

# AC1582

## 5 TO 1500 MHz TO-8 CASCADABLE AMPLIFIER

**Typical Values**

|  |                          |
|--|--------------------------|
| <b>Medium Gain</b> .....   | <b>AC1582</b><br>12.5 dB |
| <b>Medium Output Power</b> .....                                 | +11.0 dBm                |
| <b>High Performance Thin Film<br/>Standard Size TO-8 Package</b> |                          |

### SPECIFICATIONS\*

| Parameter                          | Typical       | Guaranteed |               |
|------------------------------------|---------------|------------|---------------|
|                                    |               | 0 to 50 °C | -55 to +85 °C |
| Frequency (Min.)                   | 5-1600 MHz    | 5-1500 MHz | 5-1500 MHz    |
| Small Signal Gain (Min.)           | 12.5 dB       | 11.8 dB    | 11.0 dB       |
| Gain Flatness (Max.)               | ±0.2 dB       | ±0.5 dB    | ±0.7 dB       |
| Noise Figure (Max.)                | 4.0 dB        | 5.0 dB     | 5.5 dB        |
| SWR (Max.)                         | Input/Output  | 1.7:1      | 2.0:1         |
| Power Output (Min.)<br>@ 1dB comp. | 10-1000 MHz   | +11.0 dBm  | +10.5 dBm     |
|                                    | 1000-1300 MHz | +10.5 dBm  | +10.0 dBm     |
|                                    | 1300-1500 MHz | +9.5 dBm   | +9.0 dBm      |
| Reverse Isolation                  | 17.0 dB       | —          | —             |
| DC Current (Max.)                  | 31 mA         | 32 mA      | 35 mA         |

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.

### INTERMODULATION PERFORMANCE

Typical @ 25 °C; 300 MHz

|  |                          |
|--|--------------------------|
| <b>Second Order Harmonic Intercept Point</b> ..... | <b>AC1582</b><br>+40 dBm |
| <b>Second Order Two Tone Intercept Point</b> ..... | +34 dBm                  |
| <b>Third Order Two Tone Intercept Point</b> .....  | +24 dBm                  |

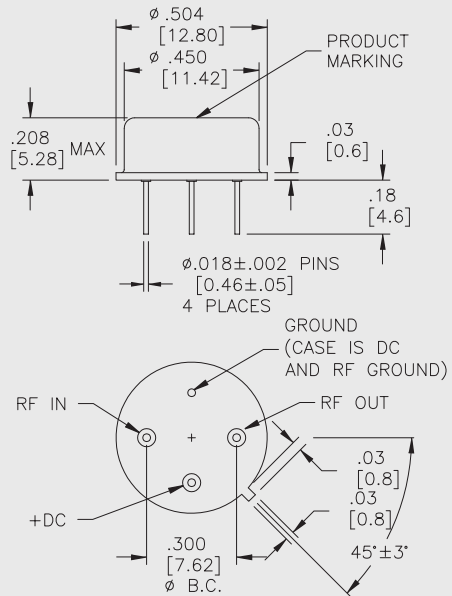
### ABSOLUTE MAXIMUM RATINGS

|   |                 |
|---|-----------------|
| <b>Storage Temperature</b> .....                            | -62° to +125 °C |
| <b>Maximum Case Temperature</b> .....                       | +125 °C         |
| <b>Maximum DC Voltage</b> .....                             | +10 Volts       |
| <b>Maximum Continuous RF Input Power</b> .....              | +13 dBm         |
| <b>Maximum Short Term Input Power (1 Minute Max.)</b> ..... | 50 Milliwatts   |
| <b>Maximum Peak Power (3 μsec Max.)</b> .....               | 0.5 Watt        |
| <b>Burn-in Temperature</b> .....                            | +125 °C         |
| <b>Thermal Resistance<sup>1</sup> (θjc)</b> .....           | 96.0 °C/Watt    |
| <b>Junction Temperature Rise Above Case (Tjc)</b> .....     | 15.3 °C         |

