



# Cascadable Amplifier 10 to 1500 MHz

A28-2/ SMA28-2

V3

#### **Features**

• LOW NOISE: 3.5 dB (TYP.)

HIGH EFFICIENCY: 27 mA (TYP.) @ +5 Vdc
GOOD DYNAMIC RANGE: 105 dB (TYP.)

LOW VSWR: <1.4:1 (TYP.)</li>

## **Description**

The A28-2 RF amplifier is a discrete thin film hybrid design, which incorporates the use of 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. An active DC biasing network is used for temperature-stable performance, in addition to an RF Choke, used for power supply decoupling.

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

### **Ordering Information**

| Part Number | Package           |  |  |
|-------------|-------------------|--|--|
| A28-2       | TO-8              |  |  |
| SMA28-2     | Surface Mount     |  |  |
| CA28-2      | SMA Connectorized |  |  |
|             |                   |  |  |

#### 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   | 5-1600        | 10-1500       | 10-1500        |
| Small Signal Gain (min)            | dB    | 14.0          | 13.0          | 12.5           |
| Gain Flatness (max)                | dB    | ±0.3          | ±0.5          | ±1.0           |
| Reverse Isolation                  | dB    | 16            |               |                |
| Noise Figure (max)                 | dB    | 3.5           | 4.5           | 5.0            |
| Power Output<br>@ 1 dB comp. (min) | dBm   | 10.5          | 9.5           | 8.5            |
| IP3                                | dBm   | +24           |               |                |
| IP2                                | dBm   | +34           |               |                |
| Second Order Harmonic IP           | dBm   | +40           |               |                |
| VSWR Input / Output (max)          |       | 1.3:1 / 1.5:1 | 1.8:1 / 1.9:1 | 1.9:1 / 2.0:1  |
| DC Current @ 5 Volts (max)         | mA    | 27            | 30            | 32             |

# **Absolute Maximum Ratings**

| Parameter                                | Absolute<br>Maximum |  |
|--|---------------------|--|
| Storage Temperature                      | -62°C to +125°C     |  |
| Case Temperature                         | +125°C              |  |
| DC Voltage                               | +8 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<br>Temperature (case) | +125°C              |  |

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

| Parameter   | Rating  |  |
|---|---------|--|
| Thermal Resistance $\theta_{jc}$                        | 160°C/W |  |
| Transistor Power Dissipation P <sub>d</sub>             | 0.098 W |  |
| Junction Temperature Rise<br>Above Case T <sub>jc</sub> | +16°C   |  |

<sup>\*</sup> Over temperature performance limits for part number CA28-2, guaranteed from 0°C to +50°C only.

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<sup>•</sup> North America Tel: 800.366.2266 / Fax: 978.366.2266

<sup>•</sup> Europe Tel: 44.1908.574.200 / Fax: 44.1908.574.300

Asia/Pacific Tel: 81.44.844.8296 / Fax: 81.44.844.8298





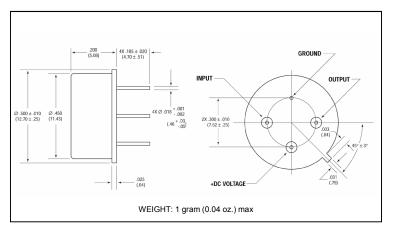
# Cascadable Amplifier 10 to 1500 MHz

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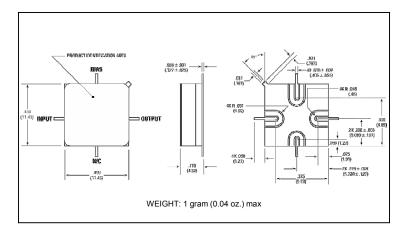
# Typical Performance Curves at +25°C

### Gain 음 <sup>15.0</sup> 10 50 100 500 900 1300 1500 EBEQUENCY - MHz Noise Figure 50 10 100 500 900 1300 1500 FREQUENCY - MHz Power Output\* 12.0 POWER OUTPUT 10.0 8.0 10 500 FREQUENCY - MHz \*@ 1 dB Gain Compression Intercept Point - dBm 50 POINT 40 NTERCEPT 30 2ND ORDER 20 10 500 13001500 FREQUENCY - MHz **VSWR** 500 900 FREQUENCY - MHz

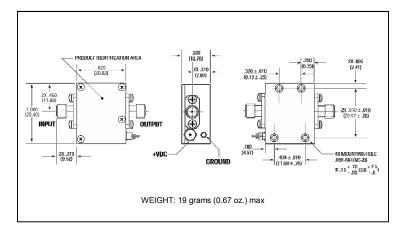
# Outline Drawing: TO-8 \*



# Outline Drawing: Surface Mount \*



# Outline Drawing: SMA Connectorized \*



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