



THE DATASHEET OF SMA89



Cascadable Amplifier 100 to 800 MHz

Rev. V3

Features

- HIGH REVERSE ISOLATION: >29 dB (TYP.)
- LOW INPUT VSWR: 1.4:1 (TYP.)
- HIGH LEVEL OUTPUT: +17.5 dBm (TYP.)

Description

The A89 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.

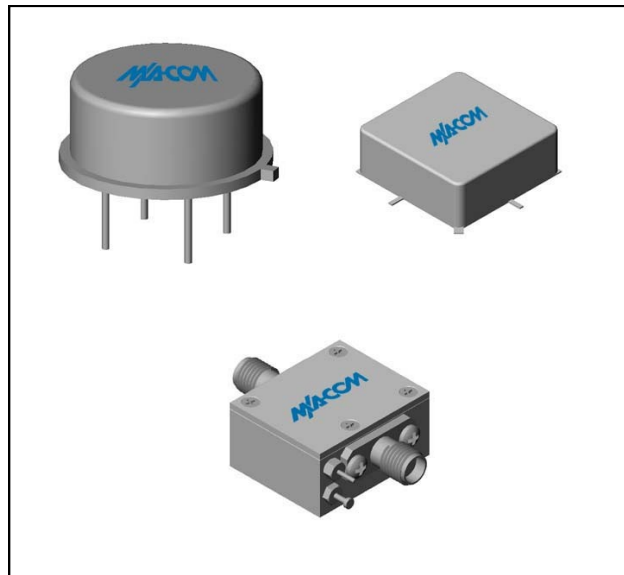
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A89 | TO-8 |
| SMA89 | Surface Mount |
| CA89 ** | 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 | 50-800 | 100-800 | 100-800 |
| Small Signal Gain (min) | dB | 22.0 | 21.0 | 20.5 |
| Gain Flatness (max) | dB | ±0.5 | ±0.8 | ±1.0 |
| Reverse Isolation | dB | 29 | | |
| Noise Figure (max) | dB | 4.5 | 5.5 | 6.0 |
| Power Output @ 1 dB comp. (min) | dBm | 17.5 | 16.5 | 16.0 |
| IP3 | dBm | +30 | | |
| IP2 | dBm | +35 | | |
| Second Order Harmonic IP | dBm | +42 | | |
| VSWR Input / Output (max) | | 1.4:1 / 1.4:1 | 2.0:1 / 2.0:1 | 2.2:1 / 2.2:1 |
| DC Current @ 15 Volts (max) | mA | 42 | 48 | 50 |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +125°C |
| DC Voltage | +17 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 θ_{jc} | 144°C/W |
| Transistor Power Dissipation P_d | 0.396 W |
| Junction Temperature Rise Above Case T_{jc} | 57°C |

1 * Over temperature performance limits for part number CA89, guaranteed from 0°C to +50°C only.

