

# AC829

## 10 TO 800 MHz TO-8 CASCADABLE AMPLIFIER

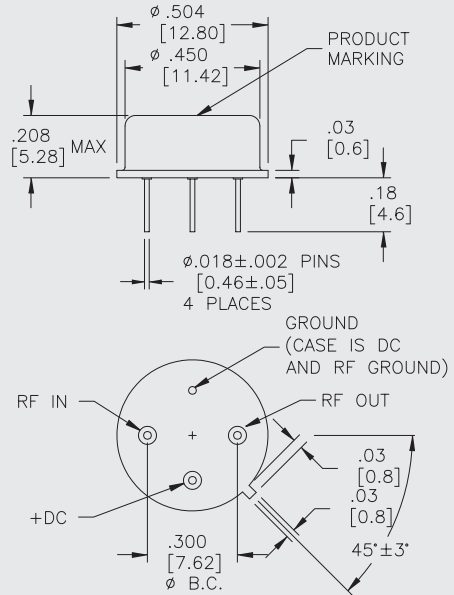
**Typical Values**

|  |                  |
|--|------------------|
| Low Noise Figure .....   | <b>3.0 dB</b>    |
| Medium Power Output .....  | <b>+18.5 dBm</b> |
| Low Voltage .....  | <b>+5 Vdc</b>    |
| <b>High Performance Thin Film<br/>Standard Size TO-8 Package</b> |                  |

**AC829**

### AC829

**TO-8 Package for Amplifiers**



## SPECIFICATIONS\*

| Parameter                       | Typical    | Guaranteed |               |
|---------------------------------|------------|------------|---------------|
|                                 |            | 0 to 50 °C | -55 to +85 °C |
| Frequency (Min.)                | 10-900 MHz | 10-800 MHz | 10-800 MHz    |
| Small Signal Gain (Min.)        | 12.0 dB    | 11.5 dB    | 11.0 dB       |
| Gain Flatness (Max.)            | ±0.2 dB    | ±0.3 dB    | ±0.4 dB       |
| Noise Figure (Max.)             | 3.0^ dB    | 4.0^ dB    | 4.7^ dB       |
| SWR (Max.) Input/Output         | <1.5:1     | 1.8:1      | 1.9:1         |
| Power Output (Min.) @ 1dB comp. | +18.5 dBm  | +17.0 dBm  | +16.5 dBm     |
| Reverse Isolation               | 18.5 dB    | —          | —             |
| DC Current (Max.)               | 50.0 mA    | 55.0 mA    | 60.0 mA       |

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.  
^ 0.6 dB higher above 400 MHz.

## INTERMODULATION PERFORMANCE

|   |                 |
|---|-----------------|
| Typical @ 25 °C; 500 MHz                    | <b>+5 Volts</b> |
| Second Order Harmonic Intercept Point ..... | <b>+47 dBm</b>  |
| Second Order Two Tone Intercept Point ..... | <b>+41 dBm</b>  |
| Third Order Two Tone Intercept Point .....  | <b>+33 dBm</b>  |

