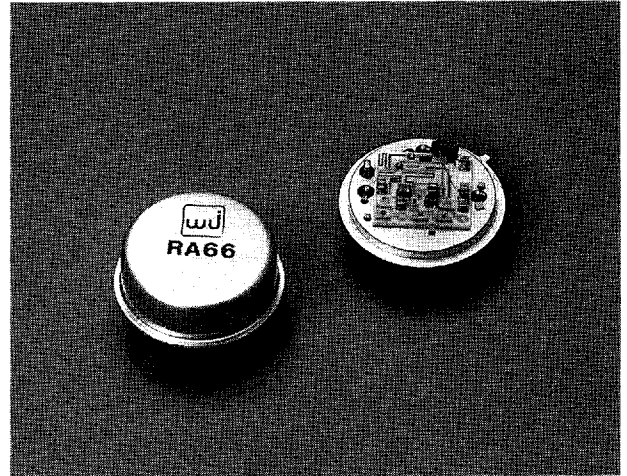


WJ-RA66/SMRA66

10 to 1000 MHz
TO-8B¹ CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN - THREE STAGES: 37.0 dB (TYP.)
- ◆ LOW NOISE: <3.5 dB (TYP.)
- ◆ MEDIUM OUTPUT LEVEL: > +15.5 dBm (TYP.)
- ◆ HIGH REVERSE ISOLATION: >50 dB (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	5-1000 MHz	10-1000 MHz	10-1000 MHz
Small Signal Gain (Min.)	37.0 dB	35.0 dB	34.0 dB
Gain Flatness (Max.)	±0.6 dB	±1.0 dB	±1.3 dB
Noise Figure (Max.)	3.5 dB	4.5 dB	5.0 dB
Power Output at 1 dB Compression (Min.)	+15.5 dBm	+14.0 dBm	+13.0 dBm
VSWR (Max.) Input/Output	1.3:1	1.8:1	2.0:1
DC Current (Max.) at +15 Volts	81 mA	85 mA	87 mA

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

1. WJ-RA66 amplifier is in a TO-8B package which is slightly larger than the standard TO-8 package.
2. WJ-CRA66 is a standard WJ-RA66 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.....	+55 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+45 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+30 dBm (Typ.)

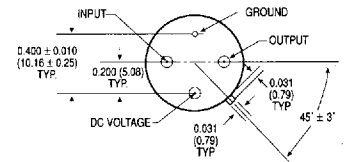
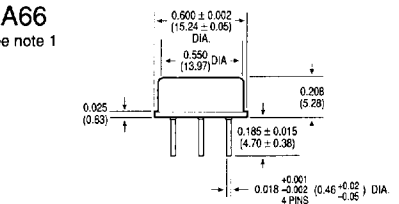
Absolute Maximum Ratings

Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°C
Maximum DC Voltage.....	+17 Volts
Maximum Continuous RF Input Power	+6 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	100 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.)

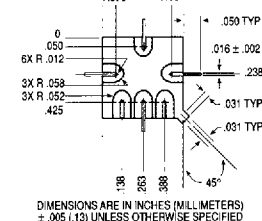
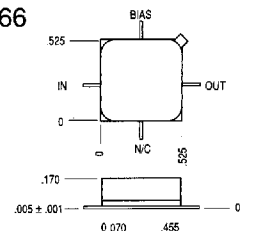
Outline Drawings

RA66
See note 1



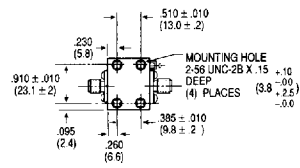
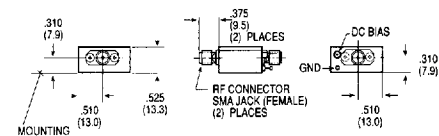
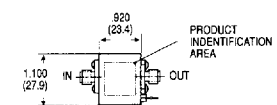
WEIGHT APPROXIMATELY 3.0 GRAMS

