

**Cascadable Amplifier
10 to 500 MHz**

A83/ SMA83

V2

Features

- HIGH GAIN-TWO STAGES: 30 dB (TYP.)
- LOW POWER DRAIN 65 mW @ 5 VOLTS (TYP.)
- VOLTAGE CONTROLLED GAIN 27 dB TO 34 dB @ $V_{CC} = 3$ TO 12 VOLTS
- LOW VSWR 1.3:1 (TYP.)

Description

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

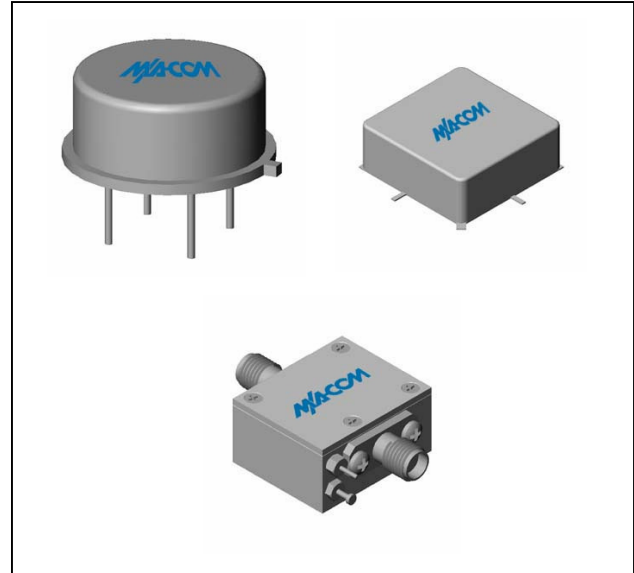
This 2 stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network insures temperature-stable performance.

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

Ordering Information

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

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 | 10-600 | 10-500 | 10-500 |
| Small Signal Gain (min) | dB | 30.0 | 29.0 | 28.0 |
| Gain Flatness (max) | dB | ±0.3 | ±0.5 | ±0.8 |
| Reverse Isolation | dB | 40 | | |
| Noise Figure (max) | dB | 3.0 | 3.5 | 4.0 |
| Power Output @ 1 dB comp. (min) | dBm | -1.0 | -2.0 | -4.0 |
| IP3 | dBm | +10 | | |
| IP2 | dBm | +14 | | |
| Second Order Harmonic IP | dBm | +20 | | |
| VSWR Input / Output (max) | | 1.3:1 / 1.3:1 | 1.8:1 / 1.8:1 | 2.0:1 / 2.0:1 |
| DC Current @ 15 Volts (max) | mA | 13 | 15 | 16 |

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

| Parameter | Rating |
|---|---------|
| Thermal Resistance θ_{jc} | 45°C/W |
| Transistor Power Dissipation P_d | 0.193 W |
| Junction Temperature Rise Above Case T_{jc} | 9°C |

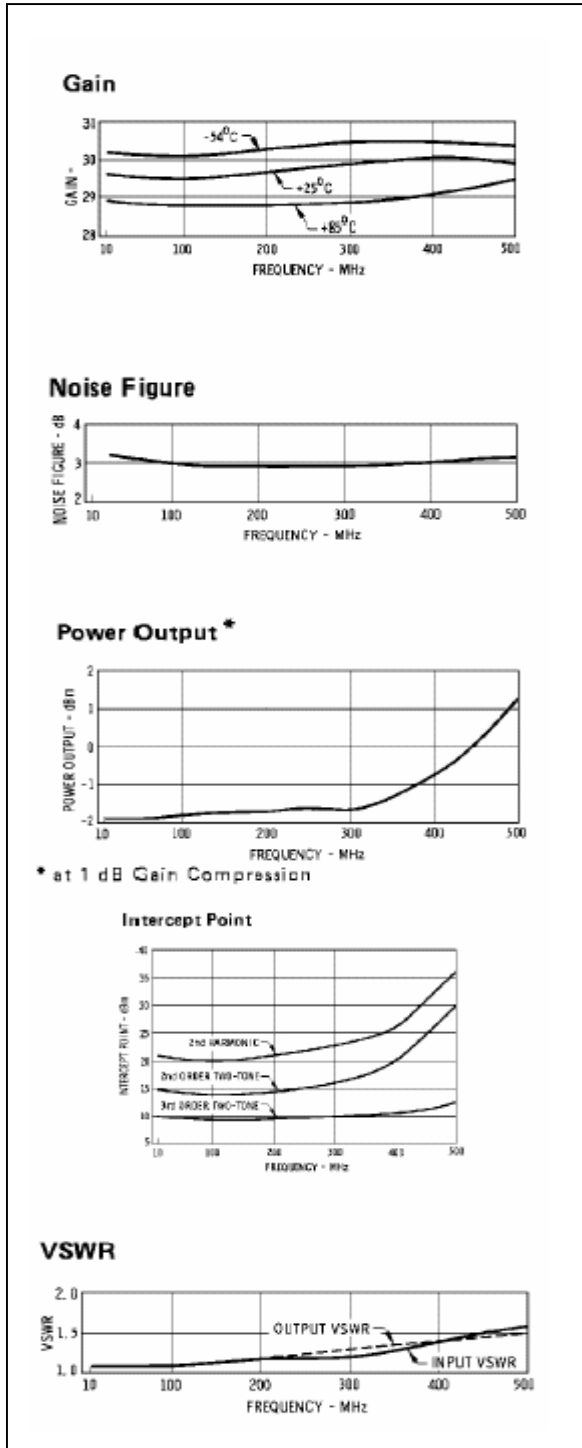
* Over temperature performance limits for part number CA83, guaranteed from 0°C to +50°C only.

