

WJ-A83-1 / SMA83-1

10 to 250 MHz
TO -8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN - TWO STAGES: 35.5 dB (TYP.)
- ◆ LOW POWER DRAIN: 65 mW @ 5 VOLTS (TYP.)
- ◆ VOLTAGE CONTROLLED GAIN:
29 dB TO 39 dB @ $V_{cc} = 3$ TO 12 VOLTS
- ◆ LOW VSWR OVER FULL CONTROL RANGE: < 1.5:1 (TYP.)

Specifications *

Characteristic	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	10-300 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)	35.5 dB	34.0 dB	33.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)	2.5 dB	3.0 dB	3.5 dB
Power Output at 1 dB Compression (Min.)	-1.5 dBm	-2.5 dBm	-3.5 dBm
VSWR (Max.) Input/Output	1.3:1	1.8:1	2.0:1
DC Current (Max.) at 5 Volts	13.0 mA	15.0 mA	16.0 mA

* Measured in a 50-ohm system at +5 Vdc Nominal.

Notes:

1. WJ-CA83-1 is a standard WJ-A83-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

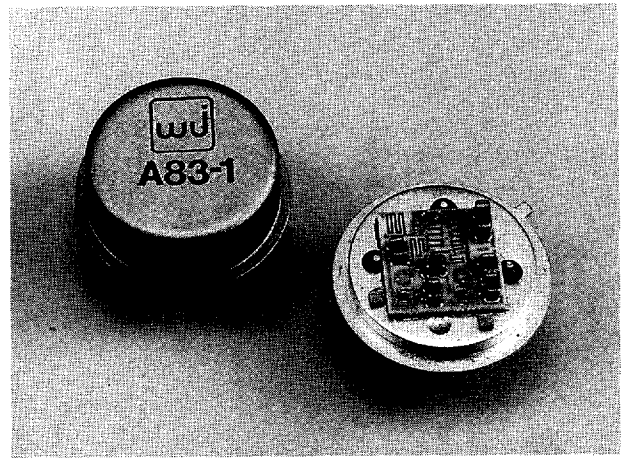
Typical Intermodulation Performance at 25° C

Second Order Harmonic Intercept Point.....+18 dBm (Typ.)
Second Order Two Tone Intercept Point.....+12 dBm (Typ.)
Third Order Two Tone Intercept Point.....+9 dBm (Typ.)

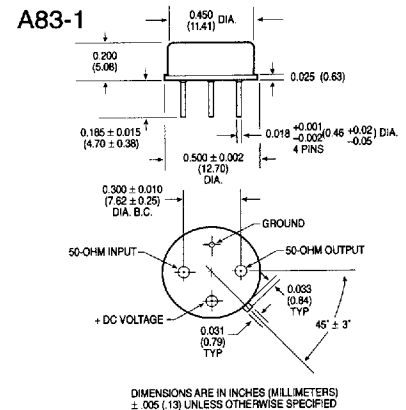
Absolute Maximum Ratings

Storage Temperature-62°C to +125°C
Maximum Case Temperature125°C
Maximum DC Voltage.....+13 Volts
Maximum Continuous RF Input Power+6 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....50 Milliwatts
Maximum Peak Power0.5 Watt (3μsec Max.)
"S" Series Burn-in Temperature (Case).....125°C

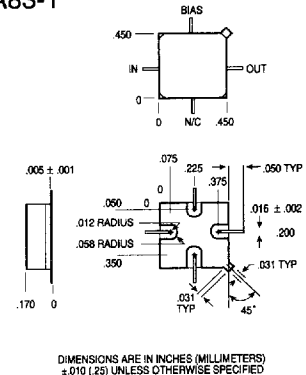
Weight approximately 2.0 grams (0.07oz.)



