

### 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.

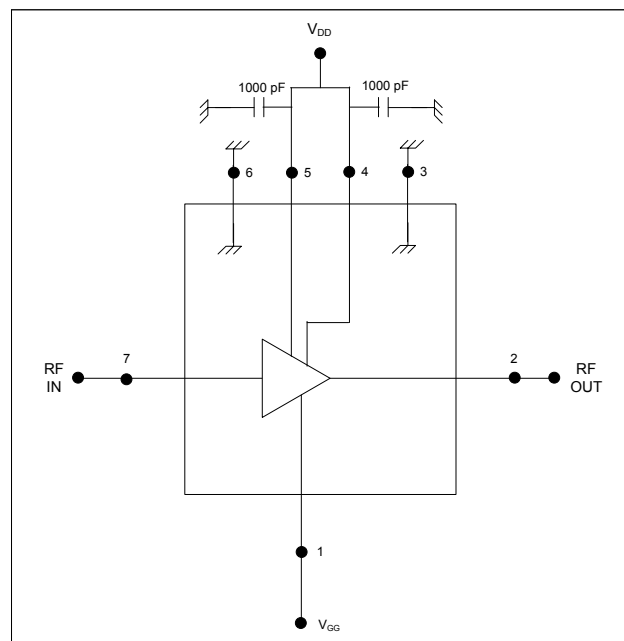
The MAAM26100-B1 is fabricated using a mature 0.5-micron gate length GaAs process. The process features full passivation for increased performance reliability.

### Absolute Maximum Ratings<sup>1,2</sup>

| 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<sup>3,4</sup>



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

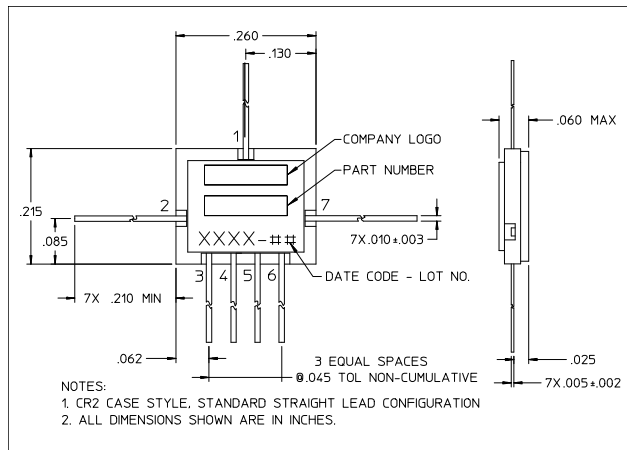
Rev. V7

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

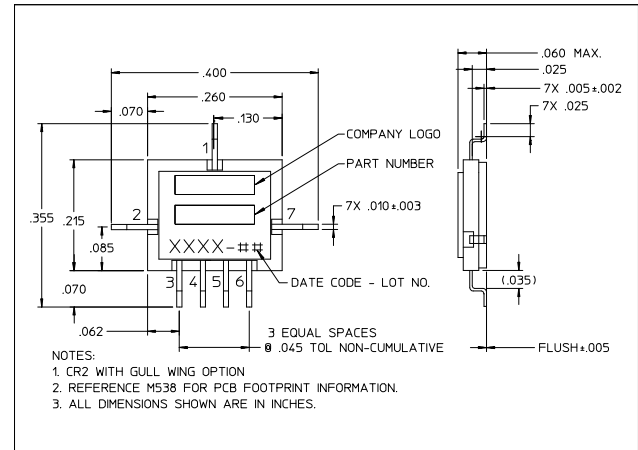
| Parameter                             | Test Conditions                | Units              | Min. | Typ.  | Max.  |
|---------------------------------------|--------------------------------|--------------------|------|-------|-------|
| Small Signal Gain                     | 2 - 6 GHz                      | 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 <sup>5</sup>       | —                              | $^\circ\text{C/W}$ | —    | 16.5  | —     |

5. Attachment method not included.

### Lead-Free CR-2<sup>†</sup>



### Lead-Free CR-2 w/ Gull Wing <sup>†</sup>



<sup>†</sup> Reference Application Note M538 for lead-free solder reflow recommendations.  
Meets JEDEC moisture sensitivity level 1 requirements.

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