

10 TO 400 MHz TO-8 CASCADABLE AMPLIFIER

AC487

| | |
|--------------------------------------|----------------------------|
| High Output Level | +17.0 dBm |
| High Efficiency | 33 mA Current Drain |
| High Third Order I.P. | +32 dBm |
| Wide Power Supply Range | 5 to +15 Volts |
| High Performance Thin Film | |
| Standard Size TO-8 | |

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | |
|------------------------------------|---------------------------------------|----------------|----------------|
| | | 0 to 50° C | -55 to +85° C |
| Frequency (Min.) | 5-450 MHz | 10-400 MHz | 10-400 MHz |
| Small Signal Gain (Min.) | 15.5 dB | 14.5 dB | 14.0 dB |
| Gain Flatness (Max.) | < ±0.3 dB | ±0.7 dB | ±0.9 dB |
| Noise Figure (Max.) | 3.6 dB | 4.0 dB | 4.5 dB |
| SWR (Max.) | Input Output < 1.3:1 < 1.7:1 | 1.7:1 2.0:1 | 1.9:1 2.0:1 |
| Power Output (Min.) @ 1dB comp. | +17.0 dBm | +15.5 dBm | +15.0 dBm |
| DC Current (Max.) | 33 mA | 36 mA | 38 mA |

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

INTERMODULATION PERFORMANCE

AC487

| | |
|---|---------|
| Second Order Harmonic Intercept Point | +50 dBm |
| Second Order Two Tone Intercept Point | +44 dBm |
| Third Order Two Tone Intercept Point | +32 dBm |

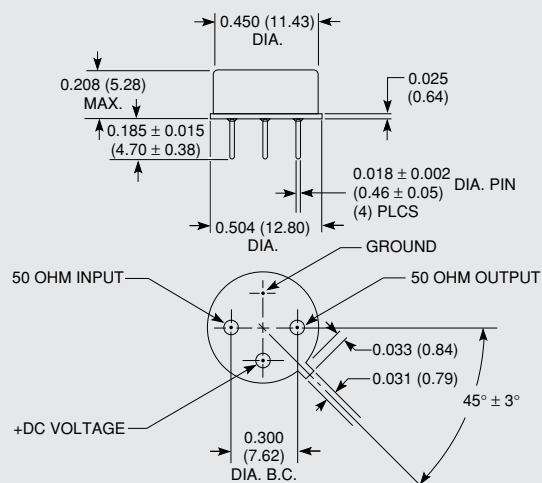
ABSOLUTE MAXIMUM RATINGS

| | |
|---|---------------|
| 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 | +105° C |
| Thermal Resistance¹ (θjc) | +48° C/Watt |
| Junction Temperature Rise Above Case (Tic) | +25.7° C |

¹ Thermal resistance is based on total power dissipation.

