

A83-1 / SMA83-1

Cascadable Amplifier 10 to 250 MHz

Rev. V3

Features

- HIGH GAIN-TWO STAGES: 35.5 dB (TYP.)
- LOW POWER DRAIN: 65 mA @ 5 VOLTS (TYP.)
- VOLTAGE CONTROLLED GAIN: 29 dB TO 39 dB @ $V_{CC} = 3$ TO 12 VOLTS
- LOW VSWR OVER FULL CONTROL RANGE: <1.5:1 (TYP.)

Description

The A83-1 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, and MIL-STD-883 environmental screening is available.

Ordering Information

Part Number	Package
A83-1	TO-8
SMA83-1	Surface Mount
CA83-1**	SMA Connectorized

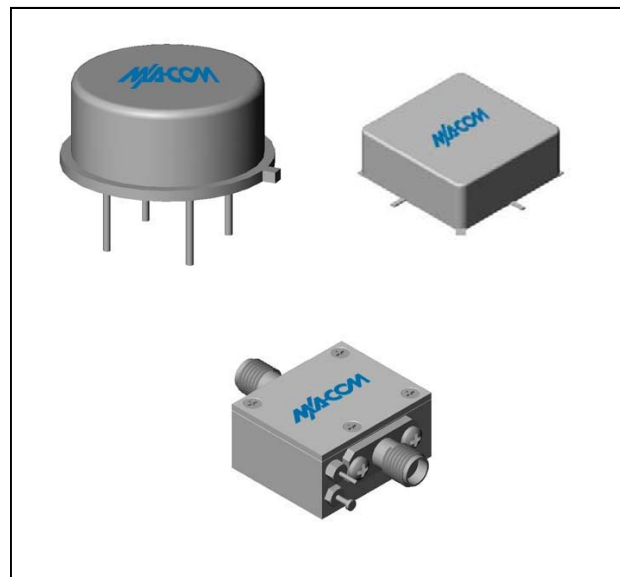
** The connectorized version is not RoHs compliant.

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*
Frequency	MHz	10-300	10-250	10-250
Small Signal Gain (min)	dB	35.5	34.0	33.0
Gain Flatness (max)	dB	±0.3	±0.5	±0.8
Reverse Isolation	dB	43		
Noise Figure (max)	dB	2.5	3.0	3.5
Power Output @ 1 dB comp. (min)	dBm	-1.5	-2.5	-3.5
IP3	dBm	+9		
IP2	dBm	+12		
Second Order Harmonic IP	dBm	+18		
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 Volts (max)	mA	13	15	16

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

Product Image



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: $V_{CC} = +5 V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	171°C/W
Transistor Power Dissipation P_d	0.021 W
Junction Temperature Rise Above Case T_{jc}	4°C

