

AC751

200 TO 700 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

| | |
|--|------------------------------------|
| High Efficiency | AC751 +5 V, 11 mA |
| Low Noise Figure | 1.9 dB |
| Medium Gain | 13.0 dB |
| High Performance Thin Film Standard Size TO-8 Package | |

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | |
|------------------------------------|--|----------------------|----------------------|
| | | 0 to 50 °C | -55 to +85 °C |
| Frequency (Min.) | 100-800 MHz | 200-700 MHz | 200-700 MHz |
| Small Signal Gain (Min.) | 13.0 dB | 12.5 dB | 12.0 dB |
| Gain Flatness (Max.) | < ±0.2 dB | ±0.4 dB | ±0.6 dB |
| Noise Figure (Max.) | 1.9 dB | 2.4 dB | 2.9 dB |
| SWR (Max.) | Input < 1.3:1 Output < 1.7:1 | 1.7:1 1.9:1 | 1.9:1 2.0:1 |
| Power Output (Min.) @ 1dB comp. | 200-500 MHz > +4.8 dBm 500-700 MHz > +6.5 dBm | +4.0 dBm +6.0 dBm | +3.5 dBm +5.5 dBm |
| Reverse Isolation | 20.0 dB | — | — |
| DC Current (Max.) | 11 mA | 13 mA | 16 mA |

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 500 MHz

| | |
|--|--------------------------------|
| Second Order Harmonic Intercept Point | AC751 +40 dBm |
| Second Order Two Tone Intercept Point | +27 dBm |
| Third Order Two Tone Intercept Point | +20 dBm |

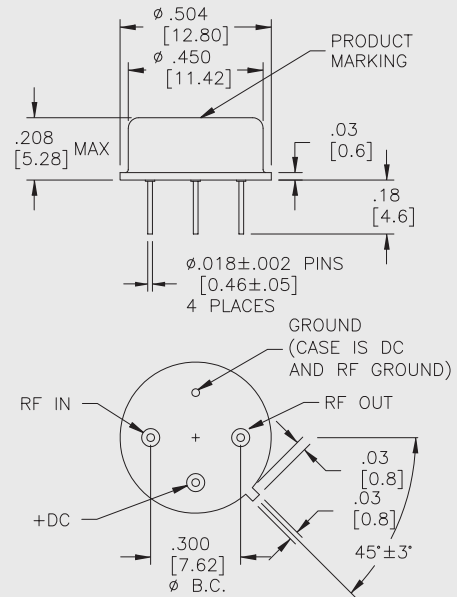
ABSOLUTE MAXIMUM RATINGS

| | |
|---|-----------------------|
| Storage Temperature | -62 to +125 °C |
| Maximum Case Temperature | +125 °C |
| Maximum DC Voltage | +9 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 | +125 °C |
| Thermal Resistance¹ (θjc) | +91 °C/Watt |
| Junction Temperature Rise Above Case (Tjc) | +5.9 °C |

¹Thermal resistance is based on total power dissipation.

