

A2CP4122

800 TO 4000 MHz COUGARPAK® AMPLIFIER

| | |
|---|-----------------|
| Typical Values | A2CP4122 |
| High Gain | 37.5 dB |
| Low Noise Figure | 2.2 dB |
| High Output Level | +21.5 dBm |
| High Third Order I.P. | +33 dBm |
| High Reverse Isolation | 60 dB |
| High Performance Thin Film Standard Two-stage CougarPak® Package | |

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | |
|------------------------------------|--------------|--------------|---------------|
| | | 0 to 50 °C | -55 to +85 °C |
| Frequency (Min.) | 500-4000 MHz | 800-4000 MHz | 800-4000 MHz |
| Small Signal Gain (Min.) | 37.5 dB | 36.5 dB | 35.0 dB |
| Gain Flatness (Max.) | ±0.6 dB | ±1.0 dB | ±1.2 dB |
| Noise Figure (Max.) | 2.3 dB | 3.0 dB | 3.5 dB |
| SWR (Max.) | Input/Output | 1.9:1 | 2.0:1 |
| Power Output (Min.) @ 1dB comp. | +21.5 dBm | +20.0 dBm | +19.0 dBm |
| Reverse Isolation | 60.0 dB | — | — |
| DC Current (Max.) | 207 mA | 215 mA | 225 mA |

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

| | |
|---|-----------------|
| Typical @ 25 °C | A2CP4122 |
| Second Order Harmonic Intercept Point | +53 dBm |
| Second Order Two Tone Intercept Point | +47 dBm |
| Third Order Two Tone Intercept Point | +33 dBm |

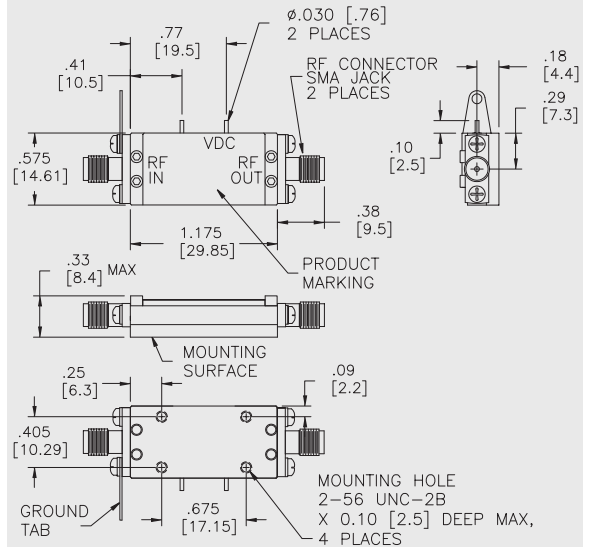
ABSOLUTE MAXIMUM RATINGS

| | |
|--|----------------|
| Storage Temperature | -62 to +125 °C |
| Maximum Case Temperature | +125 °C |
| Maximum DC Voltage | +17 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 | +85 °C |
| Thermal Resistance ¹ (θjc) | +41 °C/Watt |
| Junction Temperature Rise Above Case (Tjc) | +59.4 °C |

¹ Thermal resistance is based on total power dissipation.

