

## Cascadable Amplifier 5 to 500 MHz

Rev. V3

### Features

- HIGH GAIN - TWO STAGES: 27.5 dB (TYP.)
- HIGH OUTPUT LEVEL: +12.7 dBm (TYP.)
- LOW NOISE FIGURE: 3.0 dB (TYP.)

### Description

The A76-1 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.

### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| A76-1       | TO-8              |
| SMA76-1     | Surface Mount     |
| CA76-1 **   | SMA Connectorized |

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

### Product Image



### 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                       | MHz   | 3-600         | 5-500         | 5-500          |
| Small Signal Gain (min)         | dB    | 27.5          | 26.0          | 25.0           |
| Gain Flatness (max)             | dB    | ±0.3          | ±0.8          | ±1.0           |
| Reverse Isolation               | dB    | 36            |               |                |
| Noise Figure (max)              | dB    | 3.0           | 4.0           | 4.5            |
| Power Output @ 1 dB comp. (min) | dBm   | 12.7          | 12.0          | 11.0           |
| IP3                             | dBm   | +26           |               |                |
| IP2                             | dBm   | +36           |               |                |
| Second Order Harmonic IP        | dBm   | +41           |               |                |
| VSWR Input / Output (max)       |       | 1.5:1 / 1.5:1 | 1.9:1 / 1.9:1 | 2.0:1 / 2.0:1  |
| DC Current @ 5 Volts (max)      | mA    | 48            | 51            | 53             |

### Absolute Maximum Ratings

| Parameter                              | Absolute Maximum |
|--|------------------|
| Storage Temperature                    | -62°C to +125°C  |
| Case Temperature                       | 125°C            |
| DC Voltage                             | +10 V            |
| Continuous Input Power                 | +6 dBm           |
| Short Term Input power (1 minute max.) | 40 mW            |
| Peak Power (3 µsec max.)               | 0.5 W            |
| "S" Series Burn-In Temperature (case)  | 125°C            |

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

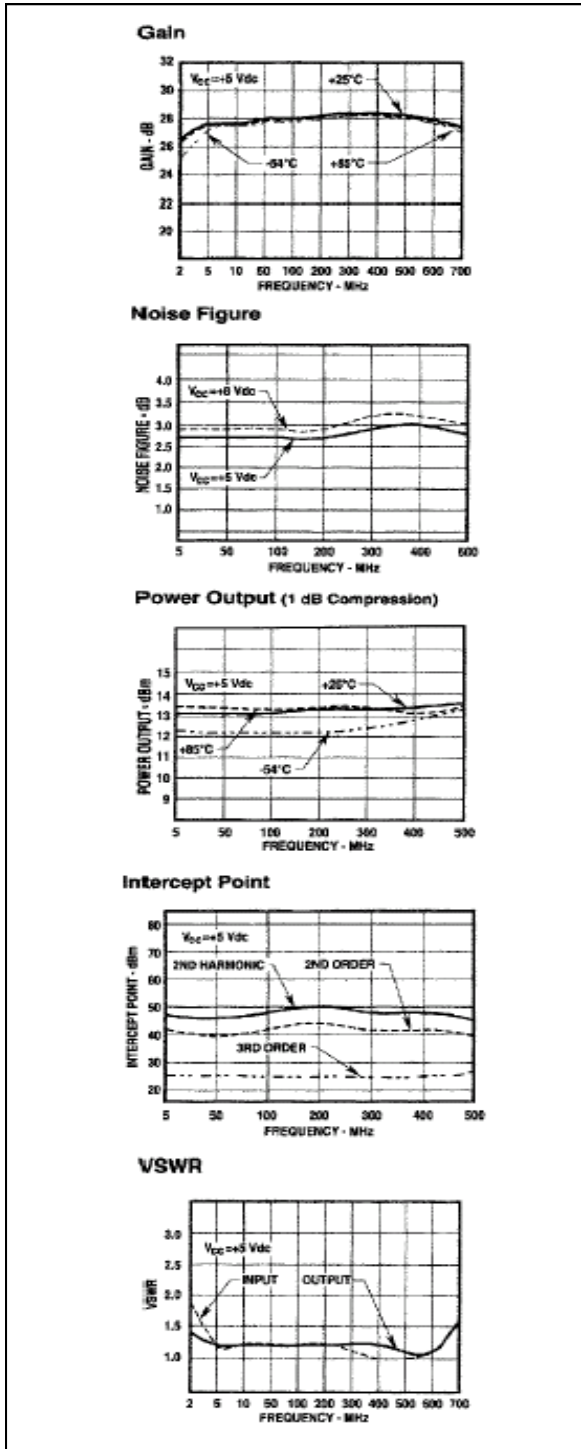
| Parameter                                     | Rating  |
|---|---------|
| Thermal Resistance $\theta_{jc}$              | 146°C/W |
| Transistor Power Dissipation $P_d$            | 0.136 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 20°C    |

