

# ACP12019

## 6.0 TO 12.0 GHz COUGARPAK® AMPLIFIER

**Typical Values**

|  | <b>ACP12019</b> |
|--|-----------------|
| High Output Power  | +28.0 dBm       |
| Medium Gain  | 10.5 dB         |
| High Third Order I.P.  | +39 dBm         |
| High Second Order I.P. (above 8.5 GHz)                                 | +52 dBm         |
| High Performance Thin Film<br>Standard Single-stage CougarPak® Package |                 |

### SPECIFICATIONS\*

| Parameter                          | Typical      | Guaranteed   |               |
|------------------------------------|--------------|--------------|---------------|
|                                    |              | 0 to 50 °C   | -55 to +85 °C |
| Frequency (Min.)                   | 6.0-12.0 GHz | 6.0-12.0 GHz | 6.0-12.0 GHz  |
| Small Signal Gain (Min.)           | 10.5 dB      | 9.5 dB       | 8.5 dB        |
| Gain Flatness (Max.)               | ±0.8 dB      | ±1.0 dB      | ±1.2 dB       |
| Noise Figure (Max.)                | 4.1 dB       | 4.6 dB       | 5.1 dB        |
| SWR (Max.)                         | Input/Output | 2.0:1        | 2.0:1         |
| Power Output (Min.)<br>@ 1dB comp. | +28.0 dBm    | +26.5 dBm    | +26.0 dBm     |
| Reverse Isolation                  | 24.0 dB      | —            | —             |
| DC Current (Max.)                  | 210 mA       | 220 mA       | 230 mA        |

\* Measured in a 50-ohm system at +10 Vdc unless otherwise specified.

### INTERMODULATION PERFORMANCE

Typical @ 25 °C; 8.0 GHz

|                                       | <b>ACP12019</b> |
|---------------------------------------|-----------------|
| Second Order Harmonic Intercept Point | +56 dBm         |
| Second Order Two Tone Intercept Point | +52 dBm         |
| Third Order Two Tone Intercept Point  | +39 dBm         |

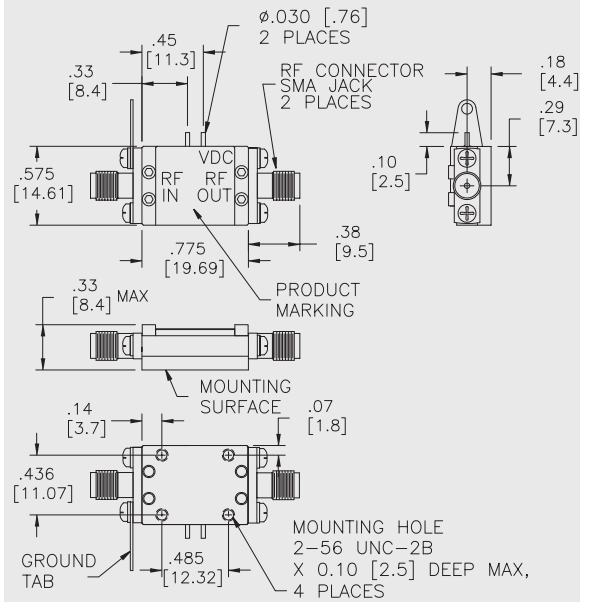
### ABSOLUTE MAXIMUM RATINGS

|  |                |
|--|----------------|
| Storage Temperature                            | -65 to +150 °C |
| Maximum Case Temperature                       | +85 °C         |
| Maximum DC Voltage                             | +14 Volts      |
| Maximum Continuous RF Input Power              | +25.0 dBm      |
| Maximum Short Term Input Power (1 Minute Max.) | +27.0 dBm      |
| Maximum Peak Power (3 μsec Max.)               | +27.0 dBm      |
| Burn-in Temperature                            | +85 °C         |
| Thermal Resistance <sup>1</sup> (θjc)          | +24.4 °C/Watt  |
| Junction Temperature Rise Above Case (Tjc)     | +51.2 °C       |

