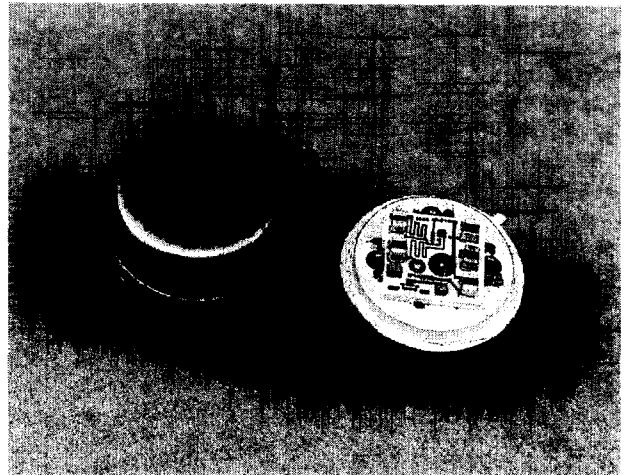




A1 / SMA1

5 to 500 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ LOW NOISE: 2.4 dB (TYP.)
- ◆ LOW VSWR: 1.3:1 (TYP.)
- ◆ HIGH GAIN: 16 dB (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	1-600 MHz	5-500 MHz	5-500 MHz
Small Signal Gain (Min.)	16 dB	15 dB	14.5 dB
Gain Flatness (Max.)	±0.2 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)	2.4 dB	3.0 dB	3.5 dB
Power Output at 1 dB Compression (Min.)	-1.0 dBm	-2.0 dBm	-3.0 dBm
VSWR (Max.) Input/Output	1.3:1	1.8 :1	2.0:1
DC Current (Max.) at 15 Volts	9 mA	11 mA	12 mA

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

Notes:

1. WJ-CA1 is a standard WJ-A1 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	+15 dBm (Typ.)
Second Order Two Tone Intercept Point	+10 dBm (Typ.)
Third Order Two Tone Intercept Point	+11 dBm (Typ.)

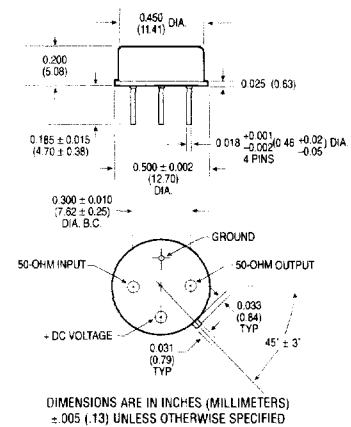
Absolute Maximum Ratings

Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term RF Input Power	50 Milliwatts (1 Minute Max.)
Maximum Peak Power	0.5 Watt (3 μsec Max.)
"S" Series Burn-in Temperature (Case)	125°C

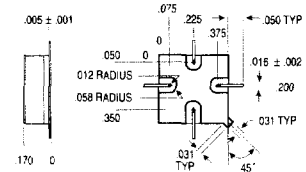
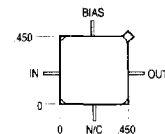
Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

A1

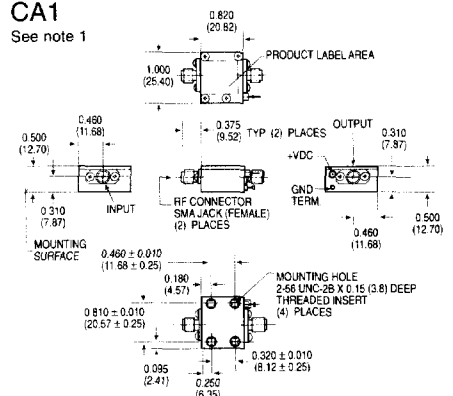


SMA1



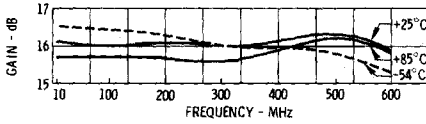
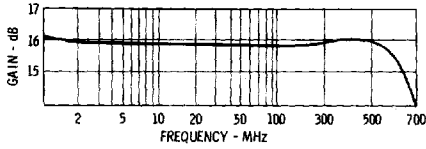
CA1

See note 1

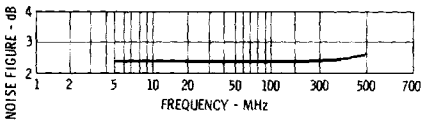


Typical Performance at 25°C

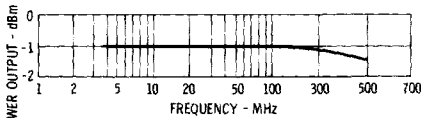
Gain



Noise Figure

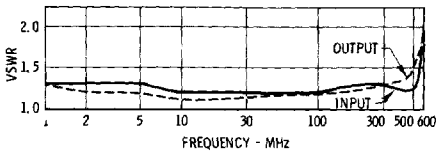


Power Output*



*at 1 dB Gain Compression.

VSWR



Typical Automatic Test Data

WJ-A1/SMA1

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.5	1.8	16.5
2.0	1.4	1.4	17.1
5.0	1.4	1.4	17.0
10.0	1.4	1.4	16.8
50.0	1.3	1.3	16.9
100.0	1.4	1.4	16.7
200.0	1.3	1.3	16.6
300.0	1.3	1.3	16.5
400.0	1.3	1.3	16.4
500.0	1.2	1.2	16.5
600.0	1.4	1.2	16.6
700.0	1.6	1.1	16.1

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	0.425	-98	6.71	-170.0	0.08	11.8	0.292	-176
2.0	0.167	-148	7.13	-169.8	0.09	9.3	0.153	-146
5.0	0.171	-172	7.06	-177.1	0.09	3.0	0.181	-170
10.0	0.169	-175	6.94	-178.8	0.09	0.1	0.167	-172
50.0	0.139	155	6.98	188.1	0.09	-4.4	0.122	155
100.0	0.157	138	6.87	155.5	0.09	-7.3	0.156	151
200.0	0.147	106	6.78	132.7	0.09	-14.1	0.135	139
300.0	0.138	66	6.71	109.7	0.09	-22.2	0.121	120
400.0	0.130	19	6.63	86.1	0.10	-29.8	0.114	109
500.0	0.109	-45	6.69	60.9	0.10	-42.3	0.106	92
600.0	0.153	-117	6.72	32.7	0.11	-55.3	0.103	68
700.0	0.243	163	6.36	-0.6	0.11	-69.6	0.069	17

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jC} 130°C/W

Transistor Power Dissipation P_D 0.057 W

Junction Temperature Rise Above Case T_{jC} 7°C