



## Cascadable Amplifier 2000 to 6000 MHz

Rev. V5

### Features

- Low Noise Figure: 1.5 dB
- Medium Output Power: +18 dBm
- High Efficiency: 58 mA @ +5 V<sub>DC</sub>
- pHEMT Amplifier

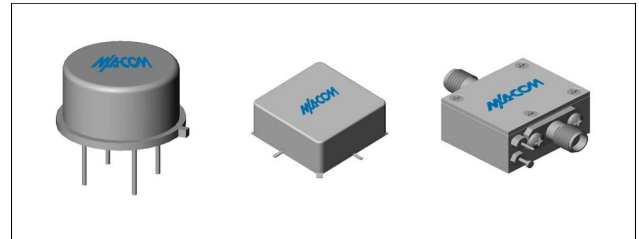
### Description

The A6011 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

This single stage GaAs FET feedback amplifier design displays impressive performance characteristics over a broadband frequency range. An RF choke is used for DC power supply decoupling.

Both the TO-8 and surface mount packages are hermetically sealed, and environmental screening is available per MIL-STD-883.

### Product Image



### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| A6011       | TO-8              |
| SMA6011     | Surface Mount     |
| CA6011 **   | SMA Connectorized |

\*\* The connectorized version is not RoHS compliant.

### Electrical Specifications: $Z_0 = 50 \Omega$ , $V_{CC} = +5 V_{DC}$

| Parameter                        | Units | Typical       | Guaranteed    |                |
|----------------------------------|-------|---------------|---------------|----------------|
|                                  |       | 25°C          | 0° to 50°C    | -54° to +85°C* |
| Frequency                        | GHz   | 1.5 - 6.0     | 2.0 - 6.0     | 2.0 - 6.0      |
| Small Signal Gain (min.)         | dB    | 14.8          | 13.5          | 12.5           |
| Gain Flatness (max.)             | dB    | ±0.6          | ±0.9          | ±1.1           |
| Reverse Isolation                | dB    | 16            | —             | —              |
| Noise Figure (max.)              | dB    | 1.5           | 2.5           | 3.0            |
| Power Output @ 1 dB comp. (min.) | dBm   | 18.0          | 16.5          | 16.0           |
| IP3                              | dBm   | +30           | —             | —              |
| IP2                              | dBm   | +45           | —             | —              |
| Second Order Harmonic IP         | dBm   | +50           | —             | —              |
| VSWR Input / Output (max.)       | Ratio | 1.9:1 / 1.9:1 | 2.1:1 / 2.1:1 | 2.2:1 / 2.2:1  |
| DC Current @ 5 Volts (max.)      | mA    | 58            | 65            | 70             |

\* Over temperature performance limits for part number CA6011, guaranteed from 0°C to +50°C only.

## Absolute Maximum Ratings

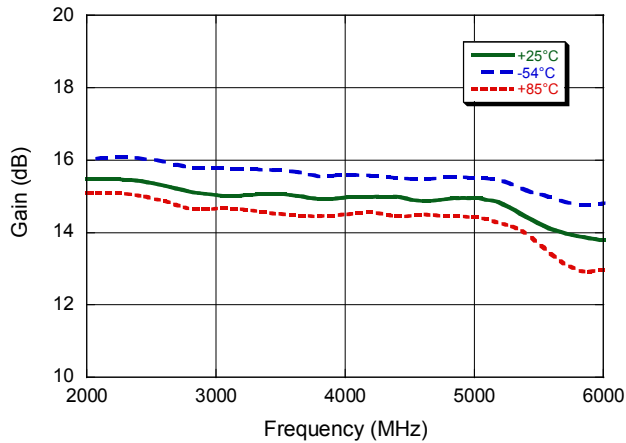
| Parameter                              | Absolute Maximum |
|--|------------------|
| Storage Temperature                    | -62°C to +150°C  |
| Case Temperature                       | 125°C            |
| DC Voltage                             | +7 V             |
| Continuous Input Power                 | +13 dBm          |
| Short Term Input power (1 minute max.) | 100 mW           |
| Peak Power (3 $\mu$ sec max.)          | 0.25 W           |
| "S" Series Burn-In Temperature (case)  | 125°C            |

## Thermal Data: $V_{CC} = +5 V_{DC}$

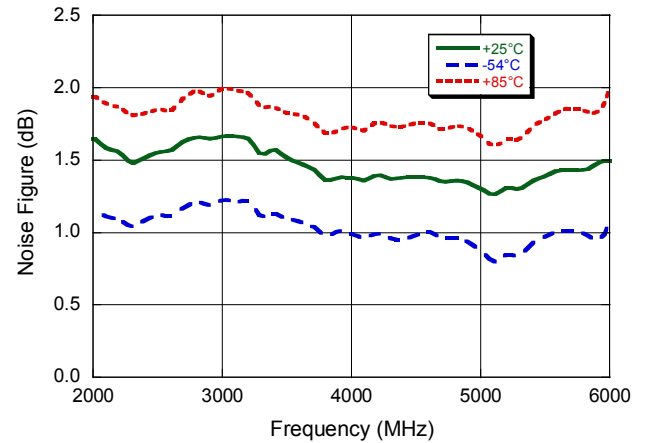
| Parameter                                     | Rating |
|---|--------|
| Thermal Resistance $\theta_{jc}$              | 47°C/W |
| Transistor Power Dissipation $P_d$            | 0.2 W  |
| Junction Temperature Rise Above Case $T_{jc}$ | +9.4°C |