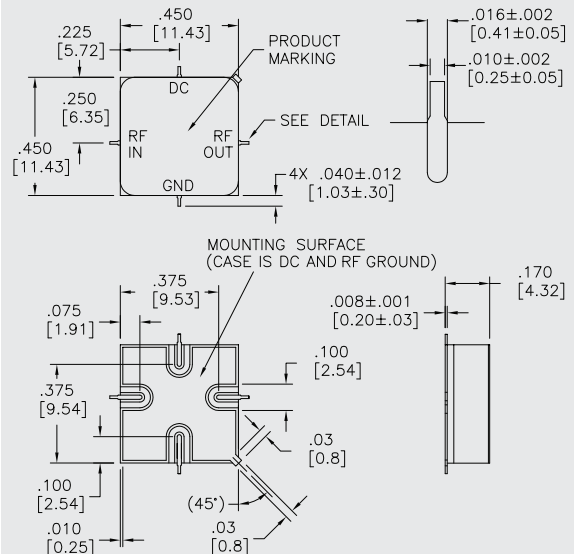
## ABSOLUTE MAXIMUM RATINGS

|  |                |
|--|----------------|
| Storage Temperature .....                            | -62 to +125 °C |
| Maximum Case Temperature .....                       | +125 °C        |
| Maximum DC Voltage .....                             | +7 Volts       |
| Maximum Continuous RF Input Power .....              | +13 dBm        |
| Maximum Short Term Input Power (1 Minute Max.) ..... | 50 Milliwatts  |
| Maximum Peak Power (3 μsec Max.) .....               | 0.5 Watt       |
| Burn-in Temperature .....                            | +105 °C        |
| Thermal Resistance <sup>1</sup> (θjc) .....          | +70 °C/Watt    |
| Junction Temperature Rise Above Case (Tjc) .....     | +16.3 °C       |

<sup>1</sup> Thermal resistance is based on total power dissipation.

### AS829

**SMT0-8 Package for Amplifiers**

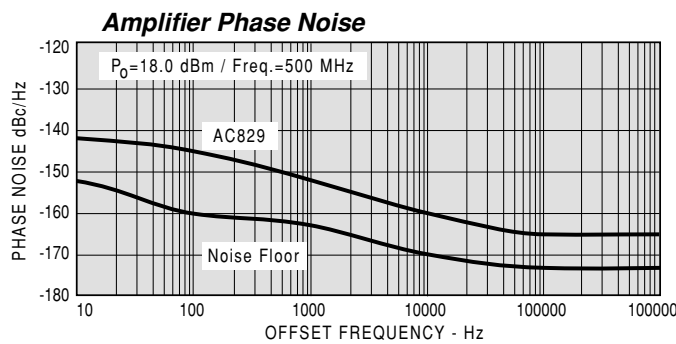
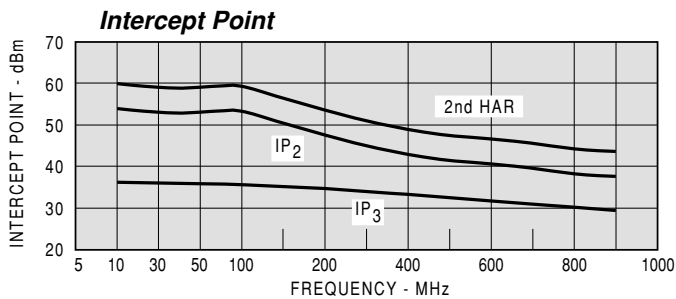
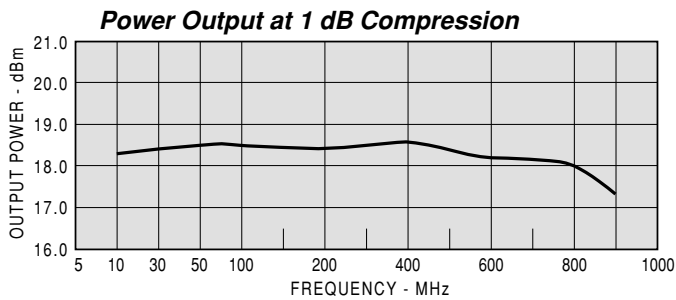
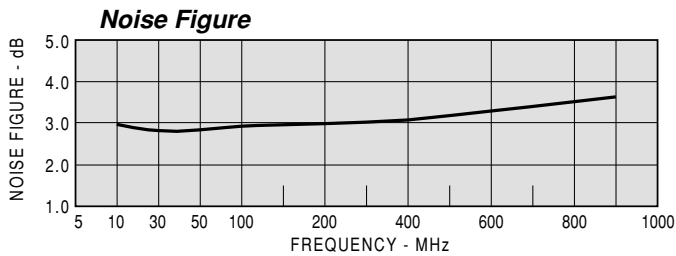
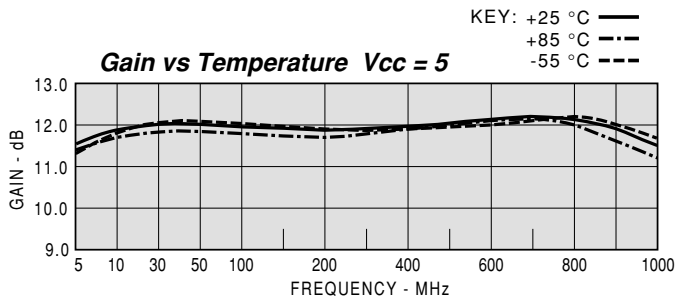


