

A2CP14221 8.0-14.0 GHz COUGARPAK® AMPLIFIER

| Typical Values | A2CP14221 |
|---|-----------|
| High Gain | 21.3 dB |
| Low Noise Figure | 3.2 dB |
| High Reverse Isolation | 45.0 dB |
| High Performance Thin Film High Frequency Two-stage CougarPak® Package | |

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | |
|------------------------------------|--------------|--------------|---------------|
| | | 0 to 50 °C | -55 to +85 °C |
| Frequency (Min.) | 8.0-14.0 GHz | 8.0-14.0 GHz | 8.0-14.0 GHz |
| Small Signal Gain (Min.) | 21.3 dB | 20.2 dB | 19.0 dB |
| Gain Flatness (Max.) | ±0.7 dB | ±1.5 dB | ±1.5 dB |
| Noise Figure (Max.) | 3.2 dB | 4.0 dB | 5.0 dB |
| SWR (Max.) Input/Output | 1.8:1 | 2.0:1 | 2.0:1 |
| Power Output (Min.) @ 1dB comp. | +25.0 dBm | +23.0 dBm | +22.5 dBm |
| Reverse Isolation | 45.0 dB | — | — |
| DC Current (Max.) | 185 mA | 195 mA | 205 mA |

* Measured in a 50-ohm system at +12 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

| Typical @ 25 °C @ 9.0 GHz | A2CP14221 |
|---|-----------|
| Second Order Harmonic Intercept Point | +49 dBm |
| Second Order Two Tone Intercept Point | +43 dBm |
| Third Order Two Tone Intercept Point | +33 dBm |

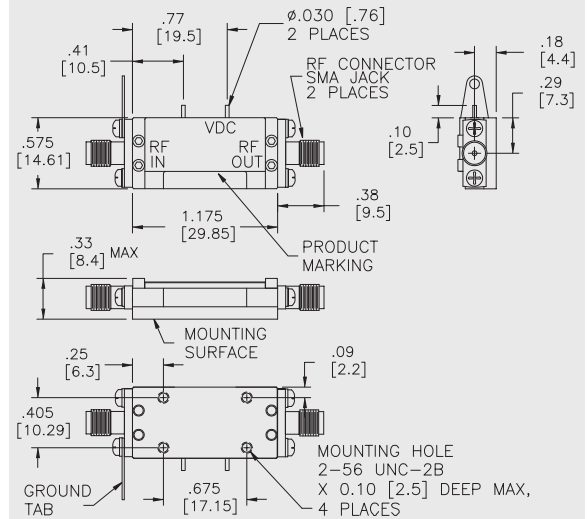
ABSOLUTE MAXIMUM RATINGS

| | |
|--|----------------|
| Storage Temperature | -65 to +150 °C |
| Maximum Case Temperature | +125 °C |
| Maximum DC Voltage | +14 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) | +11.4 °C/Watt |
| Junction Temperature Rise Above Case (Tjc) | +25.3 °C |

¹ Thermal resistance is based on total power dissipation.

A2CP14221

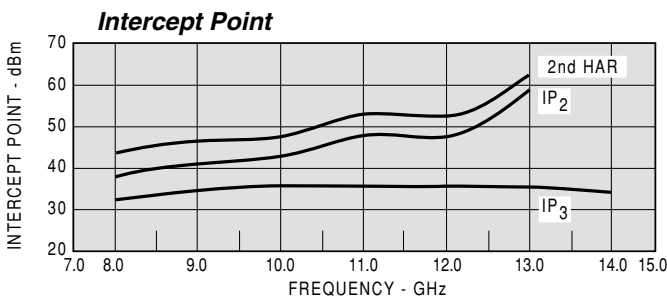
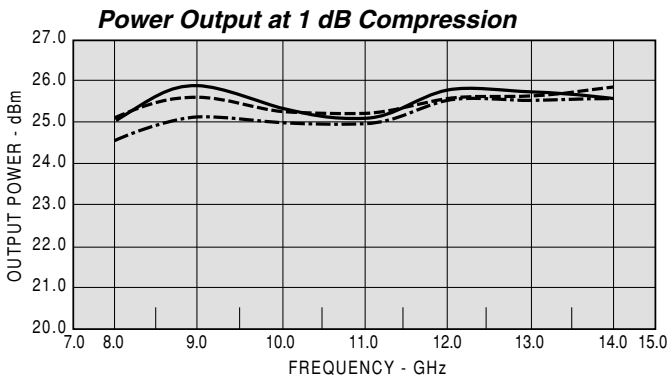
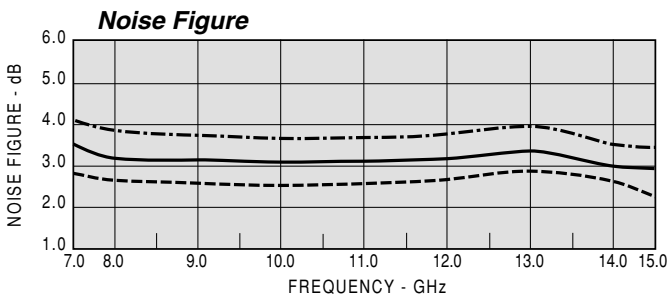
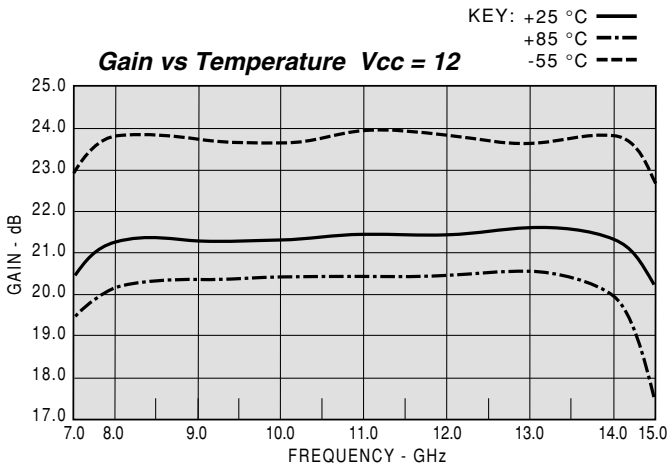
High Frequency CougarPak® SMA Package (two-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: A2CP14221 Vcc=+12V Icc=184.1

