MAAM28000-A1



Wide Band GaAs MMIC Amplifier 2.0 - 8.0 GHz

Rev. V8

Features

- Gain: 17 dB Typical
- Broadband Gain Flatness: ± 0.5 dB Typical
- Single Supply: +10 V
- No External Components Required
- · DC Decoupled RF Input and Output
- Lead-Free 8-Lead Ceramic Package
- RoHS* Compliant and 260°C Reflow Compatible

Description

The MAAM28000-A1 is a wide band, MMIC amplifier housed in a small, lead-free, 8-lead ceramic package. It includes two distributed gain stages to obtain flat gain and a good, 50-ohm input and output impedance match over a very wide bandwidth. The MAAM28000-A1 operates from a single +10 V supply. It is fully monolithic, requires no external components and is provided in a low-cost, user-friendly, microwave package.

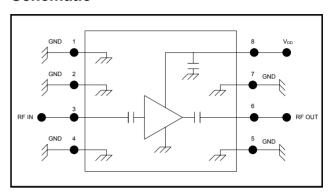
The MAAM28000-A1 performs well as a generic IF, driver or buffer amplifier where high gain, excellent linearity and low power consumption are important. Because of its wide bandwidth, the MAAM28000-A1 can be used in numerous commercial and government system applications, such as satellite communications, RLL, EW and radar.

The MAAM28000-A1 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		
MAAM28000-A1	8-lead Ceramic (CR-3)		
MAAM28000-A1G	Gull Wing (CR-10)		

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}	+14 V		
Input Power	+20 dBm		
Current	150 mA		
Channel Temperature	+150°C		
Operating Temperature ⁴	Temperature ⁴ -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.
- M/A-COM Technology does not recommend sustained operation near these survivability limits.
- 4. Typical thermal resistance (θ jc) = +45°C/W

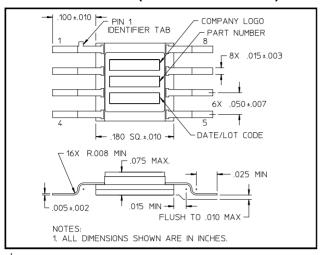
^{*} Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.



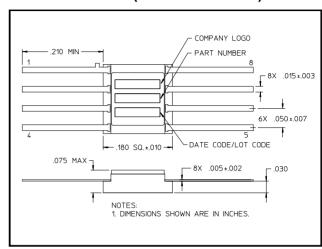
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Lead-Free CR-10 (MAAM28000-A1G)[†]



Lead-Free CR-3 (MAAM28000-A1)[†]



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

Electrical Specifications: $T_A = 25^{\circ}C$, $V_{DD} = +10 \text{ V}$, $Z_0 = 50 \Omega$

Parameter	Test Conditions	Units	Min.	Тур.	Max.
Gain	2.0 - 8.0 GHz, P _{IN} = -30 dBm	dB	14	17	_
Noise Figure	2.0 - 4.0 GHz 4.0 - 6.0 GHz 6.0 - 8.0 GHz	dB dB dB		6.5 5.5 4.5	8.0 6.5 6.0
Gain Flatness	2.0 - 8.0 GHz, P _{IN} = -30 dBm	dB	_	± 0.5	_
Input VSWR Output VSWR	2.0 - 8.0 GHz, P _{IN} = -30 dBm 2.0 - 8.0 GHz, P _{IN} = -30 dBm	Ratio Ratio	_	1.6:1 1.5:1	_
Output 1 dB Compression	2.0 - 8.0 GHz	dBm	_	+14	_
Input IP3	2.0 - 8.0 GHz, P _{IN} = -30 dBm	dBm	_	+7	_
Reverse Isolation	2.0 - 8.0 GHz, P _{IN} = -30 dBm	dB	_	35	_
Bias Current	_	mA	_	70	100

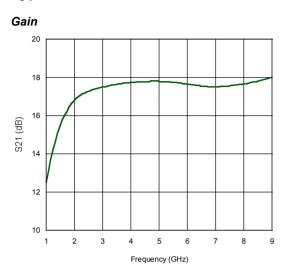
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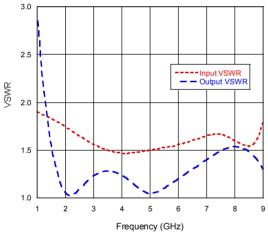
Typical Performance Curves

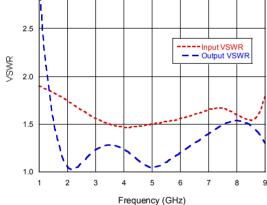


Noise Figure Noise Figure (dB) 5

Frequency (GHz)

VSWR





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