

AC1529

10 TO 1500 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

High Output Power
High Third Order I.P.
High Performance Thin Film
Standart Size TO-8 Package

AC1529

+21.0 dBm
34 dBm

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | |
|------------------------------------|-------------|-------------|---------------|
| | | 0 to 50 °C | -55 to +85 °C |
| Frequency (Min.) | 10-1600 MHz | 10-1500 MHz | 10-1500 MHz |
| Small Signal Gain (Min.) | 9.0 dB | 8.5 dB | 8.0 dB |
| Gain Flatness (Max.) | < ±0.3 dB | ±0.4 dB | ±0.5 dB |
| Noise Figure (Max.) | 5.5 dB | 7.0 dB | 7.5 dB |
| SWR (Max.) Input/Output | < 1.6:1 | 1.8:1 | 2.0:1 |
| Power Output (Min.) @ 1dB comp. | +21.0 dBm | +19.5 dBm | +19.0 dBm |
| Reverse Isolation | 14.0 dB | — | — |
| DC Current (Max.) | 88.0 mA | 93.0 mA | 96.0 mA |

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 1.0 dB lower above 1200 MHz.

INTERMODULATION PERFORMANCE

| Typical @ 25 °C | +12 volts | +15 volts |
|---|-----------|-----------|
| Second Order Harmonic Intercept Point | +48 dBm | +49 dBm |
| Second Order Two Tone Intercept Point | +42 dBm | +43 dBm |
| Third Order Two Tone Intercept Point | +32 dBm | +34 dBm |

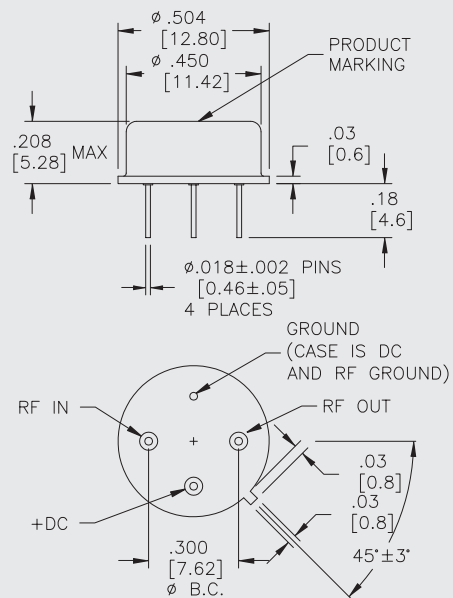
ABSOLUTE MAXIMUM RATINGS

| | |
|--|----------------|
| 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 | +100 °C |
| Thermal Resistance ¹ (θjc) | +31 °C/Watt |
| Junction Temperature Rise Above Case (Tjc) | +43 °C |

¹ Thermal resistance is based on total power dissipation.

