

Cascadable Amplifier 5 to 500 MHz

Rev. V3

Features

- HIGH DYNAMIC RANGE: +118 DBM (1 MHz Band)
- HIGH OUTPUT POWER: +22 dBm (TYP.)
- HIGH THIRD ORDER I.P.: +36 dBm (TYP.)
- LOW NOISE FIGURE: 4.3 dB (TYP.)
- WIDE POWER SUPPLY RANGE: +5 to +15 VOLTS

Description

The A59 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. An active DC biasing network insures temperature-stable performance.

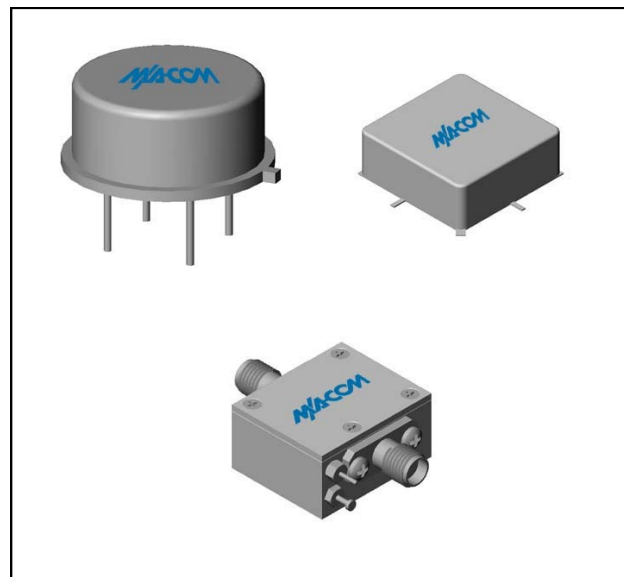
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

| Part Number | Package |
|-------------|-------------------|
| A59 | TO-8 |
| SMA59 | Surface Mount |
| CA59 ** | 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 | 2-700 | 5-500 | 5-500 |
| Small Signal Gain (min) | dB | 11.5 | 10.5 | 10.0 |
| Gain Flatness (max) | dB | ±0.3 | ±0.7 | ±1.0 |
| Reverse Isolation | dB | 16 | | |
| Noise Figure (max) | dB | 4.3 | 5.5 | 6.0 |
| Power Output @ 1 dB comp. (min) | dBm | 22.0 | 20.5 | 20.0 |
| IP3 | dBm | +36 | | |
| IP2 | dBm | +56 | | |
| Second Order Harmonic IP | dBm | +62 | | |
| VSWR Input / Output (max) | | 1.5:1 / 1.5:1 | 1.9:1 / 1.9:1 | 2.0:1 / 2.0:1 |
| DC Current @ 15 Volts (max) | mA | 88 | 93 | 98 |

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +125°C |
| DC Voltage | +17 V |
| Continuous Input Power | +18 dBm |
| Short Term Input power (1 minute max.) | 100 mW |
| Peak Power (3 µsec max.) | 0.5 W |
| "S" Series Burn-In Temperature (case) | +100°C |

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

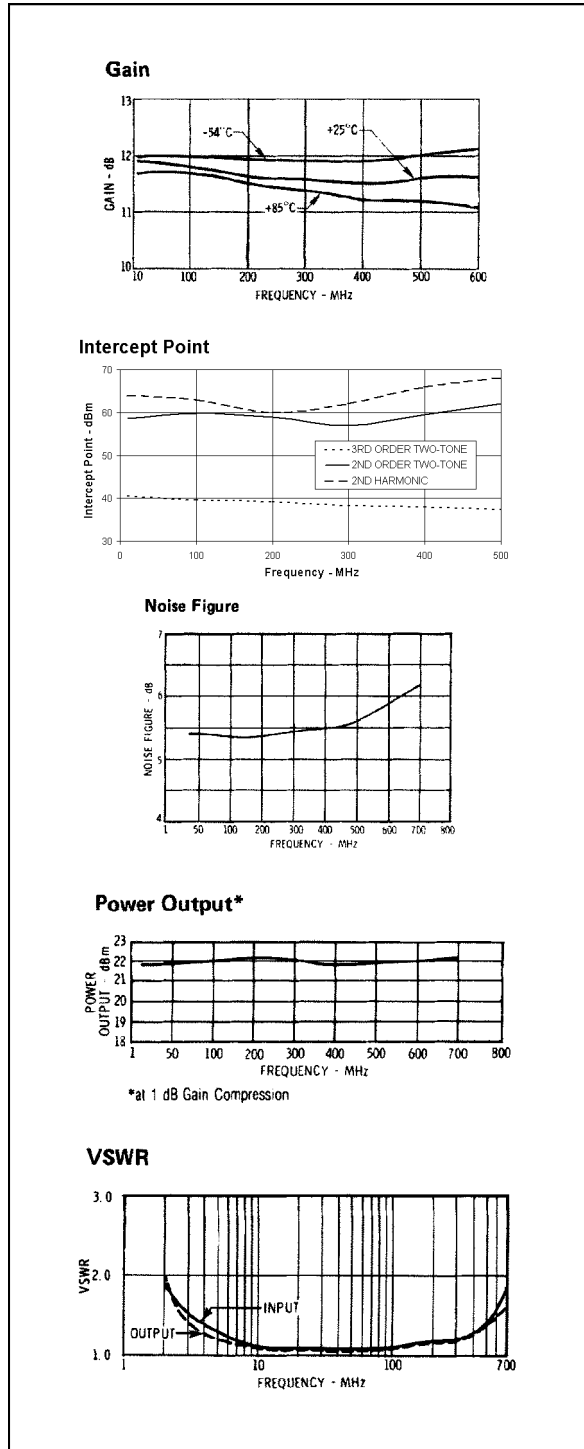
| Parameter | Rating |
|---|---------|
| Thermal Resistance θ_{jc} | 75°C/W |
| Transistor Power Dissipation P_d | 0.869 W |
| Junction Temperature Rise Above Case T_{jc} | +64°C |

