

Cascadable Amplifier 10 to 500 MHz

Rev. V3

Features

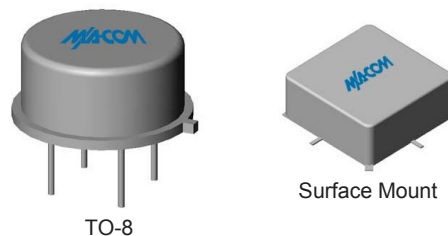
- High Gain 2-Stage: 30 dB
- Low Power Drain: 65 mW @ 5 V
- Voltage Controlled Gain: 27 - 34 dB
@ $V_{CC} = 3 - 12 V$
- Low VSWR: 1.3:1

Description

The A83 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for consistent performance and high reliability.

This 2 stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network insures temperature-stable performance.

Both TO-8 and surface mount packages are hermetically sealed. MIL-STD-883 environmental screening is available.



Ordering Information

Part Number	Package
MAAM-008200-000A83	TO-8
MAAM-008200-0SMA83	Surface Mount
MAAM-008200-00CA83	SMA Connectorized ¹

1. The connectorized version is not RoHS compliant.

Electrical Specifications: $Z_0 = 50 \Omega$, $V_{CC} = +5 V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C ¹
Frequency	MHz	10 - 600	10 - 500	10 - 500
Small Signal Gain (min.)	dB	30	29	28
Gain Flatness (max.)	dB	±0.3	±0.5	±0.8
Reverse Isolation	dB	40	—	—
Noise Figure (max.)	dB	3.0	3.5	4.0
Power Output @ 1 dB comp. (min.)	dBm	-1.0	-2.0	-4.0
IP3	dBm	10	—	—
IP2	dBm	14	—	—
Second Order Harmonic IP	dBm	20	—	—
VSWR Input / Output (max.)		1.3:1 / 1.3:1	1.8:1 / 1.8:1	2.0:1 / 2.0:1
DC Current @ +5 V (max.)	mA	13	15	16

1. Over temperature performance limits for part number CA83, guaranteed from 0°C to +50°C only.

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DC-0008070

Absolute Maximum Ratings

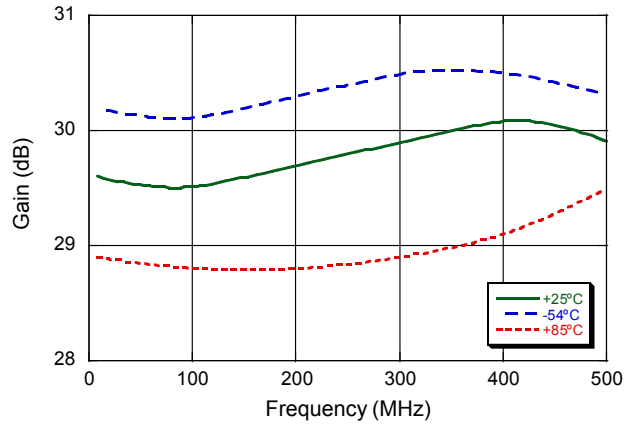
Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
DC Voltage	+13 V
Continuous Input Power	+6 dBm
Short Term Input power (1 minute max.)	50 mW
Peak Power (3 μsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	+125°C

Thermal Data: $V_{CC} = +15 V_{DC}$

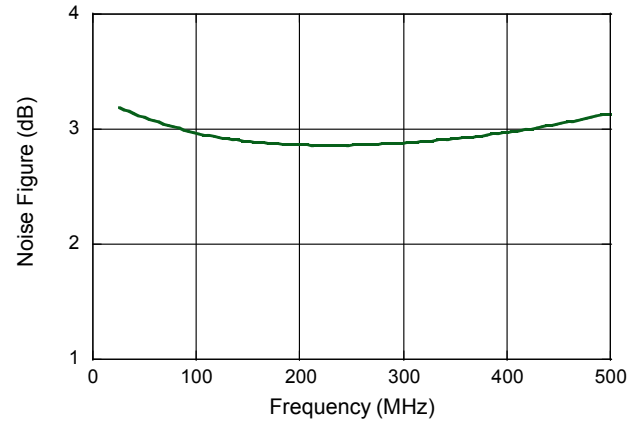
Parameter	Rating
Thermal Resistance θ_{jc}	45°C/W
Transistor Power Dissipation P_d	0.193 W
Junction Temperature Rise Above Case T_{jc}	9°C

