

## Cascadable Amplifier 5 to 500 MHz

Rev. V3

### Features

- HIGH GAIN: 21.0 dB (TYP.)
- LOW NOISE: 2.1 dB (TYP.)
- MEDIUM OUTPUT LEVEL: +9 dBm (TYP.)
- WIDE POWER SUPPLY RANGE: +5 TO +20 VOLTS

### Description

The A75 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. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

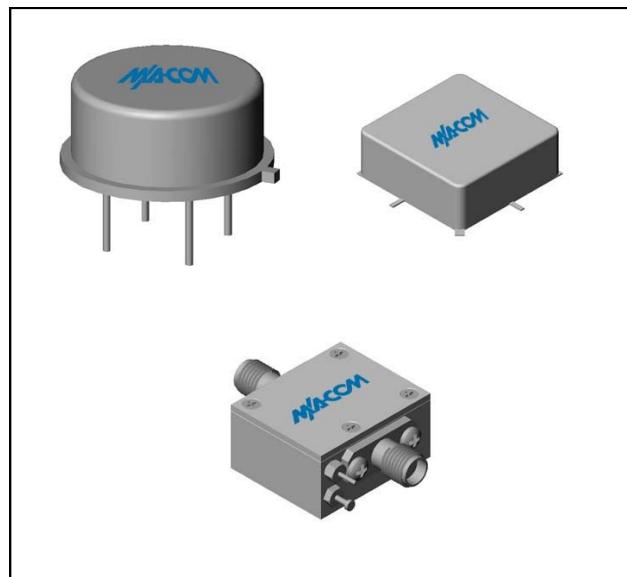
| Part Number | Package           |
|-------------|-------------------|
| A75         | TO-8              |
| SMA75       | Surface Mount     |
| CA75**      | SMA Connectorized |

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

### Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +15\text{ V}_{DC}$

| Parameter                       | Units | Typical       | Guaranteed    |                |
|---------------------------------|-------|---------------|---------------|----------------|
|                                 |       | 25°C          | 0° to 50°C    | -54° to +85°C* |
| Frequency                       | MHz   | 1-600         | 5-500         | 5-500          |
| Small Signal Gain (min)         | dB    | 21.0          | 19.5          | 19.0           |
| Gain Flatness (max)             | dB    | ±0.2          | ±0.5          | ±0.7           |
| Reverse Isolation               | dB    | 25            |               |                |
| Noise Figure (max)              | dB    | 2.1           | 2.7           | 3.0            |
| Power Output @ 1 dB comp. (min) | dBm   | 9.0           | 8.0           | 7.0            |
| IP3                             | dBm   | +21           |               |                |
| IP2                             | dBm   | +26           |               |                |
| Second Order Harmonic IP        | dBm   | +32           |               |                |
| VSWR Input / Output (max)       |       | 1.5:1 / 1.5:1 | 1.8:1 / 1.8:1 | 2.0:1 / 2.0:1  |
| DC Current @ 15 Volts (max)     | mA    | 24            | 27            | 29             |

### Product Image



### Absolute Maximum Ratings

| Parameter                              | Absolute Maximum |
|--|------------------|
| Storage Temperature                    | -62°C to +125°C  |
| Case Temperature                       | 125°C            |
| DC Voltage                             | +21 V            |
| Continuous Input Power                 | +13 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            |

### Thermal Data: $V_{CC} = +15\text{ V}_{DC}$

| Parameter                                     | Rating  |
|---|---------|
| Thermal Resistance $\theta_{jc}$              | 170°C/W |
| Transistor Power Dissipation $P_d$            | 0.194 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 33°C    |

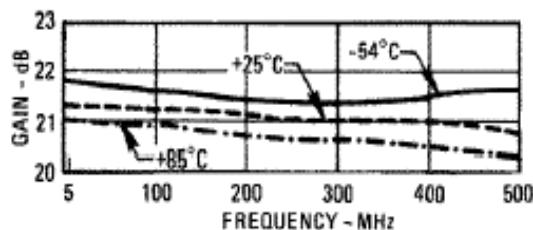
1 \* Over temperature performance limits for part number CA75, guaranteed from 0°C to +50°C only.