1 * Over temperature performance limits for part number CA59, guaranteed from 0°C to +50°C only.

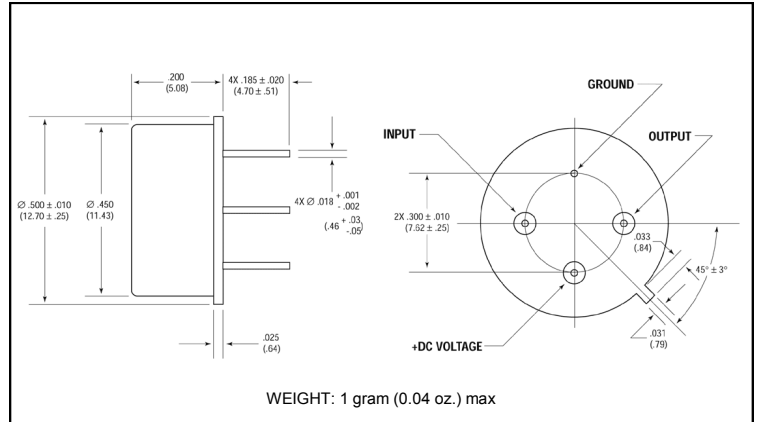
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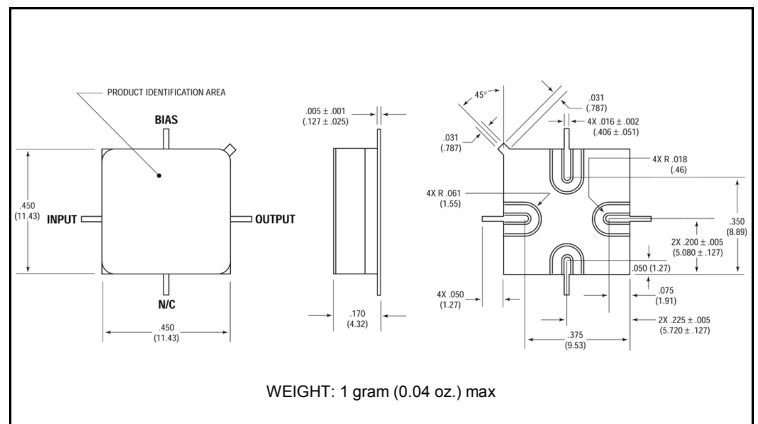
Typical Performance Curves at +25°C



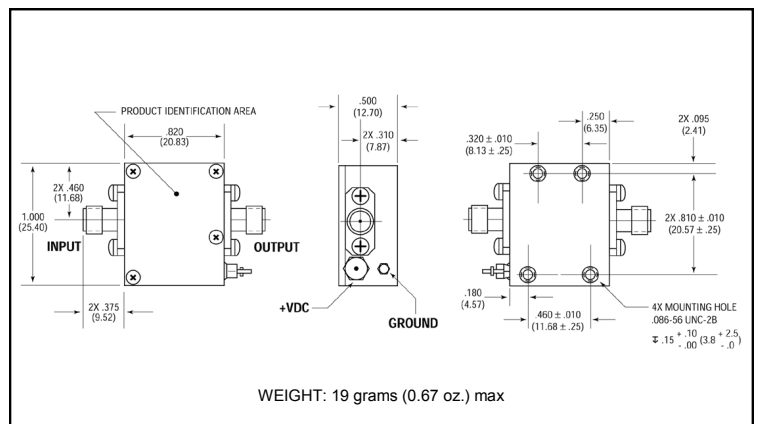
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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

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