

Cascadable Amplifier 10 to 1000 MHz

Rev. V4

Features

- 27.5 dB High Gain, 2 Stages
- >3.0 Noise Figure
- 15 dBm Output Power
- 5 - 15 V Bias Range

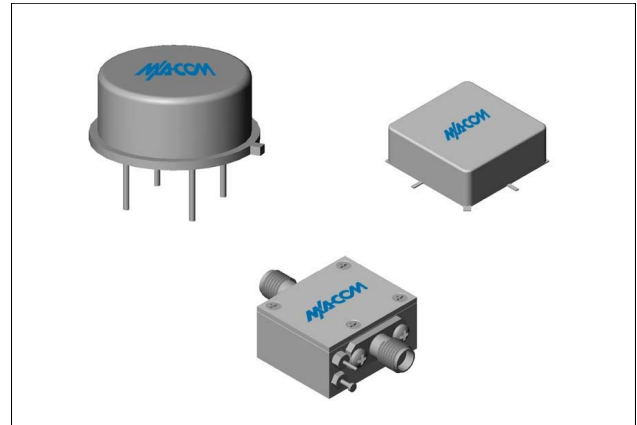
Description

The A66-1 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.

Product Image



Ordering Information

| Part Number | Package |
|---------------------|-------------------|
| A66-1 | TO-8 |
| SMA66-1 | Surface Mount |
| CA66-1 ¹ | SMA Connectorized |

1. The connectorized version is not RoHS compliant.

Electrical Specifications²: $Z_0 = 50 \Omega$, $V_{CC} = 15 V_{DC}$

| Parameter | Units | Typical | Guaranteed | |
|-------------------------------------|-------|---------------|---------------|----------------------------|
| | | 25°C | 0° to 50°C | -54° to +85°C ² |
| Frequency | GHz | 5 - 1200 | 10 - 1000 | 10 - 1000 |
| Small Signal Gain (min.) | dB | 27.5 | 26.0 | 25.5 |
| Gain Flatness (max.) | dB | ±0.4 | ±0.7 | ±1.0 |
| Reverse Isolation | dB | 33 | — | — |
| Noise Figure (max.) | dB | 2.9 | 3.5 | 4.0 |
| Power Output @ 1 dB comp. (min.) | dBm | 15.0 | 14.5 | 14.0 |
| IP3 | dBm | 28 | — | — |
| IP2 | dBm | 38 | — | — |
| Second Order Harmonic IP | dBm | 43 | — | — |
| VSWR Input / Output (max.) | Ratio | 1.5:1 / 1.5:1 | 1.8:1 / 1.8:1 | 2.0:1 / 2.0:1 |
| DC Current @ 15 Volts (max.) | mA | 66 | 69 | 72 |

2. Over temperature performance limits for part number CA1212, guaranteed from 0°C to +50°C only.

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Absolute Maximum Ratings^{3,4}

| Parameter | Absolute Maximum |
|--|------------------|
| Storage Temperature | -62°C to +125°C |
| Case Temperature | +125°C |
| DC Voltage | 17 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 |

3. Exceeding any one or combination of these limits may cause permanent damage to this device.

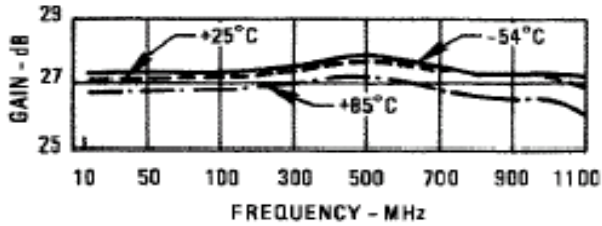
4. MACOM does not recommend sustained operation near these survivability limits.

