

# A83-1 / SMA83-1

## Cascadable Amplifier 10 to 250 MHz

Rev. V3

### Features

- HIGH GAIN-TWO STAGES: 35.5 dB (TYP.)
- LOW POWER DRAIN: 65 mA @ 5 VOLTS (TYP.)
- VOLTAGE CONTROLLED GAIN: 29 dB TO 39 dB @  $V_{CC} = 3$  TO 12 VOLTS
- LOW VSWR OVER FULL CONTROL RANGE: <1.5:1 (TYP.)

### Description

The A83-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for consistent performance and high reliability.

This 2 stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network insures temperature-stable performance.

Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| A83-1       | TO-8              |
| SMA83-1     | Surface Mount     |
| CA83-1**    | SMA Connectorized |

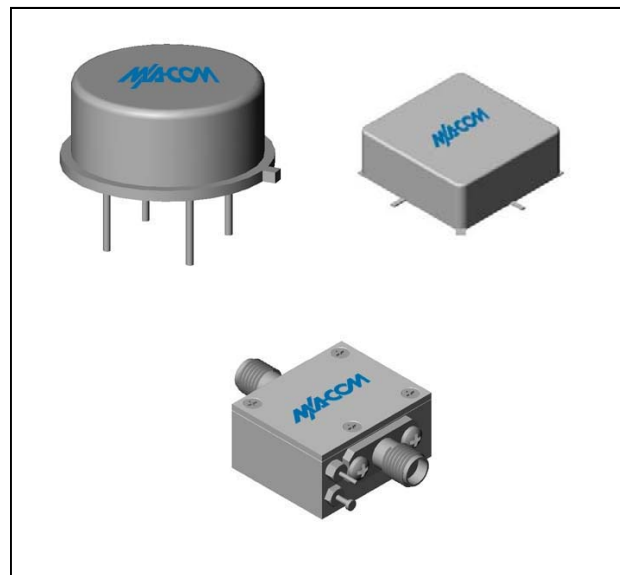
\*\* The connectorized version is not RoHs compliant.

### Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +5 V_{DC}$

| Parameter                       | Units | Typical       | Guaranteed    |                |
|---------------------------------|-------|---------------|---------------|----------------|
|                                 |       | 25°C          | 0° to 50°C    | -54° to +85°C* |
| Frequency                       | MHz   | 10-300        | 10-250        | 10-250         |
| Small Signal Gain (min)         | dB    | 35.5          | 34.0          | 33.0           |
| Gain Flatness (max)             | dB    | ±0.3          | ±0.5          | ±0.8           |
| Reverse Isolation               | dB    | 43            |               |                |
| Noise Figure (max)              | dB    | 2.5           | 3.0           | 3.5            |
| Power Output @ 1 dB comp. (min) | dBm   | -1.5          | -2.5          | -3.5           |
| IP3                             | dBm   | +9            |               |                |
| IP2                             | dBm   | +12           |               |                |
| Second Order Harmonic IP        | dBm   | +18           |               |                |
| VSWR Input / Output (max)       |       | 1.3:1 / 1.3:1 | 1.8:1 / 1.8:1 | 2.0:1 / 2.0:1  |
| DC Current @ 5 Volts (max)      | mA    | 13            | 15            | 16             |

\* Over temperature performance limits for part number CA83-1, guaranteed from 0°C to +50°C only.

### Product Image



### Absolute Maximum Ratings

| Parameter                              | Absolute Maximum |
|--|------------------|
| Storage Temperature                    | -62°C to +125°C  |
| Case Temperature                       | +125°C           |
| DC Voltage                             | +13 V            |
| Continuous Input Power                 | +6 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: $V_{CC} = +5 V_{DC}$

| Parameter                                     | Rating  |
|---|---------|
| Thermal Resistance $\theta_{jc}$              | 171°C/W |
| Transistor Power Dissipation $P_d$            | 0.021 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 4°C     |

