

AC564 AC566

5 TO 500 MHz TO-8 CASCADABLE AMPLIFIERS

| Typical Values | AC564 | AC566 |
|----------------------------|---------|---------|
| High Gain | 36.2 dB | 32.5 dB |
| High Reverse Isolation | 46 dB | 40 dB |
| Low Noise Figure | 2.5 dB | 2.8 dB |
| High Efficiency | | |
| High Performance Thin Film | | |
| Standard Size TO-8 Package | | |

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | | |
|------------------------------------|--------------|--------------------|--------------------|--------------------|
| | | 0 to 50 °C | -55 to +85 °C | |
| Frequency (Min.) | | 5-600 MHz | 5-500 MHz | 5-500 MHz |
| Small Signal Gain (Min.) | | | | |
| AC564 | 36.2 dB | 35.5 dB | 35.0 dB | 35.0 dB |
| AC566 | 32.5 dB | 32.0 dB | 31.5 dB | 31.5 dB |
| Gain Flatness (Max.) | ±0.35 dB | ±0.5 dB | ±0.7 dB | |
| Noise Figure (Max.) | | | | |
| AC564 | 2.5 dB | 3.5 dB | 4.0 dB | |
| AC566 | 2.8 dB | 3.5 dB | 4.0 dB | |
| SWR (Max.) | Input/Output | 1.4:1 [^] | 1.7:1 [^] | 1.8:1 [^] |
| Power Output (Min.) @ 1dB comp. | | | | |
| AC564 | +11.5 dBm | +10.5 dBm | +10.0 dBm | |
| AC566 | +16.0 dBm | +15.0 dBm | +14.5 dBm | |
| Reverse Isolation | | | | |
| AC564 | 46.0 dB | — | — | |
| AC566 | 40.0 dB | — | — | |
| DC Current (Max.) | | | | |
| AC564 | 48.0 mA | 51.0 mA | 54.0 mA | |
| AC566 | 65.0 mA | 68.0 mA | 71.0 mA | |

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ AC564 Input SWR is 0.2 higher at 5.0 MHz.

INTERMODULATION PERFORMANCE

| Typical @ 25 °C | AC564 | AC566 |
|---------------------------------------|---------|---------|
| Second Order Harmonic Intercept Point | +41 dBm | +53 dBm |
| Second Order Two Tone Intercept Point | +35 dBm | +47 dBm |
| Third Order Two Tone Intercept Point | +23 dBm | +30 dBm |

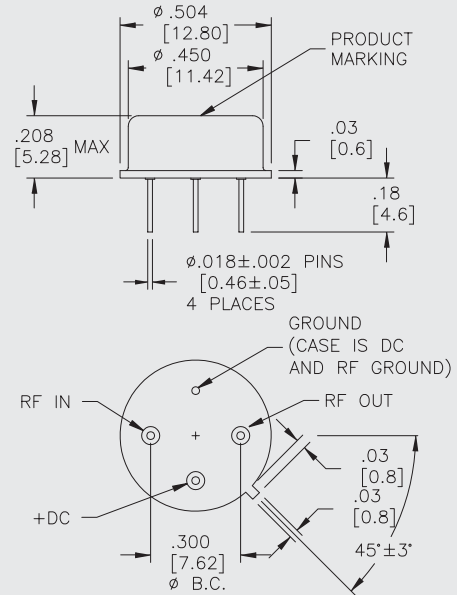
ABSOLUTE MAXIMUM RATINGS

| | |
|--|----------------|
| Storage Temperature | -62 to +125 °C |
| Maximum Case Temperature | +125 °C |
| Maximum DC Voltage | +19 Volts |
| Maximum Continuous RF Input Power | +6 dBm |
| Maximum Short Term Input Power (1 Minute Max.) | 50 Milliwatts |
| Maximum Peak Power (3 μsec Max.) | 0.5 Watt |
| Burn-in Temperature (AC564) | +105 °C |
| Burn-in Temperature (AC566) | +100 °C |
| Thermal Resistance ¹ (θ _{jc} ; AC564) | +35 °C/Watt |
| Thermal Resistance ¹ (θ _{jc} ; AC566) | +35 °C/Watt |
| Junction Temperature Rise Above Case (T _{jc} ; AC564) | +26.9 °C |
| Junction Temperature Rise Above Case (T _{jc} ; AC566) | +35.7 °C |

¹ Thermal resistance is based on total power dissipation.