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

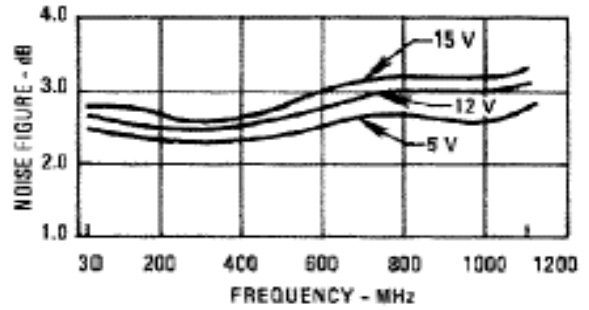
| Parameter | Rating |
|---|---------|
| Thermal Resistance θ_{JC} | 145°C/W |
| Transistor Power Dissipation P_D | 0.419 W |
| Junction Temperature Rise Above Case T_{JC} | 61°C |

Typical Performance Curves at +25°C

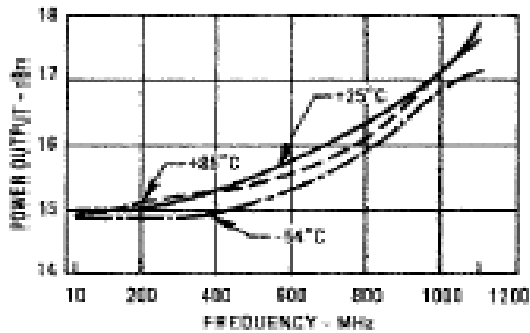
Gain



Noise Figure

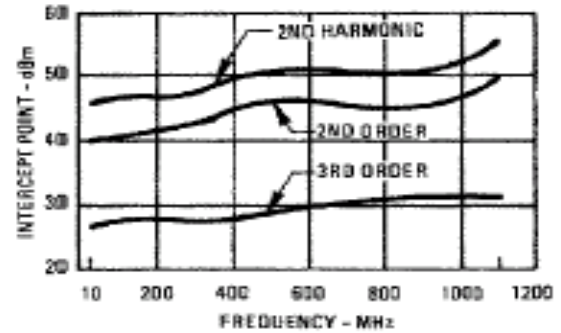


Power Output*

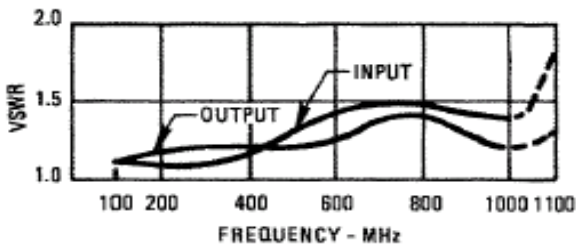