Outline Drawings

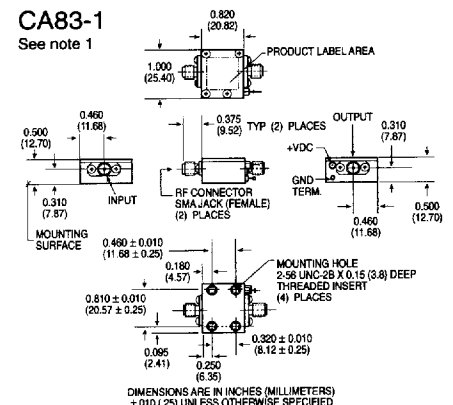


SMA83-1



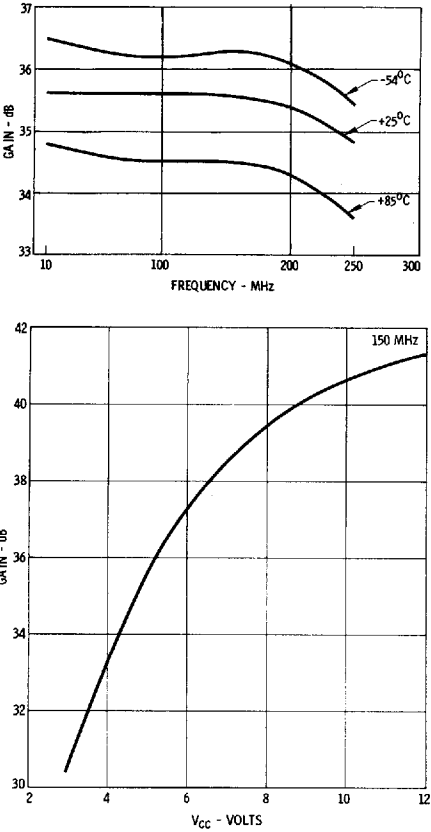
CA83-1

See note 1

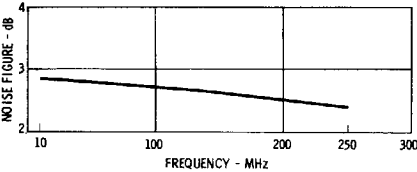


Typical Performance at 25°C

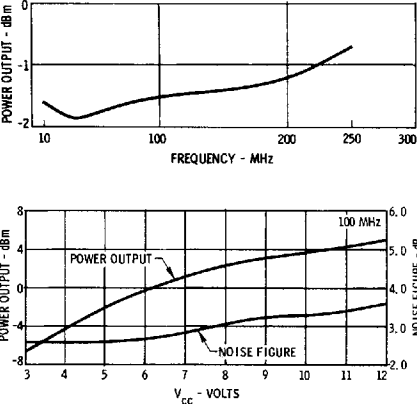
Gain



Noise Figure

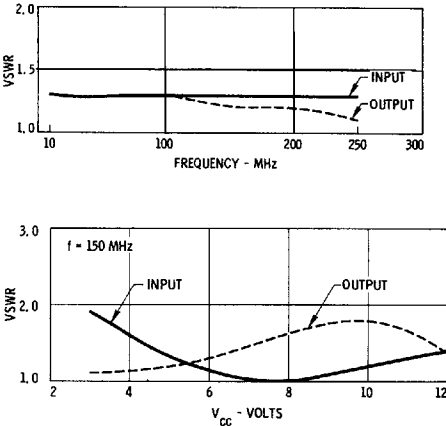


Power Output *

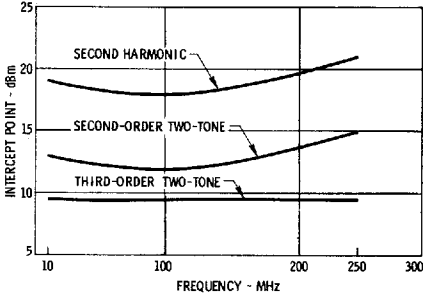


* at 1 dB Gain Compression

VSWR



Intercept Point



Typical Automatic Test Data

Vcc = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.6	1.6	34.3
2.0	1.3	1.4	34.5
5.0	1.2	1.3	34.6
10.0	1.2	1.3	34.7
20.0	1.2	1.3	34.8
50.0	1.2	1.3	35.0
100.0	1.2	1.3	35.1
150.0	1.2	1.3	35.1
200.0	1.2	1.3	35.2
250.0	1.2	1.2	34.8
300.0	1.3	1.3	34.4
350.0	1.4	1.4	33.8
400.0	1.5	1.6	33.3

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.230	-56	52.089	23	.006	9	.223	-103
2.0	.120	-45	53.157	12	.005	5	.152	-129
5.0	.085	-16	53.976	3	.005	2	.126	-156
10.0	.094	-5	54.421	-2	.005	2	.123	-166
20.0	.095	-5	54.806	-8	.005	1	.126	-172
50.0	.096	-11	56.019	-24	.005	-1	.135	-177
100.0	.095	-21	56.879	-50	.005	5	.142	173
150.0	.083	-27	57.164	-77	.005	6	.138	164
200.0	.091	-34	57.458	-105	.006	10	.119	159
250.0	.106	-34	54.918	-134	.005	13	.106	164
300.0	.131	-45	52.779	-162	.006	15	.119	175
350.0	.164	-56	48.899	170	.006	18	.165	175
400.0	.210	-70	46.220	143	.007	20	.225	164

Thermal Data: Vcc = 5 Vdc

Thermal Resistance θ_{jc} 45°C/W
Transistor Power Dissipation P_d 0.022 W
Junction Temperature Rise Above Case T_{jc} ...1°C

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