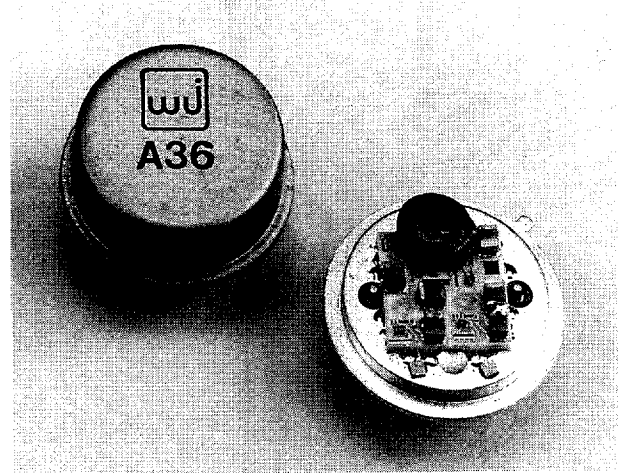


# WJ-A36 / SMA36

100 to 2000 MHz  
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN -TWO STAGES: 16.5 dB (TYP.)
- ◆ LOW VSWR: < 1.5:1 (TYP.)
- ◆ MEDIUM OUTPUT LEVEL: +12.0 dBm (TYP.)



## Specifications\*

| Characteristics                            | Typical     | Guaranteed   |               |
|--------------------------------------------|-------------|--------------|---------------|
|                                            |             | 0° to 50°C   | -54° to +85°C |
| Frequency (Min.)                           | 80-2000 MHz | 100-2000 MHz | 100-2000 MHz  |
| Small Signal Gain (Min.)                   | 16.5 dB     | 15.5 dB      | 14.5 dB       |
| Gain Flatness (Max.)                       | ±0.3 dB     | ±0.8 dB      | ±1.0 dB       |
| Noise Figure (Max.)                        | 5.5 dB      | 7.0 dB       | 7.5 dB        |
| Power Output<br>at 1 dB Compression (Min.) | +12.0 dBm   | +11.0 dBm    | +11.0 dBm     |
| VSWR (Max.) Input/Output                   | < 1.5:1     | 2.0:1        | 2.0:1         |
| DC Current (Max) at 15 Volts               | 63 mA       | 64 mA        | 67 mA         |

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

### Notes:

1. WJ-CA36 is a standard WJ-A36 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

## Typical Intermodulation Performance at 25°C

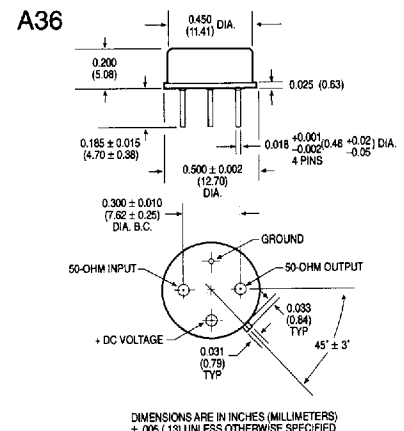
Second Order Harmonic Intercept Point.....+35 dBm (Typ.)  
Second Order Two Tone Intercept Point.....+30 dBm (Typ.)  
Third Order Two Tone Intercept Point .....+23 dBm (Typ.)

## Absolute Maximum Ratings

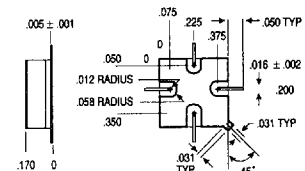
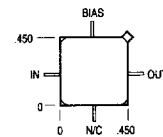
Storage Temperature .....-62°C to +125°C  
Maximum Case Temperature .....125°C  
Maximum DC Voltage.....+17 Volts  
Maximum Continuous RF Input Power.....+10 dBm  
Maximum Short Term RF Input Power.....50 Milliwatts (1 Minute Max.)  
Maximum Peak Power .....0.5 Watt (3 μsec Max.)  
"S" Series Burn-in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

Weight approximately 2.0 grams (0.07 oz.)

