



AC838 10 TO 800 MHz TO-8 CASCADABLE AMPLIFIER

| Typical Values | AC838 |
|-------------------------------------------------------------------|-----------|
| Low Noise Figure | 3.0 dB |
| High Gain | +30.0 dB |
| Medium Power Level | +16.0 dBm |
| High Performance Thin Film Available in SMA Connectorized Package | |

SPECIFICATIONS*

| Parameter | Typical | Guaranteed | |
|----------------------------------|----------------------|----------------------|----------------------|
| | | 0 to 50° C | -55 to +85° C |
| Frequency (Min.) | 10-900 MHz | 10-800 MHz | 10-800 MHz |
| Small Signal Gain (Min.) | 30.0 [^] dB | 29.0 [^] dB | 28.0 [^] dB |
| Gain Flatness (Max.) | ±0.5 dB | ±0.7 dB | ±0.9 dB |
| Noise Figure (Max.) | 3.0 dB | 3.5 dB | 4.0 dB |
| SWR (Max.) Input/Output | <1.4:1 | 1.7:1 | 1.9:1 |
| Power Output (Min.) @ 1 dB comp. | +16.0 dBm | +15.0 dBm | +14.5 dBm |
| DC Current (Max.) | 73.0 mA | 78.0 mA | 83.0 mA |

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.
[^] 0.5 dB lower above 600 MHz.

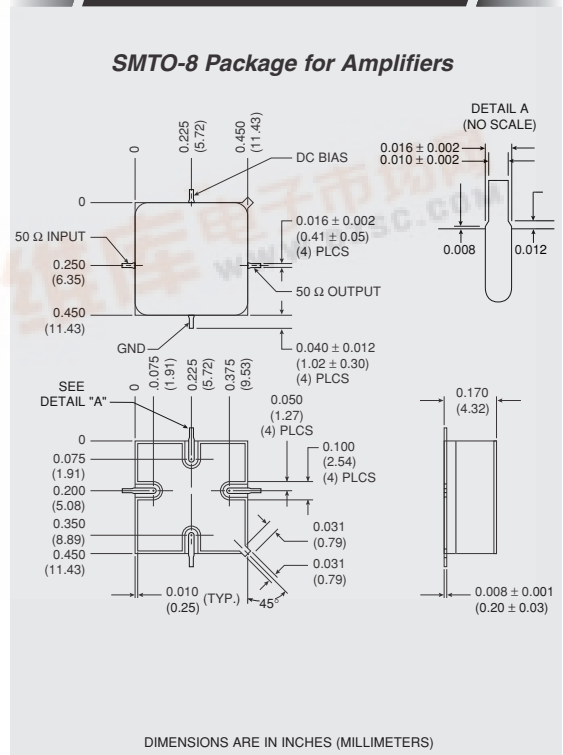
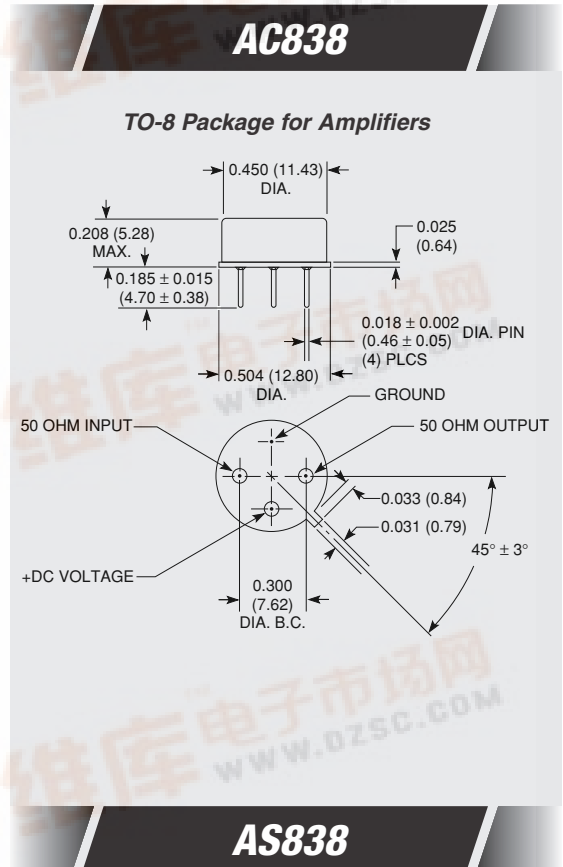
INTERMODULATION PERFORMANCE

| Typical @ 25° C | +5 volts |
|---------------------------------------------|----------|
| Second Order Harmonic Intercept Point | +56 dBm |
| Second Order Two Tone Intercept Point | +50 dBm |
| Third Order Two Tone Intercept Point | +30 dBm |

ABSOLUTE MAXIMUM RATINGS

| | |
|------------------------------------------------------|---------------|
| Storage Temperature | -62 to 125° C |
| Maximum Case Temperature | +125° C |
| Maximum DC Voltage | +7 Volts |
| Maximum Continuous RF Input Power | +8 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 Resistance ¹ (θjc) | +63° C/Watt |
| Junction Temperature Rise Above Case (Tjc) | +24.5° C |

¹ Thermal resistance is based on total power dissipation.

