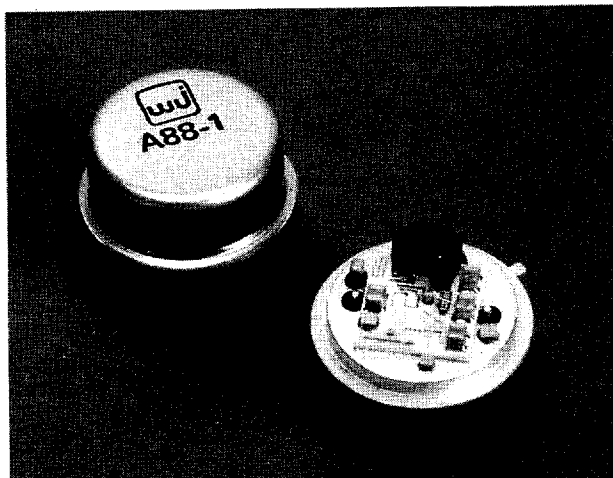


WJ-A88-1 / SMA88-1

5 to 300 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN: 18.5 dB (TYP.)
- ◆ HIGH OUTPUT POWER: +18.5 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +30 dBm (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to +50°C	-54° to +85°C
Frequency (Min.)	2-300 MHz	5-300 MHz	5-300 MHz
Small Signal Gain (Min.)	18.5 dB	17.5 dB	17.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.6 dB	±0.8 dB
Noise Figure (Max.)	3.8 dB	5.0 dB	5.5 dB
Power Output at 1 dB Compression (Min.)	+18.5 dBm	+17.0 dBm	+16.5 dBm
VSWR (Max.)			
Input/Output	1.4:1	1.7:1	1.9:1
DC Current (Max.) at +15 Volts	52 mA	54.5 mA	56.5 mA

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

Notes:

Notes:

1. WJ-CA88-1 is a standard WJ-A88-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

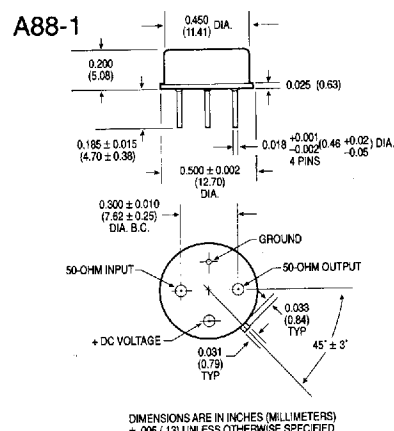
Second Order Harmonic Intercept Point.....	+48 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+42 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+30 dBm (Typ.)

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	+13 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°

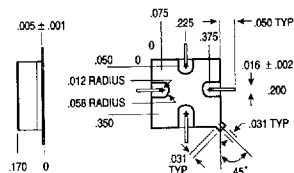
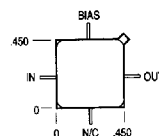
Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings



DIMENSIONS ARE IN INCHES (MILLIMETERS
+ .005 (13) UNLESS OTHERWISE SPECIFIED

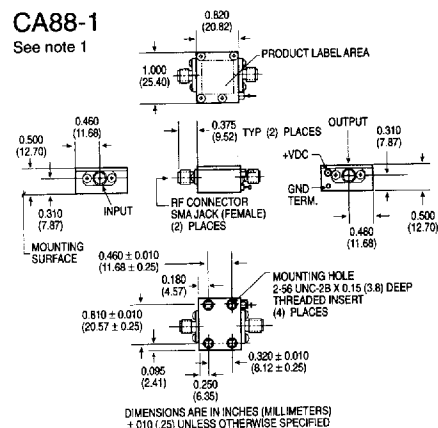
SMA88-1



DIMENSIONS ARE IN INCHES (MILLIMETERS)
+ .010 (.25) UNLESS OTHERWISE SPECIFIED

CA88-1

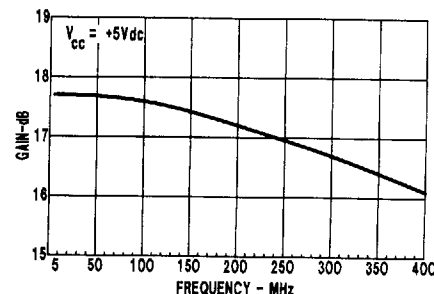
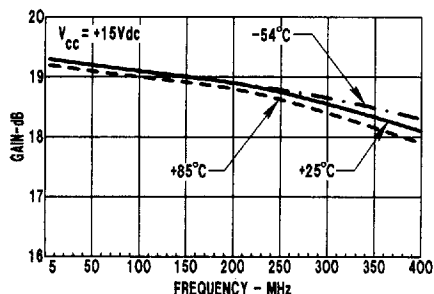
See note 1



