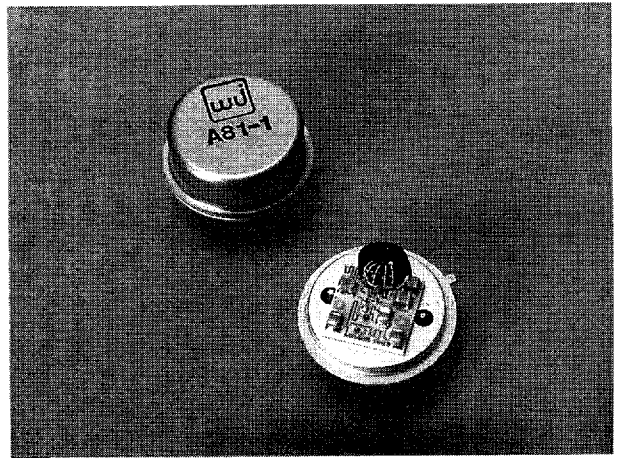


WJ-A81-1 / SMA81-1

20 to 250 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH REVERSE ISOLATION: >30.0 dB (TYP.)
- ◆ LOW NOISE: 2.5 dB (TYP.)
- ◆ HIGH GAIN: 24.5 dB (TYP.)
- ◆ HIGH EFFICIENCY: 25 mA @ +15 VDC (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54°C to +85°C
Frequency (Min.)	10-300 MHz	20-250 MHz	20-250 MHz
Small Signal Gain (Min.)	24.5 dB	23.5 dB	23.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	2.5 dB	3.2 dB	3.7 dB
Power Output at 1 dB Compression (Min.)	+12.5 dBm	+11.5 dBm	+11.0 dBm
VSWR (Max.)			
Input	1.7:1	1.9:1	2.0:1
Output	1.5:1	1.9:1	2.0:1
DC Current (Max.) at +15 Volts	25 mA	27 mA	29 mA

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

Notes:

1. WJ-CA81-1 is a standard WJ-A81-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

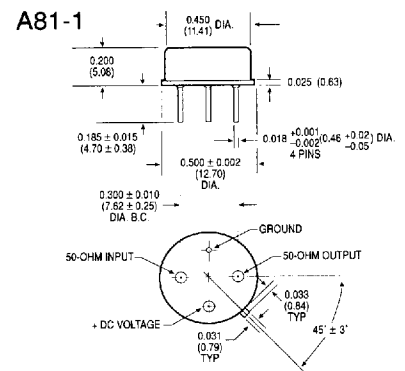
Second Order Harmonic Intercept Point.....	+38 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+32 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+23 dBm (Typ.)

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

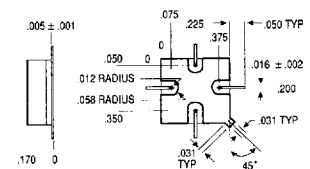
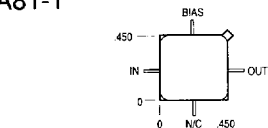
Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings



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

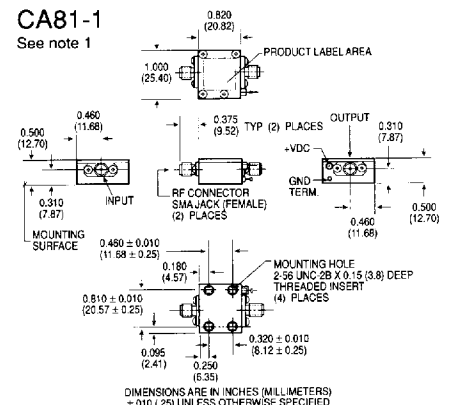
SMA81-1



DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

CA81-1

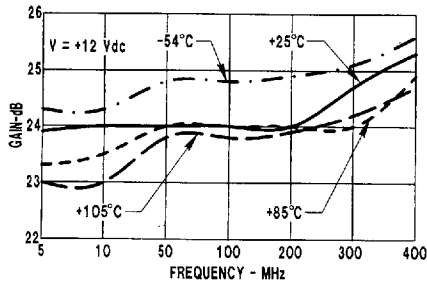
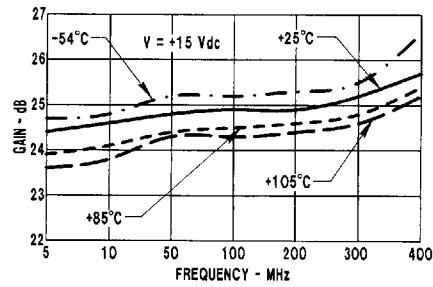
See note 1



