

# AS6064

## 1000 TO 6000 MHz SMT0-8 CASCADABLE AMPLIFIER

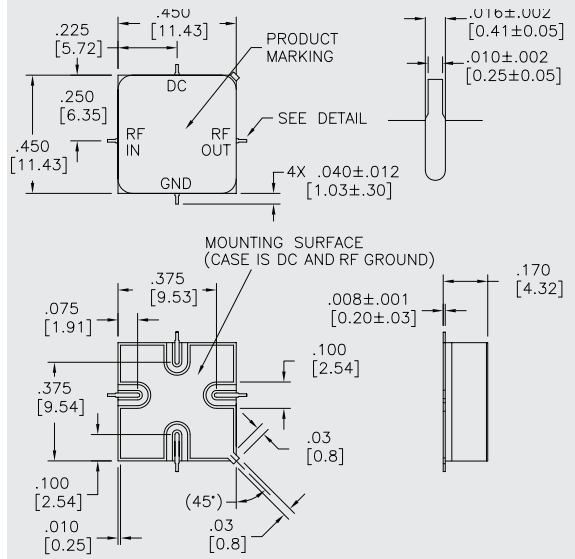
**Typical Values**

|                                     |                  |
|-------------------------------------|------------------|
| <b>Medium Gain</b> .....            | <b>17.5 dB</b>   |
| <b>Medium Output Power</b> .....    | <b>+19.0 dBm</b> |
| <b>Low Noise</b> .....              | <b>3.5 dB</b>    |
| <b>High Reverse Isolation</b> ..... | <b>37 dB</b>     |
| <b>High Performance Thin Film</b>   |                  |
| <b>Standard Size SMT0-8 Package</b> |                  |

**AS6064**

### AS6064

**SMT0-8 Package for Amplifiers**



## SPECIFICATIONS\*

| Parameter                       | Typical      | Guaranteed    |               |
|---------------------------------|--------------|---------------|---------------|
|                                 |              | 0 to 50 °C    | -55 to +85 °C |
| Frequency (Min.)                | 900-6000 MHz | 1000-6000 MHz | 1000-6000 MHz |
| Small Signal Gain (Min.)        | 17.5 dB      | 16.5 dB       | 16.0 dB       |
| Gain Flatness (Max.)            | ±0.7 dB      | ±1.0 dB       | ±1.4 dB       |
| Noise Figure (Max.)             | 3.5 dB       | 4.8 dB        | 5.2 dB        |
| SWR (Max.) Input/Output         | <1.7:1       | 1.9:1         | 2.0:1         |
| Power Output (Min.) @ 1dB comp. | +19.0 dBm    | +17.5 dBm     | +17.0 dBm     |
| Reverse Isolation               | 37.0 dB      | —             | —             |
| DC Current (Max.)               | 110 mA       | 120 mA        | 130 mA        |

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

## INTERMODULATION PERFORMANCE

**Typical @ 25 °C; 3000 MHz**

**AS6064**

|  |                |
|--|----------------|
| <b>Second Order Harmonic Intercept Point</b> ..... | <b>+47 dBm</b> |
| <b>Second Order Two Tone Intercept Point</b> ..... | <b>+41 dBm</b> |
| <b>Third Order Two Tone Intercept Point</b> .....  | <b>+28 dBm</b> |

