

Cascadable Amplifier 20 to 250 MHz

Rev. V3

Features

- High Reverse Isolation : >30 dBm (TYP.)
- Low Noise: 2.4 dB (TYP.)
- High Gain: 25 dB (TYP.)
- High Level Output: +13.5 dBm (TYP.)

Description

The A81-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

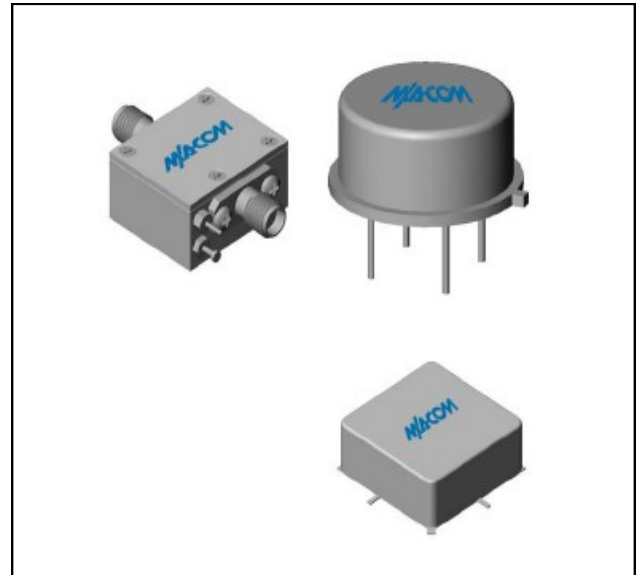
The 2 stage silicon bipolar feedback amplifier design displays impressive performance over a broadband frequency range. An isolation transformer is used in the feedback loop, with the benefit of high reverse isolation. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A81-1 | TO-8 |
| SMA81-1 | Surface Mount |
| CA81-1** | 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 | 10-300 | 20-250 | 20-250 |
| Small Signal Gain (min) | dB | 25.0 | 24.0 | 23.5 |
| Gain Flatness (max) | dB | ±0.1 | ±0.5 | ±0.7 |
| Reverse Isolation | dB | 31 | | |
| Noise Figure (max) | dB | 2.5 | 3.3 | 3.8 |
| Power Output @ 1 dB comp. (min) | dBm | 13.5 | 12.5 | 12.0 |
| IP3 | dBm | +27 | | |
| IP2 | dBm | +33 | | |
| Second Order Harmonic IP | dBm | +41 | | |
| VSWR Input / Output (max) | | 1.5:1 / 1.5:1 | 1.9:1 / 1.9:1 | 2.0:1 / 2.0:1 |
| DC Current (max) | mA | 25 | 27 | 29 |

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: $V_{CC} = 15 V_{DC}$

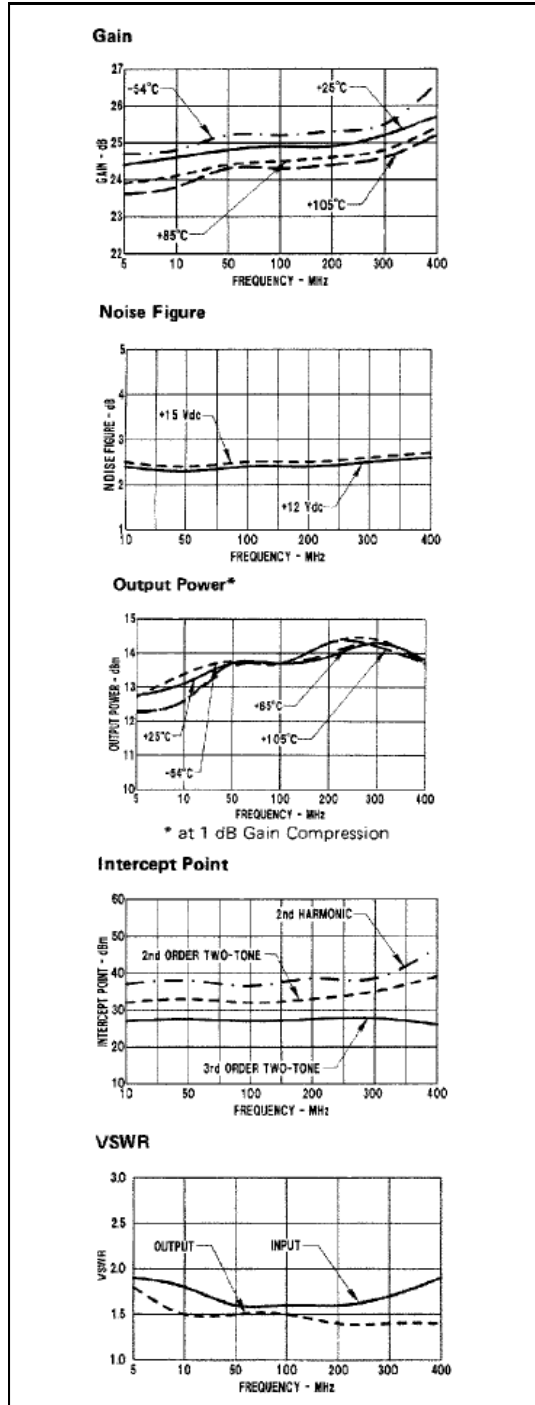
| Parameter | Rating |
|---|---------|
| Thermal Resistance θ_{jc} | 171°C/W |
| Transistor Power Dissipation P_d | 0.098 W |
| Junction Temperature Rise Above Case T_{jc} | 17°C |