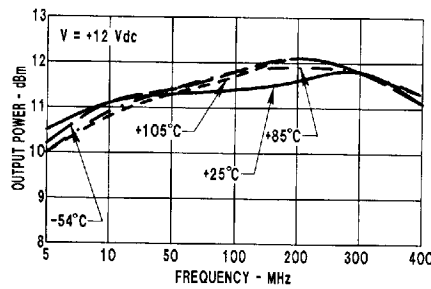
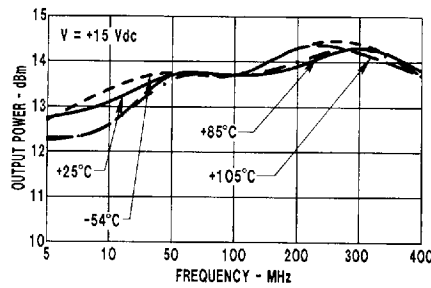
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

Gain

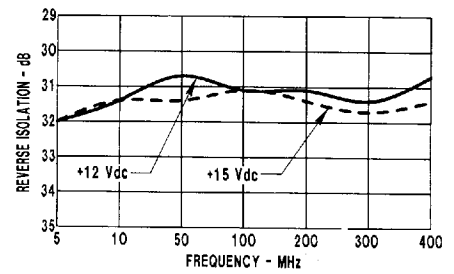


Output Power*

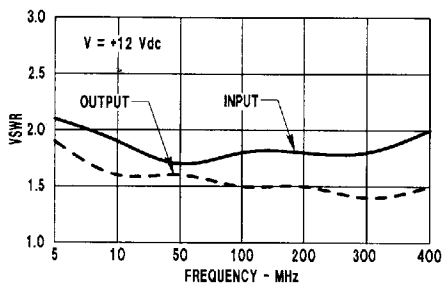
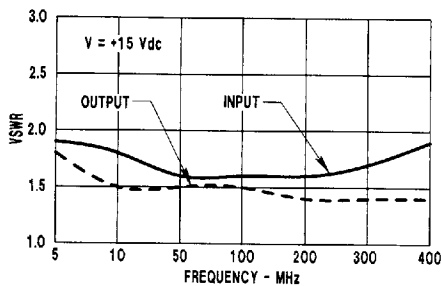


* at 1 dB Gain Compression

Reverse Isolation



VSWR



Typical Automatic Test Data

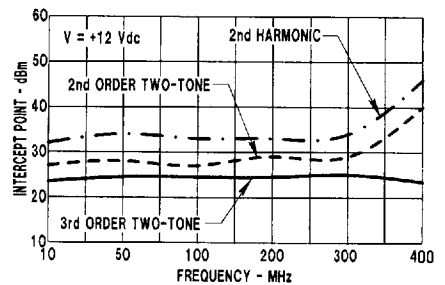
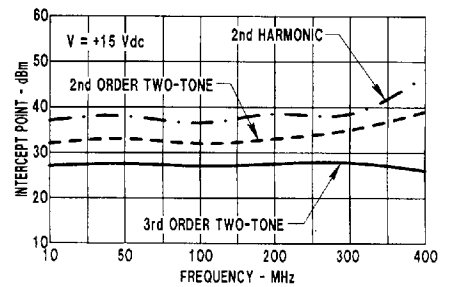
V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
5.0	1.7	1.9	23.6
10.0	1.5	1.5	23.8
20.0	1.4	1.5	24.1
50.0	1.3	1.5	24.3
100.0	1.3	1.5	24.3
150.0	1.3	1.4	24.3
200.0	1.3	1.4	24.4
250.0	1.4	1.4	24.6
300.0	1.5	1.3	24.8
350.0	1.7	1.2	25.2
400.0	2.1	1.4	25.5

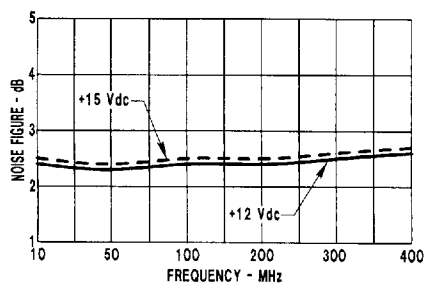
Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	.267	-42	15.173	-154	.025	25	.314	107
10.0	.192	-33	15.557	-168	.027	12	.207	74
20.0	.156	-24	16.024	-177	.029	5	.187	45
50.0	.130	-14	16.449	-170	.029	-5	.188	17
100.0	.131	-11	16.388	-155	.029	-17	.187	2
150.0	.138	-12	16.446	-141	.029	-26	.183	-7
200.0	.136	-12	16.597	-127	.029	-36	.174	-18
250.0	.157	-11	16.953	-113	.029	-46	.154	-33
300.0	.194	-13	17.372	-99	.028	-57	.123	-61
350.0	.259	-17	18.196	-82	.028	-69	.106	-120
400.0	.349	-29	18.831	-63	.027	-85	.182	176

Intercept Point



Noise Figure



Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} 45°C/W
 Transistor Power Dissipation P_d 0.171 W
 Junction Temperature Rise Above Case T_{jc} ... 8°C