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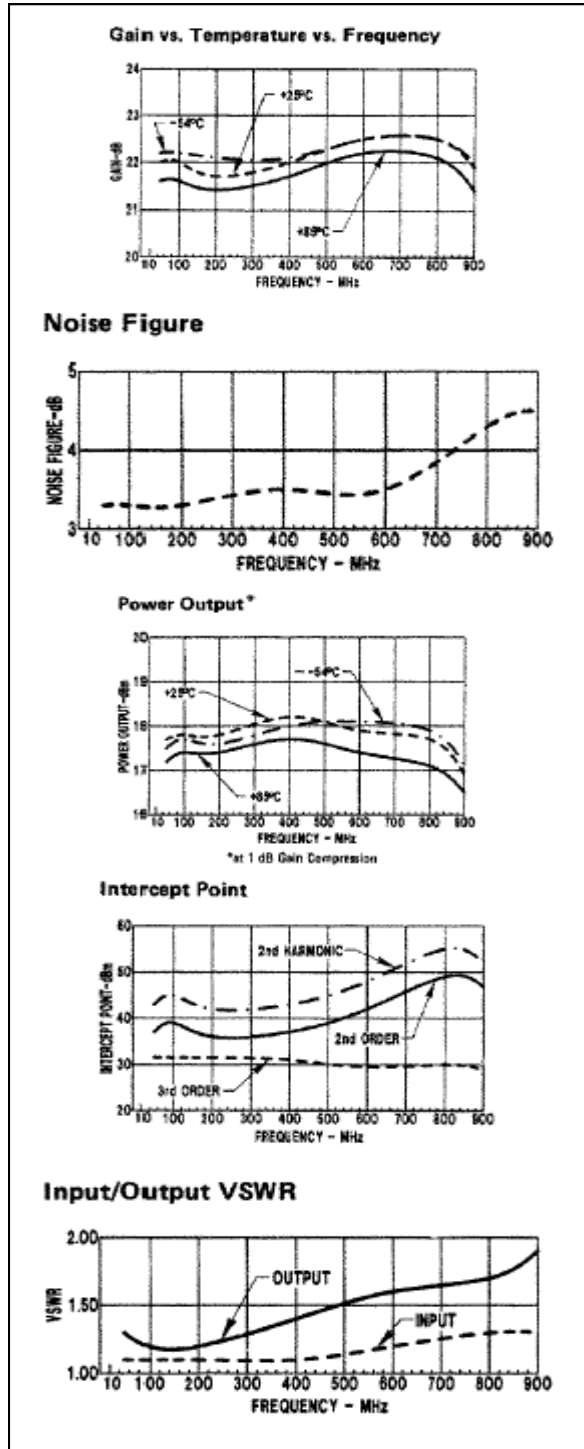
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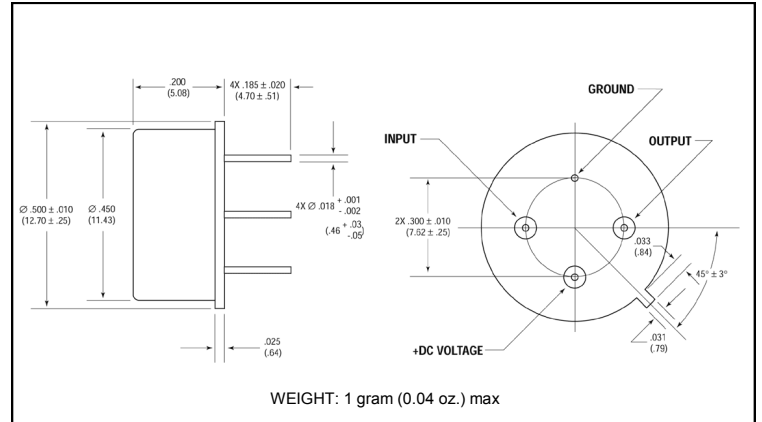
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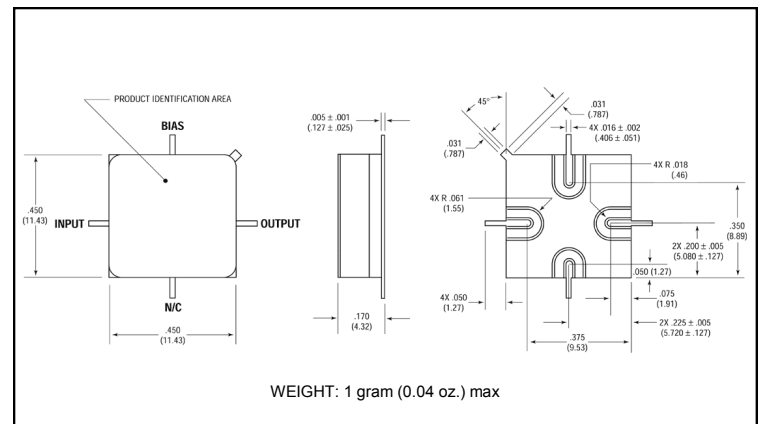
Typical Performance Curves at +25°C



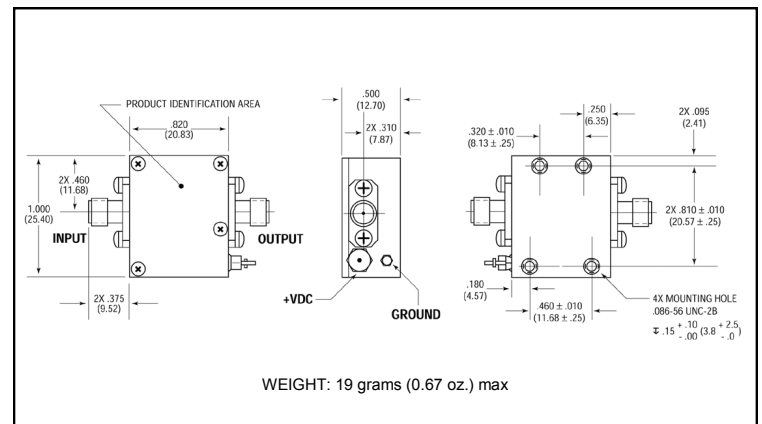
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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