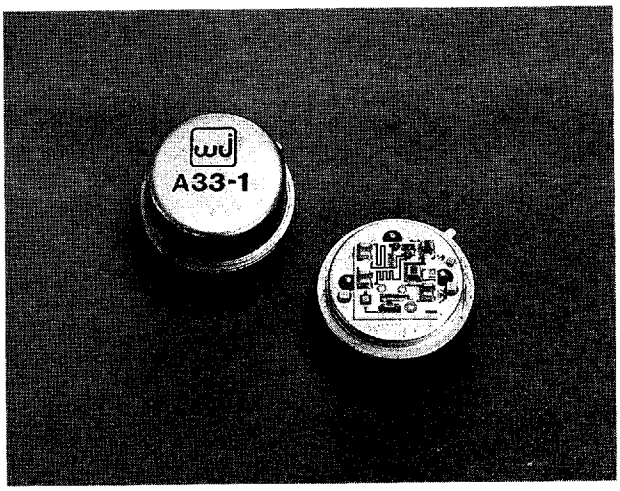
WJ-A33-1 / SMA33-1



2 to 2400 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ ULTRAWIDE BANDWIDTH: 1 - 2600 MHz (TYP.)
- ◆ MEDIUM OUTPUT LEVEL: +6 dBm (TYP.)

Specifications*

Characteristics	Typical	Guaranteed 0° to 50° C	Guaranteed -54° to +85°C
Frequency (Min.)	1 - 2600 MHz	2 - 2400 MHz	2 - 2400 MHz
Small Signal Gain (Min.)	9.0 dB	8.2 dB	7.8 dB
Gain Flatness (Max.)	±.4 dB	±.6 dB	±.8 dB
Noise Figure (Max.)			
10 - 1500 MHz	4.0 dB	5.0 dB	5.5 dB
10 - 2400 MHz	4.5 dB	5.8 dB	6.3 dB
Power Output			
at 1 dB Compression (Min.)	+6.0 dBm	+4.5 dBm	+4.0 dBm
VSWR (Max.)			
Input	< 1.6:1	1.9:1	2.0:1
output	< 1.4:1	1.8:1	2.0:1
DC Current (Max.) at +15 Volts	19 mA	21 mA	23 mA

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

Notes:

1. WJ-CA33-1 is a standard WJ-A33-1 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..... +35 dBm (Typ.)
Second Order Two Tone Intercept Point.....+29 dBm (Typ.)
Third Order Two Tone Intercept Point..... +19 dBm (Typ.)

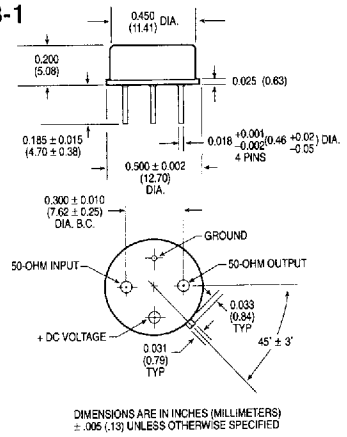
Absolute Maximum Ratings

Storage Temperature .....-62°C to 125°C
Maximum Case Temperature .....125°C
Maximum DC Voltage.....+20 Volts
Maximum Continuous RF Input Power .....+13 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.)

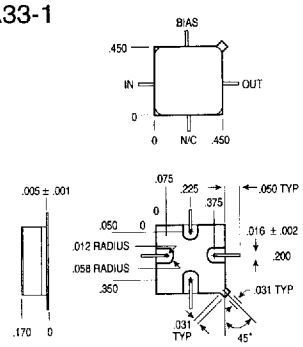
Outline Drawings

A33-1



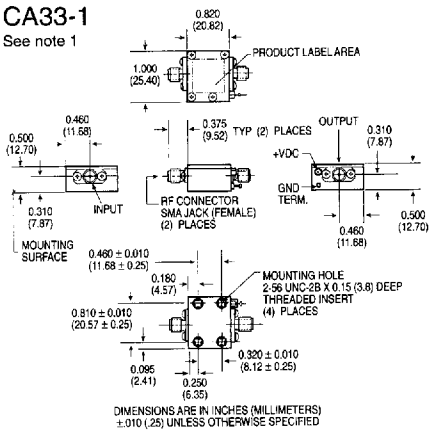
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.005 (.13) UNLESS OTHERWISE SPECIFIED

SMA33-1



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

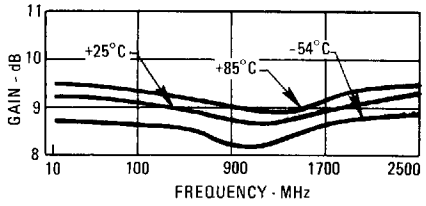
CA33-1
See note 1



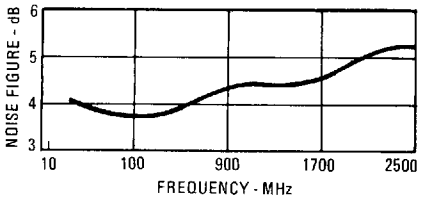
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

