



# AC3055

## 10 TO 3000 MHz TO-8 CASCADABLE AMPLIFIER

### Typical Values

|                                      | AC3055      |
|--------------------------------------|-------------|
| Ultra Broad Bandwidth .....          | 10-3000 MHz |
| Low Noise Figure above 1.0 GHz ..... | < 3.0 dB    |
| Medium Output Power .....            | +17.5 dBm   |
| High Performance Thin Film           |             |
| Standard Size TO-8                   |             |

### SPECIFICATIONS

| Parameter                          | Typical     | Guaranteed*         |                     |
|------------------------------------|-------------|---------------------|---------------------|
|                                    |             | 0 to 50° C          | -55 to +85° C       |
| Frequency (Min.)                   | 10-3000 MHz | 10-3000 MHz         | 10-3000 MHz         |
| Small Signal Gain (Min.)           | 10.5 dB     | 10.0 dB             | 9.5 dB              |
| Gain Flatness (Max.)               | ±0.25 dB    | ±0.5 dB             | ±0.8 dB             |
| Noise Figure (Max.)                |             |                     |                     |
| 1.5-3.0 GHz                        | 2.6 dB      | 3.0 dB              | 3.5 dB              |
| 0.75-1.5 GHz                       | 3.0 dB      | 3.5 dB              | 4.0 dB              |
| 0.2-0.75 GHz                       | 3.5 dB      | 4.5 <sup>^</sup> dB | 5.0 <sup>^</sup> dB |
| SWR (Max.) Input/Output            | < 1.5:1     | 1.9:1†              | 2.0:1†              |
| Power Output (Min.)<br>@ 1dB comp. | +17.5 dBm   | +17.0 dBm           | +16.5 dBm           |
| DC Current (Max.)                  | 66.0 mA     | 70.0 mA             | 75.0 mA             |

\* Measured in a 50-ohm system at +5.0 Vdc unless otherwise specified.

^ 6.0 dB from 0.1-0.2 GHz. †0/50° C ≤2.0:1, +85° C ≤2.1:1 below 50 MHz.

### INTERMODULATION PERFORMANCE

#### Typical @ 25° C

|                                             | AC3055  |
|---------------------------------------------|---------|
| Second Order Harmonic Intercept Point ..... | +41 dBm |
| Second Order Two Tone Intercept Point ..... | +35 dBm |
| Third Order Two Tone Intercept Point .....  | +27 dBm |

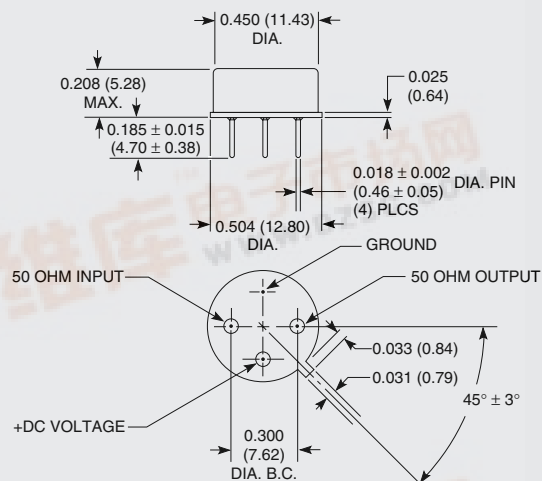
### ABSOLUTE MAXIMUM RATINGS

|                                                      |                |
|------------------------------------------------------|----------------|
| Storage Temperature .....                            | -62 to 125° C  |
| Maximum Case Temperature .....                       | +125° C        |
| Maximum DC Voltage .....                             | +8 Volts       |
| Maximum Continuous RF Input Power .....              | +20 dBm        |
| Maximum Short Term Input Power (1 Minute Max.) ..... | 500 Milliwatts |
| Maximum Peak Power (3 μsec Max.) .....               | 1.0 Watt       |
| Burn-in Temperature .....                            | +105° C        |
| Thermal Resistance <sup>1</sup> (θjc) .....          | +66° C/Watt    |
| Junction Temperature Rise Above Case (Tjc) .....     | +19.8° C       |

<sup>1</sup> Thermal resistance is based on total power dissipation.

