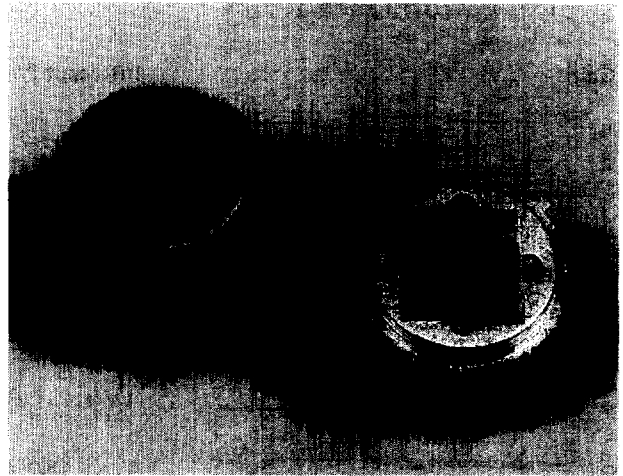




A43 / SMA43

100 to 3200 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ ULTRAWIDE BANDWIDTH: 100-3200 MHz
- ◆ EXCELLENT GAIN BLOCK: 11.5 dB (TYP.)
- ◆ MEDIUM OUTPUT LEVEL: +8.5 dBm (TYP.)



Specifications*

| Characteristics | Typical | Guaranteed | |
|--|-------------|--------------|---------------|
| | | 0° to 50°C | -54° to +85°C |
| Frequency (Min.) | 80-3200 MHz | 100-3200 MHz | 100-3200 MHz |
| Small Signal Gain (Min.) | 11.5 dB | 10.5 dB | 9.8 dB |
| Gain Flatness (Max.) | ±0.3 dB | ±0.7 dB | ±1.0 dB |
| Noise Figure (Max.) | 6.7 dB | 7.2 dB | 7.7 dB |
| Power Output at 1 dB Compression (Min.) | +8.5 dBm | +7.0 dBm | +6.5 dBm |
| VSWR (Max.) | | | |
| Input | 1.6:1 | 2.0:1 | 2.2:1 |
| Output | 1.8:1 | 2.3:1 | 2.4:1 |
| DC Current (Max) at 15 Volts | 45 mA | 48 mA | 50 mA |

*Measured in a 50-ohm system at +15 Vdc Nominal.

Notes:

1. WJ-CA43 is a standard WJ-A43 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

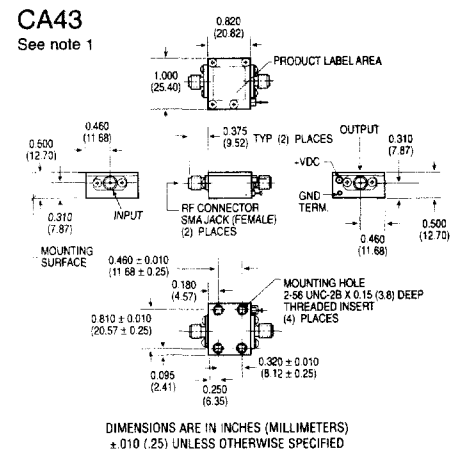
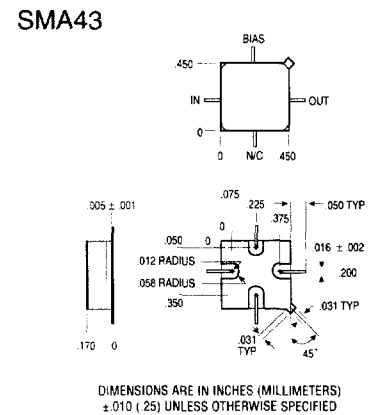
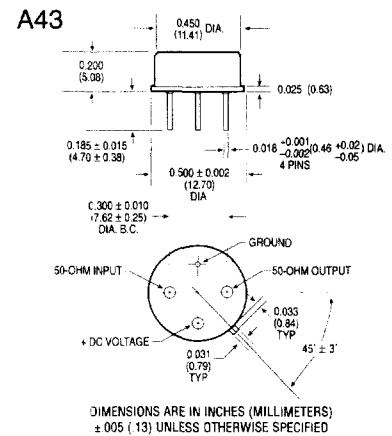
| | |
|---|----------------|
| Second Order Harmonic Intercept Point | +45 dBm (Typ.) |
| Second Order Two Tone Intercept Point | +40 dBm (Typ.) |
| Third Order Two Tone Intercept Point | +21 dBm (Typ.) |

Absolute Maximum Ratings

| | |
|---|-------------------------------|
| Storage Temperature | -62°C to +125°C |
| Maximum Case Temperature | 125°C |
| Maximum DC Voltage | +17 Volts |
| Maximum Continuous RF Input Power | +10 dBm |
| Maximum Short Term RF Input Power | 50 Milliwatts (1 Minute Max.) |
| Maximum Peak Power | 0.5 Watt (3 μsec Max.) |
| "S" Series Burn-In Temperature (Case) | 125°C |

Weight approximately 2.0 grams (0.07 oz.)

