

**Cascadable Amplifier  
20 to 250 MHz**

**A81-1 / SMA81-1**  
V3

**Features**

- High Reverse Isolation : >30 dBm (TYP.)
- Low Noise: 2.4 dB (TYP.)
- High Gain: 25 dB (TYP.)
- High Level Output: +13.5 dBm (TYP.)

**Description**

The A81-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

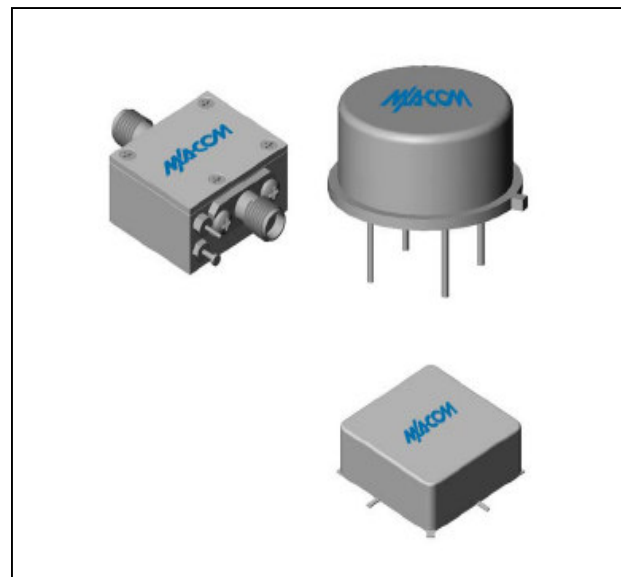
The 2 stage silicon bipolar feedback amplifier design displays impressive performance over a broadband frequency range. An isolation transformer is used in the feedback loop, with the benefit of high reverse isolation. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

**Ordering Information**

Part Number	Package
A81-1	TO-8
SMA81-1	Surface Mount
CA81-1**	SMA Connectorized

\*\* The connectorized version is not RoHs compliant.

**Product Image**



**Electrical Specifications:  $Z_0 = 50\Omega$ ,  $V_{CC} = 15 V_{DC}$**

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C
Frequency	MHz	10-300	20-250	20-250
Small Signal Gain (min)	dB	25.0	24.0	23.5
Gain Flatness (max)	dB	±0.1	±0.5	±0.7
Reverse Isolation	dB	31		
Noise Figure (max)	dB	2.5	3.3	3.8
Power Output @ 1 dB comp. (min)	dBm	13.5	12.5	12.0
IP3	dBm	+27		
IP2	dBm	+33		
Second Order Harmonic IP	dBm	+41		
VSWR Input / Output (max)		1.5:1 / 1.5:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current (max)	mA	25	27	29

\* Over temperature performance limits for part number CA81-1, guaranteed from 0°C to +50°C only.

**Absolute Maximum Ratings**

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	125°C
DC Voltage	+17 V
Continuous Input Power	+10 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:  $V_{CC} = 15 V_{DC}$**

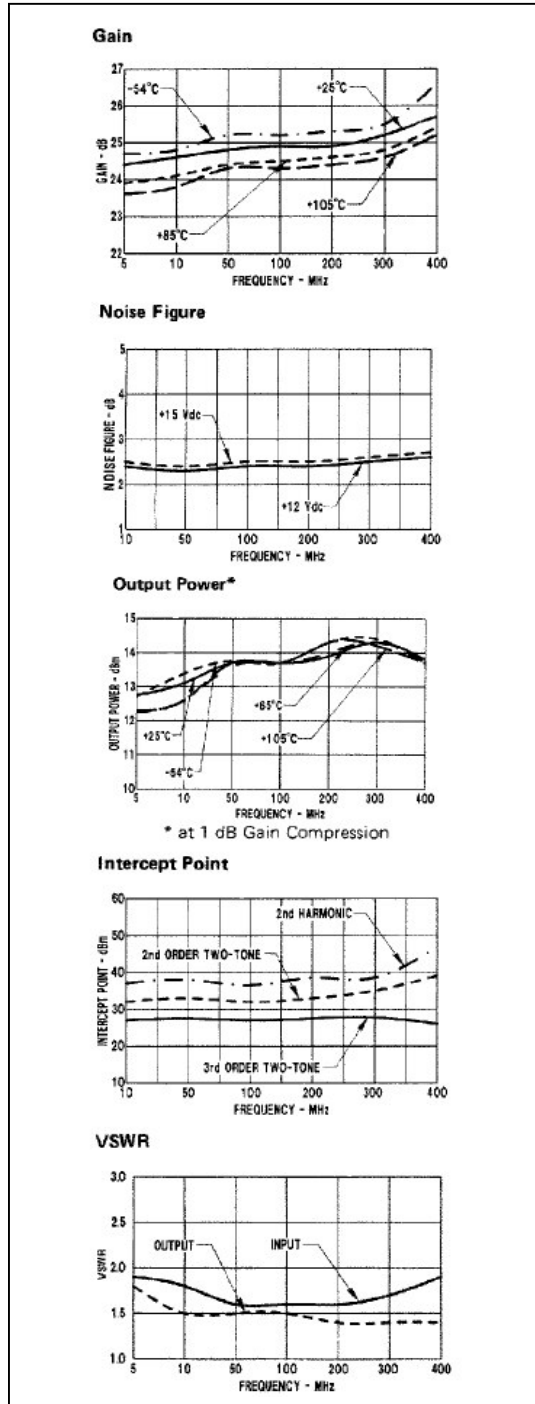
Parameter	Rating
Thermal Resistance $\theta_{jc}$	171°C/W
Transistor Power Dissipation $P_d$	0.098 W
Junction Temperature Rise Above Case $T_{jc}$	17°C

