

# A81-3 / SMA81-3

Cascadable Amplifier  
20 to 500 MHz

Rev. V2

## Features

- HIGH REVERSE ISOLATION >35 dBm (TYP.)
- EXCEPTIONAL OUTPUT VSWR 1.1:1 (TYP.)
- LOW NOISE 3.6 dB (TYP.)
- MEDIUM OUTPUT LEVEL +8.0 dBm (TYP.)

## Description

The A81-3 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
A81-3	TO-8
MAAM-008732-SMA813	Surface Mount
CA81-3	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	10-500	20-500	20-500
Small Signal Gain (min)	dB	17.0	16.0	15.5
Gain Flatness (max)	dB	±0.2	±0.5	±0.7
Reverse Isolation	dB	36		
Noise Figure (max)	dB	4.0	4.5	5.0
Power Output @ 1 dB comp. (min)	dBm	8.0	7.5	7.0
IP3	dBm	+20		
IP2	dBm	+28		
Second Order Harmonic IP	dBm	+32		
VSWR Input / Output (max)		1.5:1 / 1.1:1	1.8:1 / 1.3:1	2.0:1 / 1.3:1
DC Current @ 15 Volts (max)	mA	29	31	33

## 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 $\theta_{jc}$	45°C/W
Transistor Power Dissipation $P_d$	0.157 W
Junction Temperature Rise Above Case $T_{jc}$	7°C

\* Over temperature performance limits for part number CA81-3, guaranteed from 0°C to +50°C only.

**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.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
 • **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588  
 Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

# A81-3 / SMA81-3

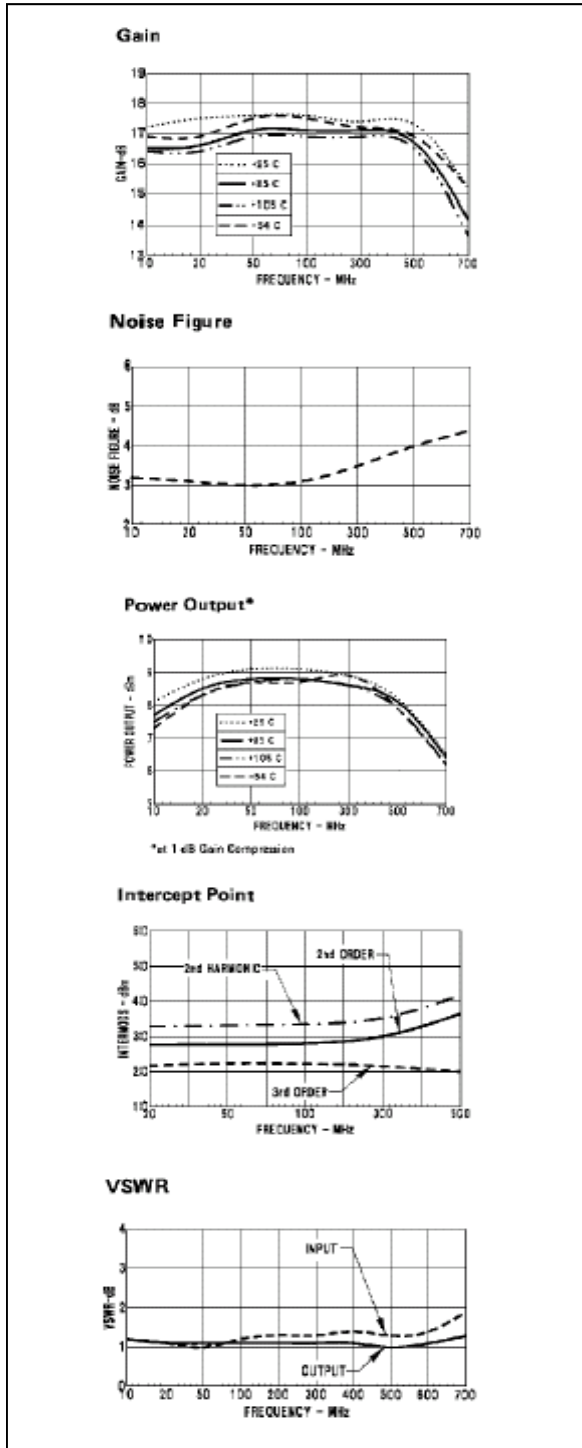


Cascadable Amplifier  
20 to 500 MHz

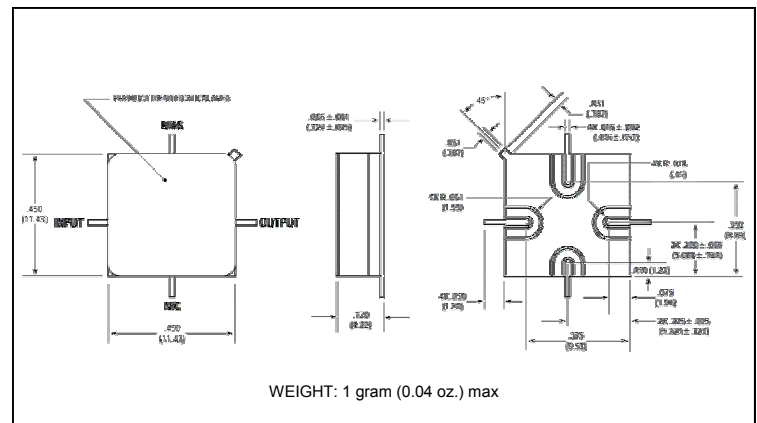
Rev. V2

## Typical Performance Curves at +25°C

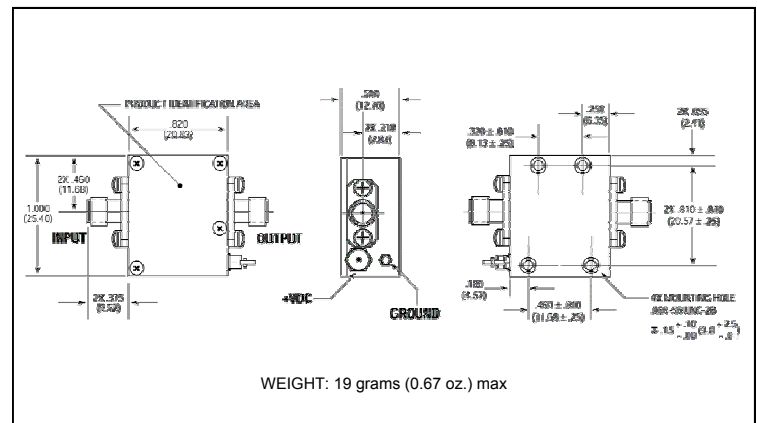
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

**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.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
 • **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588  
 Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.