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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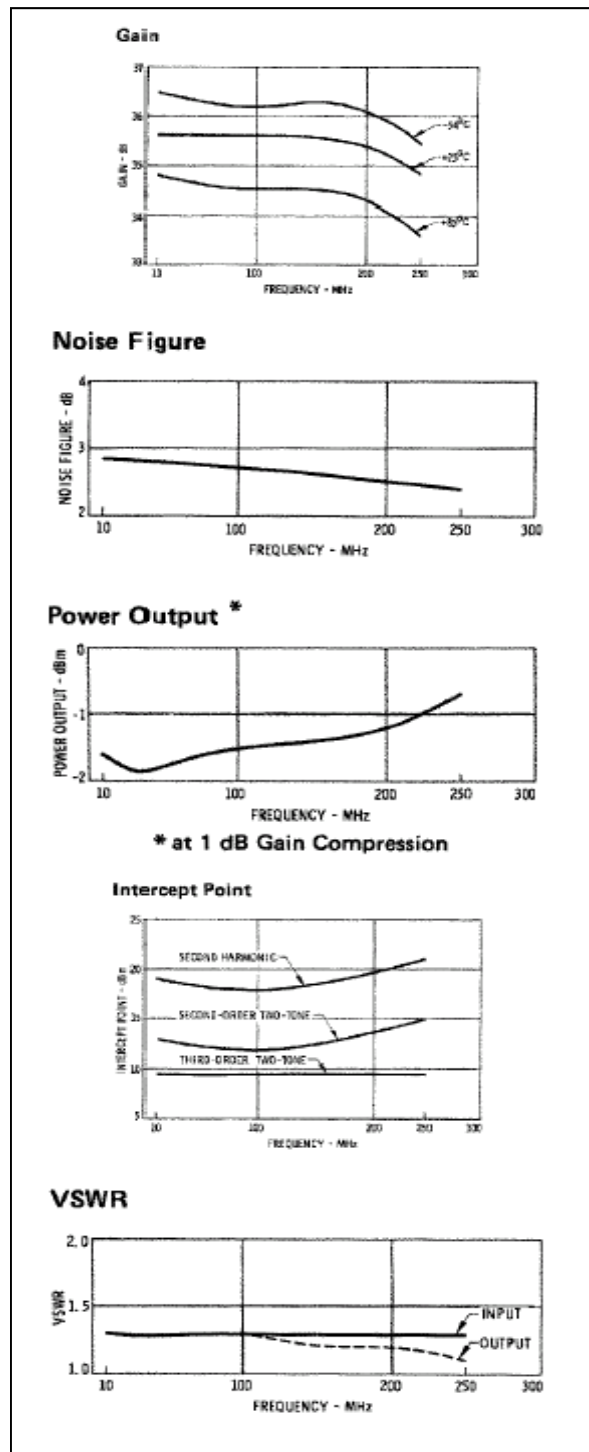
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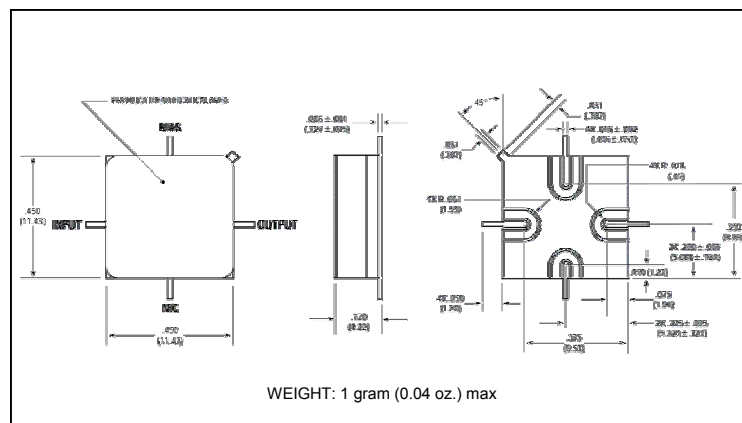
Typical Performance Curves at +25°C



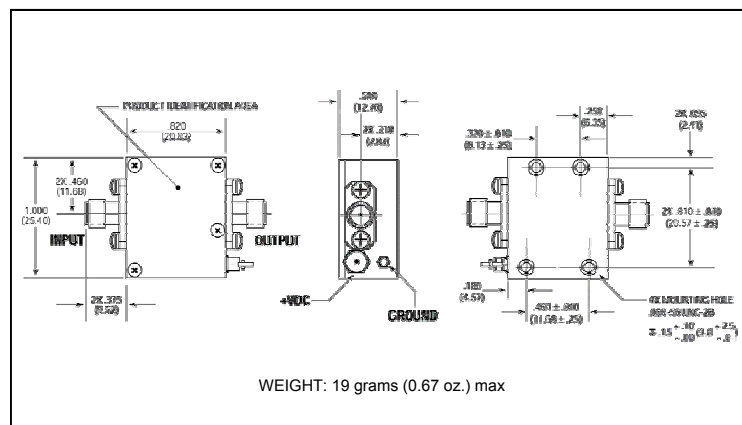
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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

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