

ACP18015

8.0 TO 18.0 GHz COUGARPAK® AMPLIFIER

Typical Values

| | |
|--|-----------------|
| | ACP18015 |
| Low Noise Figure | 4.5 dB |
| Medium Output Power | +14.0 dBm |
| Medium Gain | 9.2 dB |
| High Performance Thin Film | |
| High Frequency Single-stage CougarPak® | |

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | |
|--------------------------|--------------|--------------|---------------|
| | | 0 to 50 °C | -55 to +85 °C |
| Frequency (Min.) | 7.0-18.5 GHz | 8.0-18.0 GHz | 8.0-18.0 GHz |
| Small Signal Gain (Min.) | 9.2 dB | 8.5 dB | 8.0 dB |
| Gain Flatness (Max.) | ±0.5 dB | ±0.8 dB | ±1.0 dB |
| Noise Figure (Max.) | 4.5 dB | 7.0 dB | 7.5 dB |
| SWR (Max.) | 1.6:1 | 2.0:1 | 2.0:1 |
| Power Output (Min.) | +14.0 dBm | +12.0 dBm | +11.5 dBm |
| Reverse Isolation | 25.0 dB | — | — |
| DC Current (Max.) | 63.0 mA | 67.0 mA | 70.0 mA |

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C; @ 9.5 GHz

ACP18015

| | |
|---|---------|
| Second Order Harmonic Intercept Point | +37 dBm |
| Second Order Two Tone Intercept Point | +31 dBm |
| Third Order Two Tone Intercept Point | +23 dBm |

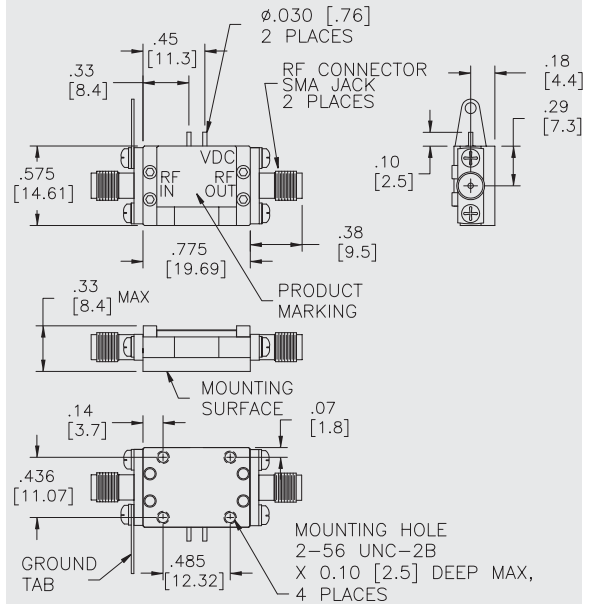
ABSOLUTE MAXIMUM RATINGS

| | |
|--|----------------|
| Storage Temperature | -65 to +150 °C |
| Maximum Case Temperature | +125 °C |
| Maximum DC Voltage | +8 Volts |
| Maximum Continuous RF Input Power | +20 dBm |
| Maximum Short Term Input Power (1 Minute Max.) | +23 dBm |
| Maximum Peak Power (3 μsec Max.) | +27 dBm |
| Burn-in Temperature | +125 °C |
| Thermal Resistance ¹ (θjc) | 105 °C/Watt |
| Junction Temperature Rise Above Case (Tjc) | +33 °C |

¹ Thermal resistance is based on total power dissipation.