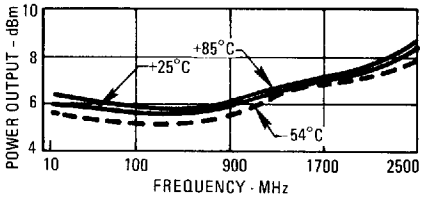
Gain



Noise Figure

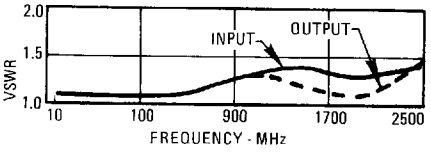


Power Output*

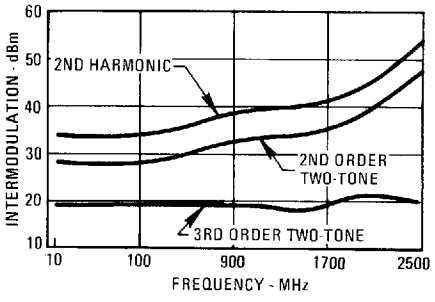


* at 1 dB Gain Compression

VSWR



Intermodulation



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.3	1.4	9.4
2.0	1.1	1.2	9.6
5.0	1.0	1.1	9.6
10.0	1.0	1.1	9.6
50.0	1.0	1.1	9.5
100.0	1.0	1.1	9.4
200.0	1.0	1.1	9.3
300.0	1.0	1.1	9.2
400.0	1.0	1.1	9.3
500.0	1.1	1.1	9.4
600.0	1.1	1.1	9.4
700.0	1.1	1.1	9.4
800.0	1.1	1.2	9.4
900.0	1.1	1.2	9.4
1000.0	1.1	1.2	9.4
1100.0	1.1	1.2	9.4
1200.0	1.1	1.2	9.4
1300.0	1.1	1.2	9.4
1400.0	1.1	1.2	9.4
1500.0	1.1	1.2	9.4
1600.0	1.2	1.1	9.4
1700.0	1.2	1.1	9.5
1800.0	1.2	1.1	9.5
1900.0	1.2	1.1	9.5
2000.0	1.2	1.1	9.6
2100.0	1.3	1.1	9.7
2200.0	1.3	1.0	9.7
2300.0	1.4	1.0	9.6
2400.0	1.6	1.1	9.5
2500.0	1.8	1.2	9.3
2600.0	2.1	1.3	8.6

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.111	-119	2.939	-162	.171	21	.150	-124
2.0	.040	-119	3.007	-171	.172	9	.088	-146
5.0	.014	-120	3.032	-177	.168	3	.062	-165
10.0	.012	-133	3.016	-180	.168	2	.060	-173
50.0	.010	133	2.986	174	.170	-2	.060	163
100.0	.013	111	2.963	168	.170	-5	.059	144
200.0	.006	-86	2.926	157	.170	-10	.058	111
300.0	.011	-95	2.893	147	.171	-16	.054	85
400.0	.022	-88	2.926	137	.173	-22	.048	66
500.0	.027	-121	2.949	126	.172	-28	.051	48
600.0	.029	-141	2.964	115	.172	-33	.058	22
700.0	.031	-131	2.952	104	.171	-39	.065	-1
800.0	.044	-157	2.955	93	.172	-45	.072	-22
900.0	.052	-175	2.951	82	.173	-51	.078	-39
1000.0	.054	167	2.958	71	.173	-57	.079	-56
1100.0	.052	149	2.953	60	.173	-63	.083	-75
1200.0	.058	128	2.941	49	.173	-69	.088	-88
1300.0	.063	109	2.961	37	.173	-76	.083	-99
1400.0	.068	100	2.955	26	.173	-82	.078	-111
1500.0	.064	75	2.967	15	.172	-89	.071	-120
1600.0	.072	72	2.964	3	.174	-95	.058	-129
1700.0	.085	51	2.998	-9	.174	-102	.045	-145
1800.0	.093	37	2.991	-21	.174	-109	.038	-165
1900.0	.095	17	2.995	-34	.178	-116	.033	173
2000.0	.106	-1	3.027	-46	.179	-124	.029	154
2100.0	.128	-31	3.049	-59	.180	-132	.029	132
2200.0	.125	-60	3.069	-73	.180	-141	.020	110
2300.0	.174	-79	3.028	-88	.179	-149	.014	49
2400.0	.222	-102	2.980	-103	.176	-159	.031	-28
2500.0	.286	-125	2.902	-121	.170	-168	.074	-57
2600.0	.365	-143	2.700	-137	.163	-178	.142	-70

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} ..... 45°C/W
Transistor Power Dissipation P_d ..... 0.120 W
Junction Temperature Rise Above Case T_{jc} ... 5°C