

## Cascadable Amplifier 100 to 2000 MHz

Rev. V3

### Features

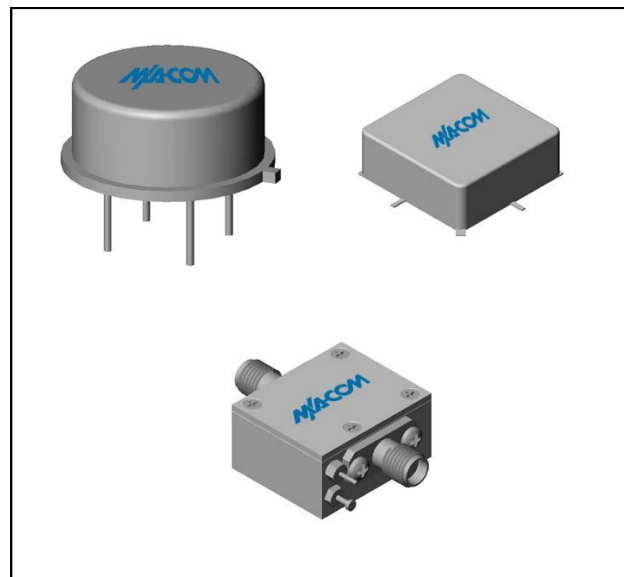
- LOW NOISE: <3.5 dB (TYP.)
- LOW VSWR: 1.5:1 (TYP.)

### Description

The A31-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. 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           |
|-------------|-------------------|
| A31-1       | TO-8              |
| SMA31-1     | Surface Mount     |
| CA31-1 **   | SMA Connectorized |

\*\* The connectorized version is not RoHs compliant.

### 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   | 1-2050        | 10-2000       | 10-2000        |
| Small Signal Gain (min)         | dB    | 11.5          | 11.0          | 10.5           |
| Gain Flatness (max)             | dB    | ±0.4          | ±0.7          | ±1.0           |
| Reverse Isolation               | dB    | 17            |               |                |
| Noise Figure (max)              | dB    | 3.5           | 4.0           | 4.5            |
| Power Output @ 1 dB comp. (min) | dBm   | -2.0          | -4.0          | -4.5           |
| IP3                             | dBm   | +9            |               |                |
| IP2                             | dBm   | +10           |               |                |
| Second Order Harmonic IP        | dBm   | +15           |               |                |
| VSWR Input / Output (max)       |       | 1.5:1 / 1.3:1 | 2.0:1 / 2.0:1 | 2.0:1 / 2.0:1  |
| DC Current @ 15 Volts (max)     | mA    | 9             | 11            | 12             |

### Absolute Maximum Ratings

| Parameter                              | Absolute Maximum |
|--|------------------|
| Storage Temperature                    | -62°C to +125°C  |
| Case Temperature                       | +125°C           |
| DC Voltage                             | +18 V            |
| Continuous Input Power                 | 13 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: $V_{CC} = +15 V_{DC}$

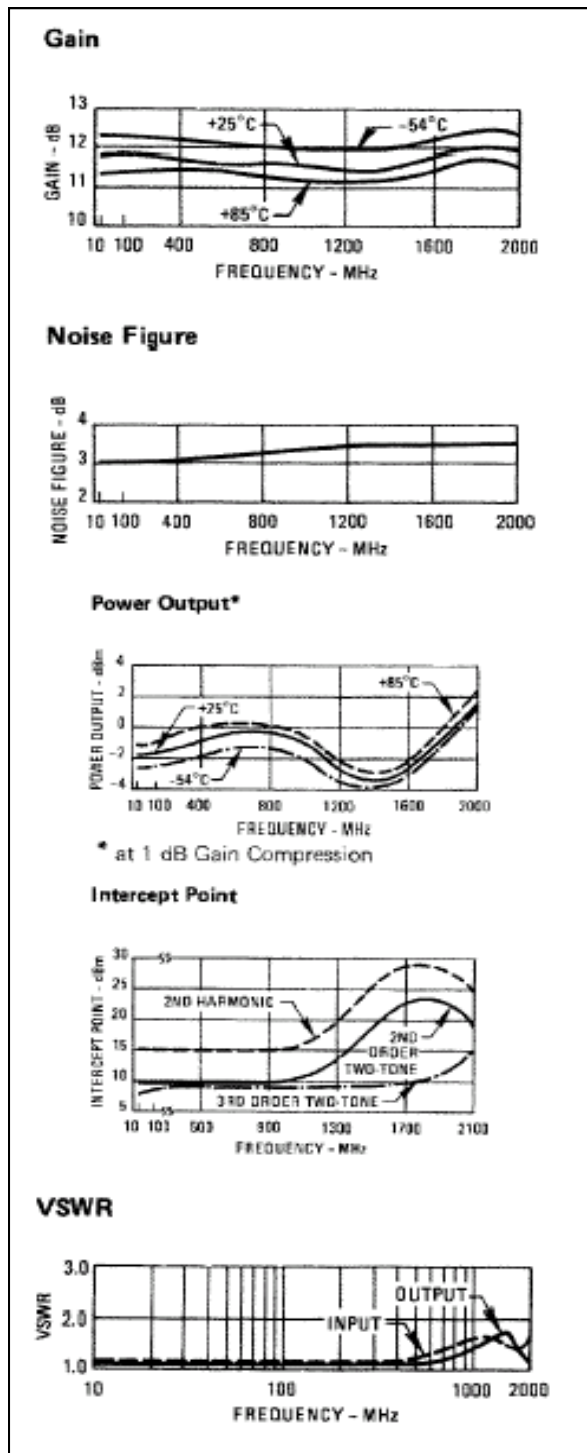
| Parameter                                     | Rating  |
|---|---------|
| Thermal Resistance $\theta_{jc}$              | 185°C/W |
| Transistor Power Dissipation $P_d$            | 0.050 W |
| Junction Temperature Rise Above Case $T_{jc}$ | +9°C    |

1 \* Over temperature performance limits for part number CA31-1, guaranteed from 0°C to +50°C only.

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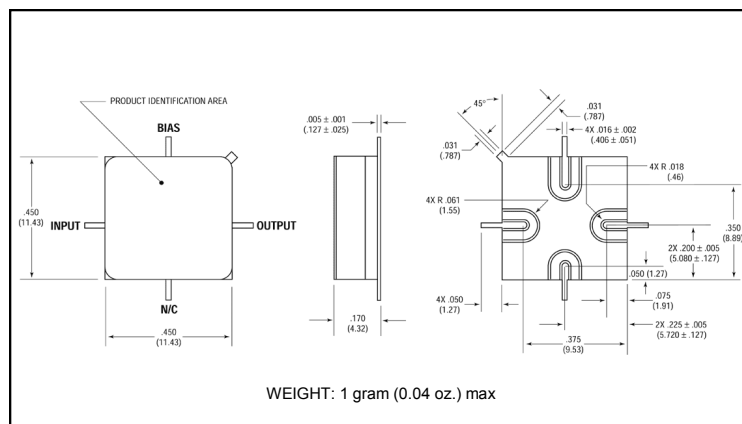
### Typical Performance Curves at +25°C



### Outline Drawing: TO-8 \*



### Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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