ACP18015

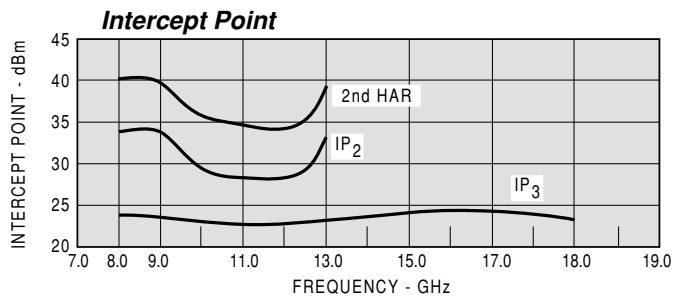
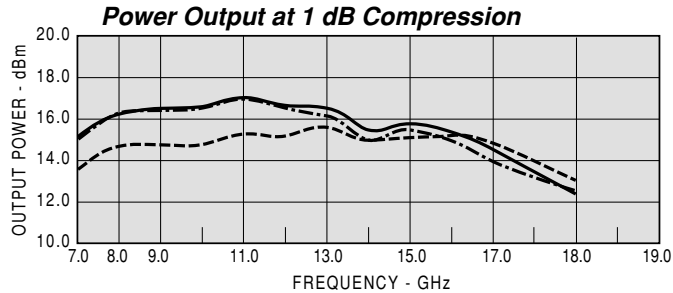
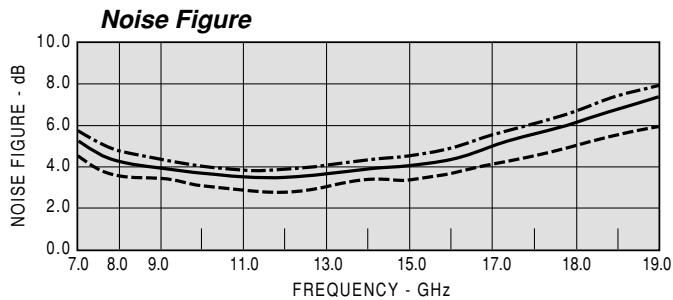
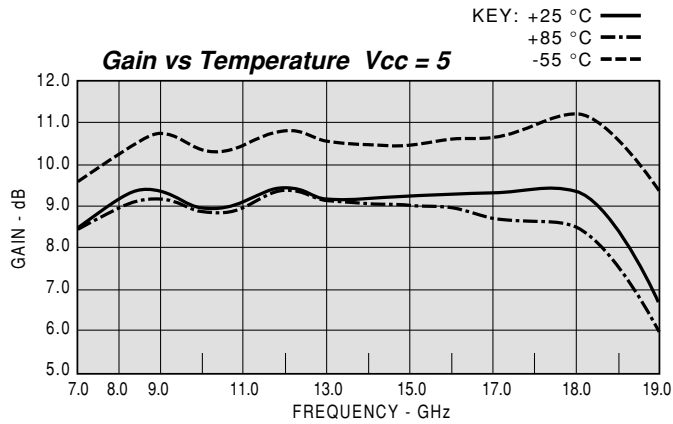
High Frequency CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



| Model: ACP18015 | | | Vcc= +5V | | | Icc= 62.25 | |
|-----------------|------|------|----------|---------|-------|------------|--|
| FREQ | SWR | SWR | GAIN | PHASE | DELAY | REV/ISO | |
| GHZ | IN | OUT | DB | DEG | NSEC | DB | |
| 7.0 | 2.22 | 1.57 | 8.67 | 113.10 | 0.11 | -29.59 | |
| 7.5 | 2.05 | 1.34 | 8.98 | 92.33 | 0.11 | -28.33 | |
| 8.0 | 1.81 | 1.27 | 9.18 | 74.39 | 0.07 | -28.30 | |
| 8.5 | 1.64 | 1.47 | 9.40 | 53.99 | 0.11 | -28.13 | |
| 9.0 | 1.59 | 1.65 | 9.33 | 35.02 | 0.12 | -27.78 | |
| 9.5 | 1.48 | 1.77 | 9.00 | 19.83 | 0.08 | -27.61 | |
| 10.0 | 1.37 | 1.78 | 8.90 | 5.19 | 0.08 | -27.80 | |
| 10.5 | 1.27 | 1.78 | 9.02 | -9.70 | 0.08 | -27.29 | |
| 11.0 | 1.24 | 1.73 | 9.05 | -25.89 | 0.09 | -26.37 | |
| 11.5 | 1.23 | 1.66 | 9.29 | -39.61 | 0.07 | -26.57 | |
| 12.0 | 1.13 | 1.51 | 9.52 | -54.67 | 0.08 | -26.13 | |
| 12.5 | 1.09 | 1.33 | 9.38 | -72.71 | 0.09 | -25.90 | |
| 13.0 | 1.16 | 1.15 | 9.29 | -89.76 | 0.09 | -25.05 | |
| 13.5 | 1.23 | 1.02 | 9.28 | -105.14 | 0.09 | -24.92 | |
| 14.0 | 1.24 | 1.09 | 9.22 | -121.12 | 0.09 | -24.46 | |
| 14.5 | 1.25 | 1.14 | 9.10 | -136.79 | 0.09 | -23.98 | |
| 15.0 | 1.22 | 1.16 | 9.16 | -152.99 | 0.09 | -23.80 | |
| 15.5 | 1.21 | 1.17 | 9.17 | -169.67 | 0.10 | -23.41 | |
| 16.0 | 1.17 | 1.08 | 9.17 | -173.83 | 0.09 | -23.36 | |
| 16.5 | 1.20 | 1.07 | 9.23 | -155.68 | 0.11 | -22.63 | |
| 17.0 | 1.35 | 1.29 | 9.19 | -136.55 | 0.13 | -22.25 | |
| 17.5 | 1.47 | 1.42 | 9.16 | -117.08 | 0.12 | -22.14 | |
| 18.0 | 1.38 | 1.35 | 9.29 | -97.17 | 0.12 | -21.63 | |
| 18.5 | 1.17 | 1.61 | 8.83 | -69.90 | 0.15 | -21.95 | |

