

## 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

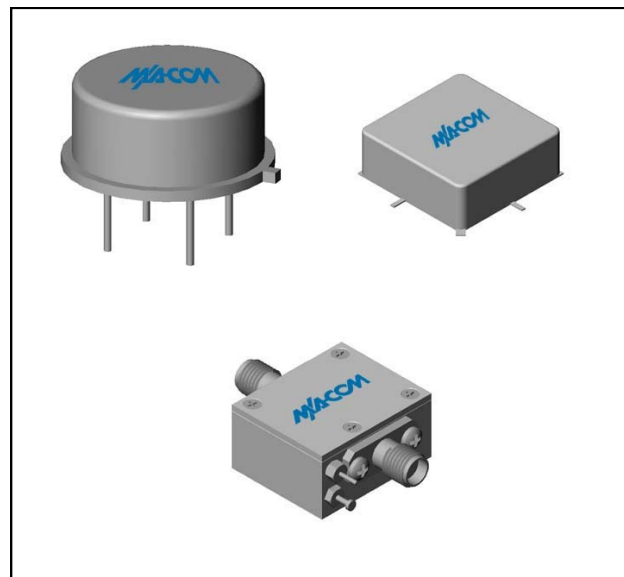
The A81-2 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. The 2 stage silicon bipolar feedback amplifier design displays impressive performance over a broadband frequency range. An isolation transformer is used in the 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: $V_{CC} = +15 V_{DC}$

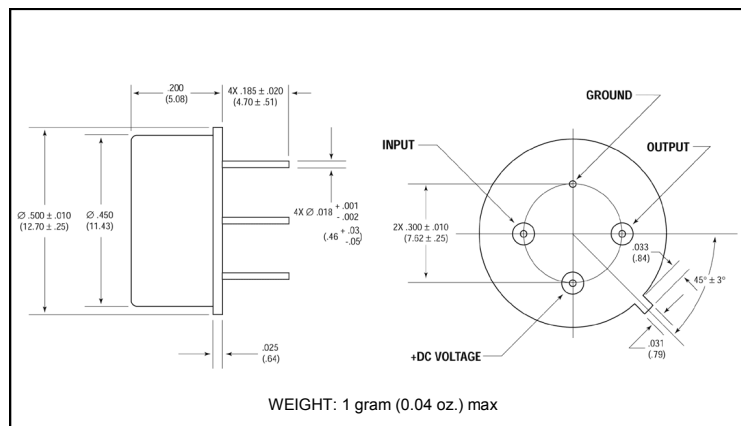
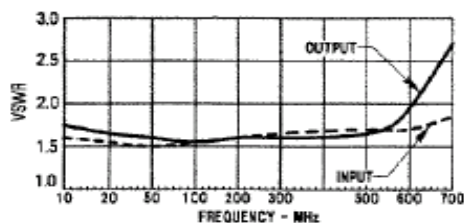
| Parameter                                     | Rating  |
|-----------------------------------------------|---------|
| Thermal Resistance $\theta_{jc}$              | 171°C/W |
| Transistor Power Dissipation $P_d$            | 0.145 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 25°C    |

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

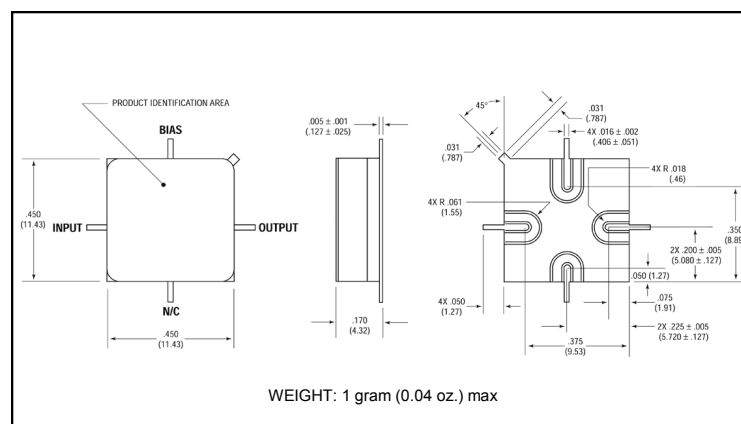


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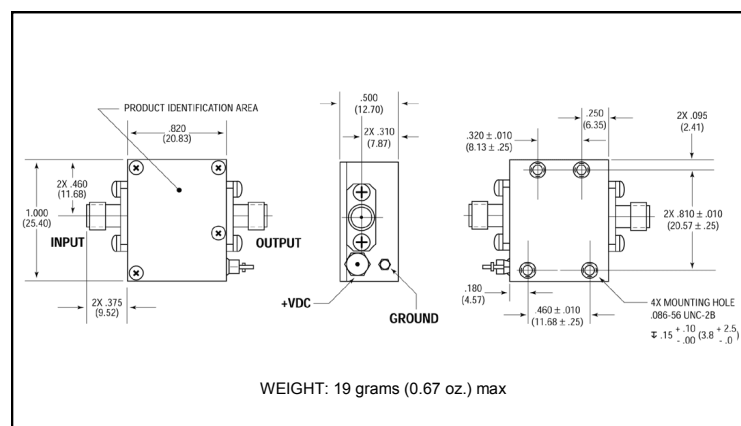
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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