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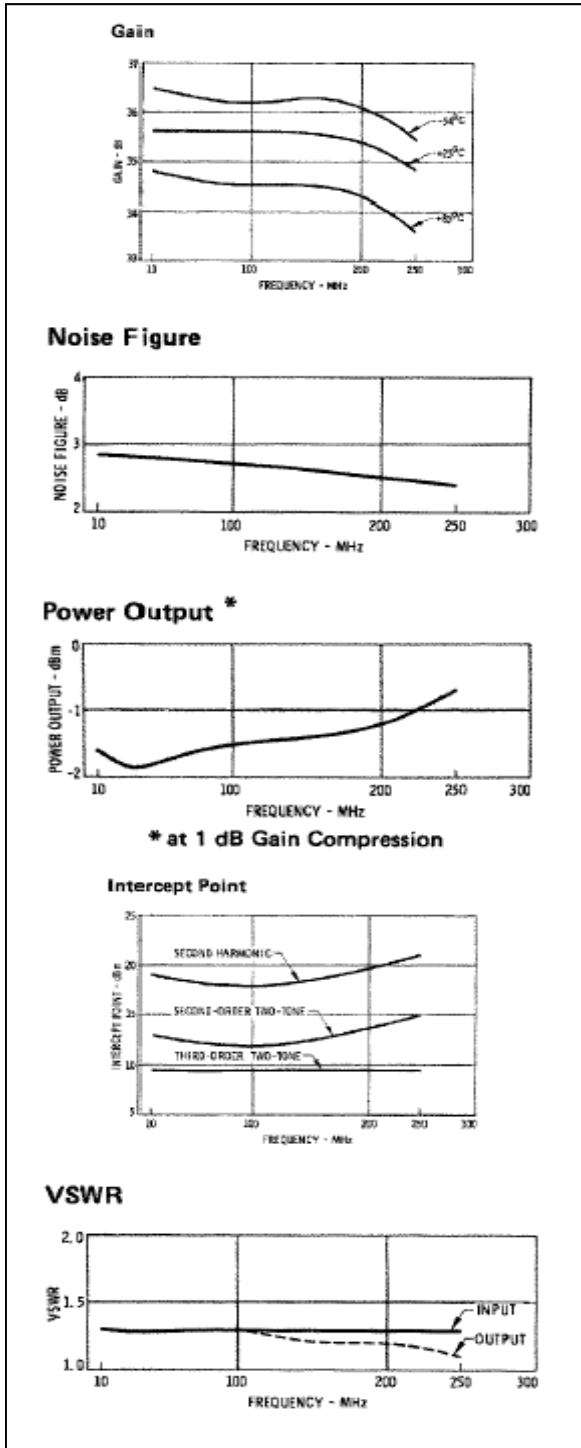
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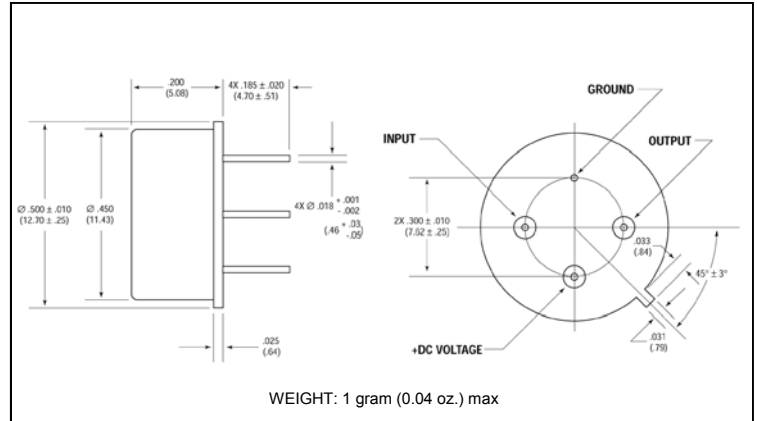
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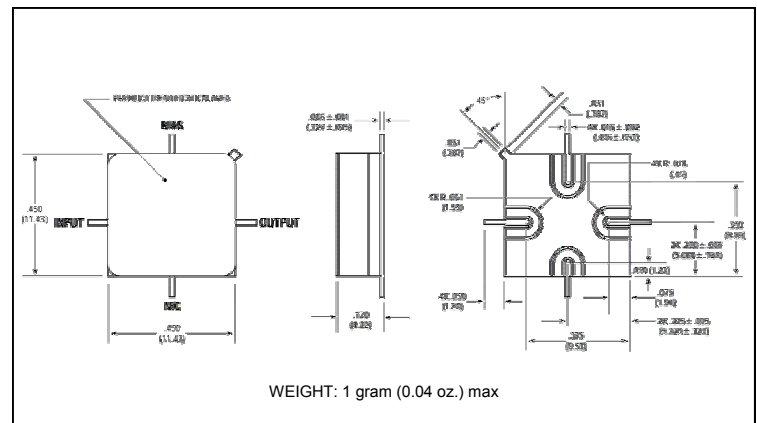
## Typical Performance Curves at +25°C



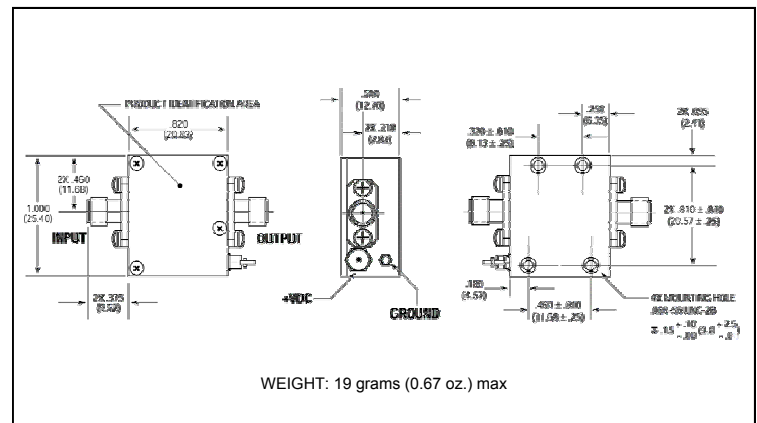
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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