

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

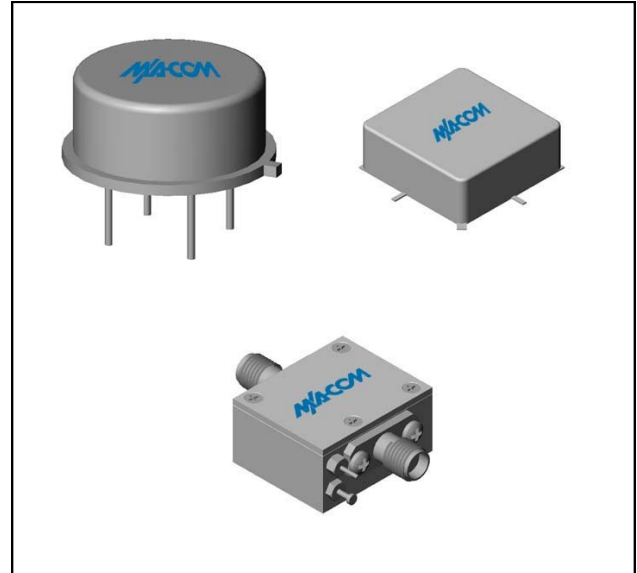
The A81-2 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. The 2 stage silicon bipolar feedback amplifier design displays impressive performance over a broadband frequency range. An isolation transformer is used in the 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

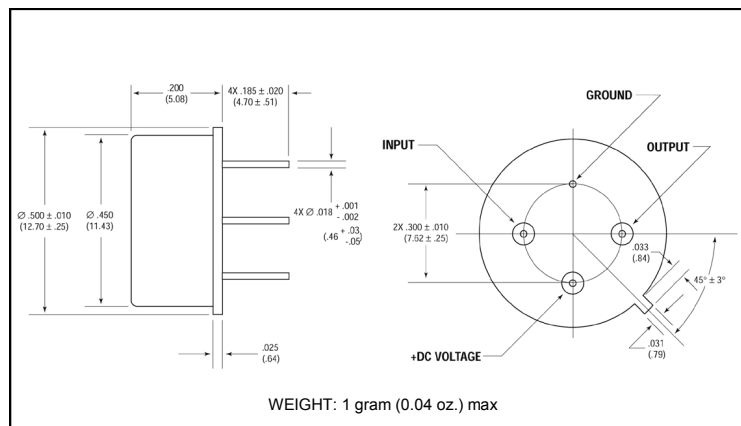
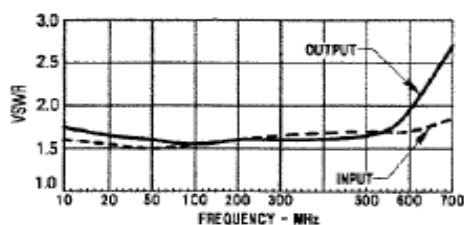
Thermal Data: $V_{CC} = +15 V_{DC}$

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

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

Rev. V3

Outline Drawing: TO-8 *

[illegible]

The drawing shows three views of the 28-pin DIP package:

- Top View:** Shows the package with 14 pins on each side. Dimensions include a total width of 0.820 (20.83), a pin pitch of 0.050 (1.27), and a distance from the input/output pins to the center of the package of 0.320 ± 0.010 (8.13 ± 0.25). The input and output pins are labeled "INPUT" and "OUTPUT" respectively.
- Side View:** Shows the package height of 0.180 (4.57) and the distance from the top of the package to the center of the pins of 0.460 ± 0.010 (11.68 ± 0.25).
- Bottom View:** Shows the package with 14 pins on each side. Dimensions include a total width of 0.820 (20.83), a pin pitch of 0.050 (1.27), and a distance from the input/output pins to the center of the package of 0.320 ± 0.010 (8.13 ± 0.25). The input and output pins are labeled "INPUT" and "OUTPUT" respectively.

Other dimensions shown include 0.500 (12.70) for the distance from the top of the package to the center of the pins, 0.250 (6.35) for the distance from the bottom of the package to the center of the pins, and 0.100 (2.54) for the distance from the top of the package to the center of the pins.

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