A2CP4122

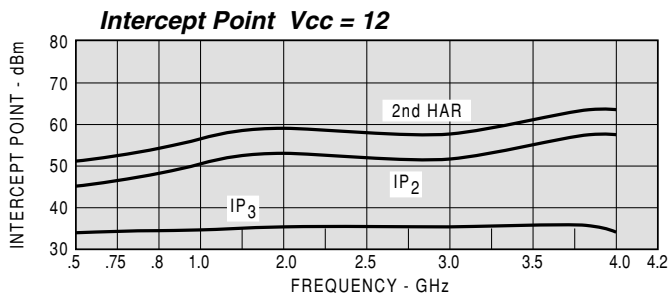
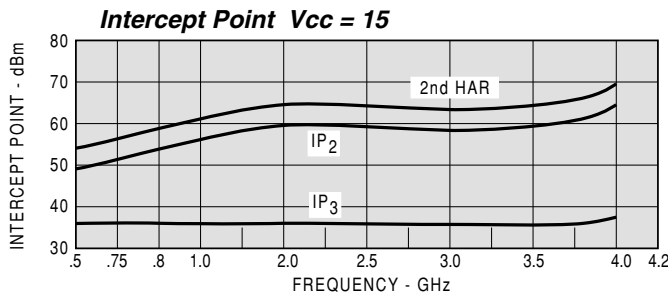
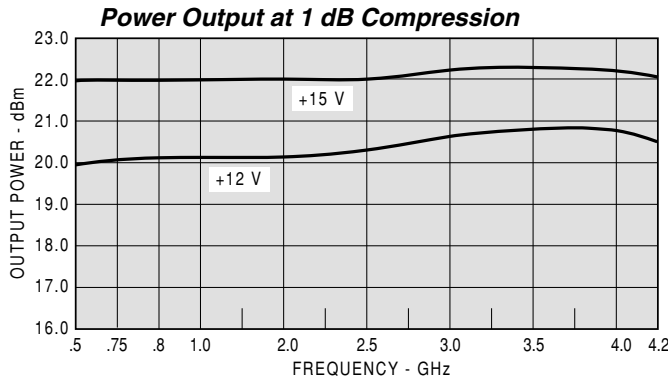
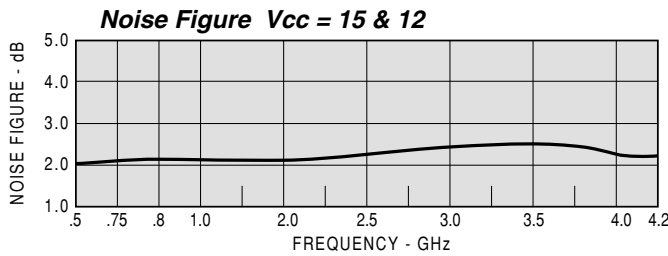
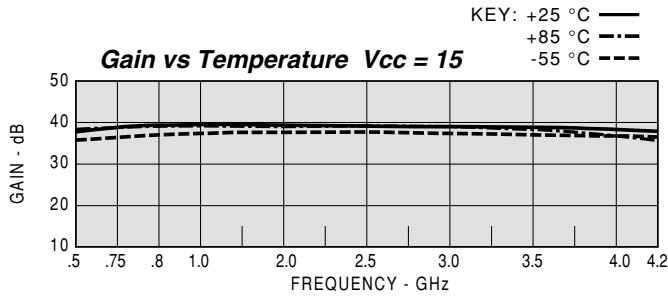
CougarPak® Connectorized Package (two-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



| Model: A2CP4122 | | | Vcc= +15V | | | Icc= 207.20 | |
|-----------------|------|------|-----------|-------|-------------|-------------|--|
| FREQ | SWR | SWR | GAIN | PHASE | GROUP DELAY | REV/ISO | |
| MHZ | IN | OUT | DB | DEG | NSEC | DB | |
| 500 | 1.21 | 1.36 | 38.66 | -15 | | -77.6 | |
| 700 | 1.21 | 1.16 | 39.16 | -71 | | -65.9 | |
| 900 | 1.22 | 1.08 | 39.29 | -116 | 0.61 | -72.3 | |
| 1000 | 1.24 | 1.08 | 39.28 | -138 | 0.58 | -76.4 | |
| 1200 | 1.26 | 1.12 | 39.28 | -177 | 0.55 | -64.3 | |
| 1400 | 1.26 | 1.14 | 39.27 | 144 | 0.53 | -65.4 | |
| 1600 | 1.27 | 1.16 | 39.17 | 107 | 0.51 | -65.3 | |
| 1800 | 1.28 | 1.16 | 39.08 | 70 | 0.51 | -74.4 | |
| 2000 | 1.30 | 1.16 | 39.07 | 34 | 0.52 | -67.5 | |
| 2200 | 1.31 | 1.15 | 38.85 | -2 | 0.49 | -65.0 | |
| 2400 | 1.35 | 1.14 | 38.51 | -37 | 0.46 | -64.0 | |
| 2600 | 1.36 | 1.13 | 38.54 | -69 | 0.46 | -67.1 | |
| 2800 | 1.38 | 1.11 | 38.85 | -105 | 0.50 | -64.0 | |
| 3000 | 1.39 | 1.11 | 39.02 | -142 | 0.52 | -58.3 | |
| 3200 | 1.34 | 1.13 | 39.02 | -180 | 0.53 | -57.2 | |
| 3400 | 1.31 | 1.11 | 38.83 | 143 | 0.51 | -60.3 | |
| 3600 | 1.31 | 1.09 | 38.69 | 106 | 0.51 | -56.6 | |
| 3800 | 1.36 | 1.14 | 38.55 | 68 | 0.53 | -60.9 | |
| 4000 | 1.36 | 1.14 | 38.31 | 30 | 0.53 | -53.6 | |
| 4200 | 1.48 | 1.19 | 38.03 | -12 | 0.59 | -66.1 | |