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

### ACP12019

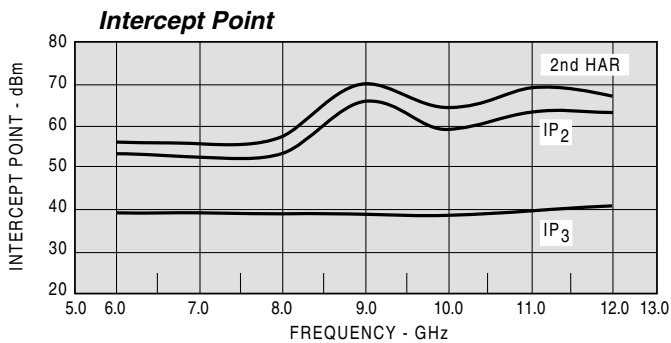
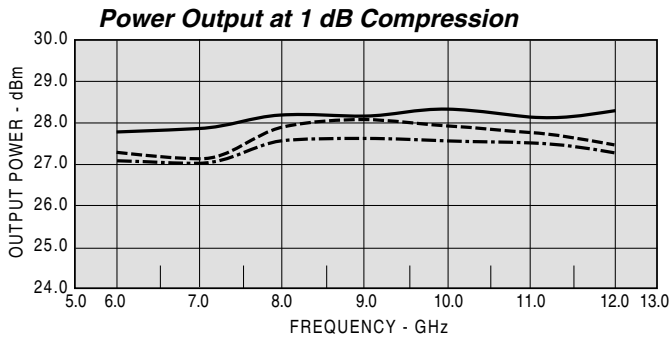
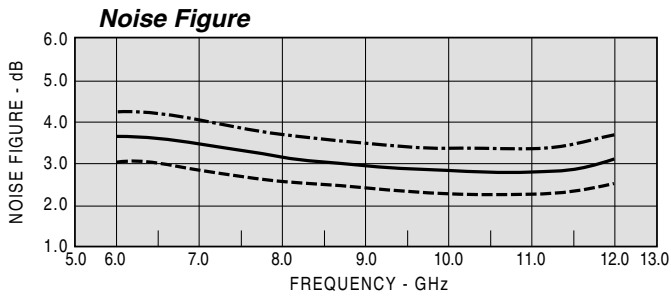
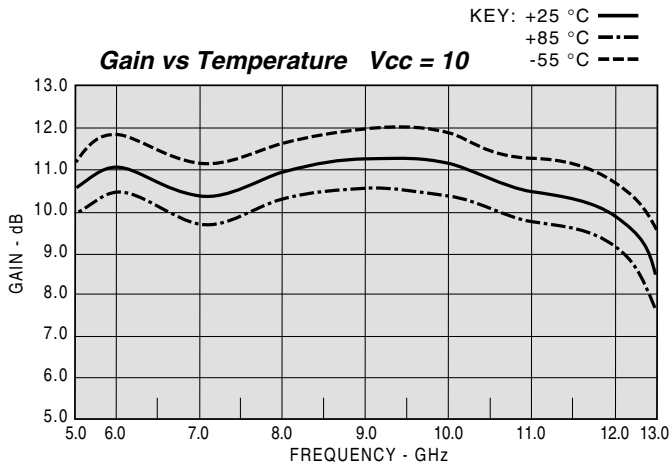
#### CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: ACP12019 Vcc=+10V Icc=209.10

