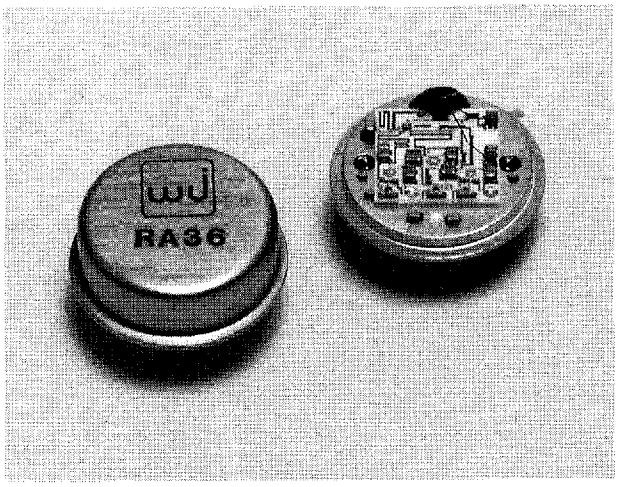
WJ-RA36/SMRA36

100 to 2000 MHz
TO-8B[1] CASCADABLE AMPLIFIER



- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN-THREE STAGES: 24.0 dB (TYP.)
- ◆ LOW VSWR: 1.4:1 (TYP.)
- ◆ MEDIUM OUTPUT LEVEL: +13.0 dBm (TYP.)
- ◆ WIDE BANDWIDTH: 50-2100 MHz (TYP.)

Specifications *

Characteristics	Typical	Guaranteed 0° to 50°C	Guaranteed -54°C to +85°C
Frequency (Min.)	50-2100 MHz	100-2000 MHz	100-2000 MHz
Small Signal Gain (Min.)	24.0 dB	23.0 dB	22.0 dB
Gain Flatness (Max.)	±0.5 dB	±0.9 dB	±1.0 dB
Noise Figure (Max.)	5.5 dB	6.5 dB	7.0 dB
Power Output at 1 dB Compression (Min.)	+13.0 dBm	+12.0 dBm	+11.5 dBm
VSWR (Max.) Input/Output	1.4:1	1.8:1	2.0:1
DC Current (Max.) at +15 Volts	76 mA	81 mA	85 mA

* Measured in a 50-ohm system at +15 Vdc Nominal.
Notes:
1. WJ-RA36 amplifier is in a TO-8B package which is slightly larger than the standard TO-8 package.
2. WJ-CRA36 is a standard WJ-RA36 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.....+40 dBm (Typ.)
Second Order Two Tone Intercept Point.....+34 dBm (Typ.)
Third Order Two Tone Intercept Point.....+22 dBm (Typ.)

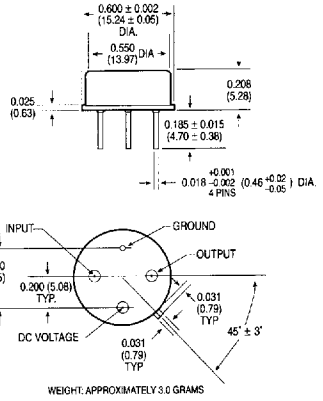
Absolute Maximum Ratings

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 (1 Minute Max.).....50 Milliwatts
Maximum Peak Power.....0.5 Watt (3 µsec Max.)
"S" Series Burn-In Temperature (Case).....125°C

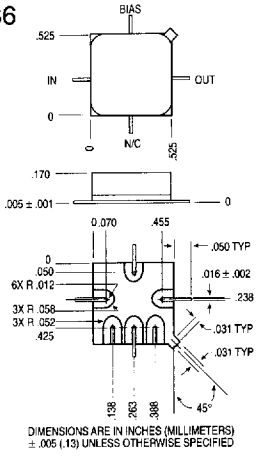
Weight approximately 3.0 grams (0.11 oz.)

