

## Cascadable Amplifier 10 to 1000 MHz

Rev. V3

### Features

- AVAILABLE IN SURFACE MOUNT
- HIGH GAIN-TWO STAGES: 25 dB (TYP.)
- HIGH OUTPUT POWER +23 dBm (TYP.)
- HIGH THIRD ORDER I.P. +34 dBm (TYP.)

### Description

The RA69 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-8B and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

| Part Number | Package           |
|-------------|-------------------|
| RA69        | TO-8B             |
| SMRA69      | Surface Mount     |
| CRA69 **    | 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   | 5-1000        | 10-1000       | 10-1000        |
| Small Signal Gain (min)         | dB    | 25.0          | 24.0          | 23.0           |
| Gain Flatness (max)             | dB    | ±0.3          | ±0.7          | ±1.0           |
| Reverse Isolation               | dB    | 33            |               |                |
| Noise Figure (max)              | dB    | 4.5           | 5.5           | 6.0            |
| Power Output @ 1 dB comp. (min) | dBm   | 23.0          | 20.0          | 20.0           |
| IP3                             | dBm   | +34           |               |                |
| IP2                             | dBm   | +55           |               |                |
| Second Order Harmonic IP        | dBm   | +60           |               |                |
| VSWR Input / Output (max)       |       | 1.5:1 / 1.5:1 | 2.0:1 / 2.0:1 | 2.0:1 / 2.0:1  |
| DC Current @ 15 Volts (max)     | mA    | 130           | 138           | 145            |

### Absolute Maximum Ratings

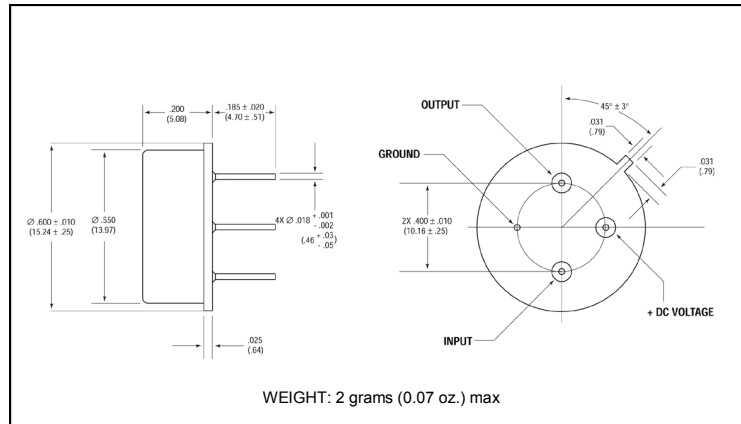
| Parameter                              | Absolute Maximum |
|--|------------------|
| Storage Temperature                    | -62°C to +125°C  |
| Case Temperature                       | 125°C            |
| DC Voltage                             | +17 V            |
| Continuous Input Power                 | +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: $V_{CC} = +15 V_{DC}$

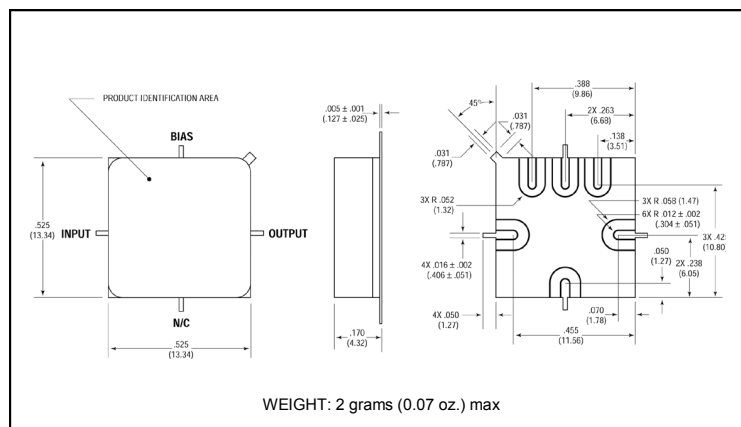
| Parameter                                     | Rating  |
|---|---------|
| Thermal Resistance $\theta_{jc}$              | 100°C/W |
| Transistor Power Dissipation $P_d$            | 0.865 W |
| Junction Temperature Rise Above Case $T_{jc}$ | 87°C    |

\* Over temperature performance limits for part number CRA69, guaranteed from 0°C to +50°C only.

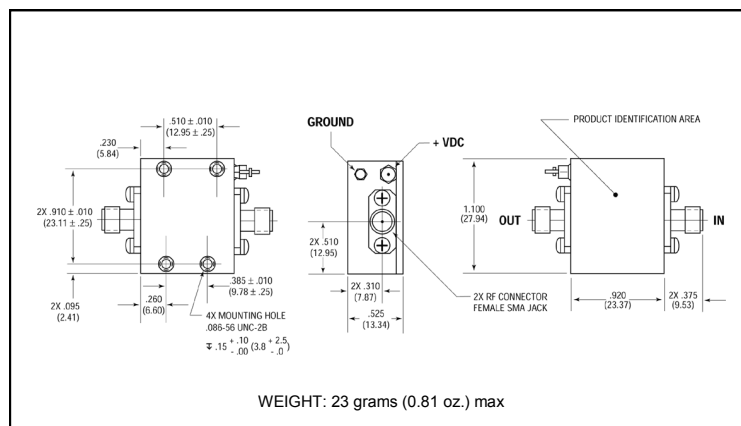
## Outline Drawing: TO-8B \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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