

# A74-1 / SMA74-1

## Cascadable Amplifier 5 to 250 MHz

Rev. V2

### Features

- HIGH GAIN - TWO STAGES: 31 dB (TYP.)
- MEDIUM OUTPUT LEVEL +8.5 dBm (TYP.)
- WIDE POWER SUPPLY RANGE +8 TO +15 VOLTS
- LOW VSWR: <1.3:1 (TYP.)

### Description

The A74-1 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.

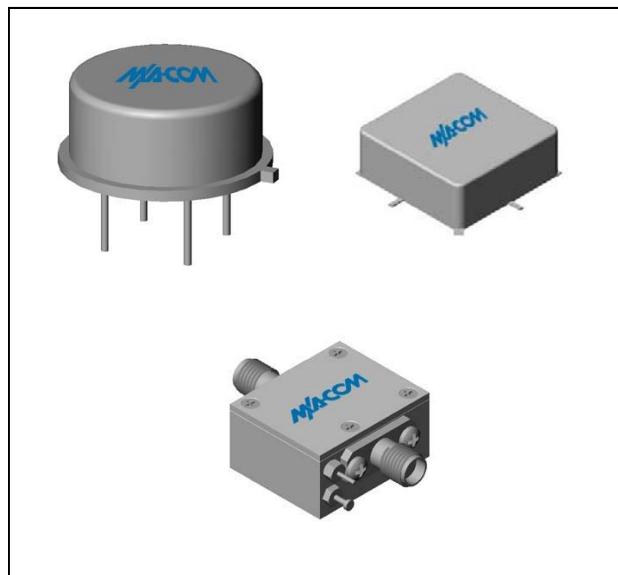
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available

### Ordering Information

| Part Number        | Package              |
|--------------------|----------------------|
| A74-1              | TO-8                 |
| MAAM-008728-SMA741 | Surface Mount        |
| CA74-1             | 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   | 1-300         | 5-250         | 5-250          |
| Small Signal Gain (min)         | dB    | 31.0          | 30.0          | 29.0           |
| Gain Flatness (max)             | dB    | ±0.2          | ±0.7          | ±1.0           |
| Reverse Isolation               | dB    | 40            |               |                |
| Noise Figure (max)              | dB    | 4.5           | 5.0           | 5.5            |
| Power Output @ 1 dB comp. (min) | dBm   | 8.5           | 7.5           | 7.0            |
| IP3                             | dBm   | +21           |               |                |
| IP2                             | dBm   | +34           |               |                |
| Second Order Harmonic IP        | dBm   | +42           |               |                |
| VSWR Input / Output (max)       |       | 1.3:1 / 1.3:1 | 1.7:1 / 1.7:1 | 2.0:1 / 2.0:1  |
| DC Current @ 15 Volts (max)     | mA    | 40            | 42            | 44             |

### Absolute Maximum Ratings

| 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            |

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

| Parameter                                     | Rating  |
|---|---------|
| Thermal Resistance $\theta_{jc}$              | 45°C/W  |
| Transistor Power Dissipation $P_d$            | 0.185 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 8°C     |

\* Over temperature performance limits for part number CA74-1, guaranteed from 0°C to +50°C only.

