

## Features

- Saturated Output Power: 30.5 dBm Typical
- Gain: 20 dB Typical
- Power Added Efficiency: 30% Typical
- On-Chip Bias Network
- DC Decoupled RF Input and Output
- Lead-Free High Performance Ceramic Package
- RoHS\* Compliant and 260°C Reflow Compatible

## Description

The MAAM26100-P1 is a GaAs MMIC two stage high efficiency power amplifier in a lead-free high performance bolt down ceramic package. The MAAM26100-P1 is a fully monolithic design which eliminates the need for external circuitry in 50-ohm systems.

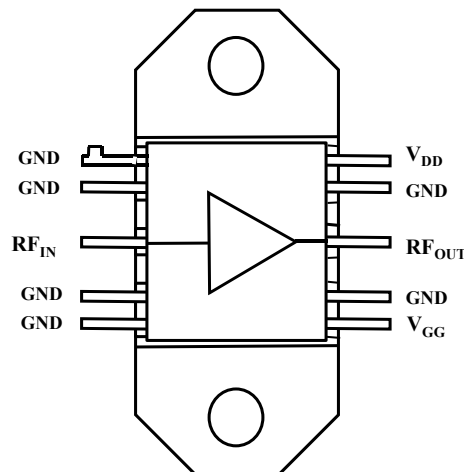
The MAAM26100-P1 is ideally suited for driver amplifiers and transmitter outputs in UMTS applications, test equipment, electronic warfare jammers, missile subsystems and phased array radars.

The MAAM26100-P1 is fabricated using a mature 0.5-micron gate length GaAs process. The process features full passivation for increased performance reliability.

## Ordering Information

Part Number	Package
MAAM26100-P1	Ceramic Bolt Down

## Functional Diagram



## Pin Configuration

Pin No.	Function	Pin No.	Function
1	GND	6	V <sub>DD</sub>
2	GND	7	GND
3	RF <sub>IN</sub>	8	RF <sub>OUT</sub>
4	GND	9	GND
5	GND	10	V <sub>GG</sub>

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

Parameter	Absolute Maximum
V <sub>DD</sub>	+9 V
V <sub>GG</sub>	-6 V to -3 V
RF Input Power	+17 dBm
Channel Temperature	150°C
Storage Temperature	-65°C to +150°C
Thermal Resistance (Channel to Case)	15°C/W

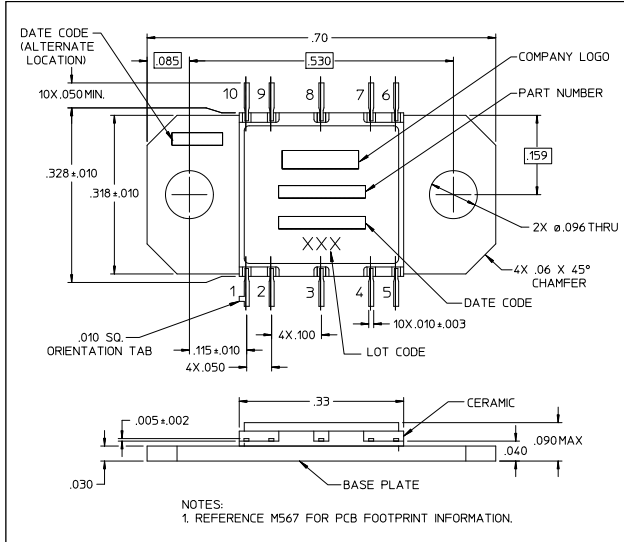
1. Exceeding any one or combination of these limits may cause permanent damage to this device and will void product warranty.
2. M/A-COM does not recommend sustained operation near these survivability limits.

