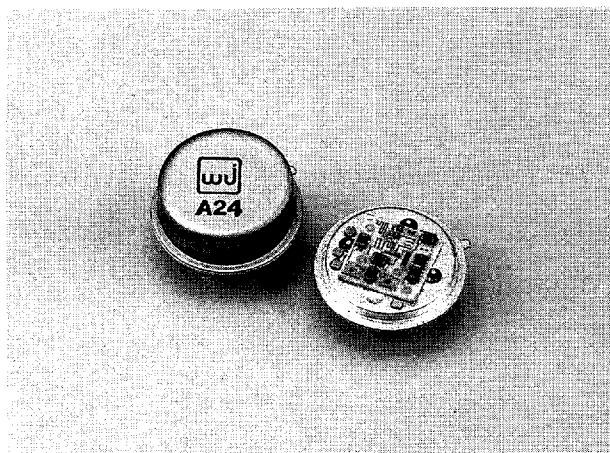


WJ-A24 / SMA24

5 to 1500 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN - TWO STAGES: 20.0 dB (TYP.)
- ◆ ULTRA LOW PHASE DEVIATION
FROM LINEARITY: $< \pm 2.5^\circ$, 100-1500 MHz
- ◆ LOW VSWR: $< 1.4:1$ (TYP.)
- ◆ MEDIUM LEVEL OUTPUT: +8 dBm (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		10° to 50°C	-54° to +85°C
Frequency (Min.)	2-1700 MHz	5-1500 MHz	5-1500 MHz
Small Signal Gain (Min.)	20.0 dB	19.0 dB	18.0 dB
Gain Flatness (Max.)	$< \pm 0.4$ dB	± 0.8 dB	± 1.0 dB
Noise Figure (Max.)	4.2 dB	5.3 dB	5.8 dB
Power Output at 1 dB Compression (Min.)	+8.0 dBm	+7.0 dBm	+6.5 dBm
VSWR (Max.) Input/Output	$< 1.4:1$	2.0:1	2.0:1
DC Current (Max.) at +15 Volts	34 mA	38 mA	40 mA

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

Notes:

1. WJ-CA24 is a standard WJ-A24 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

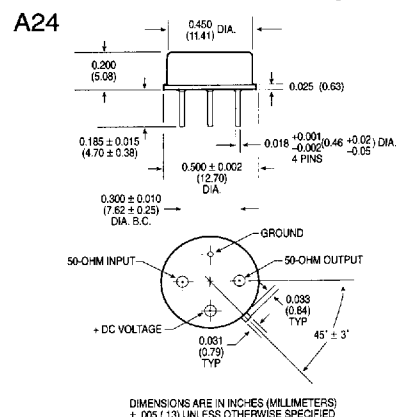
Second Order Harmonic Intercept Point.....+47 dBm (Typ.)
 Second Order Two Tone Intercept Point.....+42 dBm (Typ.)
 Third Order Two Tone Intercept Point.....+20.5 dBm (Typ.)

Absolute Maximum Ratings

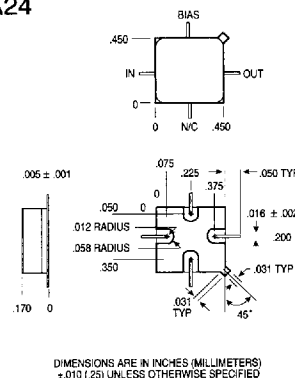
Storage Temperature-62°C to +125°C
 Maximum Case Temperature125°C
 Maximum DC Voltage+20 Volts
 Maximum Continuous RF Input Power.....+7 dBm
 Maximum Short Term RF Input Power.....32 Milliwatts (1 Minute Max.)
 Maximum Peak Power0.5 Watt (3μsec Max.)
 "S" Series Burn-in Temperature (Case)125°C

Weight 2.27 grams (0.08 oz.) max.