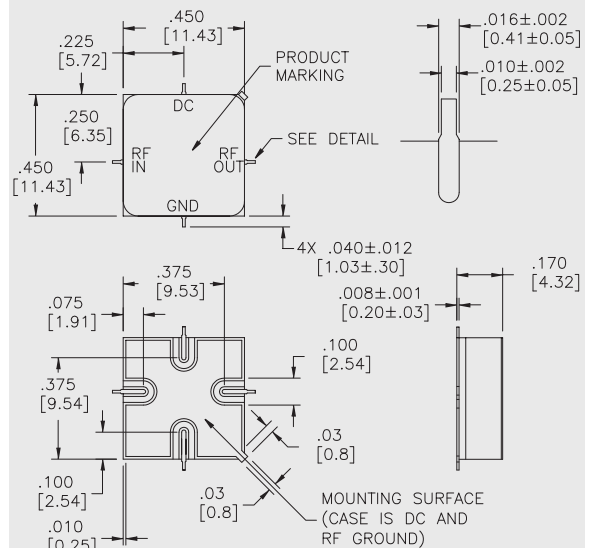
AC751

TO-8 Package for Amplifiers



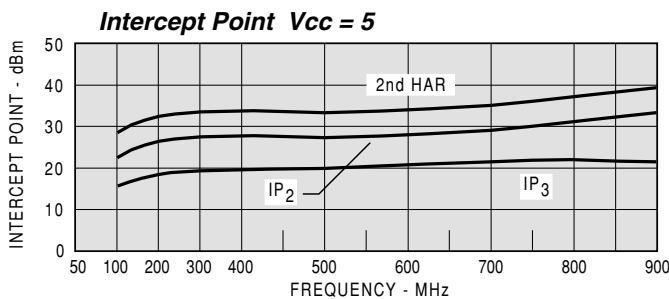
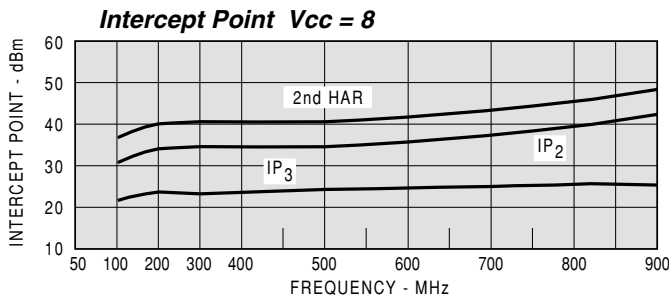
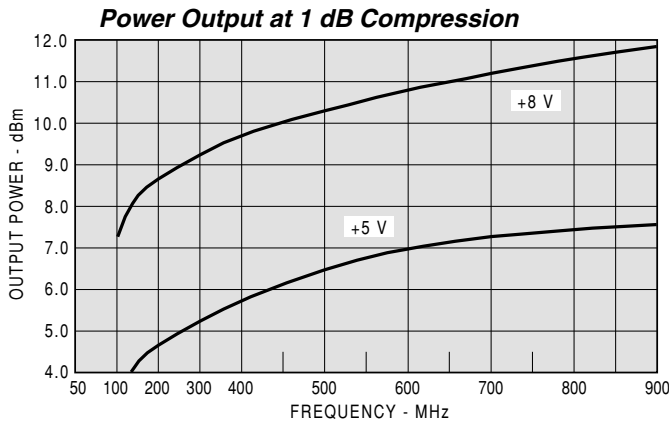
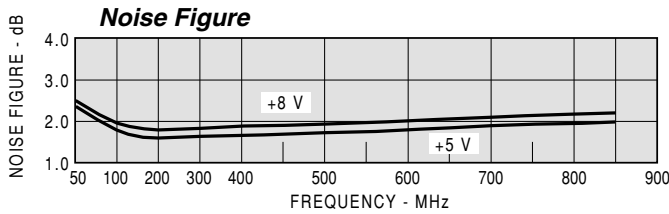
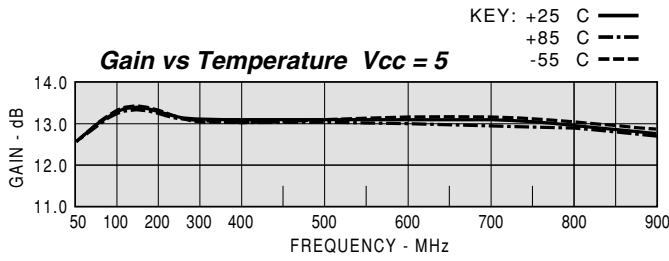
AS751

SMT0-8 Package for Amplifiers



TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC751 Vcc=+5V Icc=11.95

| FREQ. MHz | SWR IN | SWR OUT | GAIN DB | GROUP DELAY NSEC | REV/ISO DB |
|-----------|--------|---------|---------|------------------|------------|
| 150 | 1.39 | 1.72 | 13.4 | 0.716 | -20.7 |
| 200 | 1.28 | 1.65 | 13.4 | 0.716 | -20.7 |
| 300 | 1.15 | 1.64 | 13.2 | 0.575 | -20.7 |
| 400 | 1.06 | 1.65 | 13.1 | 0.506 | -20.6 |
| 500 | 1.08 | 1.63 | 13.1 | 0.480 | -20.5 |
| 600 | 1.21 | 1.57 | 13.0 | 0.480 | -20.4 |
| 700 | 1.40 | 1.46 | 13.0 | 0.481 | -20.4 |
| 800 | 1.66 | 1.30 | 12.9 | 0.500 | -20.4 |