**If DC is present on RF input/output, this model requires additional external blocking capacitors.**

DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC829 Vcc=+5V Icc=50.33

| FREQ. MHZ | SWR IN | SWR OUT | GAIN DB | PHASE DEG | DELAY NSEC | REV/ISO DB |
|-----------|--------|---------|---------|-----------|------------|------------|
| 5         | 1.24   | 1.26    | 11.53   | -166      |            | -19.5      |
| 10        | 1.15   | 1.18    | 11.91   | -174      |            | -18.9      |
| 50        | 1.10   | 1.16    | 12.02   | 173       | 0.63       | -18.7      |
| 100       | 1.13   | 1.16    | 1200    | 163       | 0.52       | -18.8      |
| 200       | 1.20   | 1.16    | 11.91   | 146       | 0.47       | -18.9      |
| 300       | 1.29   | 1.17    | 11.90   | 129       | 0.46       | -18.9      |
| 400       | 1.38   | 1.16    | 11.95   | 112       | 0.48       | -18.9      |
| 500       | 1.48   | 1.14    | 12.03   | 95        | 0.49       | -19.0      |
| 600       | 1.53   | 1.17    | 12.09   | 77        | 0.51       | -19.0      |
| 700       | 1.56   | 1.22    | 12.10   | 58        | 0.54       | -19.3      |
| 800       | 1.61   | 1.34    | 12.02   | 38        | 0.55       | -19.6      |

Model: AC829 Vcc=+5V Icc=50.33

LINEAR S-PARAMETERS

| FREQ. MHZ | S11  |        | S21  |        | S12   |        | S22  |        |
|-----------|------|--------|------|--------|-------|--------|------|--------|
|           | MAG  | ANG    | MAG  | ANG    | MAG   | ANG    | MAG  | ANG    |
| 5         | 0.11 | -40.8  | 3.77 | -165.7 | 0.105 | -175.5 | 0.11 | -4.8   |
| 10        | 0.07 | -41.8  | 3.94 | -173.5 | 0.113 | -178.0 | 0.08 | -8.1   |
| 50        | 0.05 | -39.6  | 3.99 | 172.7  | 0.116 | 171.8  | 0.07 | -9.1   |
| 100       | 0.06 | -56.3  | 3.98 | 163.4  | 0.114 | 162.5  | 0.07 | -16.2  |
| 200       | 0.09 | -82.3  | 3.94 | 146.2  | 0.114 | 145.5  | 0.08 | -36.5  |
| 300       | 0.13 | -103.8 | 3.94 | 129.3  | 0.114 | 128.1  | 0.08 | -60.0  |
| 400       | 0.16 | -121.6 | 3.96 | 112.3  | 0.114 | 110.7  | 0.07 | -80.7  |
| 500       | 0.19 | -139.8 | 3.99 | 94.8   | 0.113 | 93.0   | 0.07 | -111.6 |
| 600       | 0.21 | -158.2 | 4.02 | 76.7   | 0.112 | 75.1   | 0.08 | -144.4 |
| 700       | 0.22 | 178.5  | 4.03 | 57.7   | 0.109 | 57.6   | 0.10 | -175.4 |
| 800       | 0.23 | 154.5  | 3.99 | 38.1   | 0.105 | 39.4   | 0.15 | 150.6  |
| 900       | 0.23 | 126.8  | 3.90 | 17.8   | 0.100 | 20.3   | 0.21 | 127.6  |