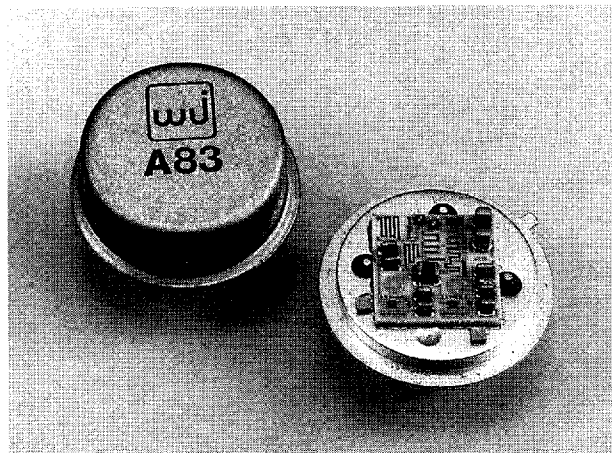


WJ-A83 / SMA83

10 to 500 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN - TWO STAGES: 30 dB (TYP.)
- ◆ LOW POWER DRAIN: 65 mW @ 5 VOLTS (TYP.)
- ◆ VOLTAGE CONTROLLED GAIN:
27 dB TO 34 dB @ $V_{cc} = 3$ TO 12 VOLTS
- ◆ LOW VSWR 1.3:1 (TYP.)



Specifications*

Characteristic	Typical	Guaranteed	
		0° to 50°	-54° to +85°C
Frequency (Min.)	10-600 MHz	10-500 MHz	10-500 MHz
Small Signal Gain (Min.)	30.0 dB	29.0 dB	28.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)	3.0 dB	3.5 dB	4.0 dB
Power Output at 1 dB Compression (Min.)	-1.0 dBm	-2.0 dBm	-4.0 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 is a standard WJ-A83 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

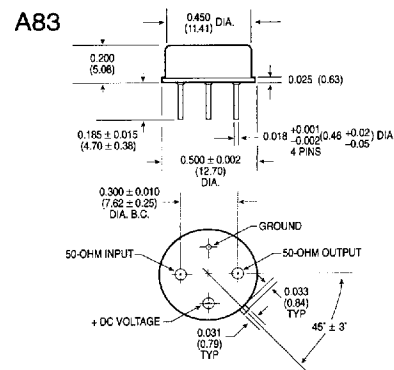
Second Order Harmonic Intercept Point.....	+20 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+14 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+10 dBm (Typ.)

Absolute Maximum Ratings

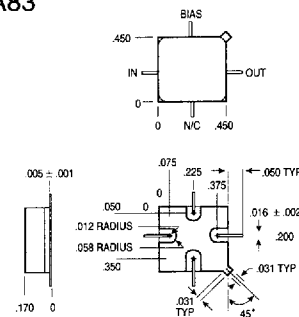
Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°C
Maximum DC Voltage.....	+13 Volts
Maximum Continuous RF Input Power	+6 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	50 Milliwatts
Maximum Peak Power	0.5 Watt (3 µsec Max.)
"S" Series Burn-in Temperature (Case).....	125°C

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings



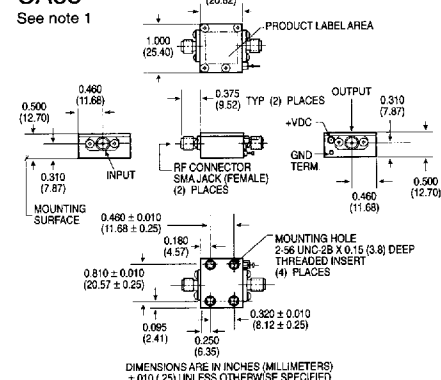
SMA83



DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.005 (13) UNLESS OTHERWISE SPECIFIED