Outline Drawings

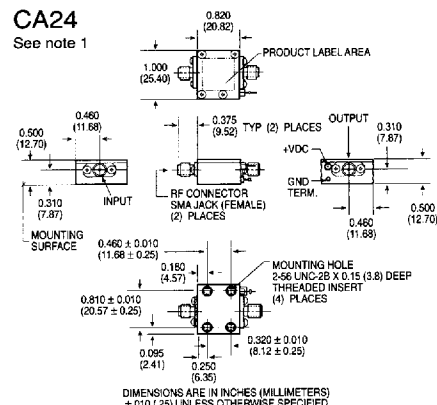


SMA24



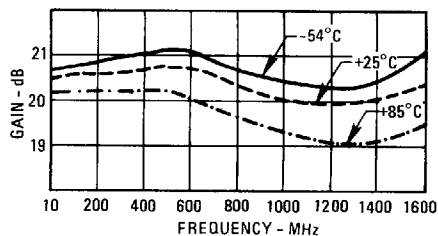
CA24

See note 1

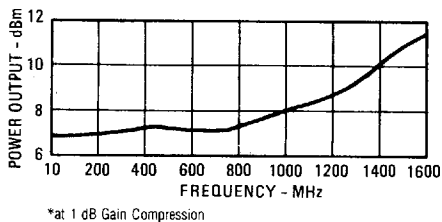


Typical Performance at 25°C

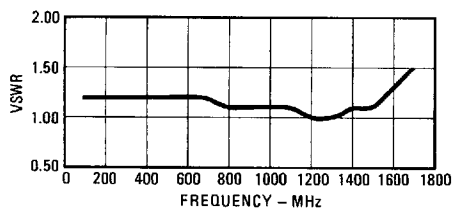
Gain



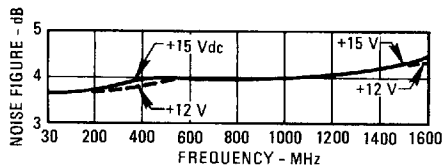
Power Output*



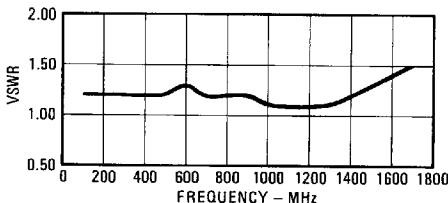
VSWR Input



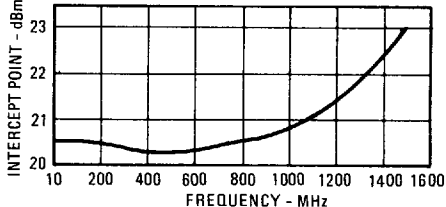
Noise Figure



VSWR Output



Intercept Point, 3rd Order Two Tone



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.5	1.4	20.3
2.0	1.2	1.2	20.4
5.0	1.1	1.1	20.5
10.0	1.0	1.1	20.5
50.0	1.0	1.1	20.6
100.0	1.0	1.2	20.7
200.0	1.1	1.2	20.8
300.0	1.0	1.3	20.7
400.0	1.1	1.2	20.3
500.0	1.1	1.2	20.2
600.0	1.2	1.2	20.4
700.0	1.2	1.2	20.6
800.0	1.3	1.2	20.7
900.0	1.4	1.2	20.8
1000.0	1.4	1.2	21.0
1100.0	1.5	1.2	21.0
1200.0	1.5	1.2	20.9
1300.0	1.6	1.1	21.0
1400.0	1.5	1.1	21.0
1500.0	1.5	1.2	21.1
1600.0	1.5	1.4	21.1
1700.0	1.7	1.7	21.0