Model: AC751 Vcc=+5V Icc=11.95

LINEAR S-PARAMETERS

| FREQ. MHz | S11 | | S21 | | S12 | | S22 | |
|-----------|------|-------|------|-------|-------|-------|------|------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 150 | 0.16 | 75.0 | 4.69 | 174.5 | 0.092 | 168.0 | 0.27 | 73.9 |
| 200 | 0.12 | 66.8 | 4.67 | 162.4 | 0.092 | 160.0 | 0.25 | 65.5 |
| 300 | 0.07 | 55.0 | 4.60 | 143.1 | 0.092 | 147.0 | 0.24 | 51.6 |
| 400 | 0.03 | 68.9 | 4.54 | 126.3 | 0.093 | 135.0 | 0.25 | 39.6 |
| 500 | 0.04 | 145.0 | 4.51 | 110.5 | 0.094 | 124.0 | 0.24 | 28.8 |
| 600 | 0.10 | 155.6 | 4.48 | 94.6 | 0.095 | 112.0 | 0.22 | 18.7 |
| 700 | 0.17 | 148.0 | 4.46 | 78.7 | 0.095 | 100.0 | 0.19 | 10.0 |
| 800 | 0.25 | 136.8 | 4.43 | 62.2 | 0.095 | 88.0 | 0.13 | 5.8 |
| 900 | 0.34 | 123.8 | 4.36 | 45.4 | 0.094 | 74.0 | 0.07 | 23.5 |

Model: AC751 Vcc=+8V Icc=18.64

| FREQ. MHz | SWR IN | SWR OUT | GAIN DB | GROUP DELAY NSEC | REV/ISO DB |
|-----------|--------|---------|---------|------------------|------------|
| 150 | 1.43 | 1.74 | 13.8 | 0.685 | -20.2 |
| 200 | 1.33 | 1.69 | 13.7 | 0.685 | -20.2 |
| 300 | 1.22 | 1.70 | 13.6 | 0.556 | -20.2 |
| 400 | 1.15 | 1.73 | 13.5 | 0.490 | -20.2 |
| 500 | 1.13 | 1.74 | 13.4 | 0.465 | -20.1 |
| 600 | 1.19 | 1.69 | 13.3 | 0.464 | -20.0 |
| 700 | 1.33 | 1.59 | 13.3 | 0.464 | -20.0 |
| 800 | 1.55 | 1.43 | 13.3 | 0.485 | -20.0 |

Model: AC751 Vcc=+8V Icc=18.64

LINEAR S-PARAMETERS

| FREQ. MHz | S11 | | S21 | | S12 | | S22 | |
|-----------|------|-------|------|-------|-------|-------|------|------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 150 | 0.18 | 88.5 | 4.89 | 173.1 | 0.098 | 170.0 | 0.27 | 82.5 |
| 200 | 0.14 | 82.6 | 4.86 | 161.5 | 0.098 | 162.0 | 0.26 | 74.1 |
| 300 | 0.10 | 74.8 | 4.77 | 142.9 | 0.098 | 149.0 | 0.26 | 59.2 |
| 400 | 0.07 | 79.1 | 4.71 | 126.7 | 0.098 | 137.0 | 0.27 | 46.4 |
| 500 | 0.06 | 104.2 | 4.67 | 111.4 | 0.099 | 125.0 | 0.27 | 34.7 |
| 600 | 0.08 | 131.0 | 4.64 | 96.1 | 0.100 | 114.0 | 0.26 | 23.6 |
| 700 | 0.14 | 136.3 | 4.63 | 80.8 | 0.100 | 102.0 | 0.23 | 13.4 |
| 800 | 0.22 | 131.4 | 4.64 | 64.8 | 0.101 | 91.0 | 0.18 | 5.4 |
| 900 | 0.30 | 121.7 | 4.60 | 48.6 | 0.099 | 78.0 | 0.11 | 5.4 |