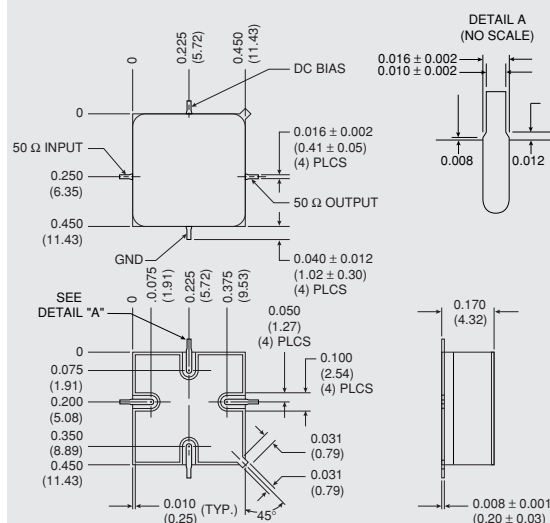
AC487

TO-8 Package for Amplifiers



AS487

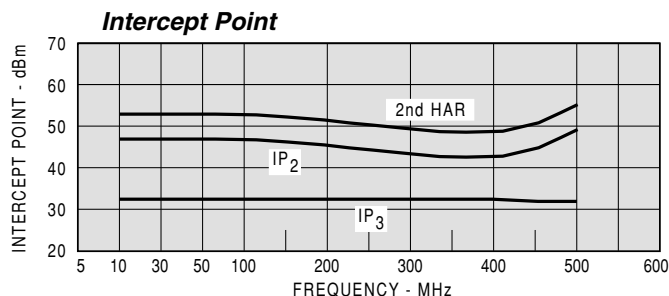
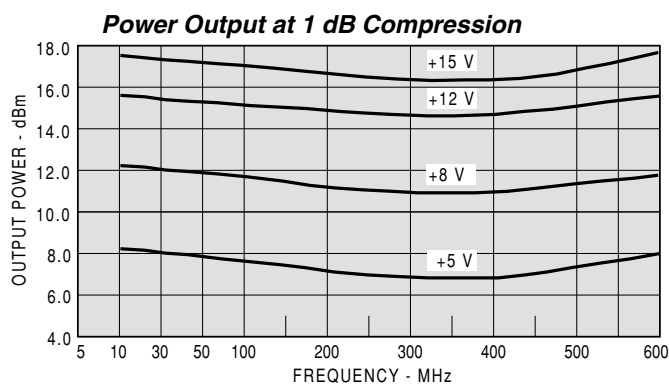
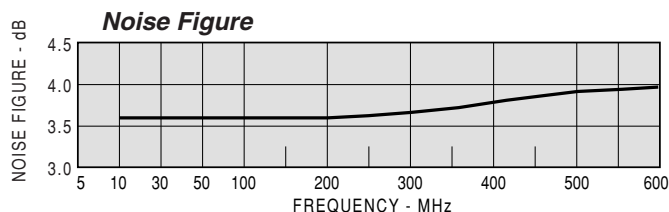
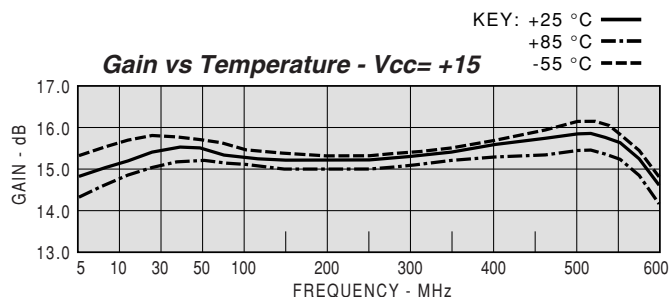
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES (MILLIMETERS)



TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

| Model: AC487 | | | | Vcc=+15V | | Icc=33.40 | |
|--------------|------|------|------|----------|---------|-----------|----|
| FREQ | SWR | SWR | GAIN | DELAY | REV/ISO | DB | DB |
| MHZ | IN | OUT | DB | NSEC | | | |
| 5 | 1.90 | 2.36 | 14.9 | | | -23.0 | |
| 10 | 1.44 | 1.63 | 15.3 | | | -22.0 | |
| 20 | 1.25 | 1.36 | 15.5 | 2.767 | | -21.6 | |
| 50 | 1.18 | 1.29 | 15.5 | 1.371 | | -21.4 | |
| 100 | 1.20 | 1.40 | 15.3 | 1.002 | | -21.5 | |
| 150 | 1.24 | 1.49 | 15.2 | 0.903 | | -21.3 | |
| 200 | 1.29 | 1.57 | 15.2 | 0.916 | | -21.1 | |
| 250 | 1.34 | 1.63 | 15.2 | 0.876 | | -20.7 | |
| 300 | 1.40 | 1.66 | 15.2 | 0.951 | | -20.5 | |
| 350 | 1.46 | 1.64 | 15.3 | 0.954 | | -19.9 | |
| 400 | 1.54 | 1.54 | 15.4 | 1.000 | | -19.5 | |
| 450 | 1.65 | 1.38 | 15.7 | 1.110 | | -19.0 | |
| 500 | 1.82 | 1.36 | 15.7 | 1.243 | | -18.5 | |
| 550 | 2.05 | 1.80 | 15.5 | 1.396 | | -18.2 | |

