A81-2 / SMA81-2

Cascadable Amplifier
20 to 500 MHz

Rev. V3

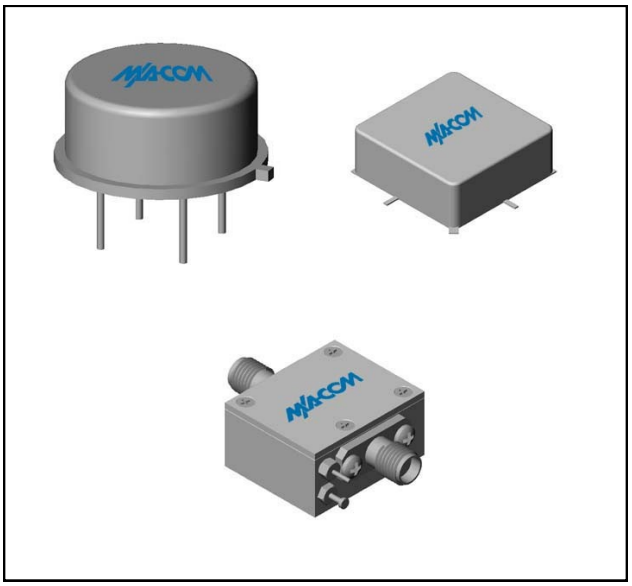
Features

- 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.

Product Image



Ordering Information

Part Number	Package
A81-2	TO-8
SMA81-2	Surface Mount
CA81-2**	SMA Connectorized

** The connectorized version is not RoHs compliant.

Electrical Specifications: Z_0 = 50Ω, V_{CC} = +15 V_{DC}

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
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	-62ºC to +125ºC
Case Temperature	125ºC
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)	125ºC

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

Parameter	Rating
Thermal Resistance θ_{jc}	171ºC/W
Transistor Power Dissipation P_d	0.145 W
Junction Temperature Rise Above Case T_{jc}	25ºC

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

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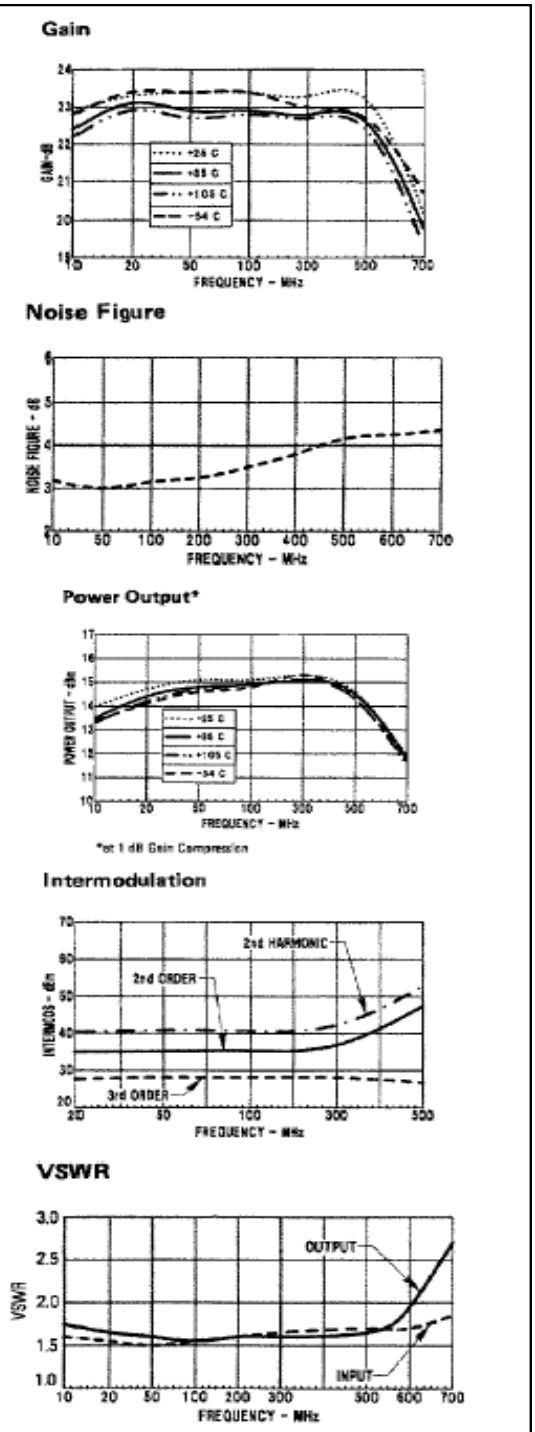
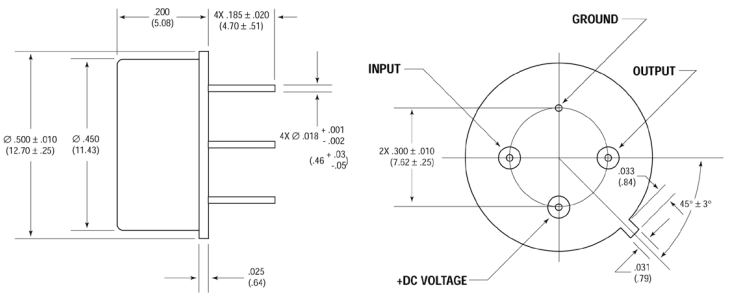
Typical Performance Curves at +25°C

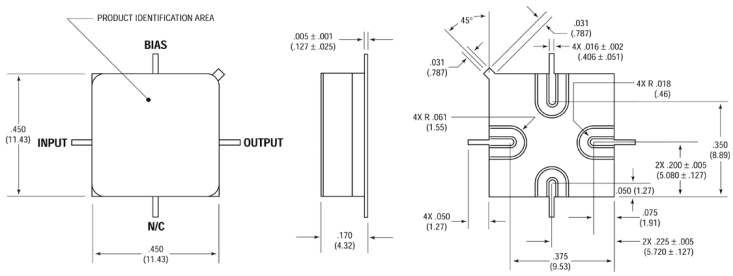


Outline Drawing: TO-8 *



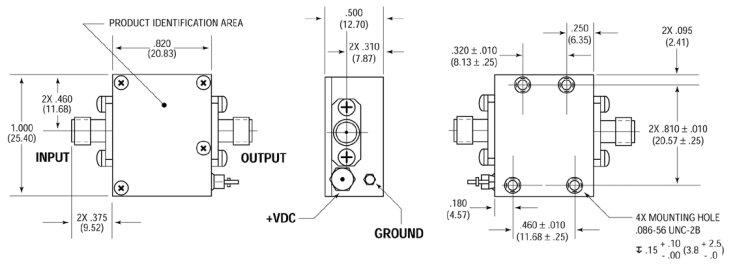
WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: Surface Mount *



WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: SMA Connectorized *



WEIGHT: 19 grams (0.67 oz.) max

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

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