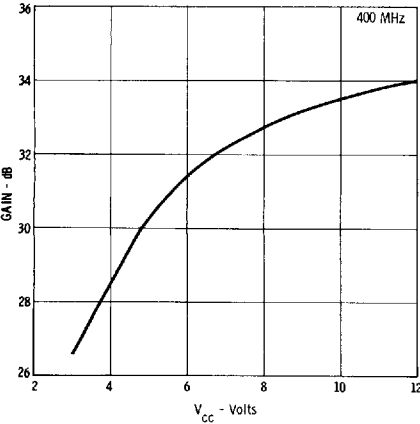
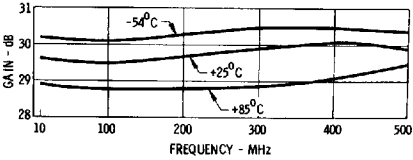
CA83

See note 1

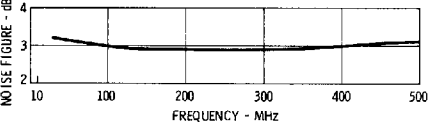


Typical Performance at 25°C

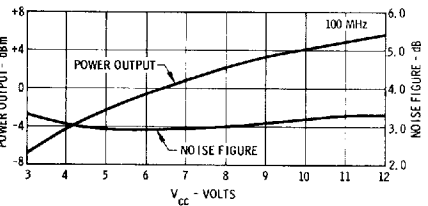
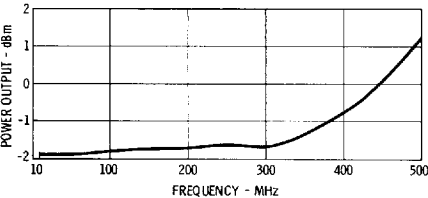
Gain



Noise Figure

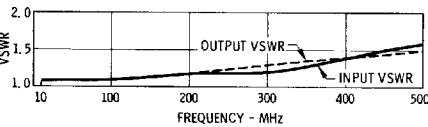


Power Output *

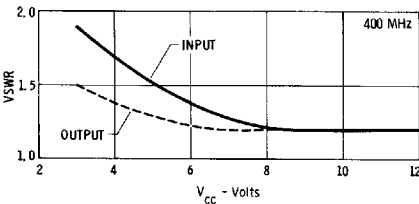


* at 1 dB Gain Compression

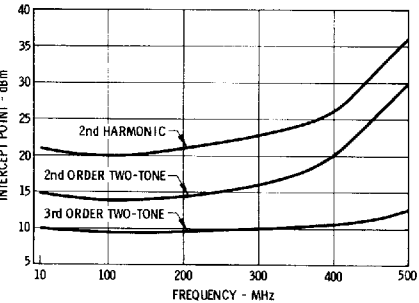
VSWR



VSWR



Intercept Point



Typical Automatic Test Data

Vcc = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.4	1.4	30.2
2.0	1.2	1.2	30.4
5.0	1.1	1.2	30.6
10.0	1.0	1.2	30.6
20.0	1.0	1.2	30.6
50.0	1.0	1.2	30.8
100.0	1.0	1.2	30.8
150.0	1.0	1.3	30.9
200.0	1.1	1.3	31.0
250.0	1.1	1.3	30.9
300.0	1.1	1.3	31.0
350.0	1.1	1.4	30.8
400.0	1.1	1.3	30.8

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.177	-85	32.370	29	.009	30	.167	-98
2.0	.091	-102	33.220	14	.010	14	.105	-119
5.0	.035	-132	33.713	4	.010	7	.076	-145
10.0	.020	-154	33.900	0	.009	3	.073	-157
20.0	.015	-163	34.050	-6	.009	2	.075	-161
50.0	.016	-166	34.514	-19	.009	1	.088	-159
100.0	.018	-173	34.782	-39	.010	1	.109	-160
150.0	.023	-178	35.074	-60	.009	1	.128	-164
200.0	.027	158	35.513	-82	.010	0	.140	-170
250.0	.032	125	35.273	-103	.010	2	.148	-177
300.0	.029	85	35.295	-125	.010	1	.148	177
350.0	.041	39	34.777	-147	.010	0	.150	172
400.0	.063	-5	34.663	-169	.011	1	.146	168

Thermal Data: Vcc = 5 Vdc

Thermal Resistance θ_{jc} 45°C/W
Transistor Power Dissipation P_d 0.193 W
Junction Temperature Rise Above Case T_{jc} ... 9°C