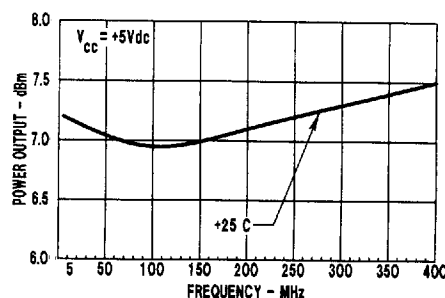
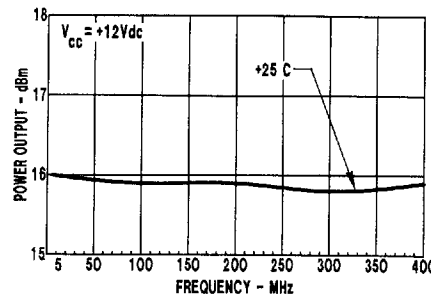
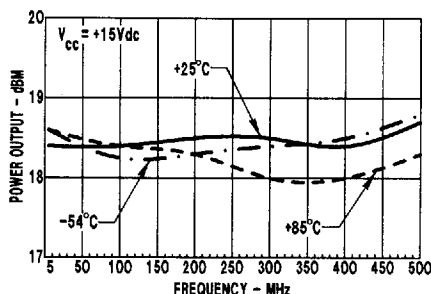
DIMENSIONS ARE IN INCHES (MILLIMETERS,
+ 0.10 (25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

Gain

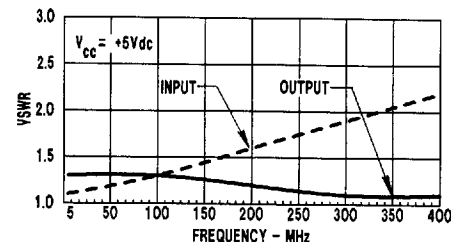
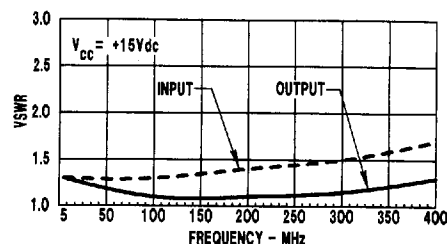


Power Output*

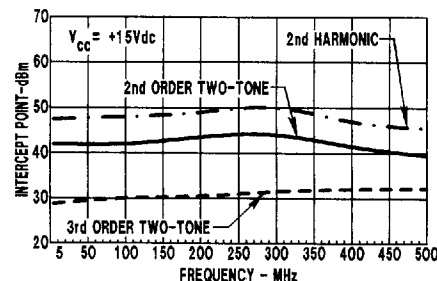


*at 1 dB Gain Compression

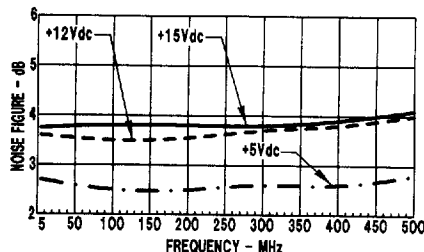
VSWR



Intercept Point



Noise Figure



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.0	1.7	18.6
2.0	1.5	1.2	19.3
5.0	1.3	1.1	19.3
10.0	1.3	1.1	19.3
50.0	1.3	1.1	19.4
100.0	1.3	1.1	19.3
150.0	1.3	1.1	19.2
200.0	1.4	1.1	19.0
250.0	1.4	1.2	18.9
300.0	1.5	1.2	18.7
350.0	1.5	1.2	18.5
400.0	1.6	1.3	18.4
450.0	1.6	1.3	18.1
500.0	1.7	1.3	17.9

