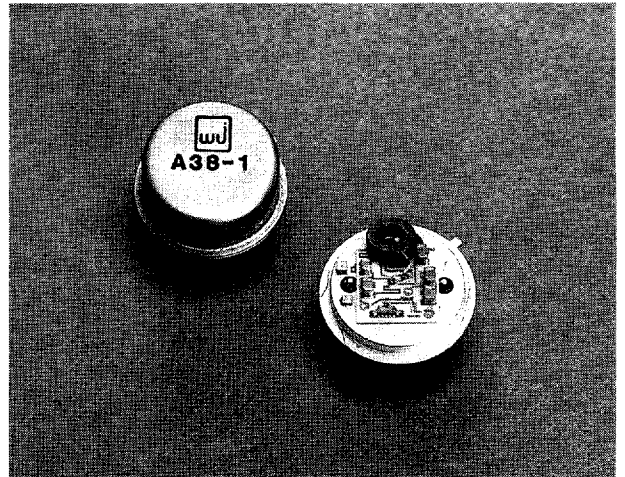


WJ-A38-1 / SMA38-1

10 to 2000 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER: +18 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +30 dBm (TYP.)
- ◆ WIDE BANDWIDTH: 10 - 2000 MHz



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	5 - 2050 MHz	10 - 2000 MHz	10 - 2000 MHz
Small Signal Gain (Min.)	9.5 dB	8.5 dB	7.5 dB
Gain Flatness (Max.)	±.4 dB	±.7 dB	±1.0 dB
Noise Figure (Max.)			
10 -1500	5.5 dB	6.0 dB	6.5 dB
10- 2000	6.5 dB	7.5 dB	8.0 dB
Power Output			
at 1 dB Compression (Min.)	+18.0 dBm	+17.0 dBm	+16.5 dBm
VSWR (Max.)			
Input/Output	1.6:1	2.1:1	2.2:1
DC Current (Max.) at 15 Volts	65 mA	70 mA	74 mA

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

Notes:

1. WJ-CA38-1 is a standard WJ-A38-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

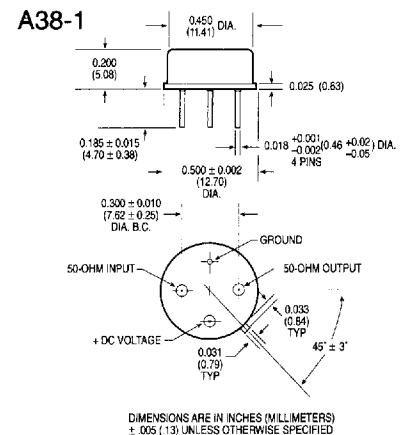
Second Order Harmonic Intercept Point.....	+52 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+45 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+30 dBm (Typ.)

Absolute Maximum Ratings

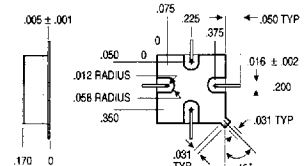
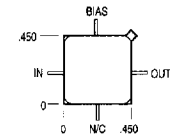
Storage Temperature	-62°C to 125°C
Maximum Case Temperature	125°C
Maximum DC Voltage.....	+17 Volts
Maximum Continuous RF Input Power.	+17 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	100 Milliwatts
Maximum Peak Power	0.5 Watt (3 µsec Max.)
"S" Series Burn-In Temperature (Case)	125°C

Weight approximately 2.0 grams (0.07oz.)

