

## Cascadable Amplifier 10 to 500 MHz

Rev. V2

### Features

- HIGH POWER OUTPUT: +21 dBm (TYP.)
- HIGH THIRD ORDER IP3: +33 dBm (TYP.)
- HIGH EFFICIENCY: 52 mA (TYP.) @ +15 Vdc
- AVAILABLE IN BOTH TO-8 and SMTO-8 PACKAGES

### Description

The A511 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. Use of an impedance transformer offers the benefit of high dynamic range and high efficiency.

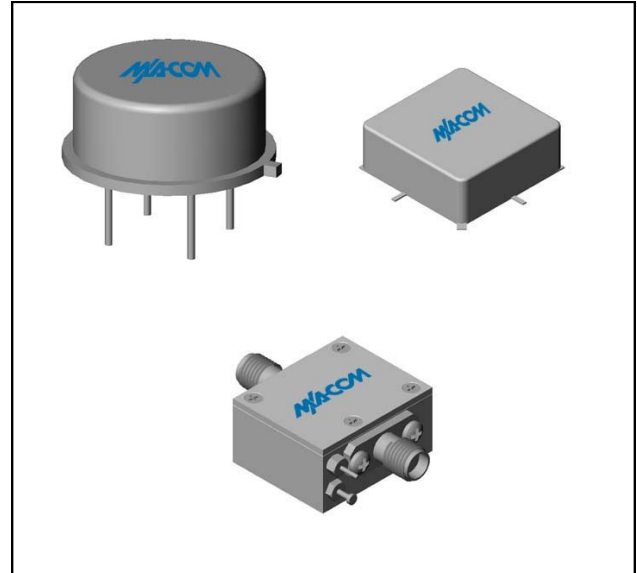
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

| Part Number        | Package              |
|--------------------|----------------------|
| A511               | TO-8                 |
| MAAM-008735-SMA511 | Surface Mount        |
| CA511              | 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   | 5-500         | 10-500        | 10-500         |
| Small Signal Gain (min)            | dB    | 17.0          | 16.0          | 15.5           |
| Gain Flatness (max)                | dB    | ±0.4          | ±0.8          | ±1.0           |
| Reverse Isolation                  | dB    | 16            |               |                |
| Noise Figure (max)                 | dB    | 3.4           | 4.2           | 4.7            |
| Power Output<br>@ 1 dB comp. (min) | dBm   | 21.0          | 20.0          | 19.5           |
| IP3                                | dBm   | +33           |               |                |
| IP2                                | dBm   | +40           |               |                |
| Second Order Harmonic IP           | dBm   | +46           |               |                |
| VSWR Input / Output (max)          |       | 1.7:1 / 1.7:1 | 1.9:1 / 1.9:1 | 2.0:1 / 2.0:1  |
| DC Current @ 15 Volts (max)        | mA    | 52            | 56            | 58             |

### Absolute Maximum Ratings

| Parameter                                 | Absolute Maximum |
|-------------------------------------------|------------------|
| Storage Temperature                       | -62°C to +150°C  |
| Case Temperature                          | 125°C            |
| DC Voltage                                | +17 V            |
| Continuous Input Power                    | +13 dBm          |
| Short Term Input power<br>(1 minute max.) | 100 mW           |
| Peak Power (3 µsec max.)                  | 0.5 W            |
| "S" Series Burn-In<br>Temperature (case)  | 125°C            |

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

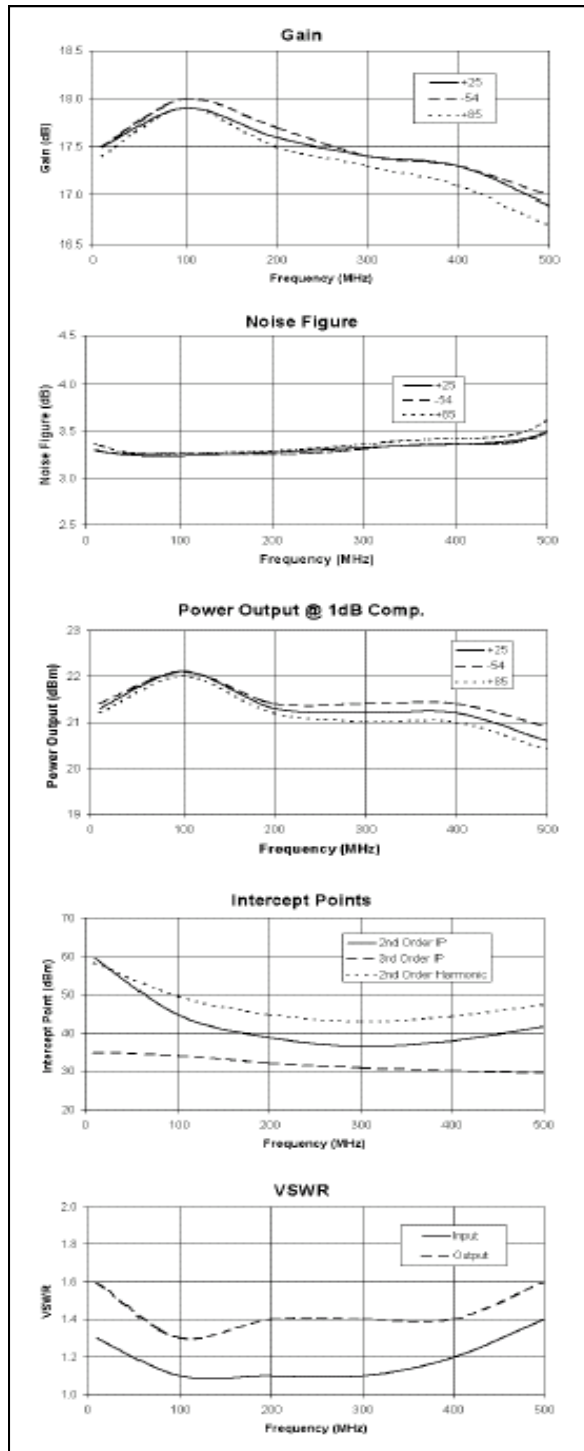
| Parameter                                        | Rating  |
|--------------------------------------------------|---------|
| Thermal Resistance $\theta_{jc}$                 | 143°C/W |
| Transistor Power Dissipation $P_d$               | 0.47 W  |
| Junction Temperature Rise<br>Above Case $T_{jc}$ | 68°C    |