Typical Performance Curves

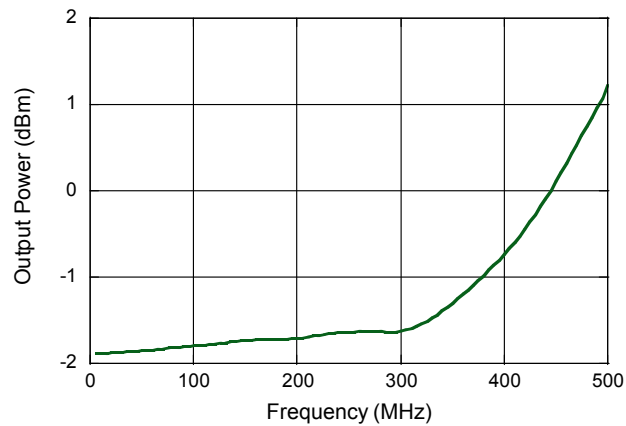
Gain



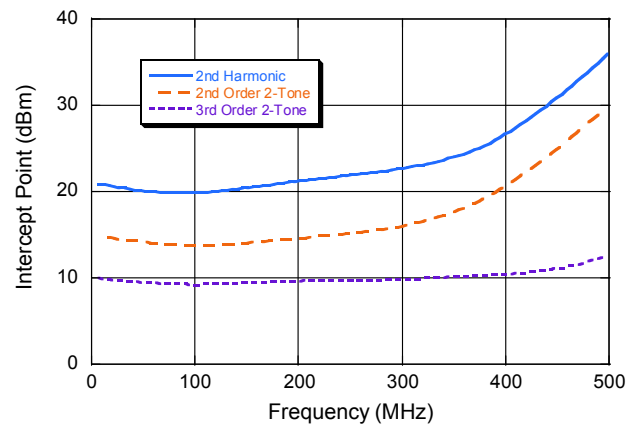
Noise Figure



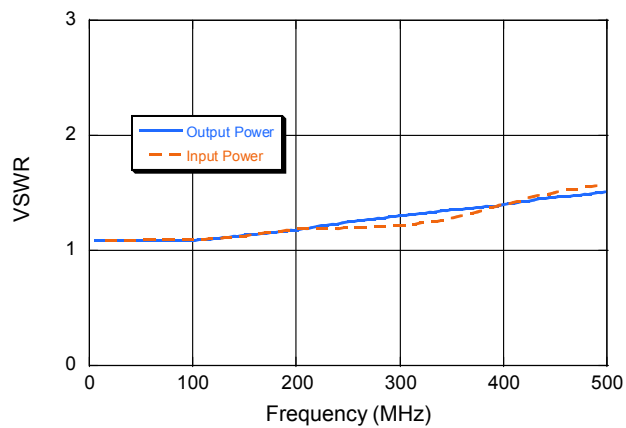
Output Power @ 1dB Gain Compression



Intercept Point



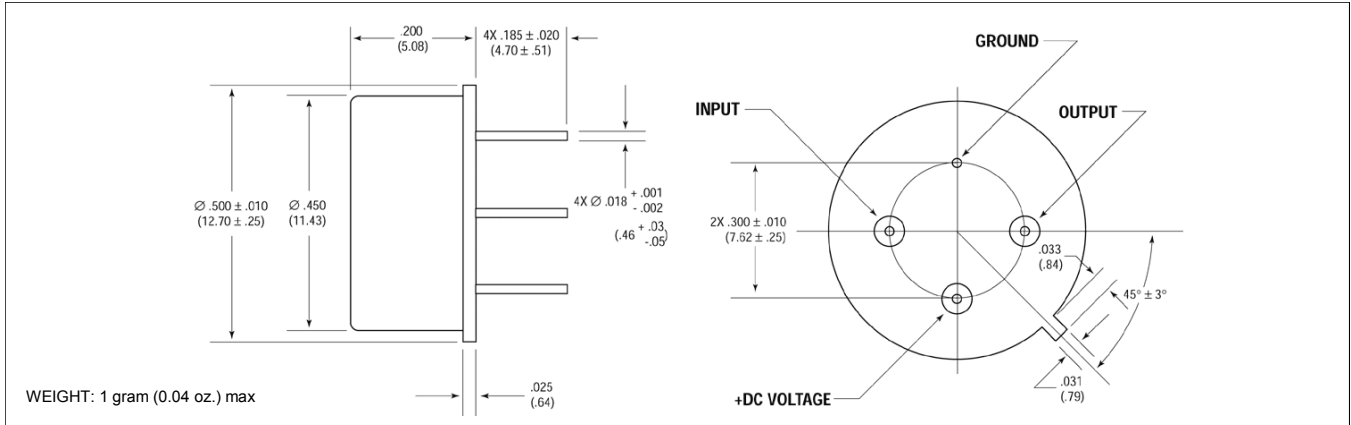
VSWR



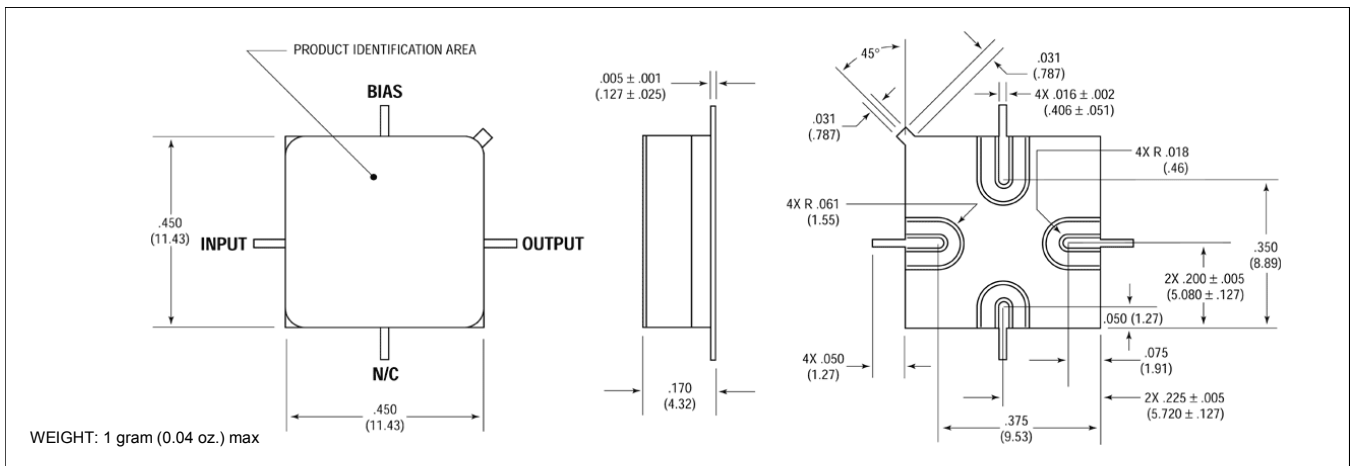