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**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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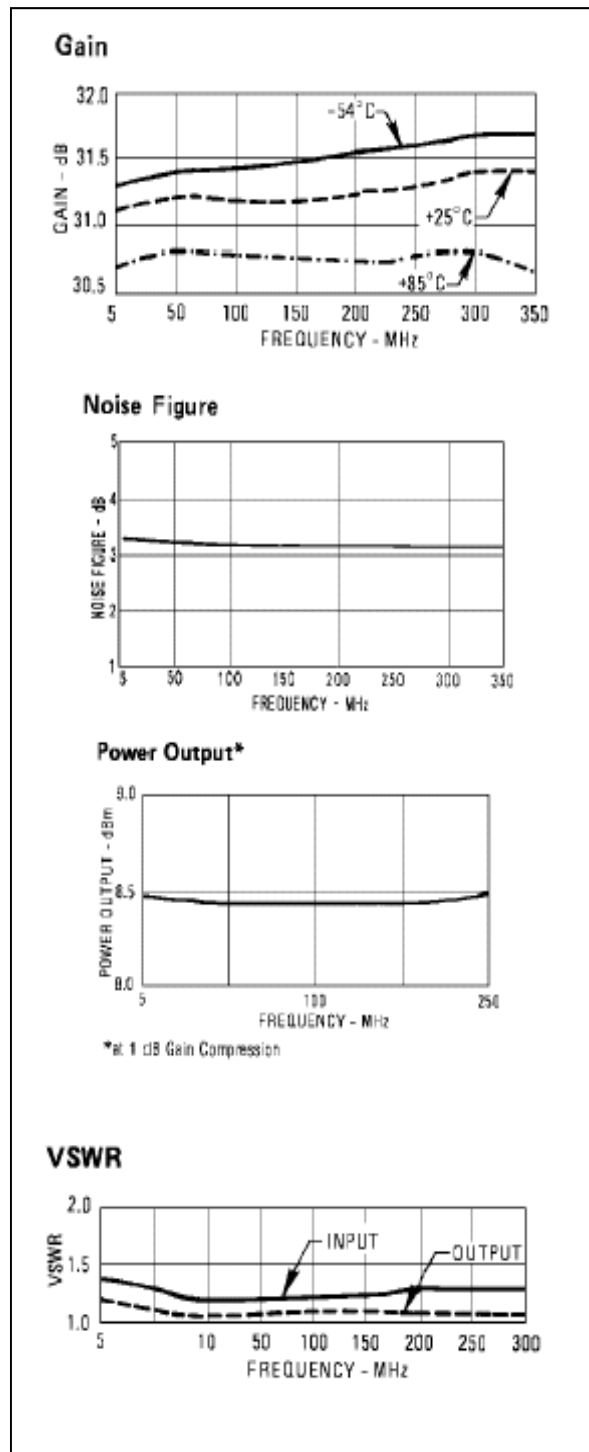
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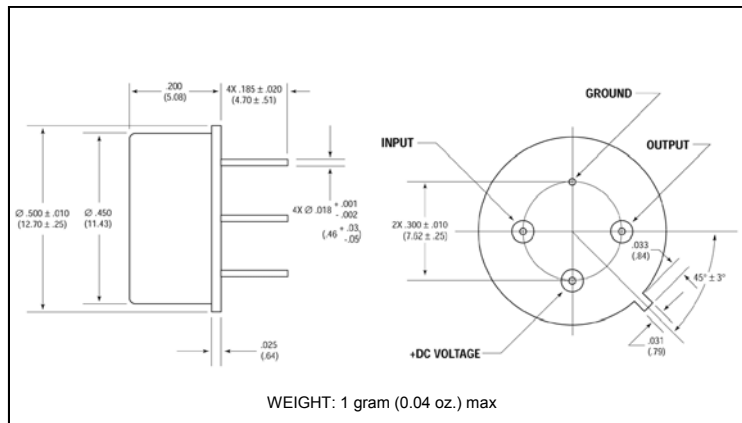
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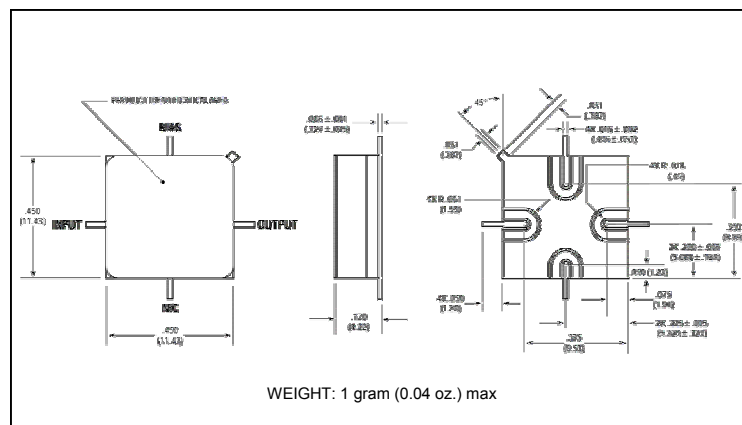
## Typical Performance Curves at +25°C



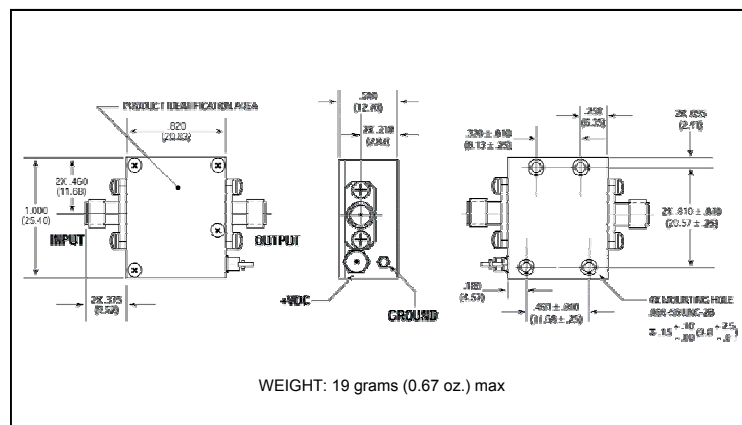
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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