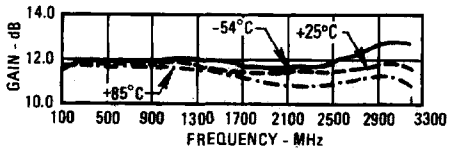
Outline Drawings



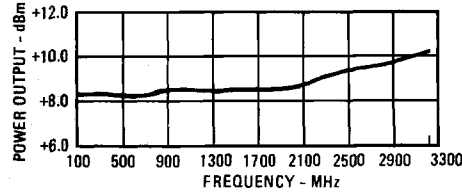
Typical Performance at 25°C

WJ-A43/SMA43

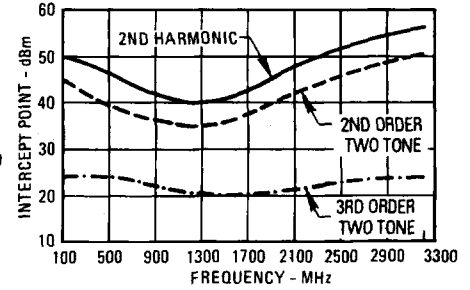
Gain



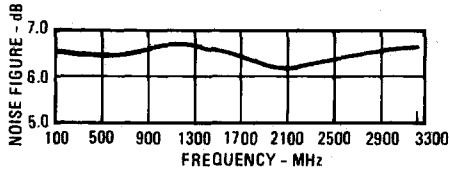
Power Output*



Intercept Point

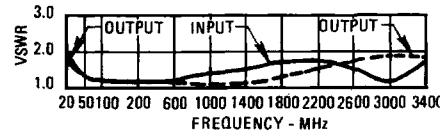


Noise Figure



* at 1 dB Gain Compression

VSWR



Typical Automatic Test Data

V_{CC} = 15.0 V

| Frequency MHz | VSWR IN | VSWR OUT | GAIN DB |
|---------------|---------|----------|---------|
| 100.0 | 1.1 | 1.2 | 12.3 |
| 200.0 | 1.1 | 1.1 | 12.3 |
| 300.0 | 1.1 | 1.2 | 12.3 |
| 400.0 | 1.1 | 1.2 | 12.3 |
| 500.0 | 1.1 | 1.2 | 12.3 |
| 600.0 | 1.1 | 1.3 | 12.3 |
| 700.0 | 1.2 | 1.3 | 12.3 |
| 800.0 | 1.2 | 1.3 | 12.3 |
| 900.0 | 1.2 | 1.4 | 12.3 |
| 1000.0 | 1.2 | 1.4 | 12.2 |
| 1100.0 | 1.3 | 1.4 | 12.2 |
| 1200.0 | 1.3 | 1.4 | 12.3 |
| 1300.0 | 1.3 | 1.4 | 12.3 |
| 1400.0 | 1.3 | 1.4 | 12.2 |
| 1500.0 | 1.3 | 1.4 | 12.2 |
| 1600.0 | 1.4 | 1.5 | 12.2 |
| 1700.0 | 1.3 | 1.5 | 12.1 |
| 1800.0 | 1.4 | 1.5 | 12.1 |
| 1900.0 | 1.4 | 1.5 | 12.1 |
| 2000.0 | 1.4 | 1.4 | 12.1 |
| 2100.0 | 1.4 | 1.4 | 12.2 |
| 2200.0 | 1.4 | 1.3 | 12.2 |
| 2300.0 | 1.4 | 1.2 | 12.2 |
| 2400.0 | 1.4 | 1.2 | 12.2 |
| 2500.0 | 1.4 | 1.1 | 12.2 |
| 2600.0 | 1.3 | 1.2 | 12.1 |
| 2700.0 | 1.3 | 1.3 | 12.1 |
| 2800.0 | 1.3 | 1.4 | 12.0 |
| 2900.0 | 1.3 | 1.6 | 11.9 |
| 3000.0 | 1.4 | 1.8 | 11.8 |
| 3100.0 | 1.4 | 1.9 | 11.6 |
| 3200.0 | 1.5 | 2.0 | 11.4 |
| 3300.0 | 1.6 | 2.1 | 11.1 |
| 3400.0 | 1.8 | 2.2 | 10.9 |