1 \* Over temperature performance limits for part number CA76-1, guaranteed from 0°C to +50°C only.

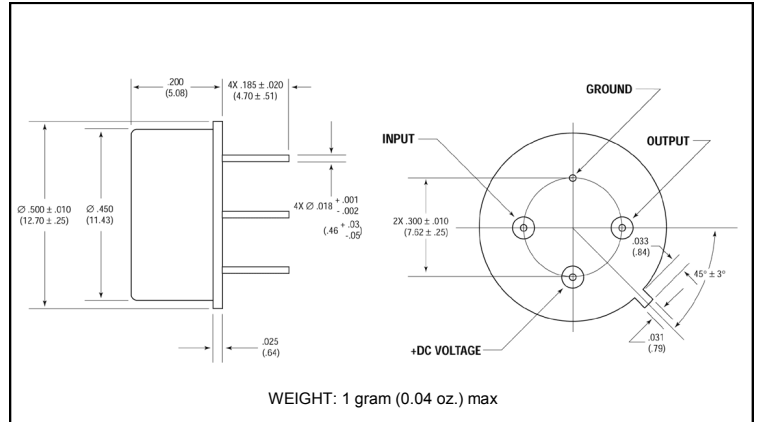
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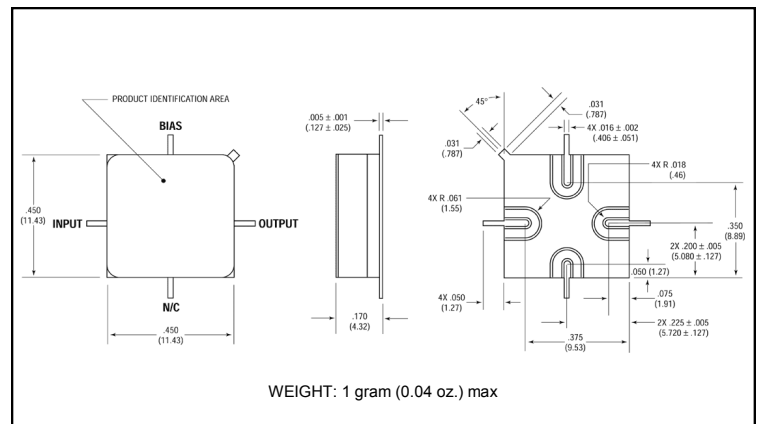
### Typical Performance Curves at +25°C



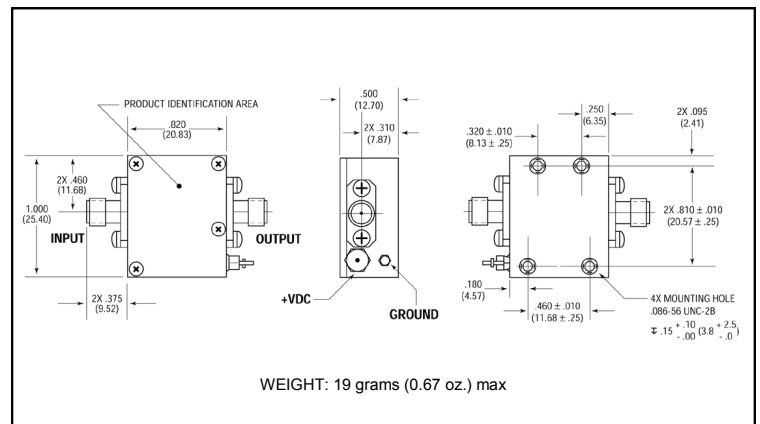
### Outline Drawing: TO-8 \*



### Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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