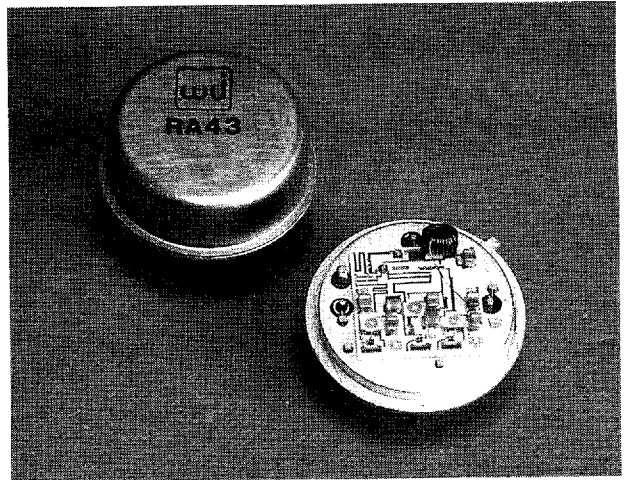


WJ-RA43/SMRA43

1000 to 4000 MHz
TO-8B¹ CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ ULTRA-WIDE BANDWIDTH: 0.8-4.0 GHz (TYP.)
- ◆ HIGH GAIN: 21.0 dB (TYP.)
- ◆ LOW NOISE: 4.5 dB (TYP.)
- ◆ MEDIUM OUTPUT POWER: +12.0 dBm (TYP.)



Specifications *

Characteristics	Typical	Guaranteed	
		0°C to 50°C	-54° to +85°C
Frequency (Min.)	800-4000 MHz	1000-4000 MHz	1000-4000 MHz
Small Signal Gain (Min.)	21.0 dB	19.5 dB	18.0 dB
Gain Flatness (Max.)	±0.7 dB	±0.9 dB	±1.2 dB
Noise Figure (Max.)	4.5 dB	5.3 dB	5.8 dB
Power Output at 1 dB Compression (Min.)	+12.0 dBm	+10.5 dBm	+9.5 dBm
VSWR (Max.) Input/Output	1.4:1	2.0:1	2.0:1
DC Current (Max.) at +5 Volts	115 mA	140 mA	155 mA

* Measured in a 50-ohm system at +5 Vdc Nominal.

- Notes:
1. WJ-RA43 amplifier is in a TO-8B package which is slightly larger than the standard TO-8 package.
 2. WJ-CRA43 is a standard WJ-RA43 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.....	+31 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+22 dBm (Typ.)

Absolute Maximum Ratings

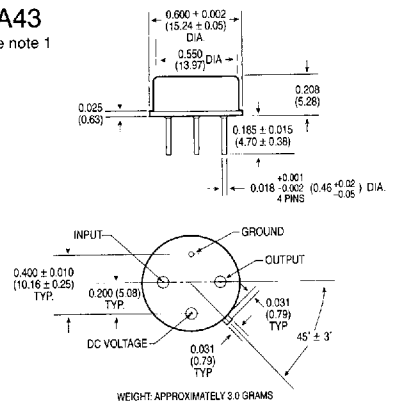
Storage Temperature	-64°C to +125°C
Maximum Case Temperature	85°C
Maximum DC Voltage.....	+6 Volts
Maximum Continuous RF Input Power	+7 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power	0.25 Watt (3 µsec Max.)
"S" Series Burn-In Temperature (Case)	85°C

Weight approximately 3.0 grams (0.11 oz.)