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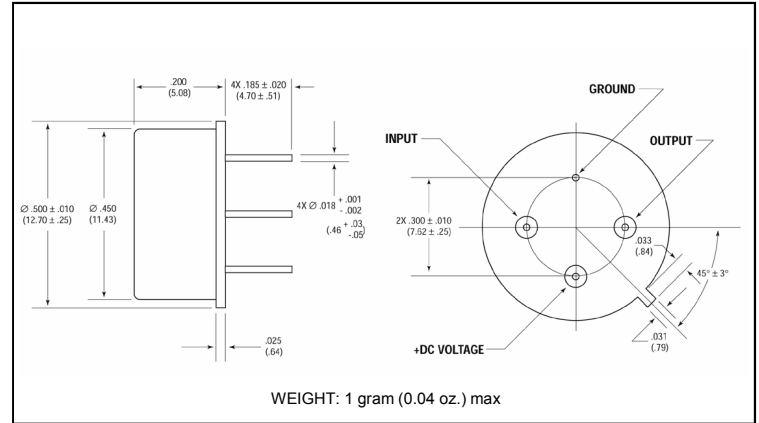
A83/ SMA83

V2

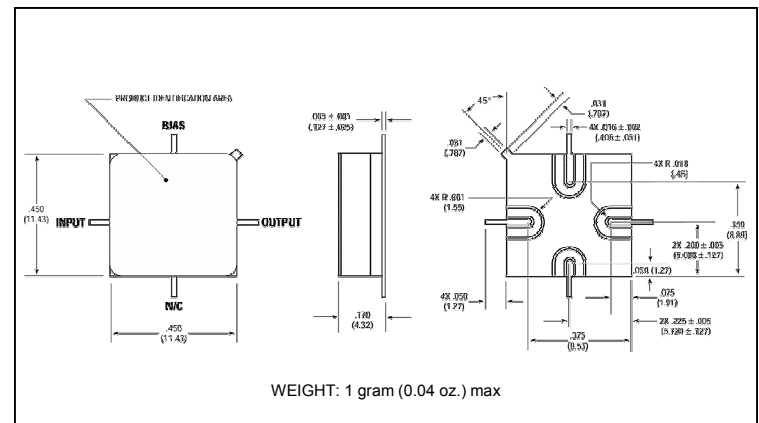
Typical Performance Curves at +25°C



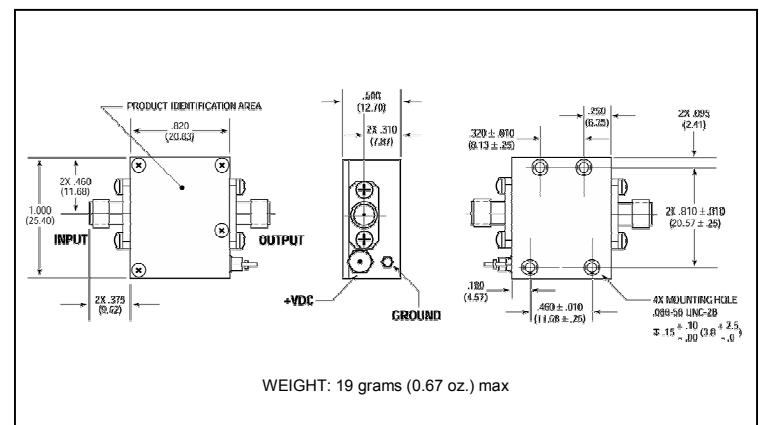
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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