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

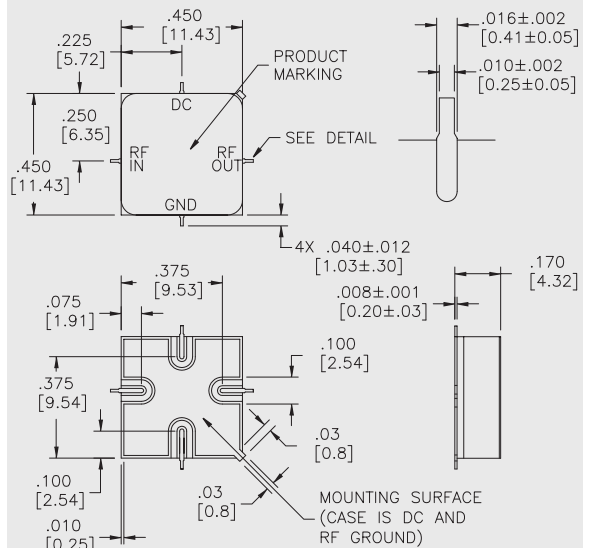
### AC1582

#### TO-8 Package for Amplifiers



### AS1582

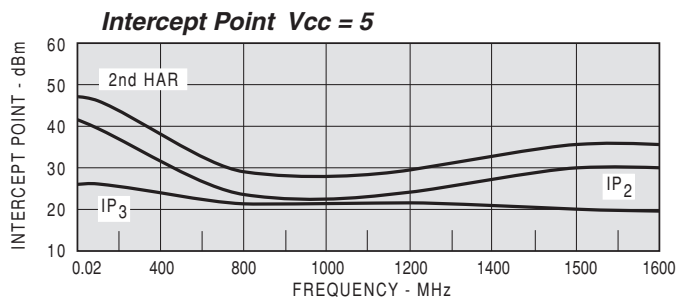
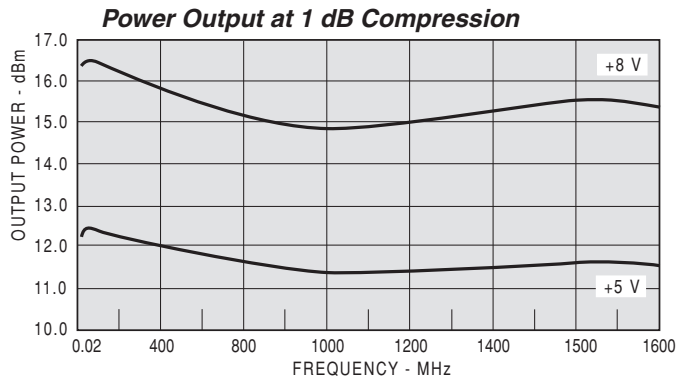
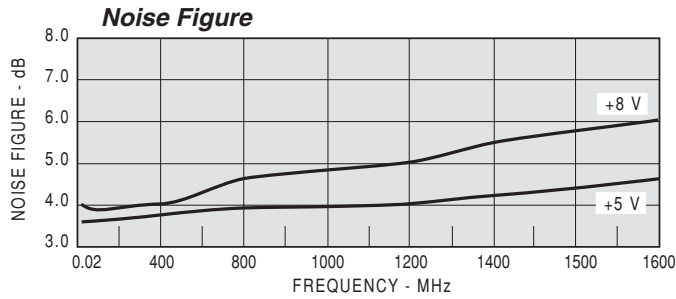
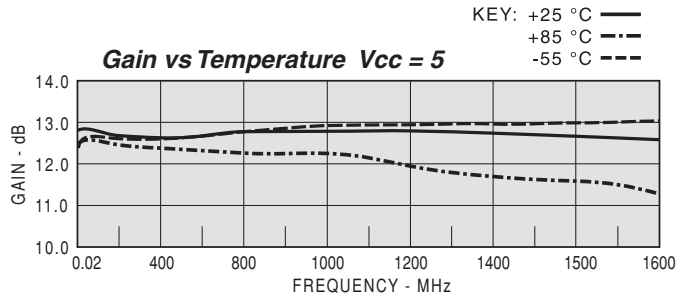
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC1582 Vcc=+5V Icc=31.18