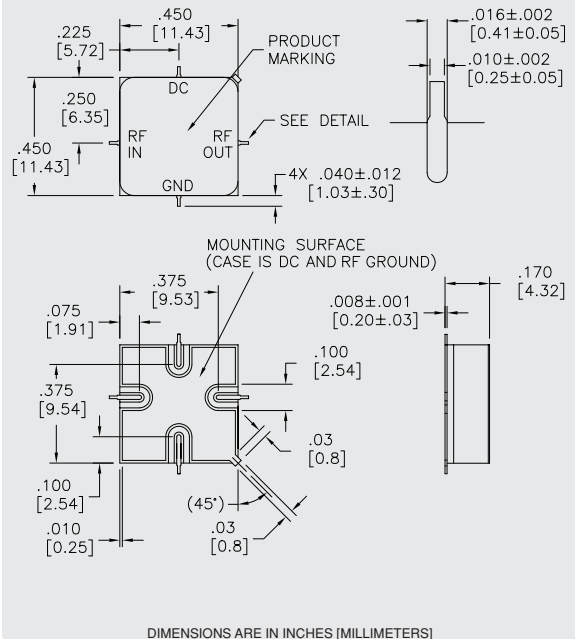
AC1529

TO-8 Package for Amplifiers



AS1529

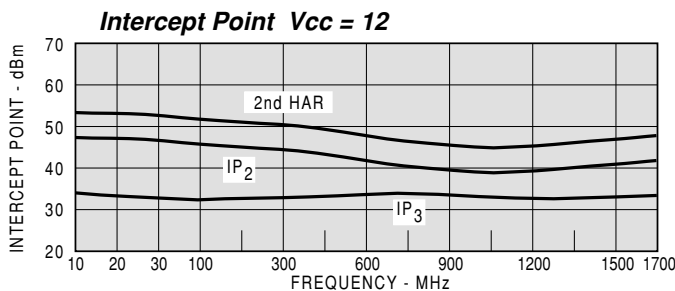
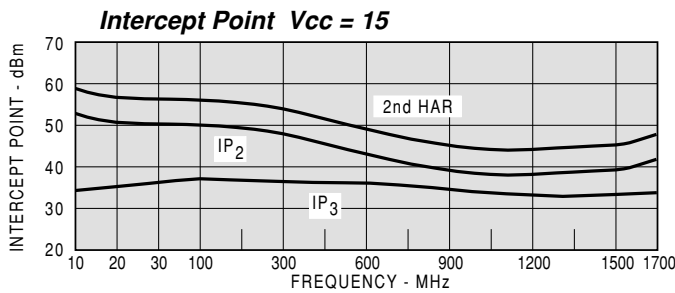
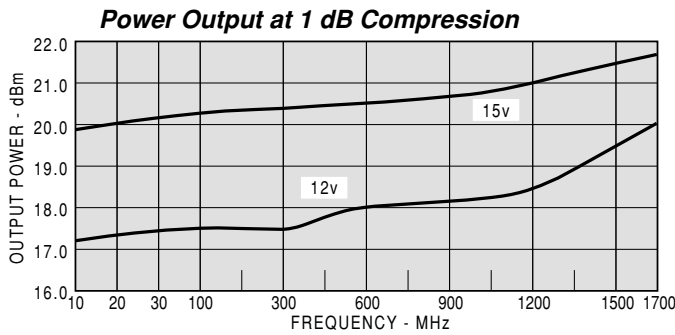
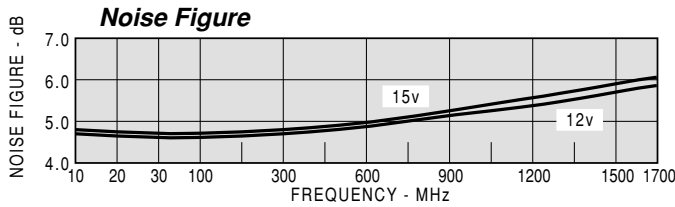
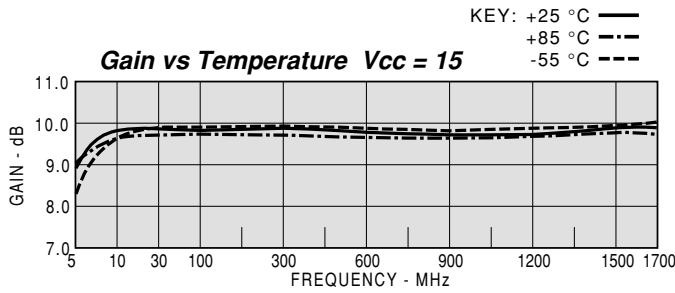
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