* at 1 dB Gain Compression

Intercept Point



VSWR



A66-1 / SMA66-1 / CA66-1

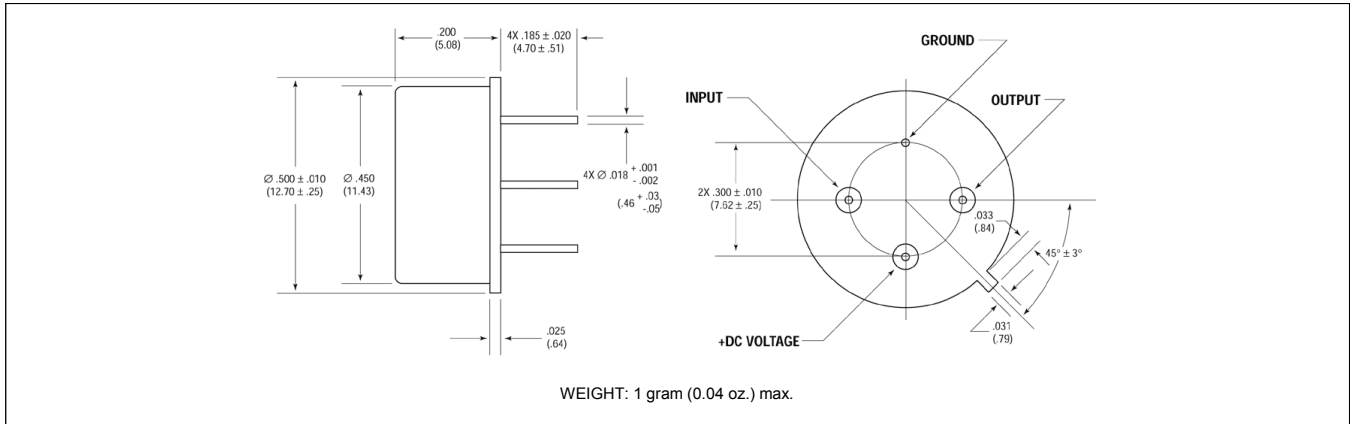


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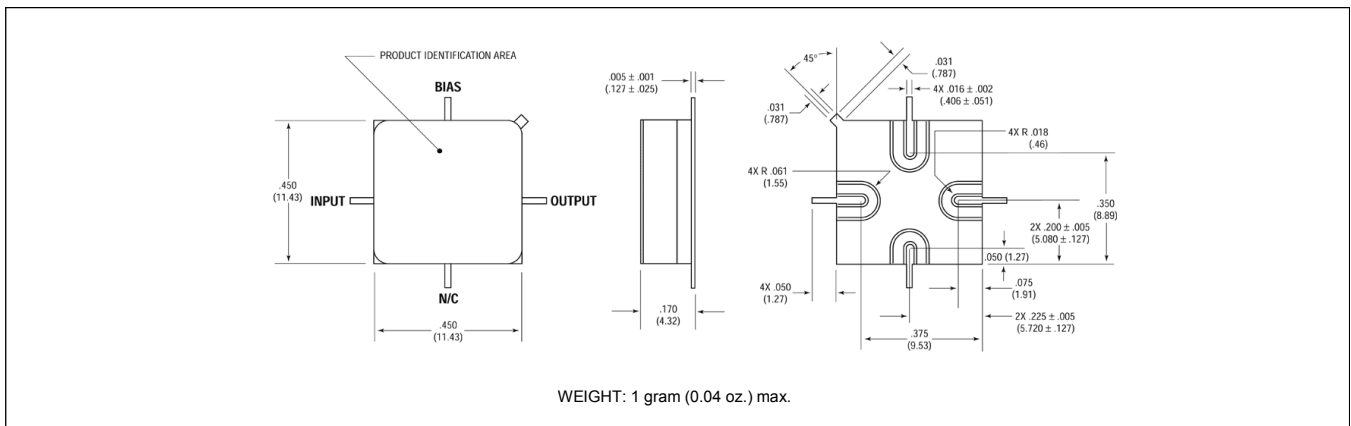
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Outline Drawings⁵

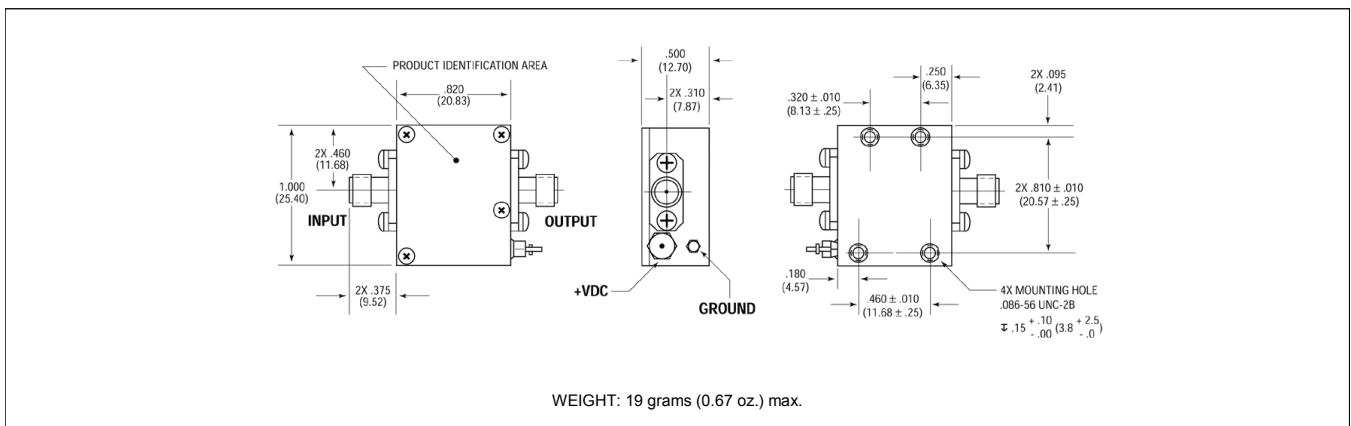
TO-8



Surface Mount



SMA Connectorized



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

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