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

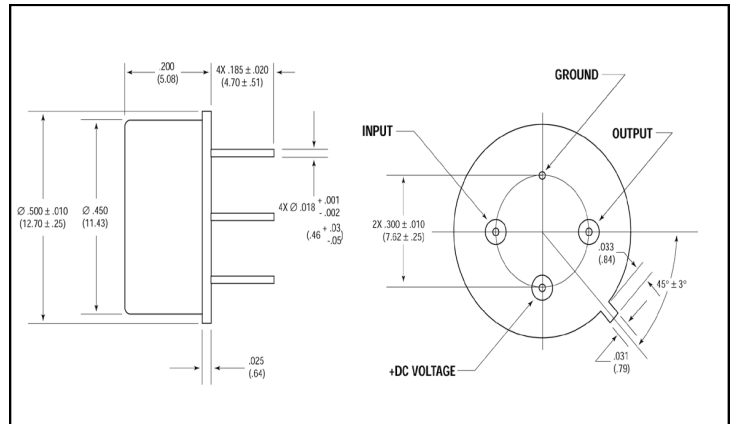
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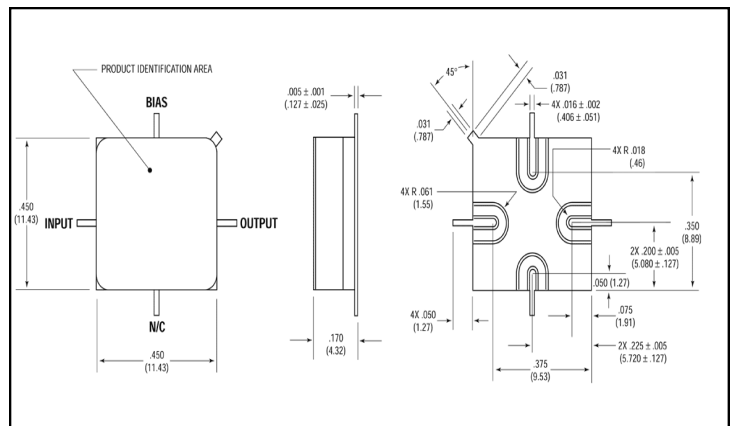
Typical Performance Curves



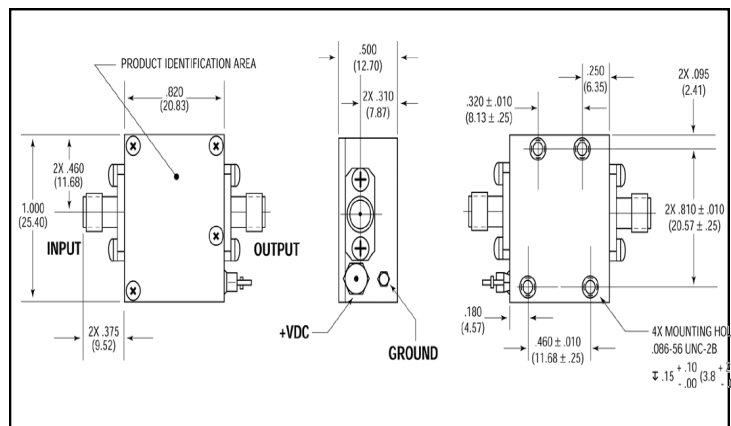
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount



Outline Drawing: SMA Connectorized



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

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