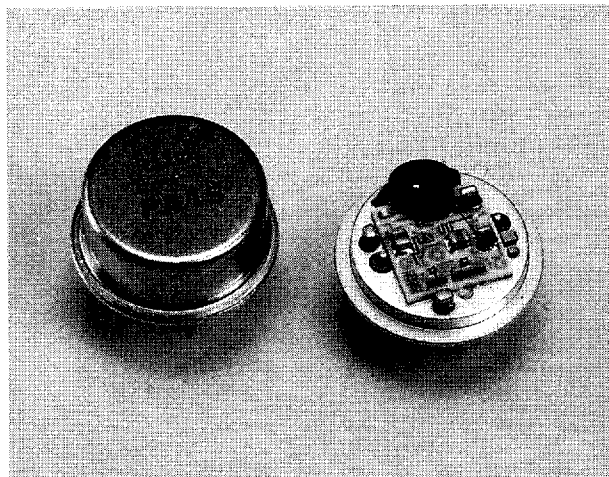


WJ-PA15 / SMPA15

10 to 1000 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER +27.0 dBm (TYP.)
10-500 MHz
- ◆ HIGH THIRD-ORDER I.P. +38 dBm (TYP.)
- ◆ MEDIUM GAIN: 13.5 dB (TYP.)
- ◆ HIGH DYNAMIC ARTICULATION +118 dB



Specifications *

Characteristics	Typical	Guaranteed	
		0° to -50°C	-54°C to +85°C
Frequency (Min.)	5-1100 MHz	10-1000 MHz	10-1000 MHz
Small Signal Gain (Min.)	13.5 dB	12.5 dB	12.0 dB
Gain Flatness (Max.)	<±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)			
30-500 MHz	6.0 dB	7.0 dB	7.5 dB
10-1000 MHz	7.0 dB	8.5 dB	9.0 dB
Power Output			
at 1 dB Compression (Min.)			
10-500 MHz	+27.0 dBm	+26.0 dBm	+25.5 dBm
500-1000 MHz	+25.5 dBm	+23.5 dBm	+23.0 dBm
VSWR (Max.)			
Input	< 1.5:1	2.0:1	2.0:1
Output	< 2.0:1	2.3:1	2.3:1
DC Current (Max.) at +15 Volts	216	225 mA	227 mA

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

Notes: 1. WJ-CPA15 is a standard WJ-PA15 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

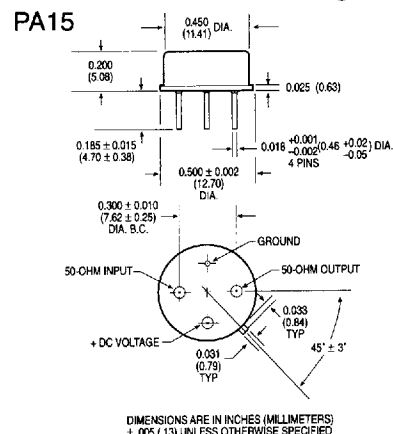
Second Order Harmonic Intercept Point> +45 dBm (Typ.)
Second Order Two Tone Intercept Point> +40 dBm (Typ.)
Third Order Two Tone Intercept Point.....+38 dBm (Typ.)

Absolute Maximum Ratings

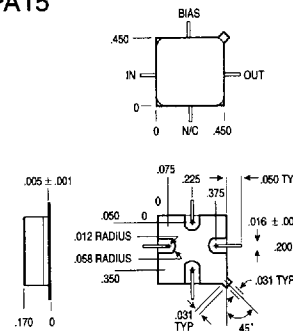
Storage Temperature-62° C to +125° C
Maximum Case Temperature125° C
Maximum DC Voltage.....+17 Volts
Maximum Continuous RF Input Power.....+17 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....100 Milliwatts
Maximum Peak Power 0.5 Watt (3 μsec Max.)
"S" Series Burn-In Temperature (Case)125° C
Proper heatsinking required to insure reliable performance.