Outline Drawings

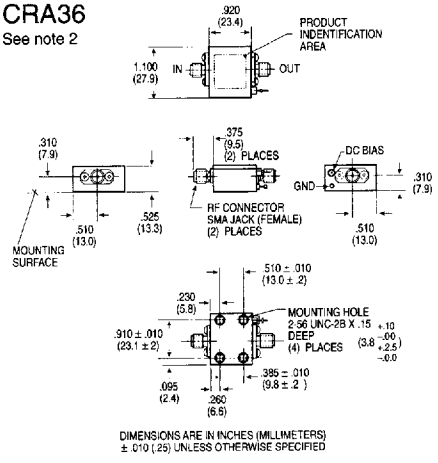
RA36
See note 1



SMRA36

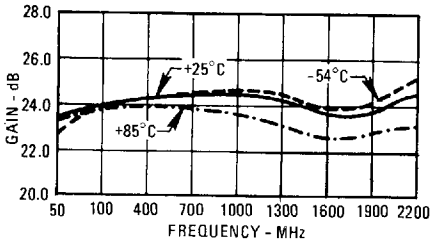


CRA36
See note 2

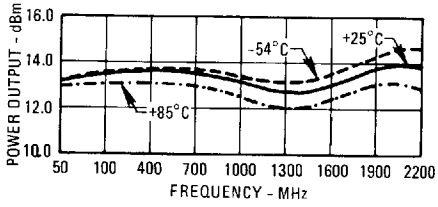


Typical Performance at 25°C

Gain

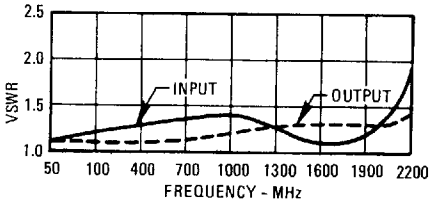


Power Output*

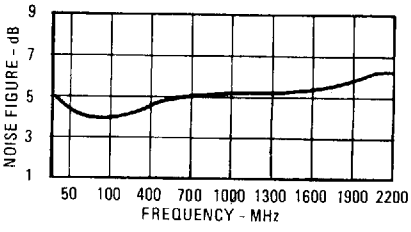


*at 1 dB Gain Compression

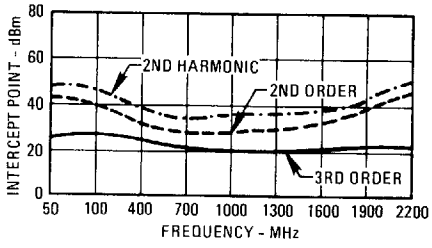
VSWR



Noise Figure



Intercept Point



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
10.0	2.4	2.8	21.0
50.0	1.3	1.1	25.5
100.0	1.1	1.0	25.7
200.0	1.1	1.0	25.9
300.0	1.2	1.1	25.9
400.0	1.2	1.1	26.1
500.0	1.3	1.1	26.1
600.0	1.3	1.1	26.2
700.0	1.3	1.2	26.3
800.0	1.3	1.2	26.5
900.0	1.3	1.2	26.6
1000.0	1.3	1.2	26.7
1100.0	1.3	1.2	26.7
1200.0	1.3	1.2	26.7
1300.0	1.3	1.2	26.6
1400.0	1.4	1.3	26.5
1500.0	1.4	1.3	26.3
1600.0	1.3	1.3	26.1
1700.0	1.2	1.3	26.1
1800.0	1.1	1.3	25.9
1900.0	1.1	1.3	26.0
2000.0	1.3	1.3	26.1
2100.0	1.8	1.2	26.2
2200.0	2.5	1.2	26.0

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.0	.415	−57	11.177	−85	.003	126	.473	−76
50.0	.115	−67	18.737	−170	.005	23	.062	−115
100.0	.046	−47	19.208	167	.005	9	.015	−113
200.0	.048	15	19.653	137	.006	−2	.014	−19
300.0	.077	19	19.833	110	.005	−7	.025	−37
400.0	.104	7	20.083	84	.005	−13	.039	−65
500.0	.120	−3	20.116	59	.005	−17	.052	−84
600.0	.123	−13	20.418	34	.005	−21	.062	−104
700.0	.128	−20	20.671	8	.005	−29	.076	−117
800.0	.125	−28	21.065	−17	.004	−38	.082	−129
900.0	.113	−28	21.301	−43	.004	−45	.086	−141
1000.0	.117	−34	21.559	−70	.004	−38	.094	−154
1100.0	.122	−38	21.600	−96	.004	−59	.102	−162
1200.0	.139	−40	21.564	−123	.003	−64	.107	−171
1300.0	.146	−52	21.396	−150	.003	−71	.108	176
1400.0	.155	−64	21.079	−177	.003	−77	.113	163
1500.0	.156	−81	20.701	156	.002	−104	.113	152
1600.0	.125	−94	20.272	129	.002	−116	.111	139
1700.0	.089	−115	20.124	103	.003	−136	.112	127
1800.0	.043	−148	19.800	76	.003	−150	.113	117
1900.0	.053	75	19.890	48	.003	−178	.117	108
2000.0	.144	35	20.147	19	.004	174	.118	98
2100.0	.281	3	20.327	−13	.003	160	.106	79
2200.0	.421	−24	20.056	−48	.004	140	.073	43

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} ..... 45°C/W
Transistor Power Dissipation P_d ..... 0.288 W
Junction Temperature Rise Above Case T_{jc} ... 13°C