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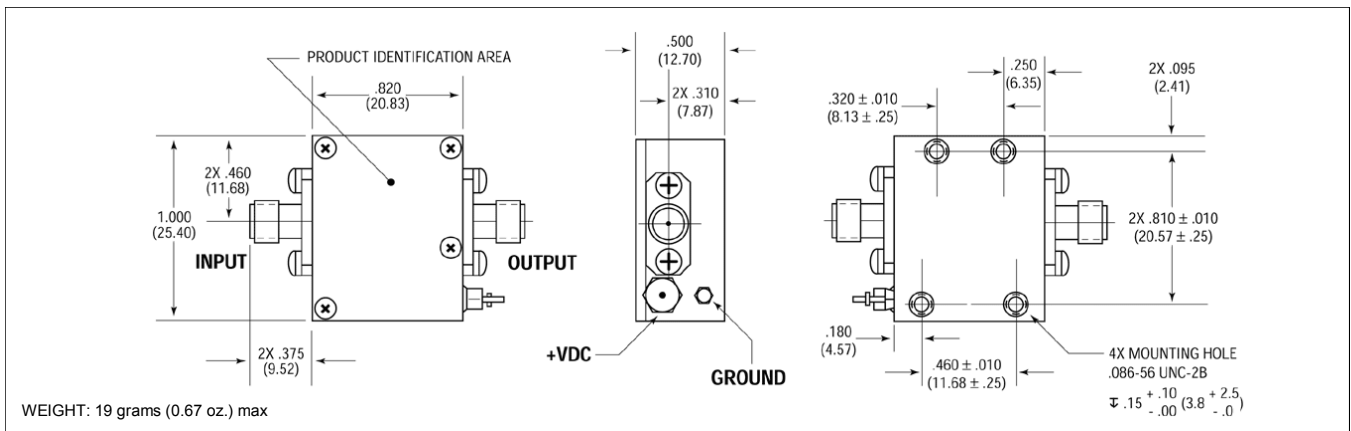
Outline Drawing: TO-8*



Outline Drawing: Surface Mount*



Outline Drawing: SMA Connectorized*



4 * Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

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