\* Over temperature performance limits for part number CA511, guaranteed from 0°C to +50°C only.

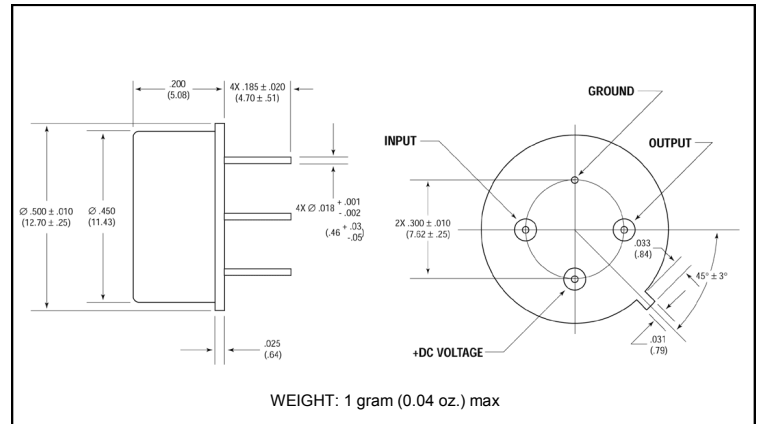
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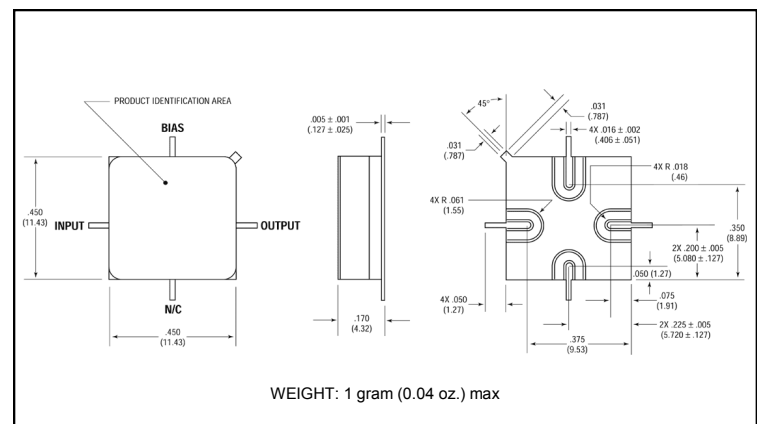
### Typical Performance Curves at +25°C



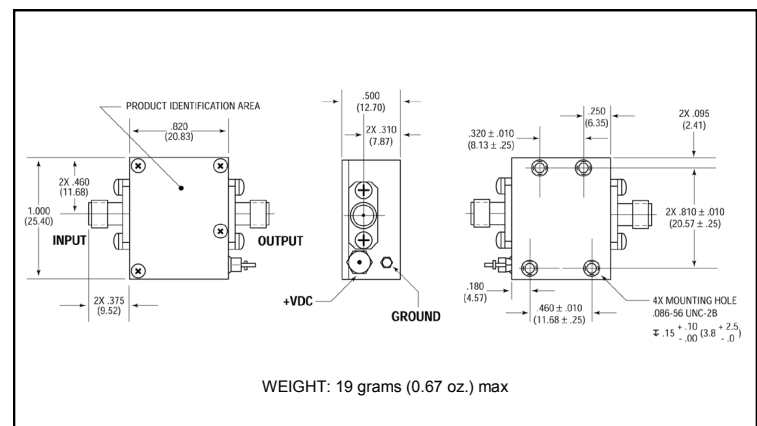
### Outline Drawing: TO-8 \*



### Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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

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