| FREQ. GHZ | SWR IN | SWR OUT | GAIN DB | PHASE DEG | DELAY NSEC | REV/ISO DB |
|-----------|--------|---------|---------|-----------|------------|------------|
| 5.0       | 1.87   | 1.12    | 10.72   | 152.40    | 0.33       | -29.22     |
| 5.5       | 1.51   | 1.22    | 10.99   | 95.08     | 0.32       | -28.47     |
| 6.0       | 1.27   | 1.39    | 10.97   | 38.98     | 0.30       | -27.93     |
| 6.5       | 1.12   | 1.47    | 10.68   | -15.58    | 0.30       | -27.24     |
| 7.0       | 1.08   | 1.46    | 10.56   | -65.70    | 0.28       | -26.90     |
| 7.5       | 1.12   | 1.41    | 10.81   | -116.85   | 0.29       | -26.58     |
| 8.0       | 1.08   | 1.35    | 10.85   | -169.56   | 0.29       | -26.16     |
| 8.5       | 1.12   | 1.39    | 10.88   | 137.88    | 0.29       | -25.61     |
| 9.0       | 1.22   | 1.47    | 10.88   | 86.34     | 0.29       | -24.87     |
| 9.5       | 1.17   | 1.39    | 10.97   | 34.59     | 0.28       | -24.32     |
| 10.0      | 1.15   | 1.25    | 11.19   | -18.90    | 0.29       | -23.72     |
| 10.5      | 1.23   | 1.28    | 11.35   | -74.83    | 0.32       | -23.15     |
| 11.0      | 1.34   | 1.35    | 11.08   | -131.38   | 0.32       | -22.40     |
| 11.5      | 1.45   | 1.19    | 10.69   | 174.19    | 0.30       | -21.98     |
| 12.0      | 1.36   | 1.14    | 10.56   | 117.79    | 0.32       | -21.54     |
| 12.5      | 1.36   | 1.24    | 10.20   | 57.75     | 0.34       | -20.76     |
| 13.0      | 1.68   | 1.23    | 9.71    | -4.01     | 0.35       | -20.24     |

Model: ACP12019 Vcc=+10V Icc=208.56

LINEAR S-PARAMETERS

| FREQ. GHZ | S11  |         | S21  |         | S12  |         | S22  |         |
|-----------|------|---------|------|---------|------|---------|------|---------|
|           | MAG  | ANG     | MAG  | ANG     | MAG  | ANG     | MAG  | ANG     |
| 5.0       | 0.29 | 113.43  | 3.45 | 100.13  | 0.04 | 23.28   | 0.06 | -117.78 |
| 5.5       | 0.20 | 82.02   | 3.56 | 73.95   | 0.04 | 6.85    | 0.11 | -76.29  |
| 6.0       | 0.12 | 43.98   | 3.55 | 49.17   | 0.04 | -12.49  | 0.16 | -80.31  |
| 6.5       | 0.07 | -26.04  | 3.49 | 26.57   | 0.05 | -30.14  | 0.19 | -89.68  |
| 7.0       | 0.04 | -67.87  | 3.49 | 5.86    | 0.05 | -50.44  | 0.18 | -98.65  |
| 7.5       | 0.06 | -82.66  | 3.46 | -15.79  | 0.05 | -68.13  | 0.17 | -104.42 |
| 8.0       | 0.07 | -81.79  | 3.46 | -35.31  | 0.05 | -82.39  | 0.16 | -106.00 |
| 8.5       | 0.06 | -80.20  | 3.59 | -56.30  | 0.05 | -96.75  | 0.14 | -103.62 |
| 9.0       | 0.03 | -60.37  | 3.61 | -78.90  | 0.06 | -112.52 | 0.14 | -99.42  |
| 9.5       | 0.04 | -46.60  | 3.61 | -101.23 | 0.06 | -130.02 | 0.13 | -93.12  |
| 10.0      | 0.03 | 10.95   | 3.67 | -123.34 | 0.06 | -148.69 | 0.12 | -97.59  |
| 10.5      | 0.11 | 28.37   | 3.68 | -147.29 | 0.07 | -167.73 | 0.11 | -110.58 |
| 11.0      | 0.16 | -7.37   | 3.60 | -172.42 | 0.08 | 171.61  | 0.08 | -127.85 |
| 11.5      | 0.14 | -38.17  | 3.49 | 162.35  | 0.08 | 154.15  | 0.07 | -171.43 |
| 12.0      | 0.15 | -91.82  | 3.35 | 137.75  | 0.09 | 130.38  | 0.10 | 143.16  |
| 12.5      | 0.20 | -143.19 | 3.33 | 109.18  | 0.09 | 107.82  | 0.11 | 107.15  |
| 13.0      | 0.28 | -159.75 | 3.10 | 76.46   | 0.10 | 77.72   | 0.07 | 15.75   |