| FREQ | SWR IN | SWR OUT | GAIN DB | PHASE DEG | DELAY NSEC | REV/ISO DB |
|------|--------|---------|---------|-----------|------------|------------|
| 2    | 1.67   | 1.61    | 12.62   | -157      | 14.00      | -18.0      |
| 5    | 1.40   | 1.39    | 12.63   | -172      | 14.00      | -17.9      |
| 10   | 1.37   | 1.36    | 12.64   | -177      | 2.70       | -17.8      |
| 50   | 1.38   | 1.32    | 12.73   | 174       | 0.52       | -17.7      |
| 100  | 1.37   | 1.31    | 12.69   | 166       | 0.43       | -17.7      |
| 200  | 1.36   | 1.31    | 12.60   | 151       | 0.40       | -17.8      |
| 400  | 1.34   | 1.29    | 12.55   | 124       | 0.38       | -17.9      |
| 600  | 1.29   | 1.24    | 12.60   | 95        | 0.40       | -17.7      |
| 800  | 1.28   | 1.18    | 12.66   | 66        | 0.41       | -17.7      |
| 1000 | 1.36   | 1.19    | 12.67   | 36        | 0.42       | -17.6      |
| 1200 | 1.47   | 1.33    | 12.65   | 4         | 0.44       | -17.6      |
| 1400 | 1.47   | 1.50    | 12.58   | -28       | 0.46       | -17.5      |
| 1500 | 1.38   | 1.55    | 12.53   | -46       | 0.48       | -17.3      |
| 1600 | 1.27   | 1.56    | 12.50   | -64       | 0.51       | -17.1      |

Model: AC1582 Vcc=+5V Icc=31.18

LINEAR S-PARAMETERS

| FREQ. MHz | S11  |        | S21  |        | S12  |        | S22  |        |
|-----------|------|--------|------|--------|------|--------|------|--------|
|           | MAG  | ANG    | MAG  | ANG    | MAG  | ANG    | MAG  | ANG    |
| 2         | 0.25 | -118.1 | 4.27 | -157.0 | 0.13 | 25.0   | 0.23 | 160.2  |
| 5         | 0.17 | -149.7 | 4.28 | -172.0 | 0.13 | 9.3    | 0.16 | 168.6  |
| 10        | 0.16 | -162.8 | 4.29 | -176.9 | 0.13 | 4.2    | 0.15 | 170.2  |
| 50        | 0.16 | -176.5 | 4.33 | 173.6  | 0.13 | -2.9   | 0.14 | 166.6  |
| 100       | 0.16 | -179.1 | 4.31 | 165.8  | 0.13 | -7.9   | 0.14 | 158.1  |
| 200       | 0.15 | -179.2 | 4.26 | 151.4  | 0.13 | -15.9  | 0.14 | 138.6  |
| 400       | 0.14 | -179.5 | 4.24 | 123.6  | 0.13 | -31.6  | 0.13 | 98.0   |
| 600       | 0.13 | -174.0 | 4.26 | 95.2   | 0.13 | -48.0  | 0.11 | 53.8   |
| 800       | 0.12 | -157.3 | 4.30 | 65.9   | 0.13 | -66.0  | 0.08 | -6.1   |
| 1000      | 0.15 | -144.3 | 4.30 | 35.8   | 0.13 | -84.6  | 0.09 | -85.3  |
| 1200      | 0.19 | -145.1 | 4.29 | 4.4    | 0.13 | -103.9 | 0.14 | -148.5 |
| 1400      | 0.19 | -152.3 | 4.25 | -28.4  | 0.13 | -123.4 | 0.20 | 164.3  |
| 1500      | 0.16 | -151.7 | 4.23 | -45.6  | 0.14 | -134.6 | 0.22 | 141.0  |
| 1600      | 0.12 | -136.6 | 4.22 | -64.0  | 0.14 | -146.2 | 0.22 | 116.2  |