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.3	1.4	19.8
2.0	1.2	1.2	19.9
5.0	1.1	1.1	20.0
10.0	1.1	1.1	20.0
50.0	1.1	1.1	20.1
100.0	1.1	1.2	20.1
200.0	1.1	1.2	20.3
300.0	1.1	1.3	20.2
400.0	1.1	1.2	19.9
500.0	1.2	1.2	19.7
600.0	1.2	1.2	20.0
700.0	1.3	1.2	20.1
800.0	1.3	1.2	20.3
900.0	1.4	1.2	20.4
1000.0	1.5	1.2	20.5
1100.0	1.5	1.2	20.6
1200.0	1.5	1.1	20.5
1300.0	1.6	1.1	20.5
1400.0	1.6	1.1	20.5
1500.0	1.5	1.3	20.7
1600.0	1.6	1.5	20.6
1700.0	1.8	1.8	20.3

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.187	-64	10.404	22	.028	18	.155	-97
2.0	.092	-77	10.517	11	.024	4	.092	-117
5.0	.029	-68	10.627	3	.023	3	.061	-146
10.0	.019	-36	10.633	0	.024	2	.056	-161
50.0	.019	-49	10.680	-10	.024	0	.061	-173
100.0	.021	-65	10.786	-21	.024	-1	.073	-179
200.0	.028	-128	11.014	-45	.026	-4	.101	-152
300.0	.014	-173	10.824	-69	.027	-10	.117	-119
400.0	.034	-29	10.407	-91	.028	-18	.108	83
500.0	.068	-72	10.193	-111	.028	-26	.084	55
600.0	.091	-101	10.483	-132	.026	-33	.076	37
700.0	.110	-115	10.678	-154	.026	-37	.083	15
800.0	.131	-129	10.894	-177	.025	-42	.090	-13
900.0	.152	-148	11.004	-160	.025	-46	.096	-39
1000.0	.176	-165	11.176	-136	.025	-52	.093	-69
1100.0	.196	-176	11.215	-112	.024	-59	.092	-100
1200.0	.204	-158	11.139	88	.025	-64	.083	-130
1300.0	.219	-137	11.184	64	.024	-68	.063	-171
1400.0	.212	-114	11.236	38	.026	-74	.057	-122
1500.0	.198	-79	11.415	12	.027	-82	.089	54
1600.0	.203	32	11.414	-18	.030	-90	.164	8
1700.0	.246	-27	11.279	-50	.035	-101	.246	-30

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.146	-64	9.783	22	.028	18	.157	-98
2.0	.091	-65	9.923	11	.026	6	.094	-119
5.0	.043	-38	10.019	3	.024	3	.063	-148
10.0	.040	-15	10.024	0	.024	2	.058	-162
50.0	.038	-32	10.071	-10	.025	0	.063	-175
100.0	.039	-43	10.174	-21	.025	-1	.074	-177
200.0	.045	-92	10.345	-45	.027	-4	.098	-151
300.0	.025	-98	10.226	-69	.028	-11	.112	-119
400.0	.042	-61	9.851	-91	.029	-17	.104	84
500.0	.084	-90	9.659	-111	.028	-26	.079	55
600.0	.110	-109	9.947	-132	.027	-31	.070	37
700.0	.124	-122	10.146	-155	.027	-36	.075	14
800.0	.147	-137	10.362	-178	.026	-40	.079	-14
900.0	.168	-155	10.490	-159	.026	-47	.082	-41
1000.0	.187	-175	10.599	-135	.026	-52	.077	-71
1100.0	.207	-168	10.655	-111	.025	-56	.072	-104
1200.0	.215	-150	10.596	86	.025	-62	.062	-139
1300.0	.226	-128	10.626	62	.026	-68	.045	165
1400.0	.226	-102	10.647	36	.028	-74	.060	89
1500.0	.213	-66	10.780	9	.029	-81	.113	36
1600.0	.226	19	10.719	-21	.033	-91	.196	-3
1700.0	.282	-37	10.402	-54	.037	-105	.277	-38

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d 0.116 W
 Junction Temperature Rise Above Case T_{JC} ... 5°C