| Model: ACP18015 | | | LINEAR S-PARAMETERS | | | | | | Vcc= +5V | | Icc= 62.25 | |
|-----------------|------|--------|---------------------|---------|------|---------|------|---------|----------|-----|------------|-----|
| FREQ | S11 | | S21 | | S12 | | S22 | | MAG | ANG | MAG | ANG |
| GHZ | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG | | | | |
| 7.0 | 0.38 | 55.22 | 2.74 | 112.99 | 0.03 | 45.02 | 0.23 | 119.58 | | | | |
| 7.5 | 0.34 | 37.11 | 2.85 | 93.05 | 0.04 | 28.51 | 0.14 | 76.29 | | | | |
| 8.0 | 0.29 | 15.85 | 2.91 | 74.56 | 0.04 | 7.57 | 0.12 | 0.12 | | | | |
| 8.5 | 0.24 | -1.73 | 2.98 | 54.60 | 0.04 | -11.50 | 0.19 | -50.39 | | | | |
| 9.0 | 0.23 | -23.81 | 2.97 | 35.59 | 0.04 | -25.16 | 0.25 | -71.75 | | | | |
| 9.5 | 0.20 | -44.39 | 2.85 | 20.03 | 0.04 | -37.27 | 0.28 | -81.74 | | | | |
| 10.0 | 0.15 | -54.10 | 2.82 | 5.66 | 0.04 | -55.43 | 0.29 | -85.81 | | | | |
| 10.5 | 0.12 | -49.74 | 2.86 | -9.41 | 0.05 | -64.59 | 0.29 | -85.20 | | | | |
| 11.0 | 0.11 | -40.45 | 2.87 | -25.58 | 0.05 | -77.58 | 0.27 | -85.01 | | | | |
| 11.5 | 0.09 | -33.70 | 2.95 | -39.27 | 0.05 | -91.38 | 0.25 | -90.40 | | | | |
| 12.0 | 0.06 | -24.64 | 3.01 | -54.29 | 0.05 | -102.37 | 0.20 | -100.12 | | | | |
| 12.5 | 0.04 | 25.01 | 2.98 | -72.28 | 0.05 | -116.39 | 0.14 | -116.55 | | | | |
| 13.0 | 0.08 | 56.34 | 2.95 | -89.34 | 0.06 | -129.61 | 0.07 | -141.24 | | | | |
| 13.5 | 0.10 | 41.72 | 2.94 | -104.87 | 0.06 | -145.16 | 0.01 | -157.92 | | | | |
| 14.0 | 0.11 | 16.10 | 2.92 | -120.66 | 0.06 | -156.83 | 0.03 | -10.40 | | | | |
| 14.5 | 0.11 | -16.34 | 2.87 | -136.23 | 0.07 | -170.49 | 0.06 | -39.64 | | | | |
| 15.0 | 0.11 | -41.68 | 2.90 | -152.58 | 0.07 | -174.25 | 0.08 | -49.90 | | | | |
| 15.5 | 0.09 | -50.02 | 2.89 | -168.74 | 0.07 | -159.60 | 0.09 | -60.05 | | | | |
| 16.0 | 0.07 | -36.18 | 2.90 | -174.20 | 0.07 | -148.67 | 0.06 | -62.75 | | | | |
| 16.5 | 0.09 | 3.26 | 2.90 | -156.33 | 0.07 | -132.67 | 0.03 | 43.10 | | | | |
| 17.0 | 0.15 | 18.58 | 2.89 | -137.20 | 0.08 | -115.20 | 0.11 | 57.96 | | | | |
| 17.5 | 0.20 | 16.10 | 2.87 | -117.60 | 0.08 | -96.31 | 0.16 | 50.16 | | | | |
| 18.0 | 0.15 | 6.88 | 2.91 | -97.59 | 0.08 | -77.35 | 0.15 | 62.77 | | | | |
| 18.5 | 0.07 | 69.97 | 2.75 | -70.37 | 0.08 | -47.31 | 0.25 | 92.28 | | | | |
| 19.0 | 0.21 | 101.39 | 2.50 | -43.03 | 0.07 | -21.68 | 0.43 | 79.37 | | | | |