SMRA66



DIMENSIONS ARE IN INCHES (MILLIMETERS) ± .005 (0.13) UNLESS OTHERWISE SPECIFIED

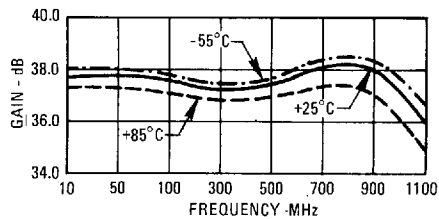
CRA66
See note 2



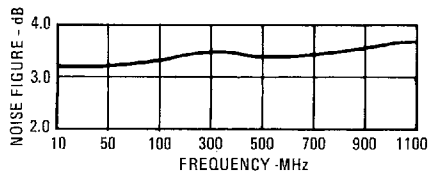
DIMENSIONS ARE IN INCHES (MILLIMETERS) ± 0.10 (2.5) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

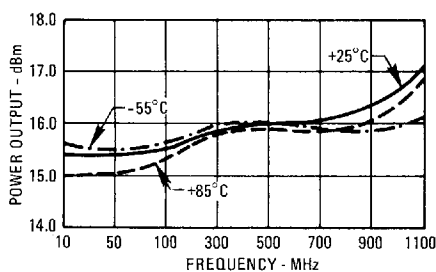
Gain



Noise Figure

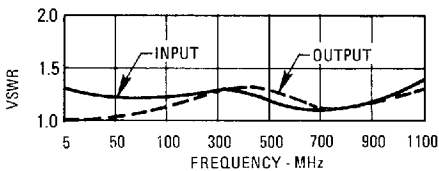


Power Output*

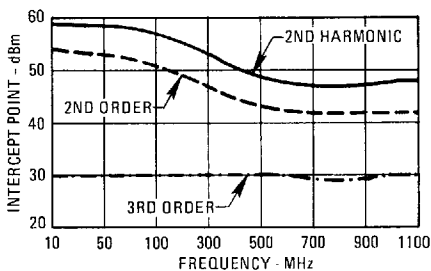


*at 1 dB Gain Compression

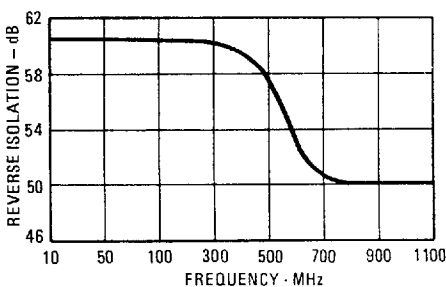
VSWR



Intercept Point



Reverse Isolation



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.6	2.7	35.2
2.0	1.4	1.4	36.8
5.0	1.2	1.1	36.8
10.0	1.2	1.1	36.8
50.0	1.2	1.1	36.7
100.0	1.1	1.2	36.5
200.0	1.1	1.2	36.3
300.0	1.1	1.3	36.3
400.0	1.2	1.3	36.6
500.0	1.3	1.4	36.8
600.0	1.4	1.4	37.3
700.0	1.5	1.5	37.7
800.0	1.4	1.5	37.6
900.0	1.4	1.4	37.1
1000.0	1.3	1.4	36.0
1100.0	1.2	1.4	34.4
1200.0	1.3	1.4	32.8

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.239	-65	57.820	-133	.001	116	.466	166
2.0	.154	-107	69.274	-161	.003	58	.156	108
5.0	.099	-144	69.234	-175	.003	20	.062	70
10.0	.089	-164	69.039	-180	.003	11	.050	50
50.0	.073	165	68.322	164	.003	9	.062	20
100.0	.060	157	66.748	148	.003	5	.075	7
200.0	.040	-176	65.442	118	.003	9	.093	-12
300.0	.060	-156	65.242	88	.004	8	.114	-34
400.0	.090	-162	67.248	59	.004	15	.135	-62
500.0	.137	-175	69.351	28	.004	19	.159	-91
600.0	.168	165	73.296	-5	.004	19	.182	-124
700.0	.187	140	76.315	-41	.004	15	.196	-158
800.0	.181	121	75.908	-79	.005	13	.194	164
900.0	.159	99	71.243	-116	.005	6	.174	125
1000.0	.121	96	62.792	-154	.006	1	.160	87
1100.0	.096	113	52.407	171	.006	-7	.155	51
1200.0	.132	131	43.565	140	.007	-23	.175	12

