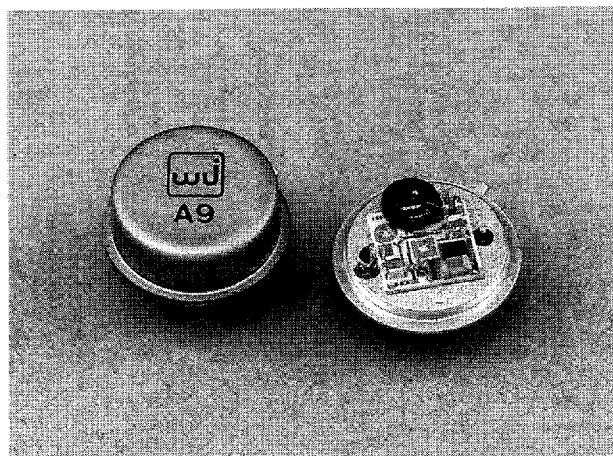


WJ-A9 / SMA9

5 to 500 MHz

TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER: +22 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +35 dBm (TYP.)
- ◆ WIDE POWER SUPPLY RANGE:
+15 TO +24 VOLTS



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +71°C
Frequency (Min.)	3-550 MHz	5-500 MHz	5-500 MHz
Small Signal Gain (Min.)	11 dB	10 dB	9.5 dB
Gain Flatness (Max.)	±0.3 dB	±1.0 dB	±1.0 dB
Noise Figure (Max.)	8.0 dB	10 dB	10.5 dB
Power Output			
at 1 dB Compression (Min.)	+22 dBm	+20 dBm	+20 dBm
VSWR (Max.) Input/Output	1.4 :1	2.0:1	2.0:1
DC Current (Max.) at 24 Volts	110 mA	121 mA	127 mA

*Measured in a 50-ohm system at +24 Vdc Nominal.

Notes:

1. WJ-CA9 is a standard WJ-A9 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

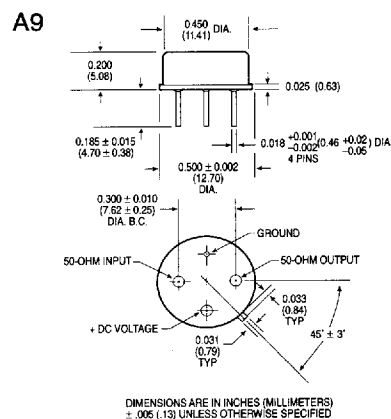
Second Order Harmonic Intercept Point.....	+55 dBm (Typ.)
Second Order Two Tone Intercept.....	+53 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+35 dBm (Typ.)

Absolute Maximum Ratings

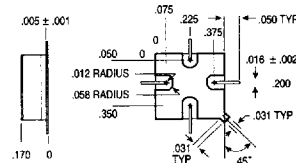
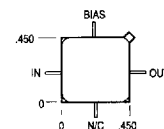
Storage Temperature	-65°C to + 125°C
Maximum Case Temperature	85°C
Maximum DC Voltage.....	+25 Volts
Maximum Continuous RF Input Power	+15 dBm
Maximum Short Term RF Input Power	50 Milliwatts (1 Minute Max.)
Maximum Peak Power	1 Watt (3 µsec Max.)
"S"Series Burn-in Temperature (Case)	85°C
Proper heat sinking required to insure reliable performance.	

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings



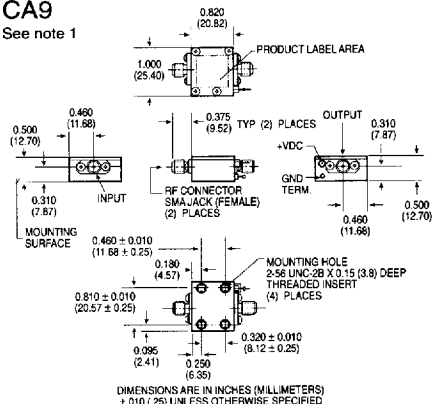
SMA9



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

CA9

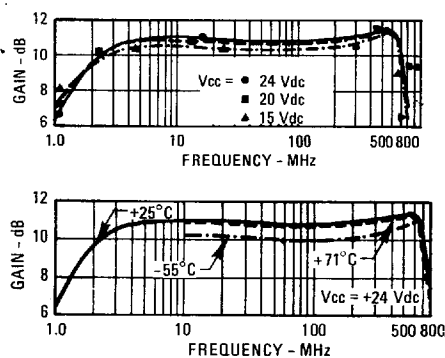
See note 1



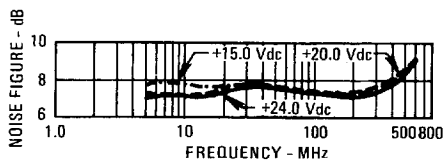
DIMENSIONS ARE IN INCHES (MILLIMETERS)
+ 0.10 (25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