## Typical Performance Curves

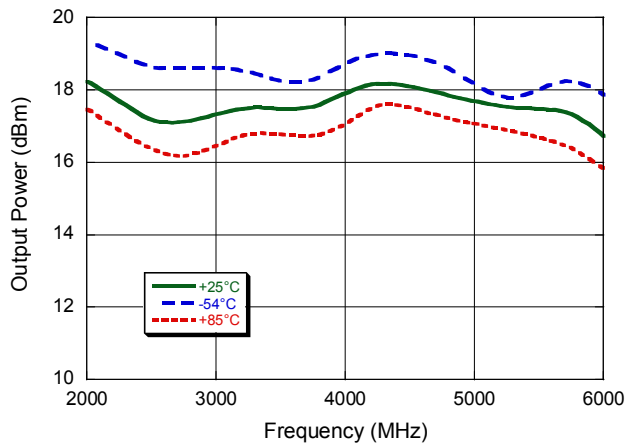
**Gain**



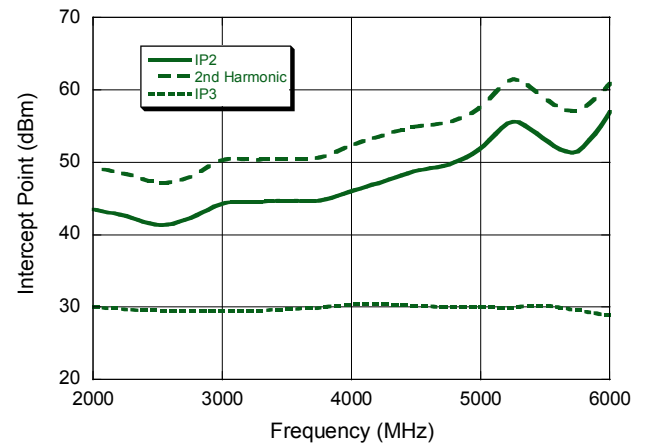
**Noise Figure**



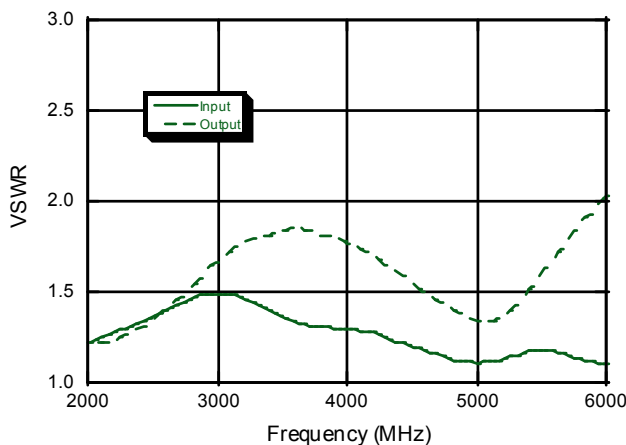
**$P_{OUT}$  @ 1 dB Gain Compression**



**Intercept Points**



**VSWR**



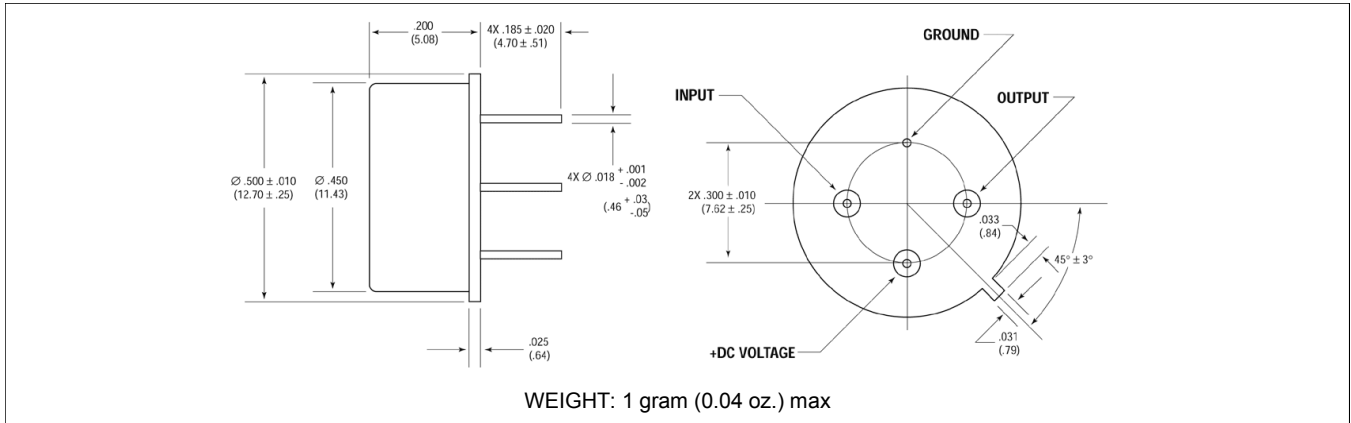
