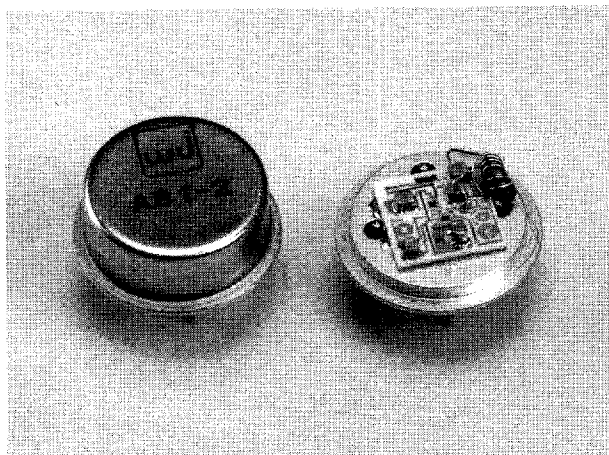


WJ-A81-2 / SMA81-2

20 to 500 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER: +15.0 dBm (TYP.)
- ◆ HIGH EFFICIENCY: 29 mA @ + 15 VDC (TYP.)
- ◆ LOW NOISE 3.6 dB (TYP.)
- ◆ HIGH GAIN: >22.0 dB (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	10-500 MHz	20-500 MHz	20-500 MHz
Small Signal Gain (Min.)	22.0 dB	21.5dB	21.0 dB
Gain Flatness (Max.)	±0.2 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)			
20-300 MHz	3.5 dB	4.0 dB	4.5 dB
300-500 MHz	4.2 dB	4.5 dB	5.0 dB
Power Output			
at 1 dB Compression (Min.)	+15.0 dBm	+14.0 dBm	+13.5 dBm
VSWR (Max.) Input/Output	1.5:1	1.8:1	2.0:1
DC Current (Max.) at 15 Volts	29 mA	31 mA	33 mA

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

Notes:

1. WJ-CA81-2 is a standard WJ-A81-2 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

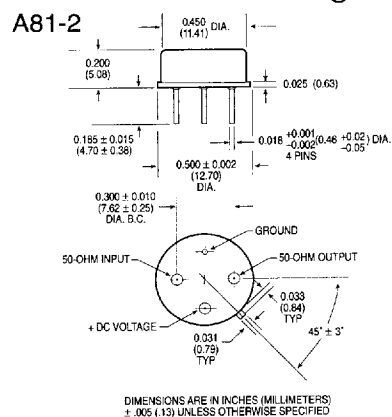
Second Order Harmonic Intercept Point.....	+40 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+35 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+28 dBm (Typ.)

Absolute Maximum Ratings

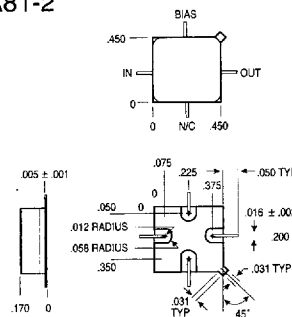
Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°C
Maximum DC Voltage	+17 volts
Maximum Continuous RF Input Power	+10 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	50 Milliwatts
Maximum Peak Power	0.5 Watt (3 µsec Max.)
“S” Series Burn-in Temperature (Case).....	125°C

Weight approximately 2.0 grams (0.07oz.)

Outline Drawings



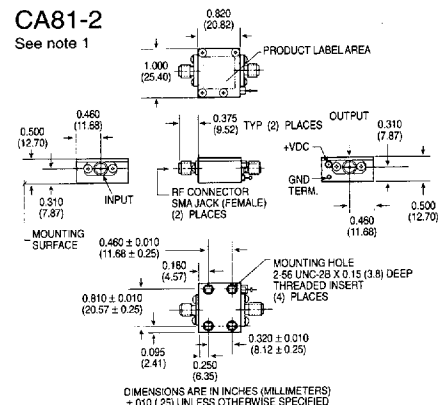
SMA81-2



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

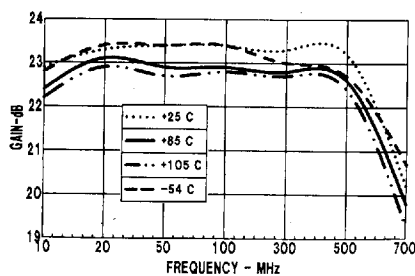
CA81-2

See note 1

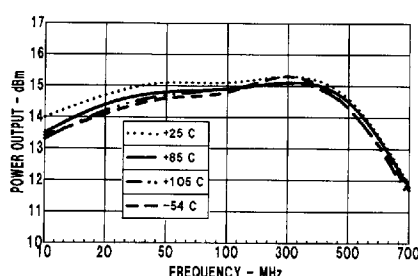


Typical Performance at 25°C

Gain

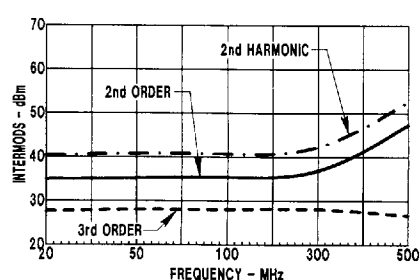


Power Output*

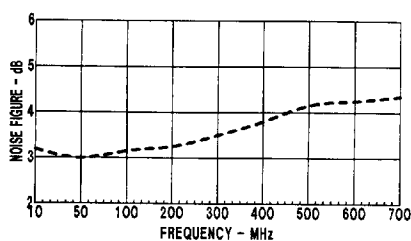


*at 1 dB Gain Compression

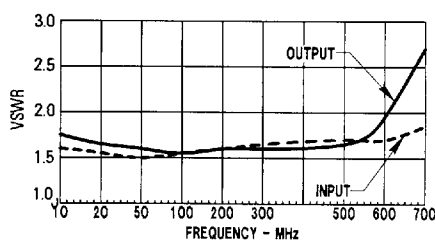
Intermodulation



Noise Figure



VSWR



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
5.0	1.7	2.4	22.1
10.0	1.3	1.7	22.7
20.0	1.2	1.4	23.0
50.0	1.0	1.2	23.4
100.0	1.2	1.2	23.4
200.0	1.3	1.2	23.4
300.0	1.4	1.2	23.5
400.0	1.4	1.1	23.7
500.0	1.4	1.4	23.2
600.0	1.9	2.1	21.4
700.0	2.7	3.1	18.6

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	.250	-64	12.784	-151	.026	29	.409	141
10.0	.137	-71	13.580	-166	.028	15	.258	135
20.0	.070	-62	14.191	-175	.030	6	.178	129
50.0	.016	118	14.724	170	.031	-3	.107	125
100.0	.080	74	14.724	154	.031	-14	.090	118
200.0	.141	50	14.802	125	.029	-31	.091	93
300.0	.166	34	15.048	96	.027	-47	.072	68
400.0	.162	27	15.371	62	.024	-63	.030	136
500.0	.175	46	14.446	25	.021	-77	.172	149
600.0	.304	50	11.806	-14	.017	-87	.355	115
700.0	.452	33	8.473	-49	.014	-99	.510	84

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d 0.063 W
 Junction Temperature Rise Above Case T_{Jc} ... 3°C