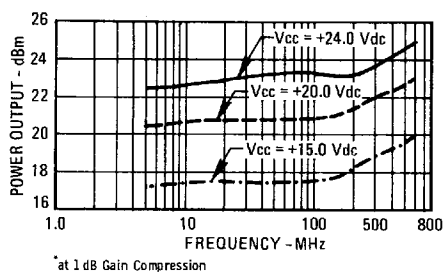
Gain



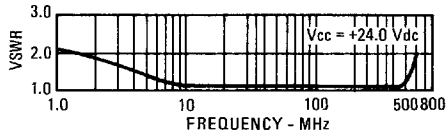
Noise Figure



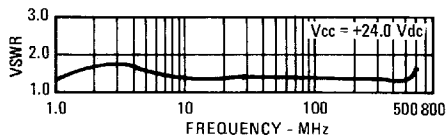
Power Output*



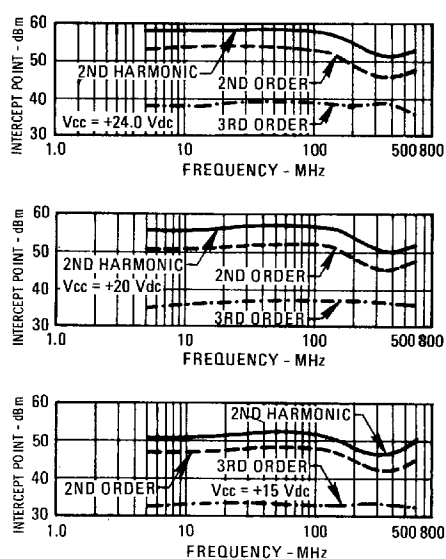
Input VSWR



Output VSWR



Intercept Point



Typical Automatic Test Data

V_{CC} = 24.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.3	1.4	11.1
2.0	1.2	1.4	11.1
5.0	1.1	1.4	11.2
10.0	1.1	1.4	11.2
50.0	1.1	1.4	11.2
100.0	1.1	1.4	11.1
200.0	1.2	1.5	11.1
300.0	1.2	1.5	11.2
400.0	1.3	1.5	11.6
500.0	1.1	1.3	11.9
600.0	1.2	1.1	12.1
700.0	2.1	1.6	11.5

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.116	-75	3.590	-168	.128	-2	.180	-2
2.0	.106	-76	3.609	-169	.128	-2	.175	-2
5.0	.060	-79	3.633	-177	.126	-2	.166	-1
10.0	.037	-77	3.636	172	.126	-3	.167	-0
50.0	.033	-83	3.629	161	.127	-6	.173	-2
100.0	.046	-91	3.602	148	.128	-10	.181	-5
200.0	.076	-107	3.592	130	.130	-16	.195	-14
300.0	.106	-125	3.613	106	.135	-24	.204	-30
400.0	.113	-146	3.788	80	.143	-34	.190	-55
500.0	.065	177	3.947	50	.153	-47	.133	-90
600.0	.081	-21	4.045	17	.163	-64	.059	168
700.0	.346	-61	3.767	-22	.164	-85	.223	63

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.2	1.5	10.7
2.0	1.2	1.5	10.7
5.0	1.1	1.5	10.8
10.0	1.1	1.5	10.8
50.0	1.1	1.5	10.8
100.0	1.1	1.5	10.8
200.0	1.2	1.5	10.8
300.0	1.3	1.5	10.9
400.0	1.3	1.4	11.4
500.0	1.2	1.3	11.9
600.0	1.3	1.4	12.1
700.0	2.4	2.2	11.1

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.103	-80	3.418	-169	.127	-3	.208	-5
2.0	.093	-82	3.435	-171	.127	-3	.204	-4
5.0	.052	-87	3.462	-178	.126	-2	.197	-3
10.0	.032	-103	3.467	172	.126	-3	.197	-4
50.0	.033	-92	3.473	161	.126	-5	.200	-8
100.0	.050	-101	3.449	148	.128	-8	.202	-14
200.0	.076	-112	3.453	130	.132	-13	.206	-25
300.0	.112	-133	3.502	105	.140	-21	.202	-45
400.0	.119	-160	3.723	78	.153	-31	.181	-77
500.0	.081	144	3.931	48	.170	-45	.135	-131
600.0	.140	-1	4.027	11	.185	-65	.170	132
700.0	.417	-57	3.584	-31	.181	-89	.367	63

Thermal Data: V_{CC} = 24 Vdc

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d1.494 W
 Junction Temperature Rise Above Case T_{JC} ...67°C