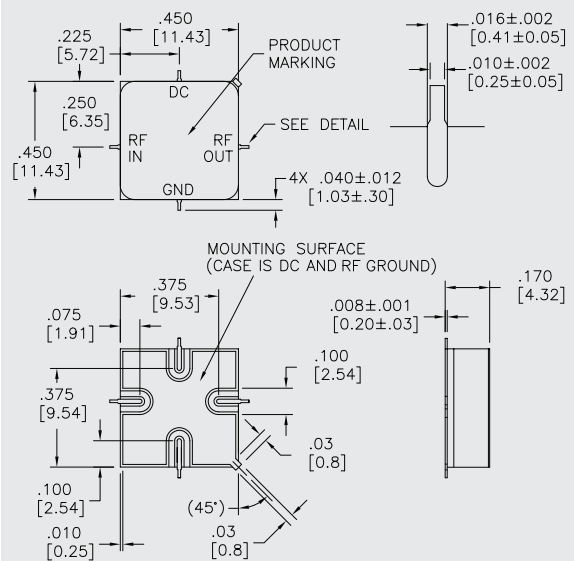
AC564/AC566

TO-8 Package for Amplifiers



AS564/AS566

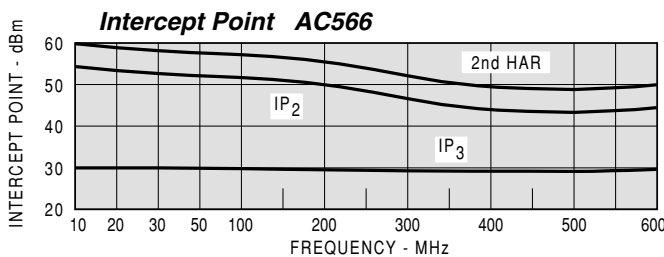
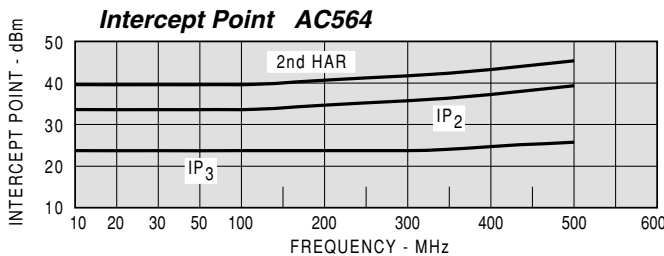
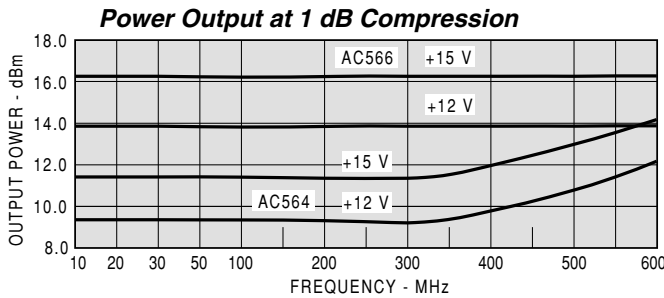
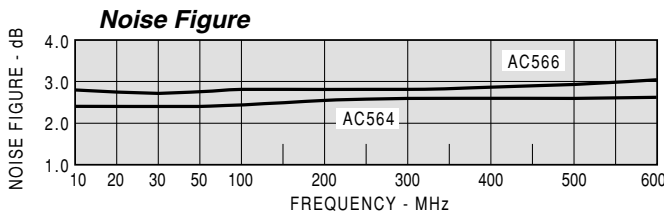
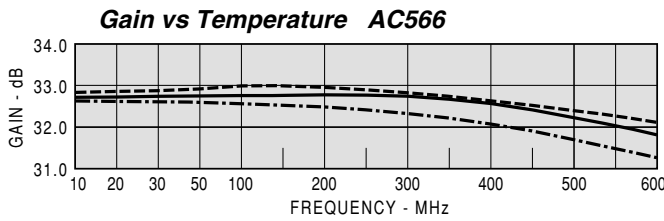
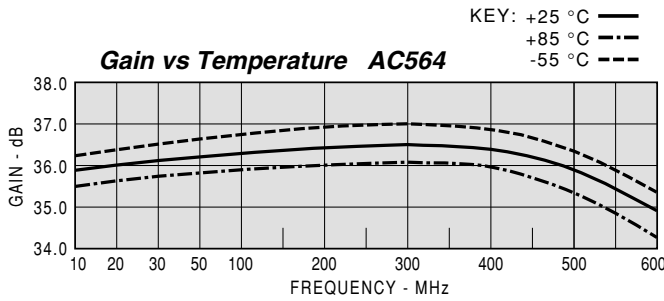
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