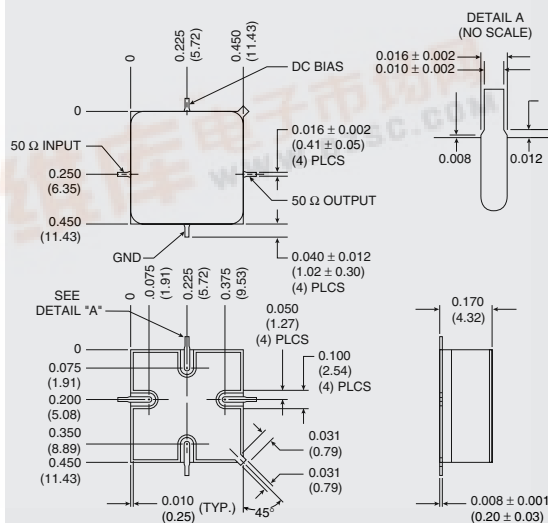
### AC3055

#### TO-8 Package for Amplifiers



### AS3055

#### SMT0-8 Package for Amplifiers



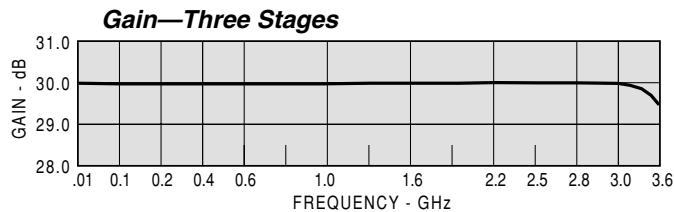
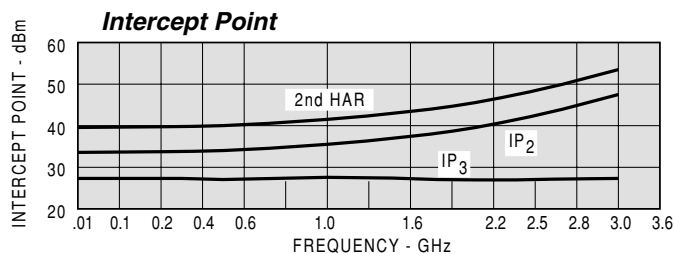
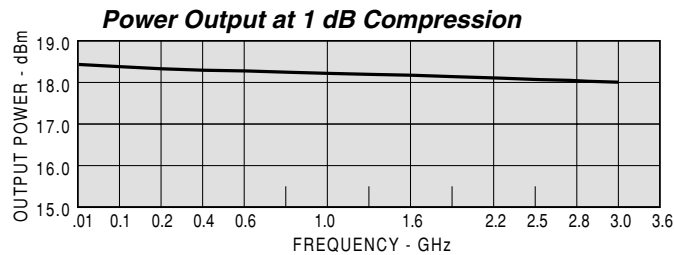
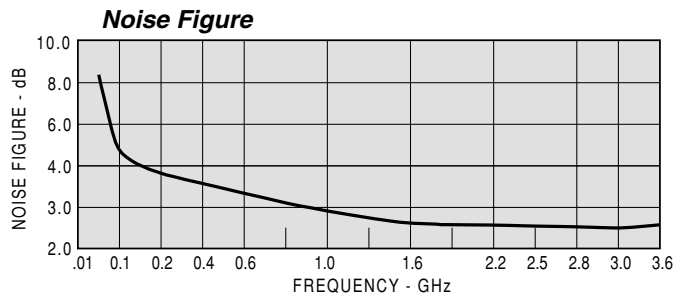
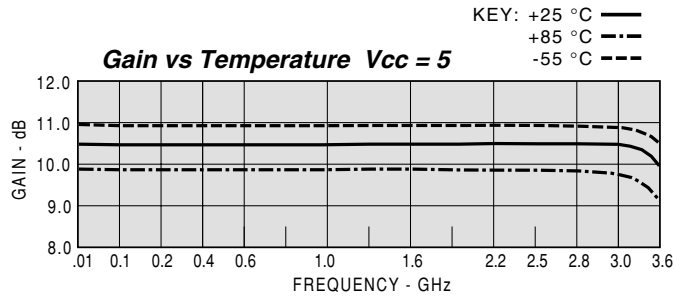
DIMENSIONS ARE IN INCHES (MILLIMETERS)