| FREQ | SWR IN | SWR OUT | GAIN DB | PHASE DEG | DELAY NSEC | REV/ISO DB |
|------|--------|---------|---------|-----------|------------|------------|
| 7.0 | 1.45 | 1.43 | 20.39 | 12.93 | 0.42 | 55.70 |
| 7.5 | 1.30 | 1.24 | 20.83 | -61.64 | 0.42 | -54.17 |
| 8.0 | 1.25 | 1.42 | 21.21 | -137.97 | 0.43 | -51.40 |
| 8.5 | 1.26 | 1.48 | 21.38 | 146.96 | 0.42 | -50.57 |
| 9.0 | 1.39 | 1.23 | 21.09 | 73.47 | 0.41 | -50.76 |
| 9.5 | 1.41 | 1.14 | 20.92 | 2.58 | 0.39 | -49.21 |
| 10.0 | 1.41 | 1.48 | 20.95 | -67.49 | 0.38 | -48.43 |
| 10.5 | 1.49 | 1.48 | 21.20 | -139.76 | 0.41 | -47.81 |
| 11.0 | 1.49 | 1.44 | 21.14 | 148.12 | 0.41 | -46.94 |
| 11.5 | 1.51 | 1.69 | 21.18 | 75.38 | 0.42 | -45.05 |
| 12.0 | 1.63 | 1.52 | 21.19 | 3.25 | 0.40 | -45.15 |
| 12.5 | 1.66 | 1.31 | 21.13 | -69.28 | 0.40 | -44.75 |
| 13.0 | 1.63 | 1.40 | 21.29 | -142.24 | 0.44 | -43.34 |
| 13.5 | 1.49 | 1.36 | 21.22 | 143.19 | 0.42 | -41.49 |
| 14.0 | 1.18 | 1.77 | 21.06 | 67.67 | 0.43 | -40.78 |
| 14.5 | 1.20 | 1.71 | 20.19 | -10.02 | 0.41 | -41.07 |
| 15.0 | 1.35 | 1.69 | 18.91 | -85.4 | 0.41 | -41.04 |

Model: A2CP14221 Vcc=+12V Icc=184.1

LINEAR S-PARAMETERS

| FREQ. | S11 | | S21 | | S12 | | S22 | |
|-------|------|---------|-------|---------|------|---------|------|---------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 7.0 | 0.20 | 26.88 | 10.70 | 14.49 | 0.00 | -107.54 | 0.04 | 109.10 |
| 7.5 | 0.15 | -18.93 | 11.18 | -60.35 | 0.00 | 178.97 | 0.06 | 19.10 |
| 8.0 | 0.12 | -64.80 | 11.78 | -136.29 | 0.00 | 107.52 | 0.08 | -30.15 |
| 8.5 | 0.12 | -126.83 | 11.88 | 147.98 | 0.00 | 37.67 | 0.09 | -72.88 |
| 9.0 | 0.13 | 177.54 | 11.54 | 74.01 | 0.00 | -26.14 | 0.12 | -117.20 |
| 9.5 | 0.13 | 141.00 | 11.22 | 2.55 | 0.00 | -89.19 | 0.13 | -154.95 |
| 10.0 | 0.15 | 98.62 | 11.33 | -67.78 | 0.00 | -151.60 | 0.09 | 172.41 |
| 10.5 | 0.18 | 24.48 | 11.64 | -139.30 | 0.00 | 140.90 | 0.03 | 156.59 |
| 11.0 | 0.21 | -56.18 | 11.75 | 148.30 | 0.00 | 75.55 | 0.04 | -124.99 |
| 11.5 | 0.25 | -120.17 | 11.78 | 75.76 | 0.00 | 8.15 | 0.10 | -151.87 |
| 12.0 | 0.25 | -165.20 | 11.63 | 2.87 | 0.01 | -58.78 | 0.11 | 167.88 |
| 12.5 | 0.25 | 161.13 | 11.40 | -68.50 | 0.01 | -127.05 | 0.07 | 140.55 |
| 13.0 | 0.23 | 131.39 | 11.49 | -141.58 | 0.01 | 166.59 | 0.06 | -162.34 |
| 13.5 | 0.16 | 104.61 | 11.39 | 144.06 | 0.01 | 98.91 | 0.13 | -176.82 |
| 14.0 | 0.07 | 100.08 | 11.14 | 68.22 | 0.01 | 26.46 | 0.12 | 153.71 |
| 14.5 | 0.10 | 143.52 | 10.37 | -10.36 | 0.01 | -45.19 | 0.06 | 155.54 |
| 15.0 | 0.18 | 105.72 | 9.02 | -86.02 | 0.01 | -113.24 | 0.10 | -177.62 |