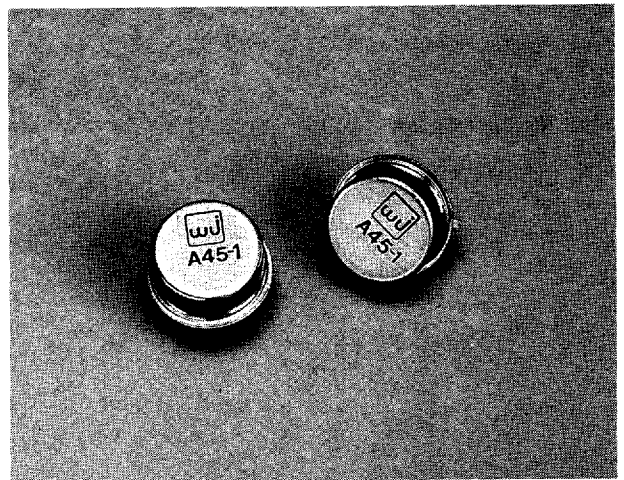


WJ-A45-1 / SMA45-1

1 to 4 GHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ WIDE BANDWIDTH
- ◆ HIGH GAIN 17.5 dB (TYP.)
- ◆ LOW NOISE: 4.1 dB (TYP.)
- ◆ GaAs FET DESIGN



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°	-55° to +85°C
Frequency (Min.)	.8-4.2 GHz	1-4 GHz	1-4 GHz
Small Signal Gain (Min.)	17.5 dB	16.5 dB	15.5 dB
Gain Flatness (Max.)	±0.6 dB	±0.8 dB	±1.0 dB
Noise Figure (Max.)	4.1 dB	5.0 dB	5.5 dB
Power Output at 1 dB Compression (Min.)	+13.0 dBm	+12.5 dBm	+12.0 dBm
VSWR (Max.)			
Input	1.8:1	1.9:0	2.0:1
Output	1.8:1	1.9:0	2.0:1
DC Current (Max.) at 5.0 Volts	65 mA	75 mA	80 mA

*Measured in a 50-ohm system at +5.0 Vdc Nominal.

Notes:

1. WJ-CA45-1 is a standard WJ-A45-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

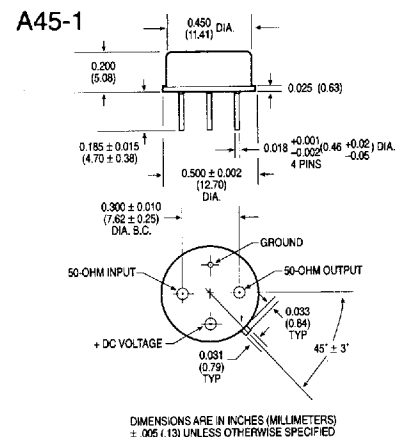
Second Order Harmonic Intercept Point.....	+40 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+33 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+26 dBm (Typ.)

Absolute Maximum Ratings

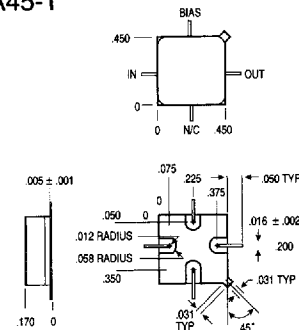
Storage Temperature	-65° C to +125° C
Maximum Case Temperature.....	125° C
Maximum DC Voltage.....	6.0 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	100 Milliwatts
Maximum Peak Power	0.25 Watt (3 µsec Max.)
"S" Series Burn-In Temperature (Case).....	125° C