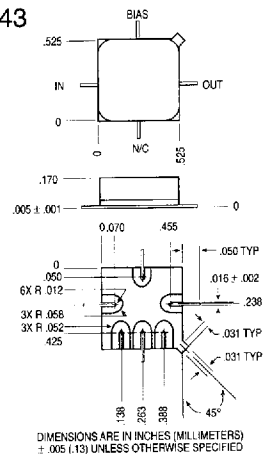
Outline Drawings

RA43

See note 1

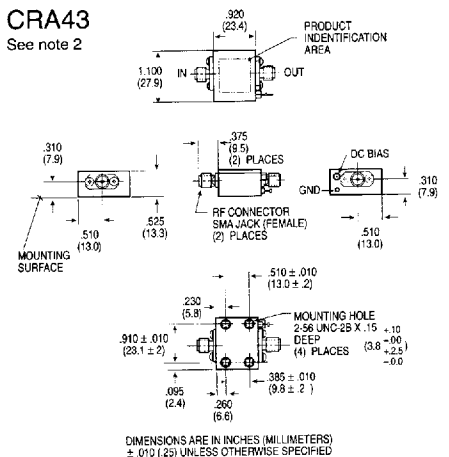


SMRA43



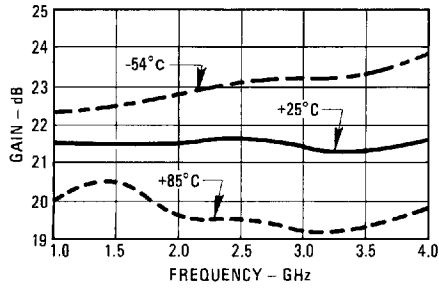
CRA43

See note 2

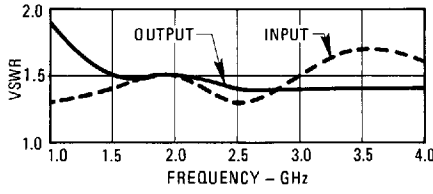


Typical Performance at 25°C

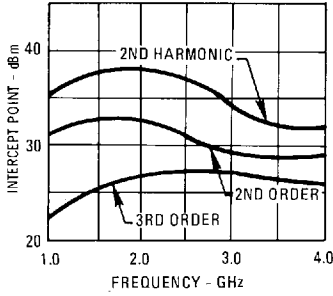
Gain vs. Temperature



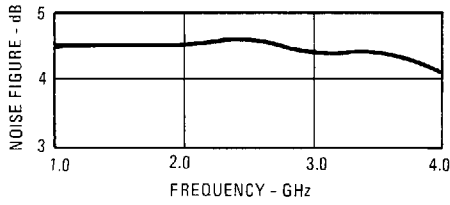
VSWR



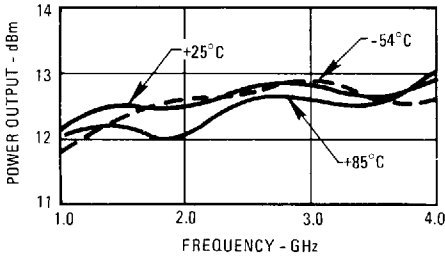
Intercept Point



Noise Figure



Power Output* vs. Temperature



*at 1 dB Gain Compression

Thermal Data: V_{CC} = 5 Vdc

Thermal Resistance θ_{jc} 97.8°C/W
 Transistor Power Dissipation P_d 0.176 W
 Junction Temperature Rise Above Case T_{jc} ... 17°C

Typical Automatic Test Data

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
800.0	1.2	1.7	23.7
900.0	1.1	1.6	23.6
1000.0	1.0	1.5	23.5
1100.0	1.1	1.4	23.5
1200.0	1.1	1.4	23.5
1300.0	1.1	1.3	23.5
1400.0	1.2	1.3	23.5
1500.0	1.2	1.2	23.6
1600.0	1.2	1.2	23.6
1700.0	1.1	1.1	23.6
1800.0	1.1	1.1	23.7
1900.0	1.1	1.1	23.7
2000.0	1.1	1.1	23.8
2100.0	1.1	1.1	23.9
2200.0	1.1	1.1	24.0
2300.0	1.2	1.1	24.1
2400.0	1.2	1.1	24.2
2500.0	1.2	1.1	24.3
2600.0	1.2	1.2	24.3
2700.0	1.2	1.2	24.4
2800.0	1.3	1.2	24.4
2900.0	1.3	1.2	24.4
3000.0	1.3	1.3	24.4
3100.0	1.4	1.3	24.4
3200.0	1.4	1.3	24.3
3300.0	1.4	1.3	24.3
3400.0	1.4	1.2	24.3
3500.0	1.4	1.2	24.3
3600.0	1.4	1.2	24.2
3700.0	1.4	1.2	24.2
3800.0	1.3	1.2	24.2
3900.0	1.3	1.1	24.1
4000.0	1.2	1.1	24.2
4100.0	1.2	1.1	24.0
4200.0	1.1	1.1	24.0

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
800.0	.082	59	15.233	77	.002	-90	.247	111
900.0	.028	46	15.147	28	.003	-122	.223	82
1000.0	.019	125	15.000	-16	.003	-144	.197	57
1100.0	.040	128	15.008	-57	.003	-169	.178	30
1200.0	.055	108	15.023	-97	.003	152	.154	6
1300.0	.065	82	15.040	-134	.001	129	.134	-18
1400.0	.070	66	15.041	-171	.003	155	.112	-42
1500.0	.074	48	15.083	153	.002	56	.096	-65
1600.0	.070	24	15.117	117	.003	62	.081	-86
1700.0	.066	14	15.175	83	.003	22	.069	-110
1800.0	.068	-7	15.233	48	.003	-1	.055	-134
1900.0	.063	-21	15.394	14	.002	-11	.041	-168
2000.0	.055	-47	15.492	-19	.003	-39	.030	155
2100.0	.062	-67	15.639	-54	.002	-37	.029	116
2200.0	.067	-85	15.867	-87	.001	-44	.029	70
2300.0	.073	-100	16.001	-120	.003	-109	.040	34
2400.0	.082	-121	16.172	-154	.001	-137	.053	5
2500.0	.090	-147	16.368	173	.001	-139	.067	-23
2600.0	.105	-164	16.408	139	.002	-162	.080	-53
2700.0	.108	173	16.544	106	.002	-145	.093	-74
2800.0	.117	150	16.537	73	.002	176	.097	-93
2900.0	.142	129	16.578	39	.001	98	.106	-111
3000.0	.145	104	16.562	6	.000	176	.115	-131
3100.0	.158	82	16.514	-27	.003	81	.120	-152
3200.0	.157	61	16.471	-60	.001	108	.118	-175
3300.0	.160	41	16.380	-93	.001	58	.112	166
3400.0	.168	23	16.409	-126	.002	-10	.103	148
3500.0	.158	0	16.395	-159	.002	48	.099	129
3600.0	.150	-19	16.264	168	.002	-28	.094	109
3700.0	.150	-38	16.206	135	.001	-43	.089	86
3800.0	.138	-62	16.169	102	.001	-71	.078	58
3900.0	.118	-86	16.031	69	.001	-81	.067	29
4000.0	.104	-112	16.133	37	.000	-107	.058	2
4100.0	.078	-137	15.874	4	.003	-148	.053	-30
4200.0	.059	-180	15.888	-29	.001	143	.053	-57

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