**Cascadable Amplifier  
20 to 250 MHz**

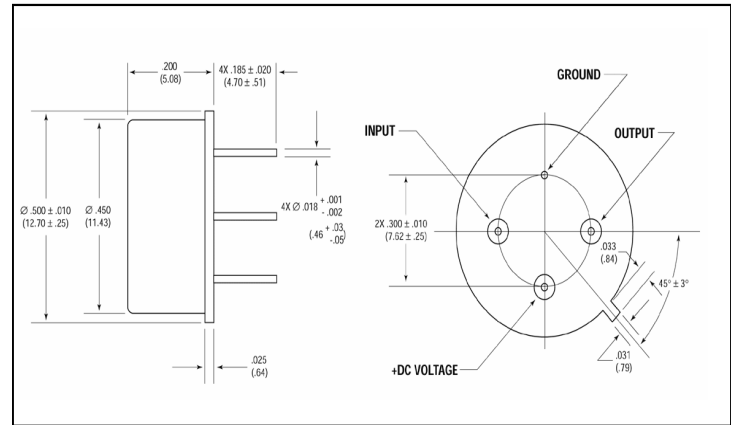
**A81-1 / SMA81-1**

V3

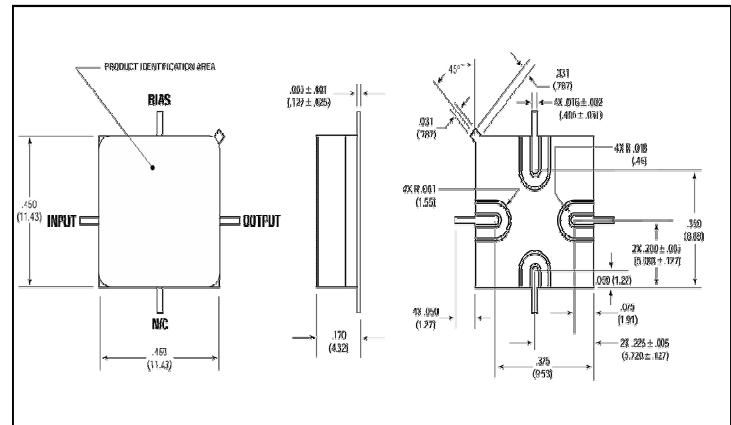
**Typical Performance Curves**



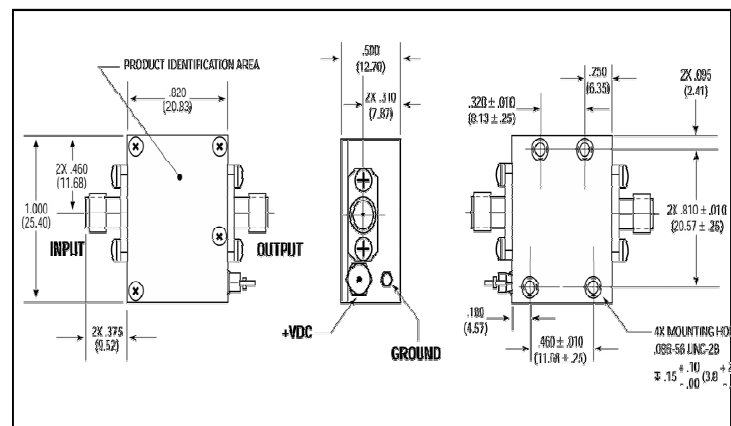
**Outline Drawing: TO-8 \***



**Outline Drawing: Surface Mount**



**Outline Drawing: SMA Connectorized**



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

M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. M/A-COM makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does M/A-COM assume any liability whatsoever arising out of the use or application of any product(s) or information.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.