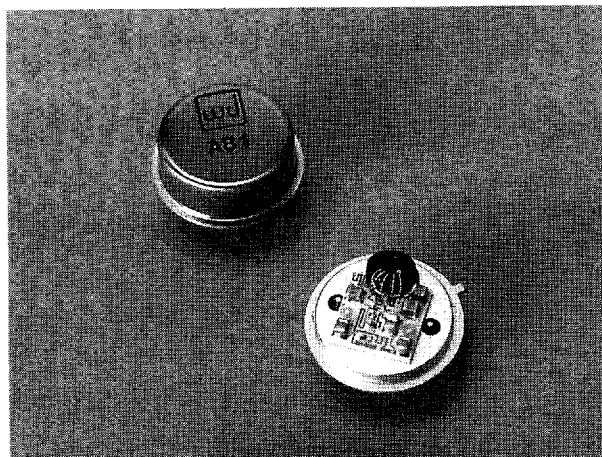


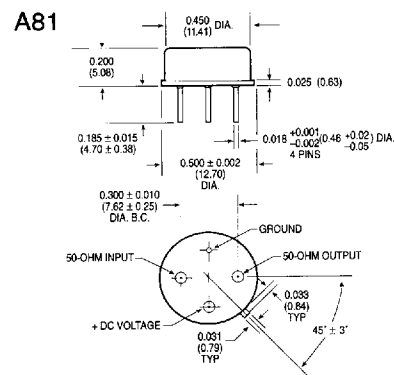
WJ-A81 / SMA81

20 to 250 MHz TO-8 CASCADABLE AMPLIFIER

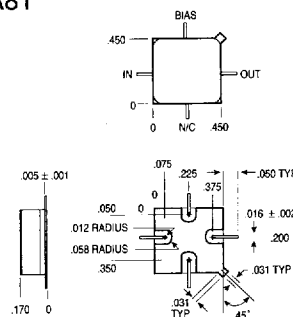
- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH REVERSE ISOLATION: >30 dB (TYP.)
- ◆ HIGH GAIN: 24 dB (TYP.)
- ◆ HIGH LEVEL OUTPUT: +17 dBm (TYP.)
- ◆ LOW NOISE: 3.5 dB (TYP.)



Outline Drawings



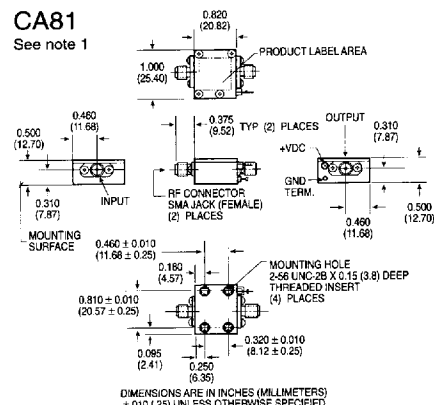
SMA81



DIMENSIONS ARE IN INCHES (MILLIMETERS)
± 0.005 (0.13) UNLESS OTHERWISE SPECIFIED

CA81

See note 1



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°
Frequency (Min.)	10-300 MHz	20-250 MHz	20-250 MHz
Small Signal Gain (Min.)	24.0 dB	23.5 dB	23.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	3.5 dB	4.0 dB	4.5 dB
Power Output at 1 dB Compression (Min.)	+17.0 dBm	+16.0 dBm	+15.5 dBm
VSWR (Max.)			
Input	1.5:1	1.9:1	2.0:1
Output	1.4:1	1.9:1	2.0:1
DC Current (Max.) at +15 Volts	35 mA	37 mA	39 mA

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

Notes:

1. WJ-CA81 is a standard WJ-A81 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.....	+45 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+38 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+30 dBm (Typ.)

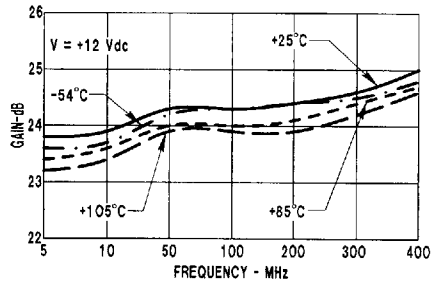
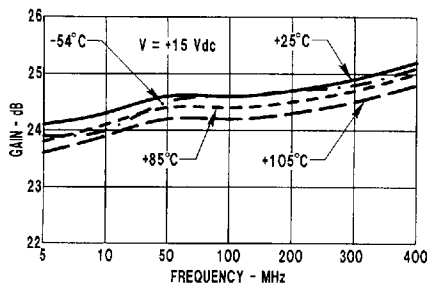
Absolute Maximum Ratings

Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°C
Maximum DC Voltage.....	+17 Volts
Maximum Continuous RF Input Power	+10 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

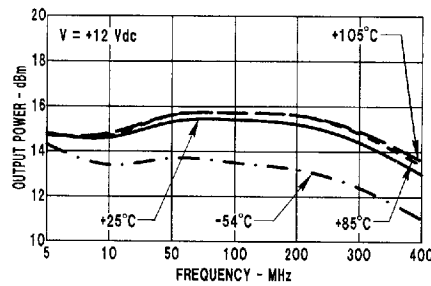
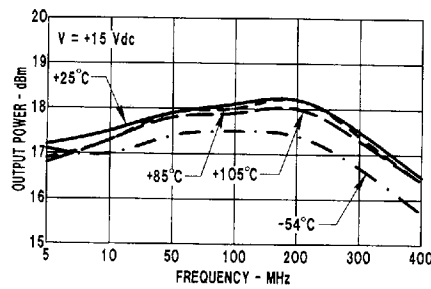
Weight approximately 2.0 grams (0.07oz.)

Typical Performance at 25°C

Gain

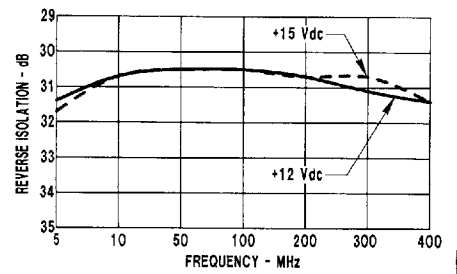


Output Power*

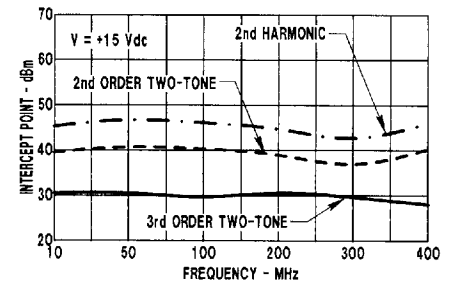


* at 1 dB Gain Compression

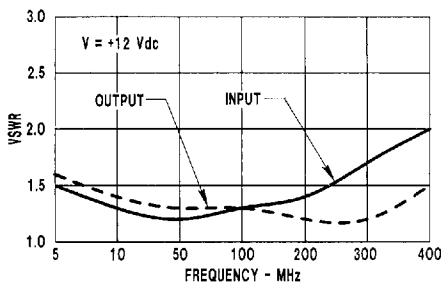
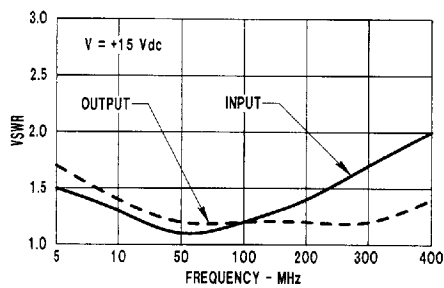
Reverse Isolation



Intercept Point



VSWR



Typical Automatic Test Data

$V_{CC} = 15.0 \text{ V}$

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
5.0	1.6	1.8	24.0
10.0	1.4	1.4	24.2
20.0	1.3	1.4	24.4
50.0	1.2	1.4	24.5
100.0	1.3	1.3	24.5
150.0	1.4	1.3	24.5
200.0	1.4	1.3	24.6
250.0	1.5	1.3	24.7
300.0	1.7	1.3	24.9
350.0	1.8	1.3	25.2
400.0	2.0	1.4	25.6

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	.227	-47	15.800	-157	.025	21	.273	106
10.0	.152	-35	16.209	-170	.027	11	.179	71
20.0	.120	-24	16.560	-178	.028	3	.156	42
50.0	.102	-1	16.836	169	.029	-7	.151	13
100.0	.124	15	16.801	154	.029	-18	.147	-5
150.0	.155	14	16.818	140	.028	-27	.139	-17
200.0	.177	14	16.911	126	.028	-38	.130	-29
250.0	.208	7	17.146	112	.028	-49	.120	-45
300.0	.249	2	17.554	98	.027	-58	.112	-69
350.0	.290	-10	18.300	82	.027	-72	.120	-109
400.0	.343	-26	19.034	65	.026	-86	.168	-151

Thermal Data: $V_{CC} = 15 \text{ Vdc}$

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d 0.164 W
 Junction Temperature Rise Above Case T_{JC} ... 7°C

Noise Figure