Linear S-Parameters

| Frequency MHz | S11 | | S21 | | S12 | | S22 | |
|---------------|------|------|-------|------|------|------|------|------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 100.0 | .069 | -90 | 4.108 | -21 | .040 | -8 | .071 | -163 |
| 200.0 | .050 | -103 | 4.132 | -58 | .041 | -38 | .062 | 128 |
| 300.0 | .050 | -130 | 4.110 | -91 | .041 | -62 | .075 | 84 |
| 400.0 | .051 | -131 | 4.123 | -124 | .042 | -87 | .092 | 50 |
| 500.0 | .063 | -157 | 4.116 | -155 | .041 | -110 | .108 | 22 |
| 600.0 | .068 | -173 | 4.113 | 173 | .041 | -135 | .123 | -6 |
| 700.0 | .076 | 163 | 4.112 | 141 | .041 | -157 | .135 | -32 |
| 800.0 | .083 | 146 | 4.104 | 110 | .041 | -179 | .148 | -58 |
| 900.0 | .097 | 123 | 4.115 | 77 | .038 | 157 | .156 | -87 |
| 1000.0 | .104 | 106 | 4.085 | 46 | .038 | 135 | .162 | -115 |
| 1100.0 | .112 | 85 | 4.082 | 14 | .039 | 112 | .163 | -144 |
| 1200.0 | .123 | 65 | 4.097 | -18 | .038 | 88 | .167 | -173 |
| 1300.0 | .133 | 40 | 4.100 | -49 | .038 | 64 | .170 | 155 |
| 1400.0 | .134 | 21 | 4.077 | -80 | .038 | 42 | .175 | 125 |
| 1500.0 | .137 | 0 | 4.070 | -112 | .038 | 20 | .182 | 94 |
| 1600.0 | .155 | -24 | 4.053 | -143 | .037 | -4 | .184 | 64 |
| 1700.0 | .147 | -44 | 4.048 | -174 | .037 | -26 | .187 | 36 |
| 1800.0 | .161 | -67 | 4.039 | 155 | .037 | -49 | .191 | 8 |
| 1900.0 | .156 | -90 | 4.037 | 124 | .037 | -71 | .187 | -17 |
| 2000.0 | .169 | -115 | 4.049 | 93 | .037 | -94 | .172 | -41 |
| 2100.0 | .166 | -136 | 4.052 | 61 | .036 | -117 | .154 | -64 |
| 2200.0 | .164 | -159 | 4.069 | 30 | .036 | -141 | .132 | -85 |
| 2300.0 | .156 | 179 | 4.064 | -1 | .035 | -162 | .101 | -100 |
| 2400.0 | .150 | 155 | 4.065 | -33 | .037 | 175 | .071 | -104 |
| 2500.0 | .150 | 131 | 4.071 | -65 | .036 | 152 | .060 | -85 |
| 2600.0 | .133 | 102 | 4.049 | -97 | .035 | 127 | .087 | -72 |
| 2700.0 | .132 | 73 | 4.026 | -129 | .035 | 104 | .132 | -80 |
| 2800.0 | .140 | 42 | 3.977 | -161 | .035 | 82 | .178 | -97 |
| 2900.0 | .142 | 16 | 3.938 | 167 | .036 | 61 | .226 | -118 |
| 3000.0 | .162 | -18 | 3.891 | 134 | .037 | 38 | .275 | -140 |
| 3100.0 | .182 | -46 | 3.797 | 102 | .036 | 12 | .308 | -163 |
| 3200.0 | .212 | -76 | 3.704 | 69 | .036 | -8 | .334 | 171 |
| 3300.0 | .245 | -107 | 3.608 | 37 | .036 | -31 | .358 | 146 |
| 3400.0 | .273 | -134 | 3.496 | 3 | .038 | -52 | .372 | 120 |

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jC} 150°C/W
 Transistor Power Dissipation P_D0.193 W
 Junction Temperature Rise Above Case T_{jC}29°C