| Model: AC1529 | | | Vcc=+15V | | | Icc=87.66 | |
|---------------|------|------|----------|-------|-------------|-----------|--|
| FREQ | SWR | SWR | GAIN | PHASE | GROUP DELAY | REV/ISO | |
| MHZ | IN | OUT | DB | DEG | NSEC | DB | |
| 5 | 2.21 | 2.23 | 8.20 | -136 | | -15.5 | |
| 10 | 1.49 | 1.45 | 8.99 | -160 | | -14.6 | |
| 20 | 1.25 | 1.21 | 9.06 | -173 | 3.5 | -14.4 | |
| 50 | 1.16 | 1.16 | 9.02 | 178 | 0.89 | -14.5 | |
| 100 | 1.16 | 1.15 | 9.01 | 170 | 0.45 | -14.5 | |
| 200 | 1.18 | 1.14 | 9.02 | 156 | 0.37 | -14.5 | |
| 300 | 1.20 | 1.13 | 9.00 | 144 | 0.35 | -14.5 | |
| 400 | 1.23 | 1.13 | 8.96 | 131 | 0.35 | -14.5 | |
| 500 | 1.26 | 1.13 | 8.96 | 119 | 0.34 | -14.4 | |
| 600 | 1.30 | 1.13 | 8.91 | 107 | 0.34 | -14.3 | |
| 700 | 1.33 | 1.13 | 8.90 | 95 | 0.34 | -14.2 | |
| 800 | 1.36 | 1.13 | 8.88 | 83 | 0.34 | -14.1 | |
| 900 | 1.40 | 1.13 | 8.87 | 71 | 0.34 | -14.0 | |
| 1000 | 1.44 | 1.15 | 8.85 | 59 | 0.33 | -13.9 | |
| 1100 | 1.46 | 1.16 | 8.85 | 46 | 0.34 | -13.7 | |
| 1200 | 1.49 | 1.18 | 8.85 | 34 | 0.34 | -13.6 | |
| 1300 | 1.51 | 1.18 | 8.88 | 22 | 0.34 | -13.4 | |
| 1400 | 1.52 | 1.18 | 8.87 | 9 | 0.35 | -13.2 | |
| 1500 | 1.55 | 1.16 | 8.92 | -3 | 0.35 | -13.1 | |
| 1600 | 1.55 | 1.14 | 8.91 | -16 | 0.37 | -12.8 | |
| 1700 | 1.59 | 1.10 | 8.92 | -29 | 0.36 | -12.4 | |

| Model: AC1529 | | | Vcc=+15V | | | Icc=87.66 | | |
|---------------|------|--------|----------|--------|-------|-----------|------|-------|
| FREQ. | S11 | | S21 | | S12 | | S22 | |
| MHZ | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 5 | 0.38 | -79.6 | 2.57 | -136.5 | 0.169 | 49.2 | 0.38 | 167.9 |
| 10 | 0.20 | -102.7 | 2.81 | -159.9 | 0.187 | 23.5 | 0.18 | 140.9 |
| 20 | 0.11 | -124.3 | 2.84 | -172.5 | 0.189 | 10.1 | 0.09 | 143.1 |
| 50 | 0.08 | -144.9 | 2.83 | 177.8 | 0.187 | 1.6 | 0.08 | 157.8 |
| 100 | 0.08 | -151.6 | 2.82 | 169.8 | 0.188 | -3.4 | 0.07 | 153.9 |
| 200 | 0.08 | -152.1 | 2.82 | 156.5 | 0.188 | -10.1 | 0.07 | 139.5 |
| 300 | 0.09 | -151.2 | 2.82 | 143.9 | 0.189 | -16.0 | 0.06 | 125.1 |
| 400 | 0.10 | -149.9 | 2.81 | 131.5 | 0.189 | -22.0 | 0.06 | 108.9 |
| 500 | 0.11 | -150.6 | 2.81 | 119.3 | 0.191 | -27.9 | 0.06 | 93.2 |
| 600 | 0.13 | -151.3 | 2.79 | 107.1 | 0.193 | -34.0 | 0.06 | 78.2 |
| 700 | 0.14 | -151.9 | 2.79 | 95.0 | 0.195 | -39.9 | 0.06 | 61.6 |
| 800 | 0.15 | -153.6 | 2.78 | 82.8 | 0.197 | -46.1 | 0.06 | 41.5 |
| 900 | 0.17 | -155.3 | 2.78 | 70.7 | 0.199 | -52.2 | 0.06 | 19.5 |
| 1000 | 0.18 | -158.5 | 2.77 | 58.7 | 0.202 | -58.5 | 0.07 | 0.8 |
| 1100 | 0.19 | -162.9 | 2.77 | 46.4 | 0.207 | -64.7 | 0.08 | -15.1 |
| 1200 | 0.20 | -169.4 | 2.77 | 34.2 | 0.208 | -71.5 | 0.08 | -27.5 |
| 1300 | 0.20 | -176.6 | 2.78 | 21.8 | 0.213 | -78.0 | 0.08 | -41.2 |
| 1400 | 0.21 | -174.0 | 2.78 | 9.3 | 0.219 | -84.8 | 0.08 | -54.1 |
| 1500 | 0.21 | -164.0 | 2.79 | -3.3 | 0.221 | -92.6 | 0.07 | -65.9 |
| 1600 | 0.22 | -152.0 | 2.79 | -16.5 | 0.228 | -99.4 | 0.06 | -80.3 |
| 1700 | 0.23 | -135.4 | 2.79 | -29.4 | 0.240 | -107.3 | 0.05 | -93.0 |