## Outline Drawings

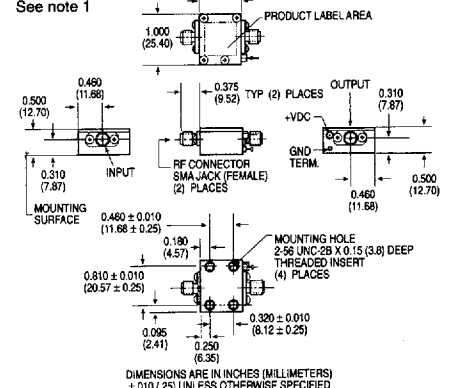


## SMA36



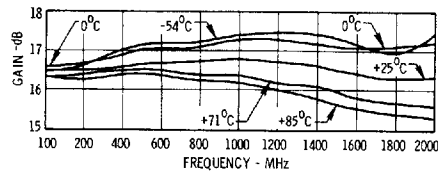
## CA36

See note 1

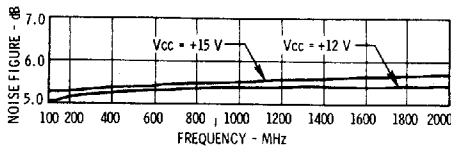


## Typical Performance at 25°C

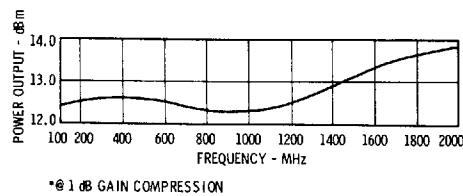
### Gain



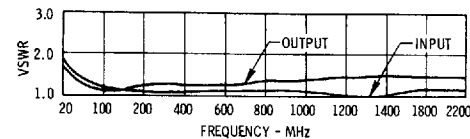
### Noise Figure



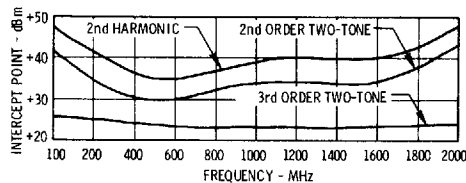
### Power Output\*



### VSWR



### Intercept Point



## Typical Automatic Test Data

### V<sub>CC</sub> = 15.0 V

| Frequency<br>MHz | VSWR<br>IN | VSWR<br>OUT | GAIN<br>DB |
|------------------|------------|-------------|------------|
| 10.0             | 3.1        | 2.3         | 12.0       |
| 50.0             | 1.3        | 1.2         | 16.5       |
| 100.0            | 1.3        | 1.2         | 16.9       |
| 200.0            | 1.2        | 1.2         | 17.1       |
| 300.0            | 1.2        | 1.2         | 17.2       |
| 400.0            | 1.2        | 1.3         | 17.0       |
| 500.0            | 1.2        | 1.3         | 16.8       |
| 600.0            | 1.2        | 1.3         | 16.9       |
| 700.0            | 1.2        | 1.3         | 17.0       |
| 800.0            | 1.2        | 1.3         | 17.1       |
| 900.0            | 1.2        | 1.4         | 17.1       |
| 1000.0           | 1.2        | 1.4         | 17.2       |
| 1100.0           | 1.3        | 1.4         | 17.2       |
| 1200.0           | 1.2        | 1.5         | 17.3       |
| 1300.0           | 1.3        | 1.5         | 17.3       |
| 1400.0           | 1.3        | 1.5         | 17.2       |
| 1500.0           | 1.3        | 1.5         | 17.1       |
| 1600.0           | 1.3        | 1.5         | 16.9       |
| 1700.0           | 1.3        | 1.4         | 16.9       |
| 1800.0           | 1.3        | 1.4         | 16.8       |
| 1900.0           | 1.4        | 1.4         | 16.6       |
| 2000.0           | 1.4        | 1.4         | 16.5       |
| 2100.0           | 1.5        | 1.4         | 16.3       |
| 2200.0           | 1.6        | 1.4         | 16.2       |

### Linear S-Parameters

| Frequency<br>MHz | S11  |      | S21   |      | S12  |      | S22  |      |
|------------------|------|------|-------|------|------|------|------|------|
|                  | MAG  | ANG  | MAG   | ANG  | MAG  | ANG  | MAG  | ANG  |
| 10.0             | .515 | -53  | 3.959 | 82   | .017 | 56   | .396 | -91  |
| 50.0             | .131 | -42  | 6.721 | 13   | .028 | 26   | .082 | -150 |
| 100.0            | .112 | -39  | 6.959 | -4   | .030 | 13   | .073 | -178 |
| 200.0            | .093 | -51  | 7.197 | -24  | .033 | 3    | .088 | 144  |
| 300.0            | .073 | -56  | 7.207 | -42  | .034 | -4   | .111 | 111  |
| 400.0            | .091 | -51  | 7.058 | -59  | .035 | -12  | .119 | 79   |
| 500.0            | .099 | -73  | 6.936 | -73  | .035 | -21  | .114 | 55   |
| 600.0            | .105 | -89  | 7.005 | -88  | .033 | -25  | .118 | 38   |
| 700.0            | .101 | -103 | 7.042 | -102 | .033 | -29  | .130 | 22   |
| 800.0            | .111 | -121 | 7.124 | -118 | .033 | -34  | .145 | 5    |
| 900.0            | .102 | -139 | 7.160 | -133 | .033 | -38  | .159 | -10  |
| 1000.0           | .109 | -159 | 7.235 | -149 | .032 | -44  | .168 | -25  |
| 1100.0           | .112 | 180  | 7.264 | -164 | .031 | -49  | .177 | -42  |
| 1200.0           | .108 | 159  | 7.294 | 180  | .031 | -56  | .191 | -58  |
| 1300.0           | .116 | 144  | 7.291 | 164  | .030 | -60  | .198 | -72  |
| 1400.0           | .118 | 120  | 7.212 | 148  | .030 | -67  | .199 | -87  |
| 1500.0           | .122 | 102  | 7.163 | 133  | .029 | -71  | .200 | -102 |
| 1600.0           | .139 | 80   | 7.030 | 117  | .029 | -78  | .190 | -117 |
| 1700.0           | .143 | 56   | 7.038 | 101  | .029 | -83  | .178 | -134 |
| 1800.0           | .146 | 40   | 6.885 | 85   | .029 | -88  | .170 | -155 |
| 1900.0           | .169 | 16   | 6.738 | 68   | .030 | -93  | .164 | -174 |
| 2000.0           | .181 | 1    | 6.672 | 53   | .030 | -100 | .164 | 164  |
| 2100.0           | .203 | -20  | 6.527 | 37   | .031 | -108 | .163 | 146  |
| 2200.0           | .226 | -40  | 6.437 | 22   | .032 | -114 | .159 | 129  |

### Thermal Data: V<sub>CC</sub> = 15 Vdc

Thermal Resistance  $\theta_{JC}$  ..... 45°C/W  
 Transistor Power Dissipation  $P_d$  ..... 0.394 W  
 Junction Temperature Rise Above Case  $T_{JC}$  ... 18°C