| Model: AC564 | | | | Vcc=+15V | | Icc=47.71 | |
|--------------|--------|---------|------|----------|---------|-----------|-------|
| FREQ | SWR IN | SWR OUT | GAIN | DELAY | REV/ISO | DB | DB |
| MHZ | | | | NSEC | | | |
| 2 | 2.05 | 1.55 | 34.5 | | | | -48.3 |
| 5 | 1.45 | 1.23 | 35.7 | | | | -46.1 |
| 10 | 1.29 | 1.17 | 35.9 | | | | -46.0 |
| 50 | 1.28 | 1.14 | 36.1 | 1.503 | | | -47.8 |
| 100 | 1.20 | 1.13 | 36.1 | 1.054 | | | -46.5 |
| 200 | 1.27 | 1.09 | 36.4 | 0.937 | | | -46.8 |
| 300 | 1.30 | 1.05 | 36.3 | 0.951 | | | -46.8 |
| 400 | 1.50 | 1.02 | 36.2 | 1.052 | | | -46.5 |
| 500 | 1.45 | 1.06 | 35.7 | 1.022 | | | -46.5 |
| 600 | 1.59 | 1.15 | 35.1 | 1.106 | | | -45.2 |

LINEAR S-PARAMETERS

| Model: AC564 | | | | Vcc=+15V | | | | Icc=47.71 | |
|--------------|------|--------|-------|----------|-------|------|------|-----------|--|
| FREQ. | S11 | | S21 | | S12 | | S22 | | |
| MHZ | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG | |
| 2 | 0.34 | -78.8 | 53.12 | 62.7 | 0.004 | 65.0 | 0.22 | -76.4 | |
| 5 | 0.18 | -109.2 | 60.85 | 25.3 | 0.005 | 22.0 | 0.10 | -49.7 | |
| 10 | 0.13 | -139.4 | 62.41 | 9.3 | 0.005 | 14.0 | 0.08 | -32.2 | |
| 50 | 0.12 | 165.0 | 63.75 | -12.3 | 0.004 | 6.0 | 0.07 | -22.4 | |
| 100 | 0.09 | 144.4 | 63.70 | -31.2 | 0.005 | -5.0 | 0.06 | -32.9 | |
| 200 | 0.12 | 98.2 | 66.12 | -65.2 | 0.005 | 7.0 | 0.04 | -59.3 | |
| 300 | 0.13 | 50.6 | 65.59 | -99.3 | 0.005 | -4.0 | 0.02 | -86.3 | |
| 400 | 0.20 | 14.2 | 64.62 | -137.1 | 0.005 | -5.0 | 0.01 | -76.8 | |
| 500 | 0.19 | -28.1 | 61.17 | -173.9 | 0.005 | 8.0 | 0.03 | -72.0 | |
| 600 | 0.23 | -50.9 | 56.83 | 146.2 | 0.005 | -0.0 | 0.07 | -115.6 | |
| 700 | 0.27 | -79.6 | 52.40 | 112.6 | 0.005 | 26.0 | 0.16 | -156.0 | |