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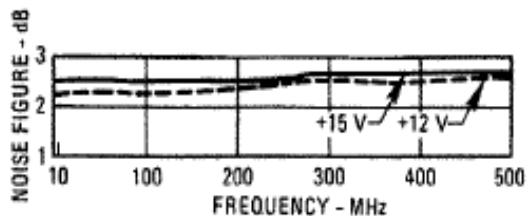
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### Typical Performance Curves at +25°C

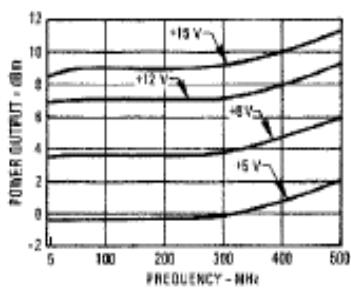
#### Gain



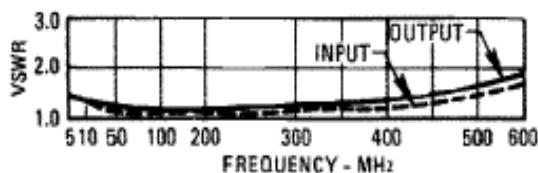
#### Noise Figure



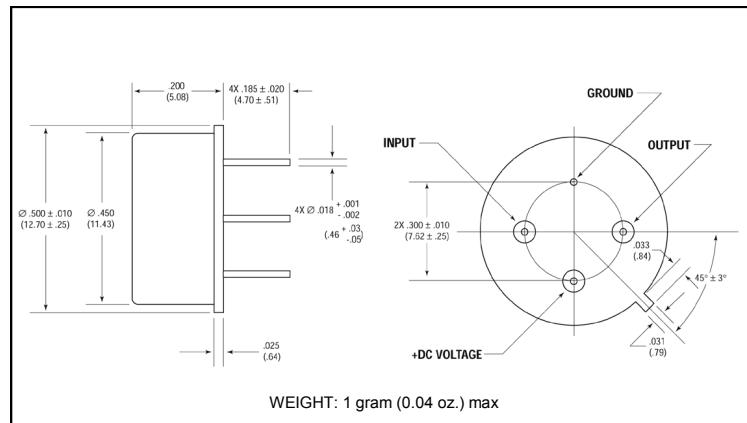
#### Power Output\*



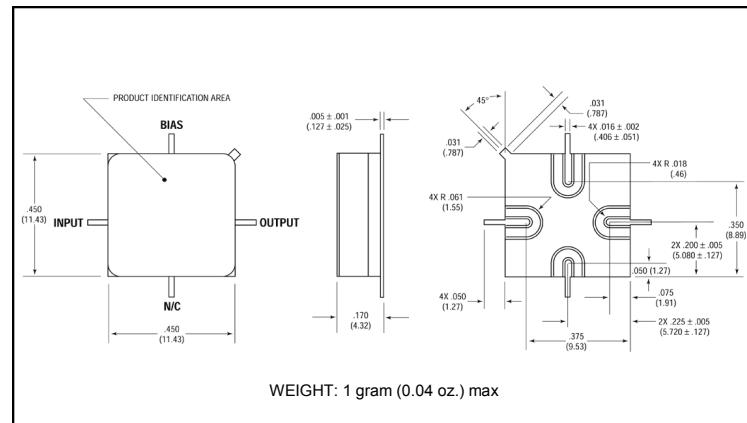
#### VSWR



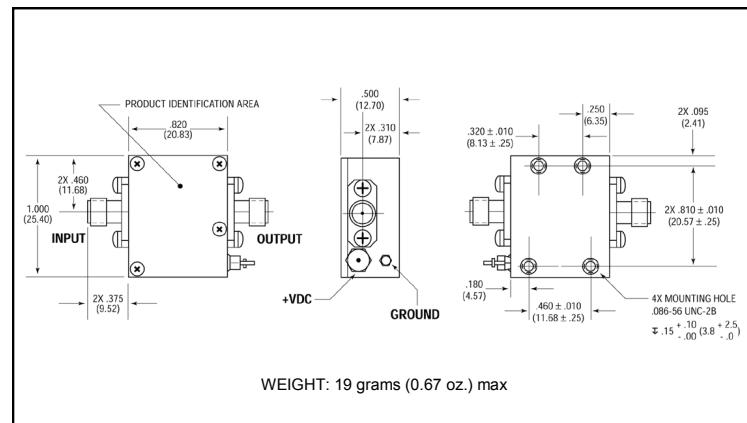
### Outline Drawing: TO-8\*



### Outline Drawing: Surface Mount\*



### Outline Drawing: SMA Connectorized\*



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

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