# AC3055



## TYPICAL PERFORMANCE

## TYPICAL AUTOMATIC TEST DATA



| Model: AC3055 |      |      | Vcc= +5V |       |       | lcc= 58.84 |
|---------------|------|------|----------|-------|-------|------------|
| FREQ          | SWR  | SWR  | GAIN     | PHASE | DELAY | REV/ISO    |
| MHZ           | IN   | OUT  | DB       | DEG   | NSEC  | DB         |
| 10            | 1.83 | 1.26 | 10.64    | -155  |       | -17.8      |
| 50            | 1.51 | 1.14 | 10.81    | -178  | 0.86  | -18.0      |
| 100           | 1.50 | 1.14 | 10.82    | 176   | 0.30  | -18.0      |
| 200           | 1.48 | 1.14 | 10.87    | 169   | 0.21  | -18.0      |
| 400           | 1.45 | 1.14 | 10.95    | 155   | 0.20  | -18.1      |
| 600           | 1.42 | 1.13 | 10.94    | 141   | 0.19  | -18.2      |
| 800           | 1.43 | 1.10 | 10.95    | 128   | 0.18  | -18.2      |
| 1000          | 1.45 | 1.07 | 10.93    | 114   | 0.18  | -18.3      |
| 1200          | 1.44 | 1.06 | 10.96    | 101   | 0.19  | -18.3      |
| 1400          | 1.45 | 1.10 | 10.95    | 87    | 0.19  | -18.4      |
| 1600          | 1.49 | 1.17 | 10.89    | 73    | 0.19  | -18.3      |
| 1800          | 1.54 | 1.26 | 10.78    | 60    | 0.18  | -18.3      |
| 2000          | 1.53 | 1.34 | 10.64    | 46    | 0.19  | -18.5      |
| 2200          | 1.51 | 1.44 | 10.50    | 32    | 0.20  | -18.5      |
| 2400          | 1.47 | 1.53 | 10.43    | 19    | 0.17  | -18.5      |
| 2600          | 1.36 | 1.59 | 10.36    | 4     | 0.22  | -18.3      |
| 2800          | 1.27 | 1.62 | 10.41    | -10   | 0.26  | -18.1      |
| 3000          | 1.15 | 1.64 | 10.50    | -24   | 0.19  | -17.8      |
| 3200          | 1.60 | 1.65 | 10.23    | -40   | 0.21  | -17.8      |
| 3300          | 1.14 | 1.64 | 10.21    | -48   | 0.23  | -17.7      |

| LINEAR S-PARAMETERS |      |        |          |        |       |            |      |        |
|---------------------|------|--------|----------|--------|-------|------------|------|--------|
| Model: AC3055       |      |        | Vcc= +5V |        |       | lcc= 58.84 |      |        |
| FREQ.               | S11  |        | S21      |        | S12   |            | S22  |        |
| MHz                 | MAG  | ANG    | MAG      | ANG    | MAG   | ANG        | MAG  | ANG    |
| 10                  | 0.29 | -38.0  | 3.40     | -154.8 | 0.129 | 18.6       | 0.12 | 138.4  |
| 50                  | 0.20 | -13.3  | 3.47     | -178.3 | 0.126 | 1.5        | 0.07 | 170.5  |
| 100                 | 0.20 | -12.3  | 3.48     | 176.3  | 0.126 | -1.9       | 0.07 | 167.3  |
| 200                 | 0.19 | -15.9  | 3.50     | 168.7  | 0.126 | -5.7       | 0.06 | 161.6  |
| 400                 | 0.18 | -24.5  | 3.53     | 154.6  | 0.124 | -12.9      | 0.07 | 144.0  |
| 600                 | 0.18 | -33.8  | 3.52     | 141.1  | 0.122 | -19.1      | 0.06 | 125.5  |
| 800                 | 0.18 | -44.2  | 3.53     | 127.7  | 0.123 | -25.5      | 0.05 | 104.9  |
| 1000                | 0.18 | -53.5  | 3.52     | 114.4  | 0.121 | -31.8      | 0.03 | 70.1   |
| 1200                | 0.18 | -62.8  | 3.53     | 100.9  | 0.121 | -37.9      | 0.03 | 13.2   |
| 1400                | 0.18 | -73.2  | 3.53     | 87.2   | 0.121 | -45.3      | 0.05 | -37.8  |
| 1600                | 0.20 | -85.4  | 3.50     | 73.4   | 0.121 | -51.4      | 0.08 | -69.5  |
| 1800                | 0.21 | -95.0  | 3.46     | 59.8   | 0.121 | -58.2      | 0.11 | -92.5  |
| 2000                | 0.21 | -108.5 | 3.41     | 45.8   | 0.119 | -66.2      | 0.14 | -110.9 |
| 2200                | 0.20 | -122.5 | 3.35     | 32.2   | 0.118 | -72.7      | 0.18 | -123.9 |
| 2400                | 0.19 | -133.5 | 3.32     | 19.3   | 0.120 | -79.0      | 0.21 | -133.3 |
| 2600                | 0.15 | -146.4 | 3.29     | 4.4    | 0.121 | -86.3      | 0.23 | -145.5 |
| 2800                | 0.12 | -163.7 | 3.31     | -10.1  | 0.124 | -93.8      | 0.24 | -158.3 |
| 3000                | 0.07 | -177.7 | 3.35     | -23.6  | 0.129 | -102.3     | 0.24 | -165.8 |
| 3200                | 0.03 | 72.3   | 3.25     | -40.0  | 0.129 | -110.6     | 0.25 | -171.7 |
| 3300                | 0.06 | 34.5   | 3.24     | -48.1  | 0.131 | -114.8     | 0.24 | -176.1 |