## ABSOLUTE MAXIMUM RATINGS

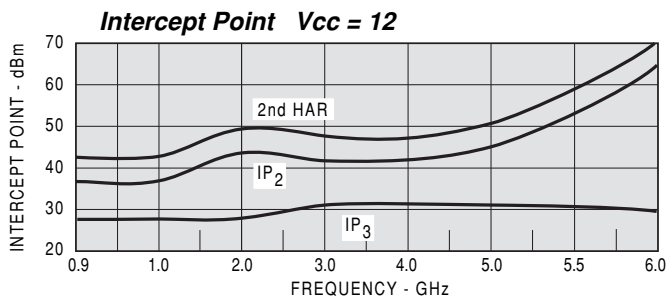
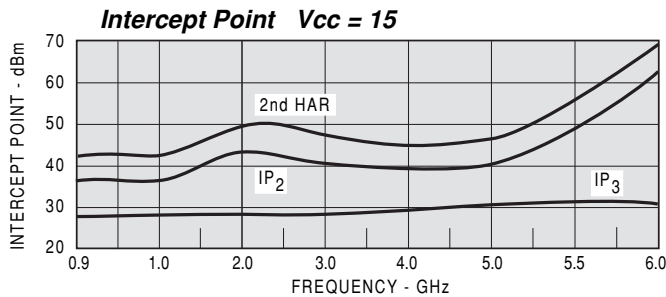
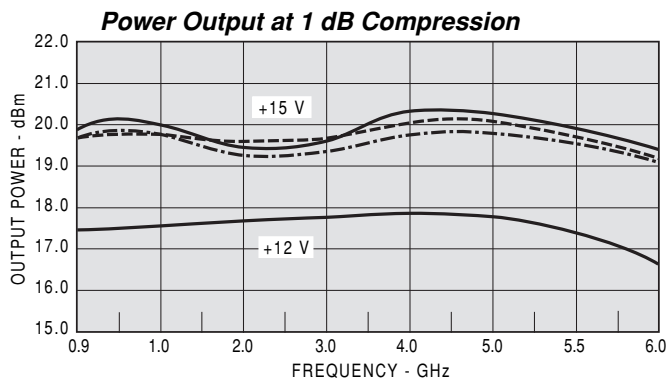
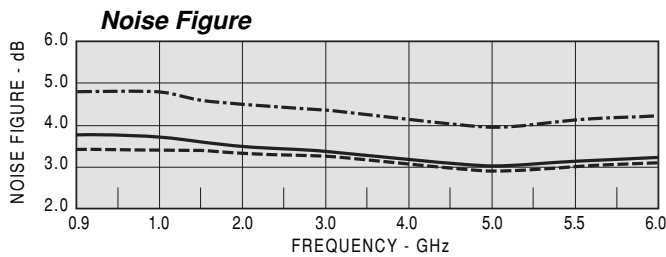
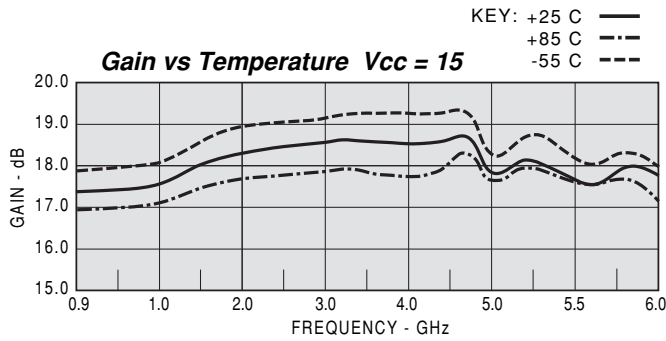
|   |                       |
|---|-----------------------|
| <b>Storage Temperature</b> .....                            | <b>-62 to 125 °C</b>  |
| <b>Maximum Case Temperature</b> .....                       | <b>+125 °C</b>        |
| <b>Maximum DC Voltage</b> .....                             | <b>+16 Volts</b>      |
| <b>Maximum Continuous RF Input Power</b> .....              | <b>+20 dBm</b>        |
| <b>Maximum Short Term Input Power (1 Minute Max.)</b> ..... | <b>250 Milliwatts</b> |
| <b>Maximum Peak Power (3 μsec Max.)</b> .....               | <b>0.5 Watt</b>       |
| <b>Burn-in Temperature</b> .....                            | <b>+105 °C</b>        |
| <b>Thermal Resistance<sup>1</sup> (θjc)</b> .....           | <b>+16 °C/Watt</b>    |
| <b>Junction Temperature Rise Above Case (Tjc)</b> .....     | <b>+25.8 °C</b>       |