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

## GaAs MMIC Power Amplifier 2 - 6 GHz

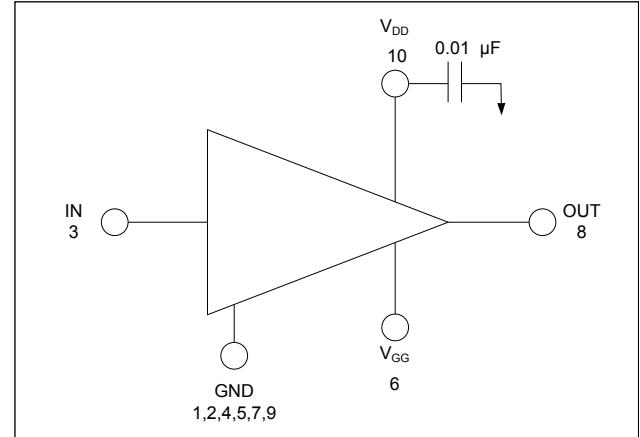
Rev. V7

### Lead-Free CR-15<sup>†</sup>



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

### Functional Schematic <sup>3,4</sup>



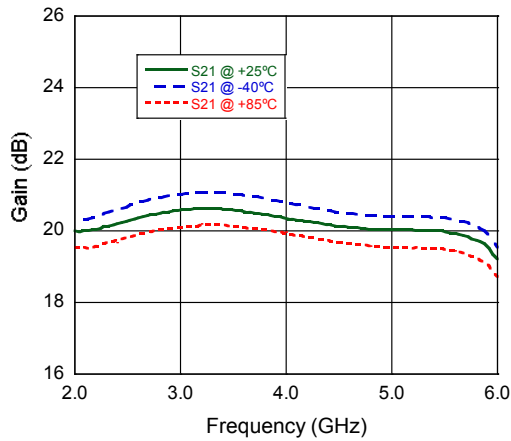
- Nominal bias is obtained by first connecting  $-5$  volts to pin 6 ( $V_{GG}$ ), followed by connecting  $+8$  volts to pin 10 ( $V_{DD}$ ). Note sequence.
- RF ground and thermal interface is the flange (case bottom). Adequate heat sinking is required.

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

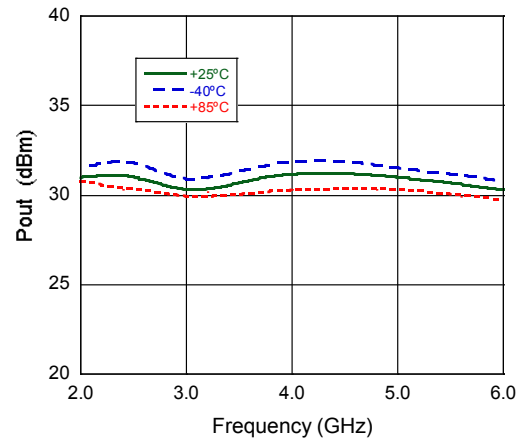
Parameter	Test Conditions	Units	Min.	Typ.	Max.
Small Signal Gain	Pin $\leq -10$ dBm, 2-6 GHz	dB	—	20	—
Input VSWR	Pin $\leq -10$ dBm, 2-6 GHz	Ratio	—	1.8:1	2.1:1
Output VSWR	Pin $\leq -10$ dBm, 2-6 GHz	Ratio	—	2.2:1	—
Output Power	Pin = $+14$ dBm, 2-6 GHz	dBm	29	30.5	—
P1dB	2-6 GHz	dBm	—	28	—
Power Added Efficiency	Pin = $+14$ dBm, 2-6 GHz	%	—	30	—
Output IP3	2-6 GHz	dBm	—	40	—
IDS	Pin = $+14$ dBm, 2-6 GHz	mA	—	475	650

## Typical Performance Curves

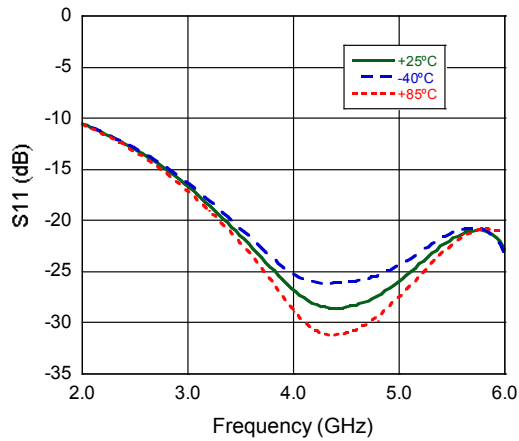
**Gain**



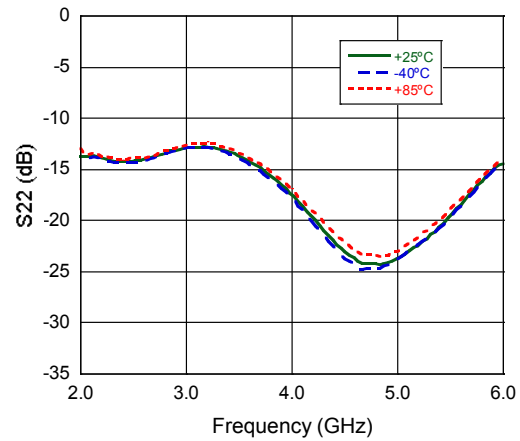
**Pout**



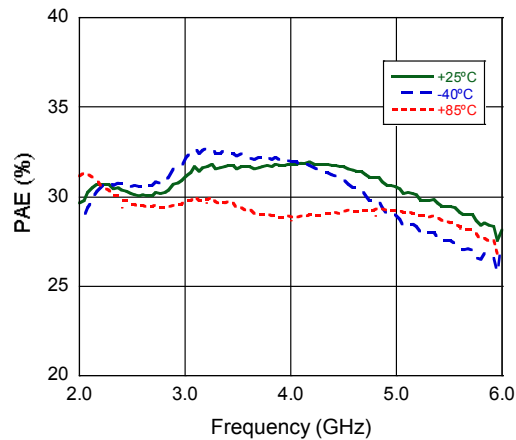
**Input Return Loss**



**Output Return Loss**



**Power Added Efficiency**



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.