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.6	2.7	34.5
2.0	1.4	1.4	36.1
5.0	1.2	1.1	36.1
10.0	1.2	1.1	36.1
50.0	1.1	1.1	36.0
100.0	1.1	1.2	35.8
200.0	1.1	1.2	35.7
300.0	1.1	1.2	35.6
400.0	1.2	1.3	35.9
500.0	1.3	1.4	36.2
600.0	1.4	1.4	36.6
700.0	1.4	1.5	36.9
800.0	1.4	1.5	36.7
900.0	1.3	1.4	36.1
1000.0	1.3	1.4	35.0
1100.0	1.3	1.4	33.5
1200.0	1.5	1.5	31.9

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.216	-66	53.328	-133	.001	115	.464	166
2.0	.150	-100	63.958	-162	.003	45	.158	106
5.0	.087	-140	63.909	-175	.003	19	.064	66
10.0	.070	-158	63.811	180	.003	8	.053	46
50.0	.061	167	63.224	164	.003	14	.065	17
100.0	.047	152	61.794	148	.003	10	.074	4
200.0	.033	-162	60.691	117	.004	10	.092	-15
300.0	.063	-144	60.548	87	.003	17	.107	-39
400.0	.099	-153	62.243	56	.004	6	.131	-68
500.0	.137	-170	64.216	25	.004	14	.151	-98
600.0	.169	167	67.576	-9	.005	19	.174	-130
700.0	.179	146	69.669	-45	.005	13	.187	-164
800.0	.167	131	68.498	-83	.005	13	.184	159
900.0	.143	114	63.870	-121	.006	7	.171	119
1000.0	.131	114	56.229	-159	.006	-2	.161	83
1100.0	.134	128	47.203	166	.006	-13	.162	48
1200.0	.190	129	39.368	135	.007	-20	.190	10

Typical Automatic Test Data

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.8	2.8	30.3
2.0	1.3	1.4	31.9
5.0	1.1	1.2	31.9
10.0	1.1	1.2	31.8
50.0	1.1	1.2	31.8
100.0	1.1	1.2	31.6
200.0	1.2	1.2	31.5
300.0	1.2	1.2	31.4
400.0	1.3	1.3	31.5
500.0	1.4	1.3	31.5
600.0	1.5	1.3	31.4
700.0	1.5	1.3	31.2
800.0	1.6	1.3	30.7
900.0	1.7	1.3	30.0
1000.0	2.0	1.3	29.0
1100.0	2.3	1.3	27.7
1200.0	2.7	1.4	26.4

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.282	-50	32.618	-136	.002	111	.478	164
2.0	.146	-67	39.233	-163	.004	48	.178	97
5.0	.061	-65	39.146	-176	.004	21	.088	47
10.0	.035	-54	39.093	180	.004	11	.079	28
50.0	.025	-23	38.863	162	.004	5	.087	1
100.0	.037	-38	38.126	145	.004	4	.092	-13
200.0	.071	-78	37.531	110	.004	8	.096	-35
300.0	.102	-107	37.098	77	.005	6	.103	-60
400.0	.132	-127	37.514	42	.004	10	.115	-88
500.0	.163	-148	37.433	8	.005	9	.123	-118
600.0	.188	-165	37.353	-29	.005	0	.129	-149
700.0	.205	-178	36.354	-66	.005	9	.127	-177
800.0	.227	169	34.305	-104	.006	-2	.117	153
900.0	.265	157	31.459	-140	.007	-10	.111	120
1000.0	.323	145	28.048	-177	.007	-13	.119	88
1100.0	.386	131	24.314	148	.008	-24	.134	52
1200.0	.458	116	21.007	114	.008	-35	.170	12

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} 45°C/W
 Transistor Power Dissipation P_d 0.296 W
 Junction Temperature Rise Above Case T_{jc} ... 13°C