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

DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



| Model: AS6064 |      |      | Vcc=+15V |       |             | Icc=110.43 |  |
|---------------|------|------|----------|-------|-------------|------------|--|
| FREQ          | SWR  | SWR  | GAIN     | PHASE | GROUP DELAY | REV/ISO    |  |
| MHZ           | IN   | OUT  | DB       | DEG   | NSEC        | DB         |  |
| 900           | 1.46 | 1.15 | 17.55    | -41   | 0.44        | -37.2      |  |
| 1000          | 1.36 | 1.11 | 17.75    | -56   | 0.41        | -37.1      |  |
| 1500          | 1.03 | 1.10 | 18.27    | -122  | 0.36        | -36.7      |  |
| 2000          | 1.20 | 1.09 | 18.62    | 179   | 0.33        | -36.7      |  |
| 2500          | 1.37 | 1.07 | 18.79    | 122   | 0.32        | -37.0      |  |
| 3000          | 1.48 | 1.10 | 18.86    | 65    | 0.32        | -37.2      |  |
| 3200          | 1.51 | 1.13 | 18.89    | 42    | 0.31        | -38.0      |  |
| 3400          | 1.56 | 1.16 | 18.88    | 20    | 0.31        | -38.1      |  |
| 3600          | 1.60 | 1.21 | 18.82    | -3    | 0.32        | -38.7      |  |
| 3800          | 1.64 | 1.26 | 18.79    | -26   | 0.32        | -39.1      |  |
| 4000          | 1.67 | 1.32 | 18.76    | -48   | 0.31        | -38.5      |  |
| 4200          | 1.68 | 1.39 | 18.77    | -71   | 0.32        | -38.0      |  |
| 4400          | 1.68 | 1.46 | 18.85    | -95   | 0.33        | -38.9      |  |
| 4600          | 1.66 | 1.50 | 19.01    | -119  | 0.33        | -37.6      |  |
| 4800          | 1.60 | 1.50 | 18.78    | -144  | 0.34        | -37.4      |  |
| 5000          | 1.62 | 1.46 | 18.08    | -168  | 0.34        | -37.7      |  |
| 5200          | 1.65 | 1.43 | 18.35    | 166   | 0.36        | -37.1      |  |
| 5400          | 1.64 | 1.41 | 18.00    | 140   | 0.36        | -37.7      |  |
| 5600          | 1.56 | 1.18 | 17.96    | 117   | 0.32        | -38.2      |  |
| 5800          | 1.56 | 1.26 | 18.11    | 87    | 0.42        | -39.3      |  |
| 6000          | 1.67 | 1.51 | 17.67    | 55    | 0.44        | -40.0      |  |

| Model: AS6064 |      |        | LINEAR S-PARAMETERS |        |       |        |      |        | Icc=110.43 |     |
|---------------|------|--------|---------------------|--------|-------|--------|------|--------|------------|-----|
|               |      |        | Vcc=+15V            |        |       |        |      |        |            |     |
| FREQ.         | S11  |        | S21                 |        | S12   |        | S22  |        | MAG        | ANG |
| MHZ           | MAG  | ANG    | MAG                 | ANG    | MAG   | ANG    | MAG  | ANG    |            |     |
| 900           | 0.19 | -168.4 | 7.55                | -41.4  | 0.014 | -12.7  | 0.07 | 12.8   |            |     |
| 1000          | 0.15 | -179.0 | 7.72                | -56.3  | 0.014 | -25.1  | 0.05 | -11.1  |            |     |
| 1500          | 0.02 | 160.2  | 8.19                | -121.7 | 0.015 | -59.9  | 0.05 | -105.4 |            |     |
| 2000          | 0.09 | -106.4 | 8.53                | 178.8  | 0.015 | -95.4  | 0.04 | -138.2 |            |     |
| 2500          | 0.15 | -155.7 | 8.70                | 121.5  | 0.014 | -130.7 | 0.03 | -135.2 |            |     |
| 3000          | 0.19 | 148.6  | 8.77                | 64.8   | 0.014 | -160.4 | 0.05 | -130.6 |            |     |
| 3200          | 0.20 | 126.4  | 8.80                | 42.3   | 0.013 | -172.5 | 0.06 | -139.1 |            |     |
| 3400          | 0.22 | 104.7  | 8.79                | 19.9   | 0.012 | 169.4  | 0.07 | -151.6 |            |     |
| 3600          | 0.23 | 84.0   | 8.73                | -2.9   | 0.012 | 156.6  | 0.09 | -166.7 |            |     |
| 3800          | 0.24 | 65.4   | 8.70                | -25.9  | 0.011 | 147.4  | 0.11 | 176.5  |            |     |
| 4000          | 0.25 | 48.5   | 8.67                | -48.4  | 0.012 | 133.3  | 0.14 | 159.3  |            |     |
| 4200          | 0.26 | 32.1   | 8.68                | -71.4  | 0.013 | 114.2  | 0.16 | 142.3  |            |     |
| 4400          | 0.25 | 16.8   | 8.76                | -95.2  | 0.011 | 109.0  | 0.19 | 125.2  |            |     |
| 4600          | 0.25 | 1.9    | 8.92                | -118.8 | 0.013 | 87.9   | 0.20 | 109.1  |            |     |
| 4800          | 0.23 | -11.4  | 8.69                | -143.6 | 0.013 | 74.0   | 0.20 | 95.6   |            |     |
| 5000          | 0.24 | -14.1  | 8.02                | -168.0 | 0.013 | 66.8   | 0.19 | 83.6   |            |     |
| 5200          | 0.24 | -38.3  | 8.27                | 166.0  | 0.014 | 46.3   | 0.18 | 78.1   |            |     |
| 5400          | 0.24 | -57.6  | 7.95                | 140.2  | 0.013 | 18.6   | 0.17 | 67.0   |            |     |
| 5600          | 0.22 | -79.2  | 7.90                | 117.3  | 0.012 | -3.9   | 0.08 | 56.0   |            |     |
| 5800          | 0.22 | -89.7  | 8.05                | 86.8   | 0.011 | -12.1  | 0.11 | 116.4  |            |     |
| 6000          | 0.25 | -101.6 | 7.65                | 54.9   | 0.010 | -30.9  | 0.20 | 112.9  |            |     |