| Model: AC487 | | | | LINEAR S-PARAMETERS | | | | Vcc=+15V | | Icc=33.40 | |
|--------------|------|--------|------|---------------------|-------|--------|------|----------|--|-----------|--|
| FREQ | S11 | | S21 | | S12 | | S22 | | | | |
| MHZ | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG | | | |
| 5 | 0.31 | -55.3 | 5.53 | -155.7 | 0.071 | 22.0 | 0.40 | 140.1 | | | |
| 10 | 0.18 | -54.0 | 5.81 | -169.7 | 0.079 | 10.0 | 0.24 | 139.0 | | | |
| 20 | 0.11 | -46.6 | 5.99 | -179.9 | 0.084 | 3.0 | 0.15 | 149.6 | | | |
| 50 | 0.08 | -28.2 | 5.95 | 165.4 | 0.085 | -7.0 | 0.13 | -177.5 | | | |
| 100 | 0.09 | -29.5 | 5.84 | 147.4 | 0.084 | -16.0 | 0.17 | -163.7 | | | |
| 150 | 0.11 | -45.1 | 5.78 | 131.2 | 0.086 | -25.0 | 0.20 | -162.3 | | | |
| 200 | 0.13 | -59.2 | 5.72 | 114.7 | 0.088 | -33.0 | 0.22 | -163.9 | | | |
| 250 | 0.14 | -72.0 | 5.73 | 98.7 | 0.092 | -41.0 | 0.24 | -170.1 | | | |
| 300 | 0.17 | -91.3 | 5.75 | 81.9 | 0.094 | -52.0 | 0.25 | -178.7 | | | |
| 350 | 0.19 | -109.7 | 5.85 | 64.6 | 0.101 | -63.0 | 0.24 | 169.4 | | | |
| 400 | 0.21 | -134.3 | 5.92 | 46.6 | 0.106 | -75.0 | 0.21 | 151.2 | | | |
| 450 | 0.25 | -163.8 | 6.08 | 26.5 | 0.112 | -88.0 | 0.16 | 116.1 | | | |
| 500 | 0.29 | 160.4 | 6.11 | 4.0 | 0.119 | -105.0 | 0.15 | 47.8 | | | |
| 550 | 0.34 | 122.6 | 5.99 | -20.8 | 0.123 | -125.0 | 0.28 | -11.1 | | | |
| 600 | 0.41 | 81.0 | 5.42 | -47.8 | 0.117 | -147.0 | 0.48 | -47.3 | | | |
| 650 | 0.47 | 44.0 | 4.54 | -74.1 | 0.102 | -168.0 | 0.67 | -74.6 | | | |

| Model: AC487 | | | | Vcc=+12V | | Icc=26.81 | |
|--------------|------|------|------|----------|---------|-----------|----|
| FREQ | SWR | SWR | GAIN | DELAY | REV/ISO | DB | DB |
| MHZ | IN | OUT | DB | NSEC | | | |
| 5 | 1.91 | 2.26 | 14.8 | | | -22.7 | |
| 10 | 1.46 | 1.61 | 15.2 | | | -21.6 | |
| 20 | 1.26 | 1.33 | 15.4 | 2.751 | | -21.7 | |
| 50 | 1.19 | 1.26 | 15.4 | 1.404 | | -21.2 | |
| 100 | 1.22 | 1.41 | 15.2 | 0.998 | | -21.6 | |
| 200 | 1.30 | 1.60 | 15.0 | 0.922 | | -20.7 | |
| 300 | 1.41 | 1.69 | 15.0 | 0.926 | | -20.5 | |
| 400 | 1.56 | 1.59 | 15.2 | 1.001 | | -19.1 | |
| 500 | 1.87 | 1.45 | 15.5 | 1.205 | | -18.4 | |
| 600 | 2.56 | 3.18 | 14.2 | 1.461 | | -18.3 | |

| Model: AC487 | | | | Vcc=+8V | | Icc=18.19 | |
|--------------|------|------|------|---------|---------|-----------|----|
| FREQ | SWR | SWR | GAIN | DELAY | REV/ISO | DB | DB |
| MHZ | IN | OUT | DB | NSEC | | | |
| 5 | 1.92 | 2.25 | 14.6 | | | -22.6 | |
| 10 | 1.48 | 1.57 | 15.0 | | | -21.7 | |
| 20 | 1.30 | 1.30 | 15.2 | 2.790 | | -21.0 | |
| 50 | 1.23 | 1.23 | 15.1 | 1.454 | | -21.0 | |
| 100 | 1.25 | 1.42 | 15.0 | 1.029 | | -21.2 | |
| 200 | 1.33 | 1.68 | 14.7 | 0.949 | | -20.5 | |
| 300 | 1.44 | 1.81 | 14.5 | 0.946 | | -19.9 | |
| 400 | 1.63 | 1.68 | 14.8 | 1.026 | | -18.8 | |
| 500 | 2.03 | 1.61 | 14.9 | 1.242 | | -17.5 | |
| 600 | 2.75 | 3.66 | 13.3 | 1.482 | | -18.3 | |