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

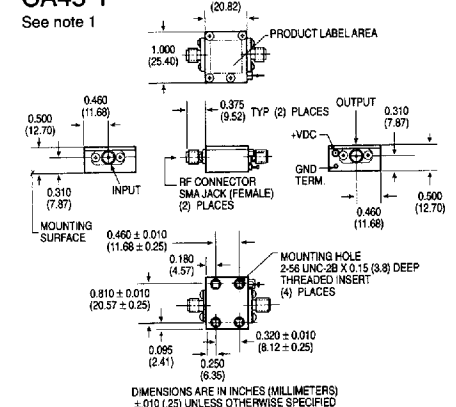


SMA45-1



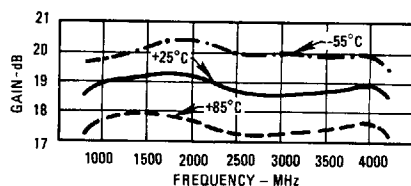
CA45-1

See note 1

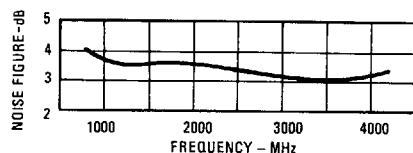


Typical Performance at 25°C

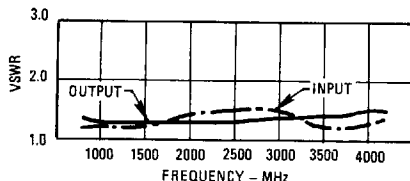
Gain



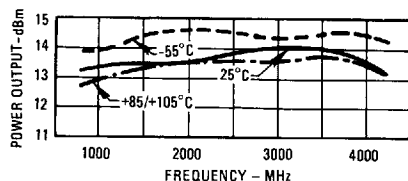
Noise Figure



VSWR

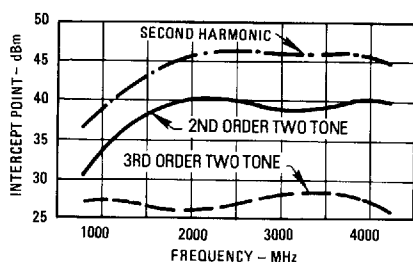


Power Output*



*at 1 dB Gain Compression

Intercept Point



Typical Automatic Test Data

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
800.0	1.8	1.1	18.6
900.0	1.6	1.1	18.4
1000.0	1.5	1.1	18.4
1100.0	1.4	1.2	18.4
1200.0	1.3	1.3	18.4
1300.0	1.3	1.3	18.5
1400.0	1.3	1.3	18.5
1500.0	1.2	1.3	18.5
1600.0	1.2	1.3	18.5
1700.0	1.3	1.3	18.4
1800.0	1.3	1.3	18.4
1900.0	1.3	1.3	18.4
2000.0	1.3	1.3	18.4
2100.0	1.4	1.3	18.3
2200.0	1.4	1.2	18.3
2300.0	1.4	1.2	18.3
2400.0	1.5	1.2	18.3
2500.0	1.5	1.1	18.3
2600.0	1.5	1.1	18.2
2700.0	1.5	1.1	18.2
2800.0	1.5	1.1	18.1
2900.0	1.5	1.2	18.1
3000.0	1.4	1.3	18.1
3100.0	1.4	1.3	18.1
3200.0	1.4	1.4	18.1
3300.0	1.4	1.4	18.0
3400.0	1.3	1.5	18.0
3500.0	1.3	1.5	18.1
3600.0	1.3	1.5	18.1
3700.0	1.3	1.5	18.2
3800.0	1.3	1.5	18.3
3900.0	1.3	1.4	18.4
4000.0	1.3	1.3	18.5
4100.0	1.3	1.2	18.5
4200.0	1.4	1.2	18.6

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
800.0	.284	95	8.472	-99	.014	-38	.028	10
900.0	.244	64	8.362	-143	.013	-73	.033	165
1000.0	.210	35	8.285	178	.014	-112	.070	127
1100.0	.178	3	8.308	142	.013	-146	.096	94
1200.0	.142	-30	8.350	107	.013	-167	.112	65
1300.0	.126	-66	8.382	73	.013	169	.125	38
1400.0	.114	-108	8.383	40	.011	137	.132	14
1500.0	.105	-151	8.380	7	.013	112	.139	-9
1600.0	.108	172	8.379	-25	.012	93	.141	-32
1700.0	.125	133	8.358	-56	.014	62	.138	-53
1800.0	.128	100	8.357	-87	.013	36	.139	-72
1900.0	.144	69	8.352	-118	.013	11	.130	-92
2000.0	.144	39	8.302	-148	.013	-10	.122	-112
2100.0	.157	4	8.247	-178	.012	-31	.114	-136
2200.0	.166	-21	8.247	152	.012	-58	.102	-157
2300.0	.184	-49	8.225	122	.012	-81	.089	179
2400.0	.196	-75	8.191	93	.013	-104	.073	153
2500.0	.201	-103	8.210	63	.012	-133	.059	124
2600.0	.204	-126	8.152	33	.013	-151	.049	89
2700.0	.200	-153	8.157	4	.011	-170	.052	46
2800.0	.191	-179	8.076	-26	.012	158	.067	11
2900.0	.186	155	8.047	-55	.013	133	.090	-23
3000.0	.173	131	8.023	-85	.014	117	.115	-52
3100.0	.170	104	8.000	-114	.011	89	.138	-76
3200.0	.149	79	7.996	-143	.011	69	.157	-100
3300.0	.149	54	7.962	-173	.012	40	.175	-122
3400.0	.143	25	7.988	158	.012	18	.193	-143
3500.0	.135	-3	8.027	128	.013	-1	.207	-165
3600.0	.129	-34	8.045	98	.011	-34	.211	171
3700.0	.130	-63	8.142	68	.011	-46	.207	146
3800.0	.125	-93	8.216	38	.012	-70	.189	119
3900.0	.124	-129	8.287	8	.012	-99	.171	91
4000.0	.133	-162	8.426	-24	.011	-131	.139	60
4100.0	.134	160	8.407	-55	.011	-161	.111	21
4200.0	.154	136	8.484	-88	.010	-176	.092	-29

Thermal Data: V_{CC} = 5 Vdc

Thermal Resistance θ_{JC} 97.8°C/W
 Transistor Power Dissipation P_d 0.171 W
 Junction Temperature Rise Above Case T_{JC} ... 17°C