| Model: AS6064 |      |      | Vcc=+12V |       |             | Icc=99.47 |  |
|---------------|------|------|----------|-------|-------------|-----------|--|
| FREQ          | SWR  | SWR  | GAIN     | PHASE | GROUP DELAY | REV/ISO   |  |
| MHZ           | IN   | OUT  | DB       | DEG   | NSEC        | DB        |  |
| 900           | 1.44 | 1.11 | 17.43    | -44   | 0.43        | -38.0     |  |
| 1000          | 1.36 | 1.08 | 17.61    | -59   | 0.40        | -38.5     |  |
| 1500          | 1.06 | 1.10 | 18.16    | -123  | 0.36        | -37.4     |  |
| 2000          | 1.16 | 1.12 | 18.59    | 179   | 0.33        | -37.0     |  |
| 2500          | 1.32 | 1.12 | 18.87    | 121   | 0.32        | -36.8     |  |
| 3000          | 1.43 | 1.11 | 18.98    | 64    | 0.32        | -36.3     |  |
| 3200          | 1.47 | 1.10 | 18.98    | 41    | 0.32        | -36.5     |  |
| 3400          | 1.52 | 1.09 | 18.94    | 18    | 0.32        | -36.3     |  |
| 3600          | 1.57 | 1.07 | 18.94    | -5    | 0.32        | -36.8     |  |
| 3800          | 1.63 | 1.05 | 18.91    | -28   | 0.32        | -36.6     |  |
| 4000          | 1.66 | 1.06 | 18.80    | -51   | 0.32        | -35.6     |  |
| 4200          | 1.69 | 1.09 | 18.73    | -74   | 0.32        | -35.9     |  |
| 4400          | 1.71 | 1.12 | 18.68    | -98   | 0.33        | -35.7     |  |
| 4600          | 1.71 | 1.13 | 18.68    | -122  | 0.33        | -34.3     |  |
| 4800          | 1.65 | 1.13 | 18.52    | -147  | 0.35        | -34.3     |  |
| 5000          | 1.64 | 1.15 | 17.98    | -171  | 0.34        | -34.6     |  |
| 5200          | 1.65 | 1.23 | 18.15    | 164   | 0.36        | -34.1     |  |
| 5400          | 1.60 | 1.28 | 17.71    | 137   | 0.37        | -34.8     |  |
| 5600          | 1.50 | 1.17 | 17.55    | 114   | 0.32        | -34.7     |  |
| 5800          | 1.44 | 1.46 | 17.60    | 84    | 0.42        | -35.0     |  |
| 6000          | 1.52 | 1.73 | 17.16    | 53    | 0.43        | -35.1     |  |