| Model: A2CP4122 | | | Vcc=+15V | | | | Icc= 207.20 | |
|-----------------|------|--------|----------|--------|-------|--------|-------------|--------|
| FREQ | S11 | | S21 | | S12 | | S22 | |
| MHZ | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 500 | 0.09 | -75.5 | 85.72 | -14.9 | 0.000 | -39.4 | 0.15 | 68.0 |
| 700 | 0.09 | -82.6 | 90.76 | -70.6 | 0.001 | -114.4 | 0.07 | 49.1 |
| 900 | 0.10 | -93.2 | 92.13 | -116.5 | 0.000 | -30.8 | 0.04 | 71.0 |
| 1000 | 0.11 | -98.4 | 92.01 | -137.5 | 0.000 | 31.5 | 0.04 | 89.2 |
| 1200 | 0.11 | -111.8 | 92.03 | -177.2 | 0.001 | -169.9 | 0.05 | 98.1 |
| 1400 | 0.12 | -124.4 | 91.94 | 144.3 | 0.001 | 156.3 | 0.06 | 100.7 |
| 1600 | 0.12 | -133.8 | 90.91 | 107.3 | 0.001 | 60.9 | 0.07 | 96.4 |
| 1800 | 0.12 | -140.3 | 89.99 | 70.4 | 0.000 | 23.7 | 0.08 | 92.9 |
| 2000 | 0.13 | -144.7 | 89.82 | 33.8 | 0.000 | -164.0 | 0.07 | 93.1 |
| 2200 | 0.14 | -145.7 | 87.62 | -2.20 | 0.001 | -145.9 | 0.07 | 94.7 |
| 2400 | 0.15 | -152.2 | 84.27 | -36.8 | 0.001 | -167.0 | 0.07 | 95.9 |
| 2600 | 0.15 | -157.3 | 84.52 | -69.4 | 0.000 | 99.5 | 0.06 | 96.2 |
| 2800 | 0.16 | -162.5 | 87.61 | -104.5 | 0.001 | -141.5 | 0.05 | 104.5 |
| 3000 | 0.16 | -168.1 | 89.33 | -141.8 | 0.001 | 96.4 | 0.05 | 120.9 |
| 3200 | 0.15 | -176.4 | 89.29 | -179.7 | 0.001 | -7.6 | 0.06 | 117.9 |
| 3400 | 0.14 | -173.5 | 87.36 | 143.5 | 0.001 | 163.8 | 0.05 | 128.2 |
| 3600 | 0.13 | -164.5 | 86.04 | 106.2 | 0.001 | 24.3 | 0.04 | 151.9 |
| 3800 | 0.15 | -171.1 | 84.62 | 68.3 | 0.001 | 112.3 | 0.06 | 148.4 |
| 4000 | 0.15 | -177.2 | 82.33 | 29.9 | 0.002 | -146.5 | 0.07 | 148.7 |
| 4200 | 0.19 | 168.2 | 79.69 | -11.80 | 0.000 | 161.6 | 0.09 | 157.5 |
| 4400 | 0.20 | 146.7 | 73.83 | -56.60 | 0.001 | 58.1 | 0.12 | -168.3 |

| Model: A2CP4122 | | | Vcc= +12V | | | Icc= 195.56 | |
|-----------------|------|------|-----------|-------|-------------|-------------|--|
| FREQ | SWR | SWR | GAIN | PHASE | GROUP DELAY | REV/ISO | |
| MHZ | IN | OUT | DB | DEG | NSEC | DB | |
| 500 | 1.38 | 1.31 | 37.57 | -16 | | -71.6 | |
| 700 | 1.38 | 1.13 | 38.06 | -70 | | -70.9 | |
| 900 | 1.40 | 1.07 | 38.23 | -116 | 0.61 | -70.4 | |
| 1000 | 1.42 | 1.09 | 38.22 | -137 | 0.58 | -67.1 | |
| 1200 | 1.43 | 1.13 | 38.24 | -176 | 0.54 | -81.0 | |
| 1400 | 1.44 | 1.17 | 38.24 | 146 | 0.53 | -63.9 | |
| 1600 | 1.46 | 1.20 | 38.15 | 109 | 0.51 | -70.8 | |
| 1800 | 1.47 | 1.20 | 38.08 | 72 | 0.51 | -66.3 | |
| 2000 | 1.49 | 1.23 | 38.05 | 36 | 0.51 | -70.5 | |
| 2200 | 1.50 | 1.25 | 37.81 | 0 | 0.48 | -72.5 | |
| 2400 | 1.51 | 1.25 | 37.52 | -34 | 0.46 | -68.0 | |
| 2600 | 1.51 | 1.27 | 37.65 | -67 | 0.47 | -68.7 | |
| 2800 | 1.52 | 1.27 | 37.89 | -102 | 0.49 | -60.7 | |
| 3000 | 1.53 | 1.28 | 38.01 | -140 | 0.52 | -56.1 | |
| 3200 | 1.46 | 1.27 | 38.04 | -177 | 0.53 | -68.5 | |
| 3400 | 1.39 | 1.24 | 37.87 | 147 | 0.50 | -61.5 | |
| 3600 | 1.40 | 1.20 | 37.76 | 110 | 0.49 | -69.9 | |
| 3800 | 1.42 | 1.20 | 37.79 | 72 | 0.54 | -58.3 | |
| 4000 | 1.51 | 1.19 | 37.69 | 34 | 0.53 | -70.6 | |
| 4200 | 1.60 | 1.18 | 37.45 | -8 | 0.59 | -63.2 | |