| Model: AC1529 | | | Vcc=+12V | | | Icc=74.89 | |
|---------------|------|------|----------|-------|-------------|-----------|--|
| FREQ | SWR | SWR | GAIN | PHASE | GROUP DELAY | REV/ISO | |
| MHZ | IN | OUT | DB | DEG | NSEC | DB | |
| 5 | 2.20 | 2.22 | 8.16 | -136 | | -15.4 | |
| 10 | 1.49 | 1.44 | 8.95 | -160 | | -14.6 | |
| 20 | 1.25 | 1.20 | 9.02 | -173 | 3.5 | -14.4 | |
| 50 | 1.16 | 1.16 | 8.99 | 178 | 0.89 | -14.5 | |
| 100 | 1.16 | 1.14 | 8.98 | 170 | 0.45 | -14.5 | |
| 200 | 1.18 | 1.13 | 8.98 | 156 | 0.37 | -14.5 | |
| 300 | 1.21 | 1.12 | 8.96 | 144 | 0.35 | -14.4 | |
| 400 | 1.24 | 1.12 | 8.91 | 131 | 0.34 | -14.4 | |
| 500 | 1.27 | 1.12 | 8.91 | 119 | 0.34 | -14.3 | |
| 600 | 1.31 | 1.11 | 8.88 | 107 | 0.34 | -14.3 | |
| 700 | 1.35 | 1.10 | 8.85 | 95 | 0.34 | -14.2 | |
| 800 | 1.38 | 1.10 | 8.83 | 82 | 0.34 | -14.0 | |
| 900 | 1.42 | 1.10 | 8.80 | 70 | 0.33 | -14.0 | |
| 1000 | 1.45 | 1.11 | 8.77 | 58 | 0.34 | -13.8 | |
| 1100 | 1.48 | 1.13 | 8.78 | 46 | 0.34 | -13.6 | |
| 1200 | 1.50 | 1.14 | 8.78 | 34 | 0.34 | -13.5 | |
| 1300 | 1.52 | 1.14 | 8.80 | 21 | 0.34 | -13.3 | |
| 1400 | 1.54 | 1.14 | 8.79 | 9 | 0.35 | -13.1 | |
| 1500 | 1.56 | 1.12 | 8.84 | -4 | 0.35 | -13.0 | |
| 1600 | 1.57 | 1.10 | 8.82 | -17 | 0.36 | -12.7 | |
| 1700 | 1.60 | 1.07 | 8.82 | -30 | 0.36 | -12.3 | |