# A6011 / SMA6011



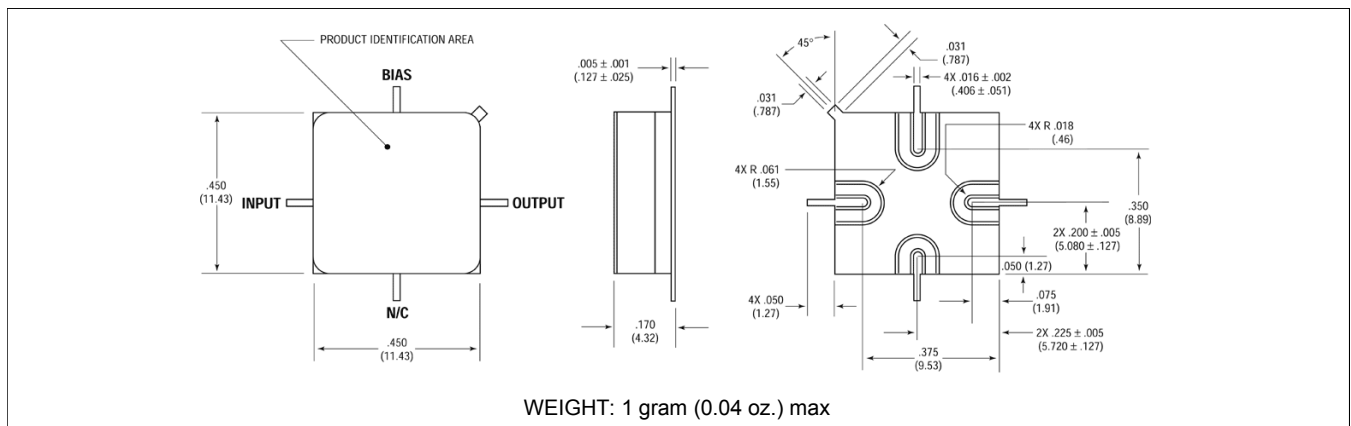
**Cascadable Amplifier**  
2000 to 6000 MHz

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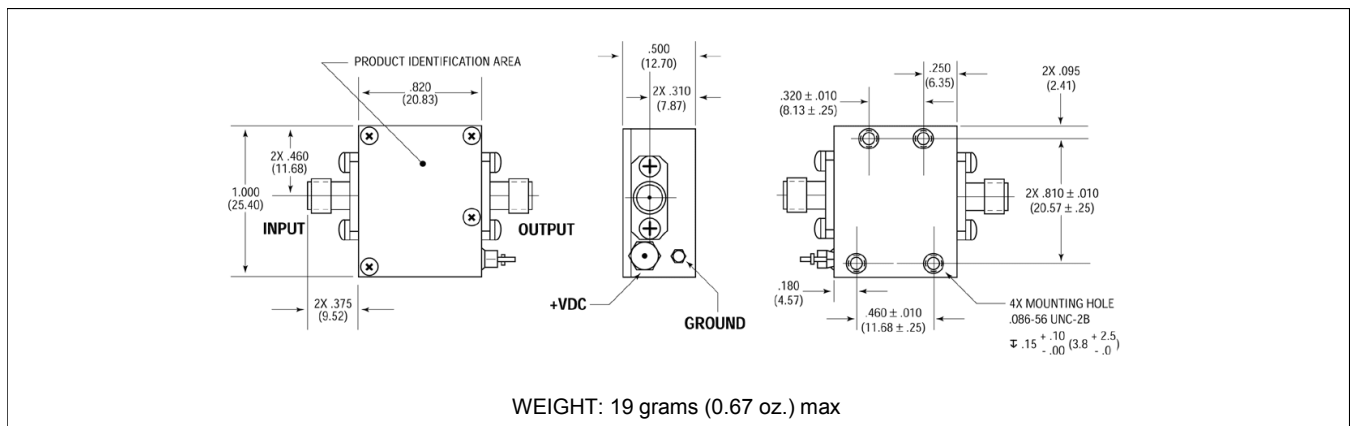
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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