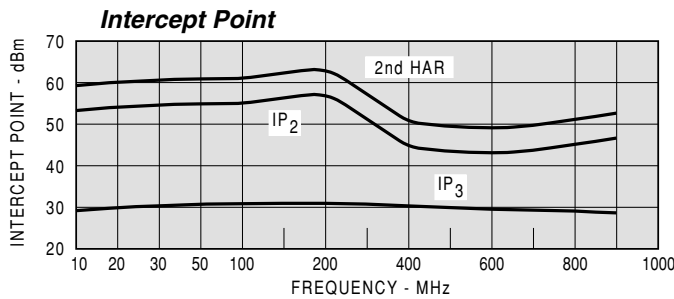
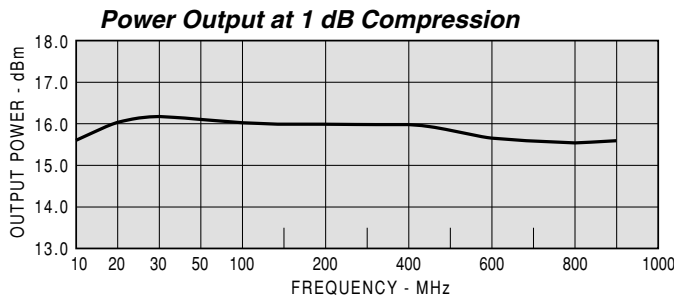
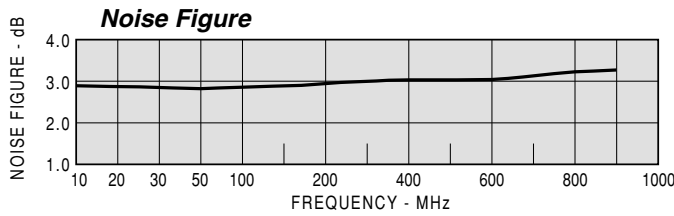
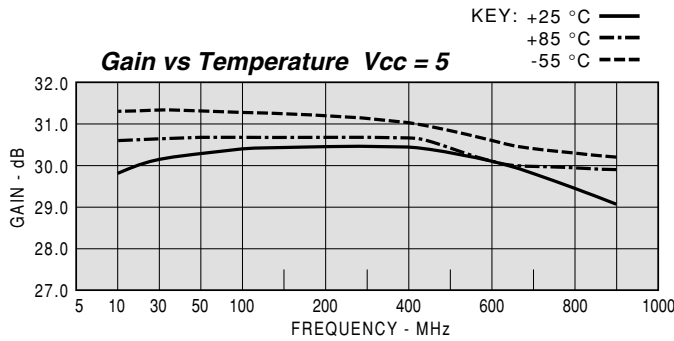


DIMENSIONS ARE IN INCHES (MILLIMETERS)





TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: AC838 Vcc=+5V Icc=71.13

| FREQ MHZ | SWR IN | SWR OUT | GAIN DB | PHASE DEG | DELAY NSEC | REV/ISO DB |
|-------------|-----------|------------|------------|--------------|---------------|---------------|
| 5 | 2.43 | 7.18 | 25.65 | 106 | | -49.2 |
| 10 | 1.27 | 1.70 | 30.02 | 51 | | -39.9 |
| 50 | 1.08 | 1.16 | 30.23 | -7 | 1.5 | -39.0 |
| 100 | 1.08 | 1.15 | 30.17 | -27 | 1.1 | -38.8 |
| 200 | 1.08 | 1.22 | 30.06 | -59 | 0.89 | -38.9 |
| 300 | 1.12 | 1.33 | 29.99 | -91 | 0.86 | -37.9 |
| 400 | 1.17 | 1.39 | 29.93 | -122 | 0.88 | -37.9 |
| 500 | 1.23 | 1.41 | 29.77 | -154 | 0.88 | -37.2 |
| 600 | 1.30 | 1.37 | 29.58 | 174 | 0.9 | -36.0 |
| 700 | 1.36 | 1.30 | 29.25 | 142 | 0.9 | -35.5 |
| 800 | 1.33 | 1.26 | 29.01 | 109 | 0.91 | -35.1 |
| 900 | 1.29 | 1.26 | 28.8 | 75 | 0.96 | -34.2 |

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LINEAR S-PARAMETERS

| FREQ. MHz | S11 | | S21 | | S12 | | S22 | |
|--------------|------|--------|-------|--------|-------|-------|------|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 5 | 0.42 | -82.8 | 19.17 | 106.1 | 0.003 | 167.3 | 0.76 | 161.5 |
| 10 | 0.12 | -120.8 | 31.69 | 50.7 | 0.010 | 59.8 | 0.26 | 107.1 |
| 50 | 0.04 | -55.0 | 32.46 | -6.9 | 0.011 | 8.0 | 0.07 | 168.0 |
| 100 | 0.04 | -86.8 | 32.23 | -26.7 | 0.011 | 1.2 | 0.07 | -177.0 |
| 200 | 0.04 | -151.4 | 31.84 | -59.2 | 0.011 | -5.3 | 0.10 | -154.7 |
| 300 | 0.06 | 158.2 | 31.57 | -90.6 | 0.013 | -5.1 | 0.14 | -158.7 |
| 400 | 0.08 | 118.6 | 31.36 | -122.1 | 0.013 | -10.2 | 0.16 | -174.5 |
| 500 | 0.10 | 83.8 | 30.8 | -154.1 | 0.014 | -15.8 | 0.17 | 164.5 |
| 600 | 0.13 | 49.0 | 30.12 | 174.0 | 0.016 | -25.2 | 0.16 | 144.5 |
| 700 | 0.15 | 20.3 | 29.0 | 141.6 | 0.017 | -33.9 | 0.13 | 120.3 |
| 800 | 0.14 | -12.7 | 28.22 | 109.0 | 0.018 | -43.8 | 0.12 | 93.8 |
| 900 | 0.13 | -56.7 | 27.54 | 74.8 | 0.019 | -57.5 | 0.12 | 75.2 |
| 1000 | 0.09 | -122 | 27.04 | 37.5 | 0.022 | -75.3 | 0.17 | 46.9 |