

# A81-2 / SMA81-2

Cascadable Amplifier  
20 to 500 MHz

Rev. V3

## Features

- HIGH OUTPUT POWER: +15.0 dBm (TYP.)
- HIGH EFFICIENCY: 29 mA @ +15 Vdc (TYP.)
- LOW NOISE 2.9 dB (TYP.)
- HIGH GAIN: >24.5 dB (TYP.)

## Description

The A81-2 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.

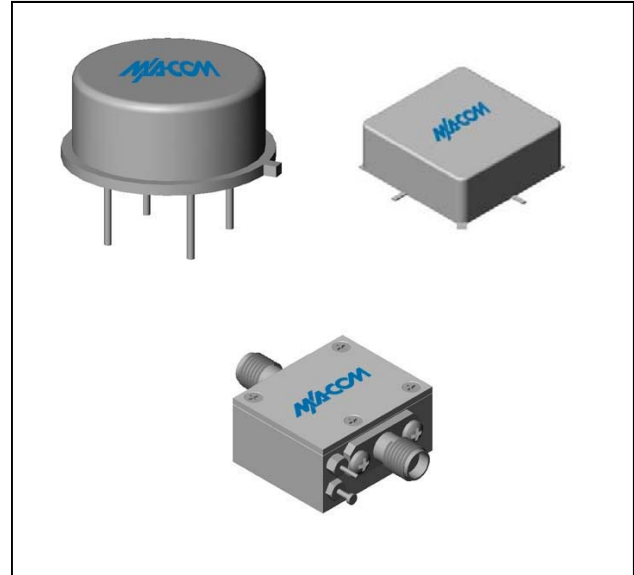
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

## Ordering Information

Part Number	Package
A81-2	TO-8
SMA81-2	Surface Mount
CA81-2**	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	24.5	23.0	22.5
Gain Flatness (max)	dB	±0.2	±0.5	±0.7
Reverse Isolation	dB	33		
Noise Figure (max)	dB	3.0	3.5	4.0
Power Output @ 1 dB comp. (min)	dBm	15.0	14.0	13.5
IP3	dBm	+28		
IP2	dBm	+35		
Second Order Harmonic IP	dBm	+41		
VSWR Input / Output (max)		1.5:1 / 1.5:1	1.8:1 / 1.8:1	2.0:1 / 2.0:1
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 $\theta_{jc}$	171°C/W
Transistor Power Dissipation $P_d$	0.145 W
Junction Temperature Rise Above Case $T_{jc}$	25°C

\* Over temperature performance limits for part number CA81-2, guaranteed from 0°C to +50°C only.

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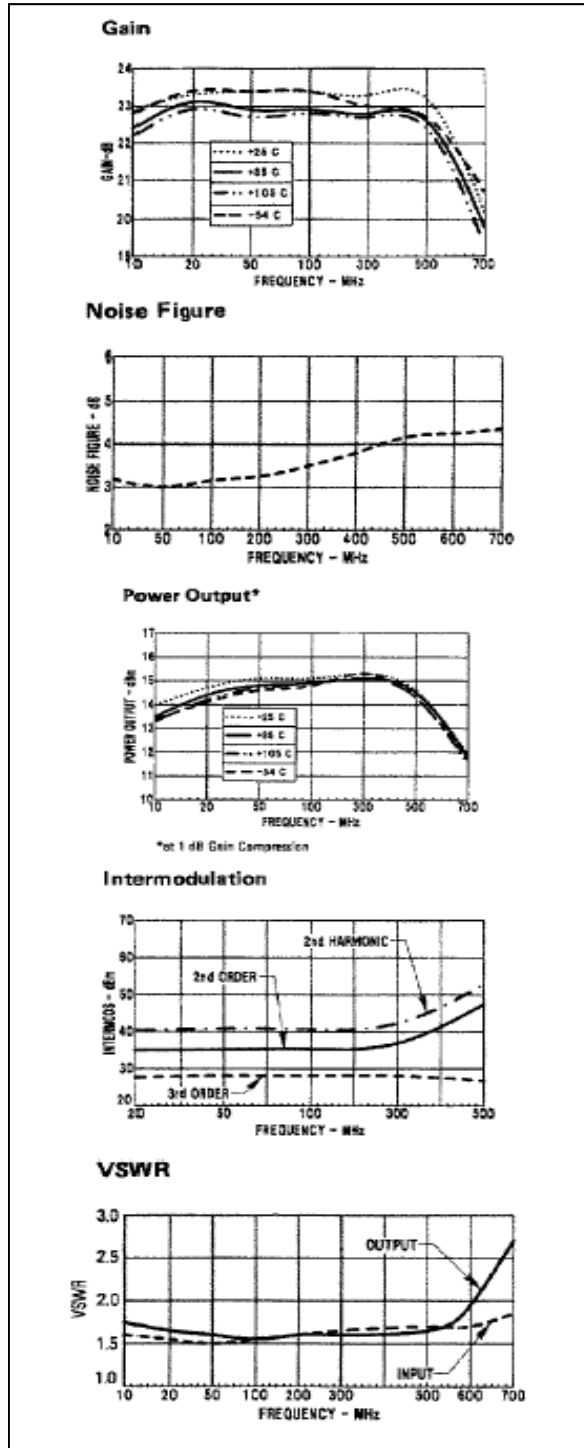
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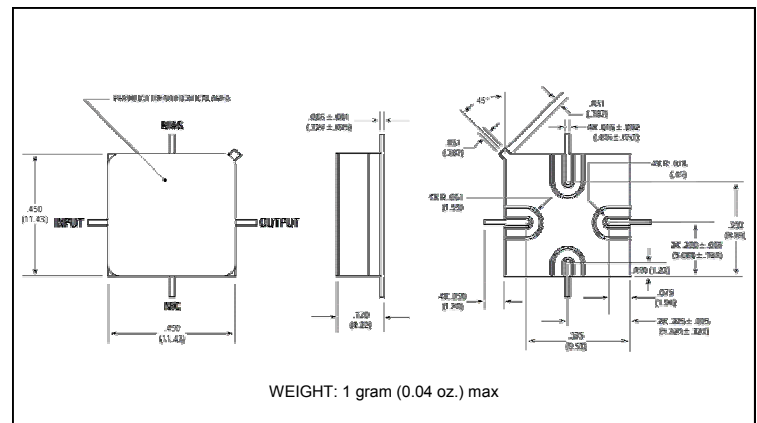
## Typical Performance Curves at +25°C



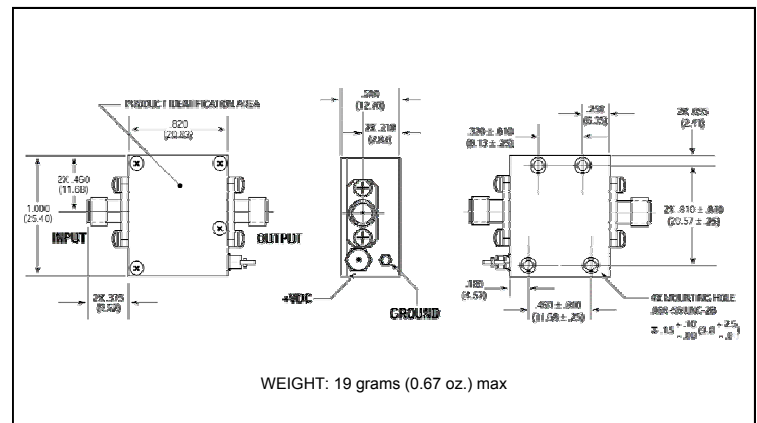
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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