| Model: AC564 | | | | Vcc=+12V | | Icc=38.01 | |
|--------------|--------|---------|------|----------|---------|-----------|-------|
| FREQ | SWR IN | SWR OUT | GAIN | DELAY | REV/ISO | DB | DB |
| MHZ | | | | NSEC | | | |
| 2 | 1.96 | 1.59 | 33.9 | | | | -47.5 |
| 5 | 1.38 | 1.24 | 35.1 | | | | -46.8 |
| 10 | 1.26 | 1.17 | 35.3 | | | | -46.8 |
| 50 | 1.18 | 1.14 | 35.5 | 1.501 | | | -46.6 |
| 100 | 1.20 | 1.13 | 35.4 | 1.042 | | | -46.2 |
| 200 | 1.29 | 1.10 | 35.8 | 0.932 | | | -47.0 |
| 300 | 1.28 | 1.06 | 35.7 | 0.935 | | | -46.3 |
| 400 | 1.41 | 1.05 | 35.6 | 1.039 | | | -45.9 |
| 500 | 1.43 | 1.09 | 35.2 | 1.021 | | | -46.5 |
| 600 | 1.54 | 1.20 | 34.7 | 1.117 | | | -45.3 |

| Model: AC566 | | | | Vcc=+15V | | Icc=66.78 | |
|--------------|--------|---------|------|----------|---------|-----------|-------|
| FREQ | SWR IN | SWR OUT | GAIN | DELAY | REV/ISO | DB | DB |
| MHZ | | | | NSEC | | | |
| 2 | 1.38 | 1.66 | 31.4 | | | | -42.6 |
| 5 | 1.28 | 1.12 | 32.4 | | | | -41.2 |
| 10 | 1.23 | 1.06 | 32.5 | | | | -40.9 |
| 50 | 1.20 | 1.04 | 32.6 | 1.633 | | | -40.7 |
| 100 | 1.18 | 1.03 | 32.6 | 0.895 | | | -40.9 |
| 200 | 1.17 | 1.04 | 32.7 | 0.834 | | | -40.6 |
| 300 | 1.14 | 1.06 | 32.7 | 0.848 | | | -40.2 |
| 400 | 1.08 | 1.08 | 32.6 | 0.884 | | | -40.1 |
| 500 | 1.05 | 1.10 | 32.4 | 0.910 | | | -39.5 |
| 600 | 1.15 | 1.15 | 32.0 | 0.913 | | | -39.0 |

| Model: AC566 | | | | Vcc=+12V | | Icc=52.70 | |
|--------------|--------|---------|------|----------|---------|-----------|-------|
| FREQ | SWR IN | SWR OUT | GAIN | DELAY | REV/ISO | DB | DB |
| MHZ | | | | NSEC | | | |
| 2 | 1.39 | 1.61 | 31.1 | | | | -42.5 |
| 5 | 1.30 | 1.14 | 32.1 | | | | -41.0 |
| 10 | 1.25 | 1.07 | 32.2 | | | | -40.7 |
| 50 | 1.23 | 1.04 | 32.3 | 1.620 | | | -40.6 |
| 100 | 1.22 | 1.03 | 32.3 | 0.893 | | | -40.6 |
| 200 | 1.19 | 1.04 | 32.4 | 0.831 | | | -40.4 |
| 300 | 1.17 | 1.05 | 32.5 | 0.845 | | | -39.9 |
| 400 | 1.12 | 1.06 | 32.4 | 0.883 | | | -39.6 |
| 500 | 1.10 | 1.06 | 32.3 | 0.914 | | | -38.9 |
| 600 | 1.18 | 1.11 | 31.9 | 0.924 | | | -38.4 |