Outline Drawings



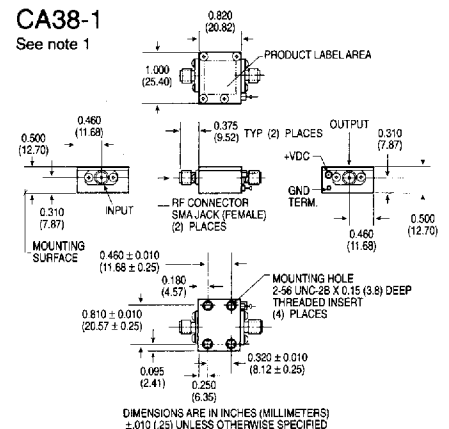
SMA38-1



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

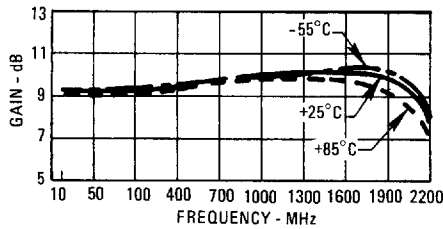
CA38-1

See note 1

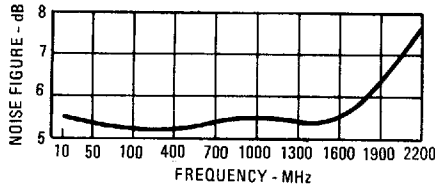


Typical Performance at 25°C

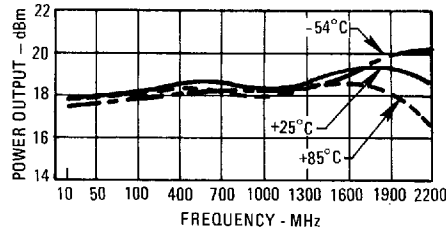
Gain



Noise Figure

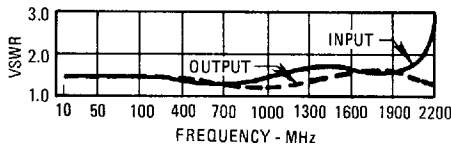


Power Output*

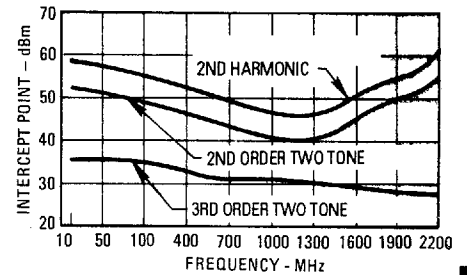


* at 1 dB Gain Compression

VSWR



Intermodulation



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	2.9	3.0	6.2
5.0	1.8	1.7	8.8
10.0	1.5	1.5	9.1
50.0	1.4	1.3	9.2
100.0	1.3	1.3	9.2
200.0	1.3	1.3	9.2
300.0	1.3	1.3	9.3
400.0	1.2	1.2	9.4
500.0	1.2	1.2	9.4
600.0	1.1	1.1	9.6
700.0	1.0	1.1	9.6
800.0	1.0	1.1	9.7
900.0	1.1	1.1	9.8
1000.0	1.2	1.1	9.9
1100.0	1.2	1.2	10.0
1200.0	1.3	1.2	10.0
1300.0	1.4	1.3	10.1
1400.0	1.4	1.3	10.1
1500.0	1.4	1.4	10.1
1600.0	1.4	1.4	10.1
1700.0	1.4	1.4	10.2
1800.0	1.2	1.4	10.0
1900.0	1.1	1.3	9.8
2000.0	1.2	1.3	9.4
2100.0	1.7	1.2	9.1
2200.0	2.2	1.1	8.8

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.489	-64	2.045	-134	.120	47	.495	172
5.0	.274	-106	2.759	-161	.165	21	.248	151
10.0	.189	-134	2.838	-171	.172	10	.184	157
50.0	.157	-176	2.896	177	.175	-0	.149	164
100.0	.145	172	2.888	171	.175	-4	.144	158
200.0	.145	161	2.893	160	.176	-9	.137	141
300.0	.136	147	2.912	150	.178	-13	.127	123
400.0	.108	130	2.960	139	.179	-18	.108	106
500.0	.093	125	2.966	129	.181	-23	.088	87
600.0	.060	116	3.003	118	.182	-28	.063	63
700.0	.019	111	3.029	107	.183	-34	.040	30
800.0	.024	-150	3.070	95	.185	-40	.029	-36
900.0	.055	-152	3.095	84	.188	-45	.044	-91
1000.0	.080	-160	3.125	73	.188	-51	.065	-127
1100.0	.102	-164	3.149	61	.189	-57	.090	-151
1200.0	.132	-178	3.163	50	.190	-63	.108	-168
1300.0	.149	167	3.182	37	.190	-69	.124	171
1400.0	.170	154	3.188	25	.190	-75	.143	152
1500.0	.174	138	3.205	12	.190	-82	.152	135
1600.0	.180	121	3.203	-1	.192	-88	.154	117
1700.0	.154	99	3.221	-14	.192	-95	.158	102
1800.0	.105	73	3.162	-27	.193	-102	.152	90
1900.0	.055	-4	3.096	-43	.198	-110	.139	84
2000.0	.106	-101	2.966	-57	.195	-120	.126	80
2100.0	.247	-140	2.836	-71	.187	-130	.106	78
2200.0	.380	-167	2.747	-86	.177	-138	.070	104

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{JC} 45°C/W

Transistor Power Dissipation P_d 0.652 W

Junction Temperature Rise Above Case T_{JC} ... 29°C