity

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)[†]



Lead-Free CR-10 (MAAM02350-A2G)[†]



[†] Reference Application Note M538 for lead-free solder reflow recommendations.
Meets JEDEC moisture sensitivity level 1 requirements.

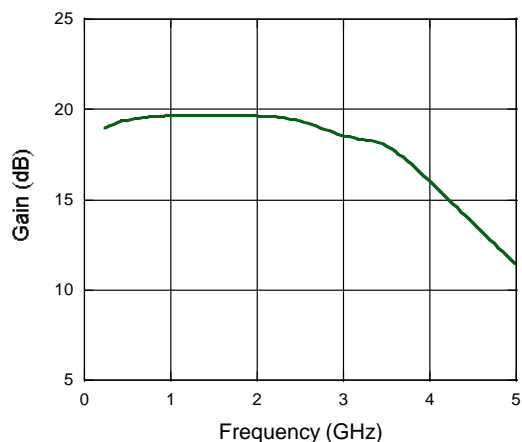
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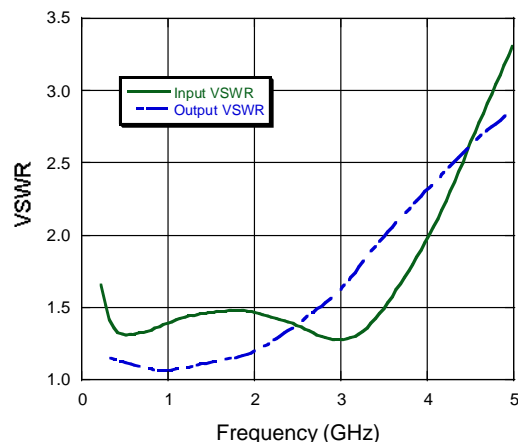
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Typical Performance @ +25°C

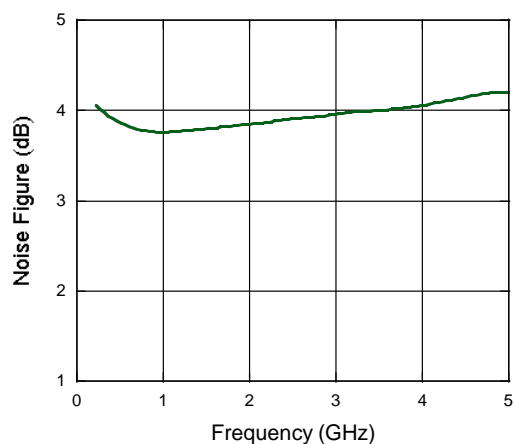
Gain



VSWR



Noise Figure





**Стандарт
Электрон
Связь**

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