

Features

- Saturated Power: 30.5 dBm Typical
- Gain: 19 dB Typical
- Power Added Efficiency: 30%
- DC Decoupled RF Input and Output
- Lead-Free 7-Lead Ceramic Package
- RoHS* Compliant and 260°C Reflow Compatible

Description

The MAAM26100-B1 is a GaAs MMIC two stage high efficiency power amplifier in a small, lead-free, 7-lead ceramic package. The MAAM26100-B1 is a fully monolithic design which eliminates the need for external circuitry in 50-ohm systems.

The MAAM26100-B1 is ideally suited for driver amplifiers and transmitter outputs in UMTS applications, test equipment, electronic warfare jammers, missile subsystems and phased array radars.

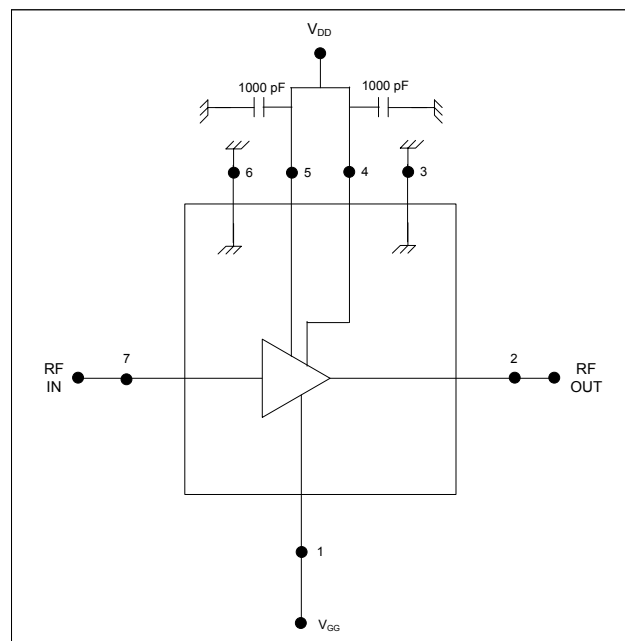
The MAAM26100-B1 is fabricated using a mature 0.5-micron gate length GaAs process. The process features full passivation for increased performance reliability.

Absolute Maximum Ratings ^{1,2}

| Parameter | Absolute Maximum |
|---------------------|------------------|
| V_{DD} | +9 V |
| V_{GG} | -6 V to -3 V |
| RF Input Power | +17 dBm |
| Channel Temperature | 150°C |
| Storage Temperature | -65°C to +150°C |

1. Exceeding any one or combination of these limits may cause permanent damage to this device and will void product warranty.
2. M/A-COM Tech does not recommend sustained operation near these survivability limits.

Functional Diagram ^{3,4}



3. Nominal bias is obtained by first connecting -5 volts to pin 1 (V_{GG}), followed by connecting +8 volts to pin 5 (V_{D1}) and pin 4 (V_{D2}). Note sequence.
4. RF ground and thermal interface are the case bottom. Adequate heat sinking is required.

Pin Configuration

| Pin No. | Function | Pin No. | Function |
|---------|-----------------|---------|-----------------|
| 1 | V_{GG} | 5 | V_{D1} |
| 2 | RF Output | 6 | Internal Ground |
| 3 | Internal Ground | 7 | RF Input |
| 4 | V_{D2} | | |

Ordering Information

| Part Number | Package |
|---------------|---------------------------------------|
| MAAM26100-B1 | 7 lead, Ceramic (CR-2) |
| MAAM26100-B1G | 7 lead, Ceramic (CR-2) with Gull Wing |

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

GaAs MMIC Power Amplifier 2 - 6 GHz

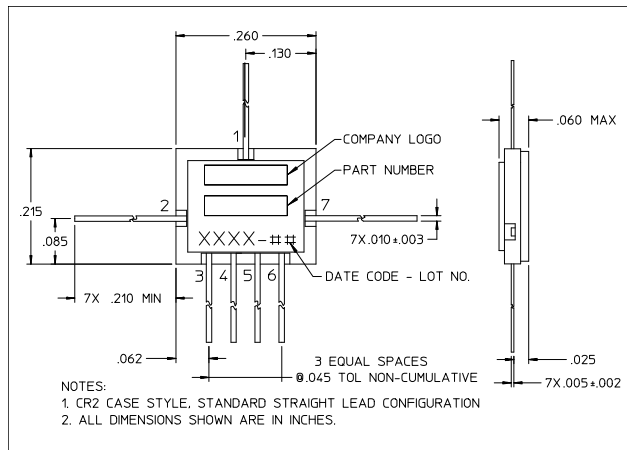
Rev. V7

Electrical Specifications: $T_A = 25^\circ\text{C}$, $V_{DD} = +8\text{ V}$, $V_{GG} = -5\text{ V}$, $Z_0 = 50\ \Omega$

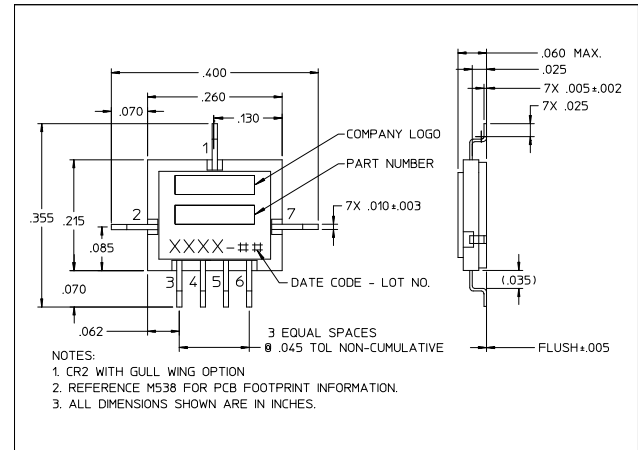
| Parameter | Test Conditions | Units | Min. | Typ. | Max. |
|---------------------------------------|--------------------------------|--------------------|------|-------|-------|
| Small Signal Gain | 2 - 6 GHz | dB | 15 | 19 | — |
| Input VSWR | Input Power +14 dBm, 2 - 6 GHz | Ratio | — | 1.7:1 | 2.1:1 |
| Output VSWR | Input Power +14 dBm, 2 - 6 GHz | Ratio | — | 2.2:1 | — |
| Saturated Output Power | Input Power +14 dBm, 2 - 6 GHz | dBm | 29 | 30.5 | — |
| Output Power at 1 dB Gain Compression | 2 - 6 GHz | dBm | — | 27 | — |
| Power Added Efficiency | — | % | — | 30 | — |
| Third Order Intercept | 2 - 6 GHz | dBm | — | 39 | — |
| Reverse Isolation | 2 - 6 GHz | dB | — | 30 | — |
| I_{DSQ} | No RF | mA | — | 390 | — |
| I_{DS} | Input Power +14 dBm | mA | 300 | 475 | 650 |
| I_{GG} | Input Power +14 dBm | mA | — | 10 | — |
| Thermal Resistance ⁵ | — | $^\circ\text{C/W}$ | — | 16.5 | — |

5. Attachment method not included.

Lead-Free CR-2[†]



Lead-Free CR-2 w/ Gull Wing[†]



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

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.