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

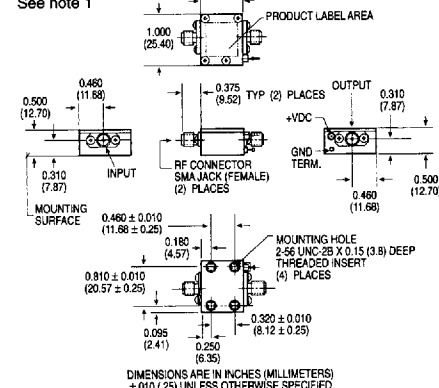


SMPA15



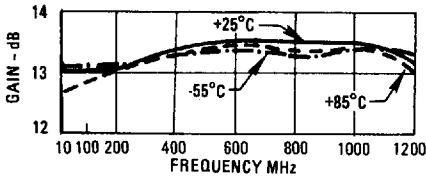
CPA15

See note 1

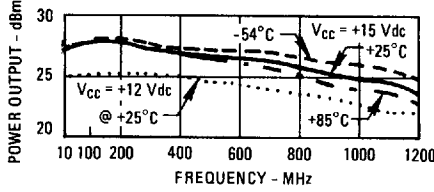


Typical Performance at 25°C

Gain

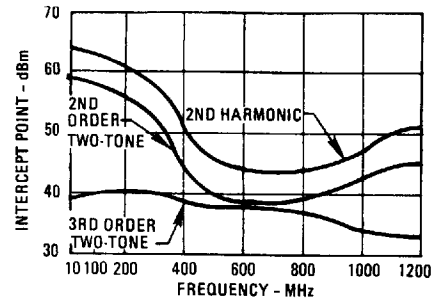


Power Output*

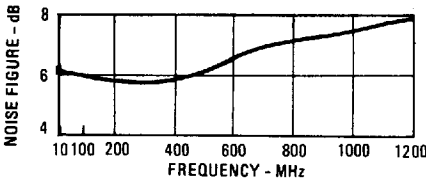


* at 1 dB Gain Compression

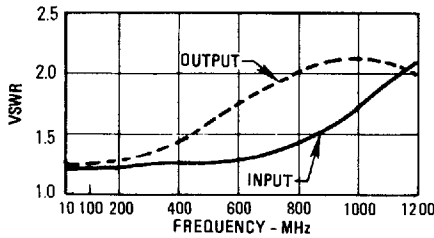
Intercept Point



Noise Figure



VSWR



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.4	2.9	9.8
2.0	2.0	2.1	12.2
5.0	1.5	1.4	13.6
10.0	1.4	1.3	13.8
50.0	1.4	1.3	13.8
100.0	1.4	1.3	13.8
200.0	1.4	1.3	13.8
300.0	1.4	1.3	13.8
400.0	1.4	1.3	14.0
500.0	1.5	1.3	14.0
600.0	1.5	1.4	14.2
700.0	1.6	1.4	14.3
800.0	1.6	1.6	14.3
900.0	1.6	1.8	14.3
1000.0	1.6	2.0	14.0
1100.0	1.6	2.4	13.5
1200.0	1.5	2.8	13.0

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.4	2.7	10.1
2.0	2.0	2.0	12.3
5.0	1.5	1.4	13.6
10.0	1.4	1.3	13.7
50.0	1.4	1.3	13.7
100.0	1.4	1.3	13.7
200.0	1.4	1.3	13.8
300.0	1.4	1.3	13.8
400.0	1.5	1.3	13.9
500.0	1.5	1.4	14.0
600.0	1.6	1.4	14.0
700.0	1.6	1.6	14.1
800.0	1.7	1.7	14.0
900.0	1.7	1.9	13.9
1000.0	1.7	2.3	13.5
1100.0	1.6	2.6	12.9
1200.0	1.6	3.1	12.4

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.415	-57	3.083	-145	.075	51	.486	-154
2.0	.328	-83	4.055	-153	.104	35	.351	169
5.0	.212	-129	4.796	-169	.124	14	.176	157
10.0	.177	-152	4.876	-175	.124	6	.148	167
50.0	.164	180	4.908	175	.125	0	.141	168
100.0	.162	171	4.894	168	.125	-2	.137	160
200.0	.173	164	4.893	154	.127	-5	.134	145
300.0	.178	152	4.915	141	.129	-9	.133	132
400.0	.180	141	5.009	128	.131	-12	.134	124
500.0	.202	127	5.027	115	.134	-16	.139	119
600.0	.215	114	5.129	100	.136	-20	.151	114
700.0	.225	98	5.173	85	.138	-25	.183	109
800.0	.234	83	5.180	69	.140	-30	.225	100
900.0	.237	66	5.166	53	.142	-35	.275	85
1000.0	.237	47	4.996	36	.142	-40	.340	76
1100.0	.224	29	4.729	20	.143	-45	.406	61
1200.0	.197	14	4.478	4	.144	-50	.476	45

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.417	-57	3.181	-145	.078	51	.466	-157
2.0	.323	-85	4.140	-154	.108	34	.324	167
5.0	.205	-130	4.784	-170	.125	13	.164	159
10.0	.171	-153	4.830	-176	.125	6	.143	168
50.0	.160	180	4.869	174	.125	0	.137	169
100.0	.159	172	4.865	167	.126	-2	.133	162
200.0	.170	166	4.875	153	.128	-5	.131	150
300.0	.182	155	4.877	140	.130	-8	.135	139
400.0	.191	144	4.956	126	.133	-12	.141	133
500.0	.208	132	4.986	112	.135	-15	.156	127
600.0	.233	117	5.036	97	.139	-19	.179	121
700.0	.242	100	5.049	82	.141	-25	.220	112
800.0	.250	84	4.999	65	.143	-30	.269	100
900.0	.259	68	4.956	49	.146	-35	.321	87
1000.0	.258	50	4.732	33	.144	-40	.388	73
1100.0	.238	31	4.431	17	.145	-45	.451	57
1200.0	.219	16	4.185	1	.146	-50	.512	41

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d 0.999 W
 Junction Temperature Rise Above Case T_{JC} ... 45°C