



A1031 / SMA1031

10 to 1000 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH EFFICIENCY: 36 mA at +5 Vdc
- ◆ LOW NOISE FIGURE: 2.7 dB (TYP.)
- ◆ HIGH GAIN, TWO STAGES: 28.5 dB (TYP.)
- ◆ MED OUTPUT POWER: +10 dBm (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	5-1100 MHz	10-1000 MHz	10-1000 MHz
Small Signal Gain (Min.)	28.5 dB	26.5 dB	26.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.8 dB	±1.0 dB
Noise Figure (Max.)	2.7 dB	3.5 dB	4.0 dB
Power Output at 1 dB Compression (Min.)	+10.0 dBm	+9.0 dBm	+8.5 dBm
VSWR Input/Output (Max.)	<1.5:1	1.9:1	2.0:1
DC Current (Max.) at +5 Volts	36 mA	39 mA	42 mA

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

Note: WJ-CA1031 is a standard WJ-A1031 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

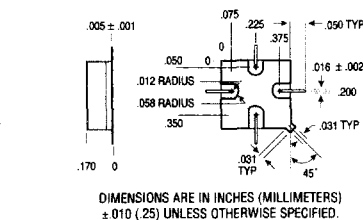
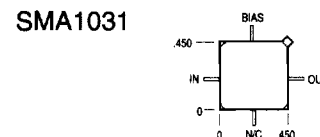
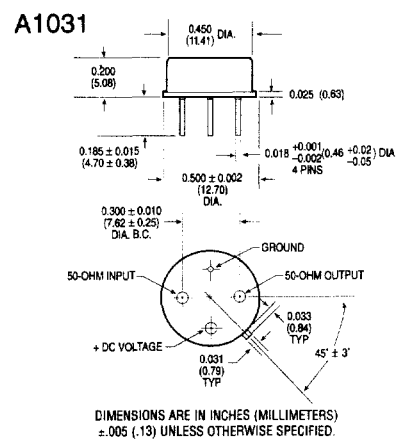
Second Order Harmonic Intercept Point+39 dBm (Typ.)
Second Order Two-Tone Intercept Point+33 dBm (Typ.)
Third Order Two-Tone Intercept Point+22 dBm (Typ.)

Absolute Maximum Ratings

Storage Temperature.....-62°C to +125°C
Maximum Case Temperature.....+125°C
Maximum DC Voltage+10 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.)

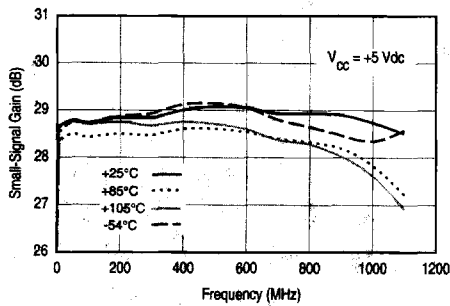
Outline Drawings



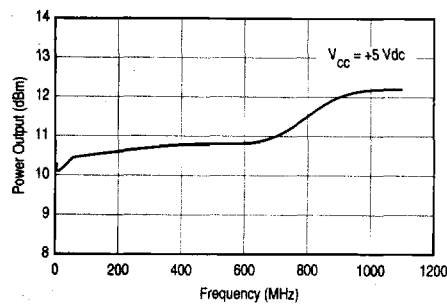
Typical Performance at 25°C

WJ-A1031/SMA1031

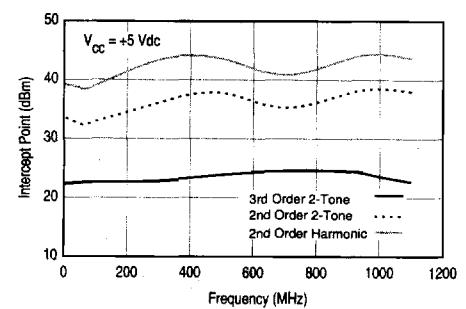
Small Signal Gain



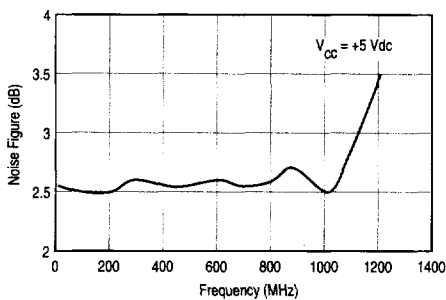
Power Output (1dB Gain Compression)



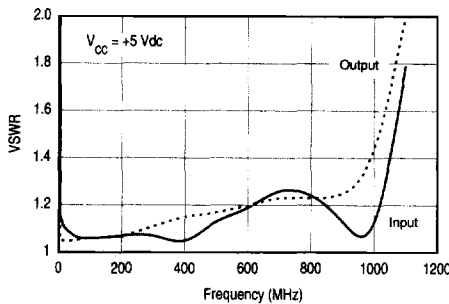
Intercept Point



Noise Figure



VSWR



Typical Automatic Test Data

Linear S-Parameters ($V_{CC} = +5$ Vdc)

Frequency (MHz)	S11		S21		S12		S22		VSWR		Gain (dB)
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang	In	Out	
1	0.709	-47.3	16.275	82.4	0.010	15.6	0.242	173.8	5.87	1.64	24.2
2	0.413	-75.9	23.899	46.2	0.009	20.1	0.125	117.7	2.41	1.28	27.6
5	0.136	-81.6	26.834	17.4	0.012	13.9	0.037	81.6	1.32	1.08	28.6
10	0.063	-70.5	27.138	6.5	0.012	6.7	0.022	75.0	1.13	1.05	28.7
50	0.034	-37.1	27.506	-11.6	0.013	-2.5	0.023	34.4	1.07	1.05	28.8
100	0.031	-38.8	27.337	-26.3	0.013	-2.5	0.027	27.6	1.06	1.06	28.7
200	0.032	-70.0	27.656	-53.3	0.013	-9.3	0.035	29.6	1.07	1.07	28.8
300	0.032	-116.3	27.699	-80.0	0.013	-14.1	0.051	19.2	1.07	1.11	28.9
400	0.026	157.3	28.183	-108.4	0.014	-19.0	0.070	14.9	1.05	1.15	29.0
500	0.060	114.2	28.431	-137.4	0.015	-26.9	0.079	8.5	1.13	1.17	29.1
600	0.087	84.0	28.357	-165.8	0.016	-33.8	0.091	0.3	1.19	1.20	29.1
700	0.114	47.9	27.980	163.7	0.017	-43.8	0.104	-5.2	1.26	1.23	28.9
800	0.107	23.8	27.998	134.1	0.018	-53.2	0.103	-2.8	1.24	1.23	28.9
900	0.061	-4.9	27.871	102.2	0.020	-65.0	0.112	7.8	1.13	1.25	28.9
1000	0.062	176.8	27.362	67.4	0.021	-80.2	0.181	18.0	1.13	1.44	28.7
1100	0.283	122.8	26.640	27.4	0.023	-99.3	0.336	11.4	1.79	2.01	28.5

Thermal Data: $V_{CC} = +5$ Vdc

Thermal Resistance (θ_{jc})160°C/W
 Transistor Power Dissipation (P_d)0.103 W
 Junction Temperature Rise above Case (T_{jc})16°C