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.333	-92	8.516	-141	.061	43	.270	164
2.0	.194	-129	9.227	-162	.067	20	.110	125
5.0	.143	-156	9.268	-174	.067	8	.043	108
10.0	.132	-166	9.276	-178	.068	4	.027	100
50.0	.132	-177	9.314	171	.068	0	.025	71
100.0	.132	-177	9.186	161	.069	-1	.039	62
150.0	.135	-173	9.078	152	.070	-2	.053	56
200.0	.154	-172	8.942	142	.071	-3	.067	47
250.0	.168	-171	8.767	133	.072	-5	.079	40
300.0	.187	-172	8.590	124	.074	-6	.094	33
350.0	.203	-175	8.440	115	.075	-8	.106	24
400.0	.218	-175	8.275	106	.078	-9	.117	14
450.0	.244	179	8.045	98	.080	-12	.129	5
500.0	.265	177	7.840	89	.082	-14	.141	-5

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} 45°C/W
 Transistor Power Dissipation P_d 0.393 W
 Junction Temperature Rise Above Case T_{jc} ... 18°C

Typical Automatic Test Data

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.0	1.7	18.4
2.0	1.5	1.2	19.1
5.0	1.3	1.1	19.2
10.0	1.3	1.1	19.2
50.0	1.3	1.1	19.2
100.0	1.3	1.1	19.1
150.0	1.3	1.1	19.0
200.0	1.4	1.1	18.8
250.0	1.4	1.1	18.7
300.0	1.5	1.2	18.5
350.0	1.6	1.2	18.3
400.0	1.6	1.2	18.2
450.0	1.7	1.2	17.9
500.0	1.8	1.3	17.7

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.341	-93	8.352	-141	.062	43	.267	161
2.0	.188	-126	9.035	-162	.068	20	.106	115
5.0	.131	-155	9.079	-174	.068	8	.041	86
10.0	.126	-166	9.095	-178	.068	4	.028	67
50.0	.125	-174	9.136	171	.069	0	.029	38
100.0	.125	-173	8.998	161	.070	-1	.038	38
150.0	.131	-168	8.878	151	.070	-2	.047	38
200.0	.155	-166	8.759	142	.072	-3	.058	34
250.0	.174	-167	8.591	133	.073	-4	.066	31
300.0	.192	-169	8.391	124	.075	-5	.078	26
350.0	.216	-171	8.267	115	.077	-7	.088	20
400.0	.232	-174	8.082	105	.080	-9	.097	11
450.0	.259	-180	7.832	97	.082	-11	.108	4
500.0	.287	177	7.662	88	.084	-13	.120	-5

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.9	1.7	17.2
2.0	1.3	1.4	17.8
5.0	1.1	1.3	17.8
10.0	1.1	1.3	17.8
50.0	1.1	1.3	17.9
100.0	1.2	1.3	17.7
150.0	1.3	1.3	17.5
200.0	1.5	1.2	17.4
250.0	1.6	1.2	17.1
300.0	1.8	1.2	16.9
350.0	2.0	1.2	16.7
400.0	2.1	1.1	16.4
450.0	2.3	1.1	16.1
500.0	2.4	1.1	15.8

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.303	-77	7.225	-140	.071	43	.270	138
2.0	.129	-91	7.781	-162	.077	19	.151	67
5.0	.050	-98	7.775	-174	.078	7	.123	26
10.0	.035	-96	7.797	-178	.078	4	.122	13
50.0	.056	-110	7.808	170	.079	0	.128	-6
100.0	.095	-115	7.678	159	.080	-1	.125	-17
150.0	.146	-119	7.541	149	.081	-2	.118	-28
200.0	.201	-133	7.389	139	.083	-2	.109	-38
250.0	.245	-140	7.197	129	.085	-4	.097	-47
300.0	.285	-150	6.984	119	.087	-5	.084	-54
350.0	.326	-159	6.850	110	.090	-8	.071	-62
400.0	.347	-166	6.634	100	.094	-9	.060	-66
450.0	.385	-176	6.381	91	.097	-12	.048	-66
500.0	.418	176	6.174	82	.100	-15	.043	-59