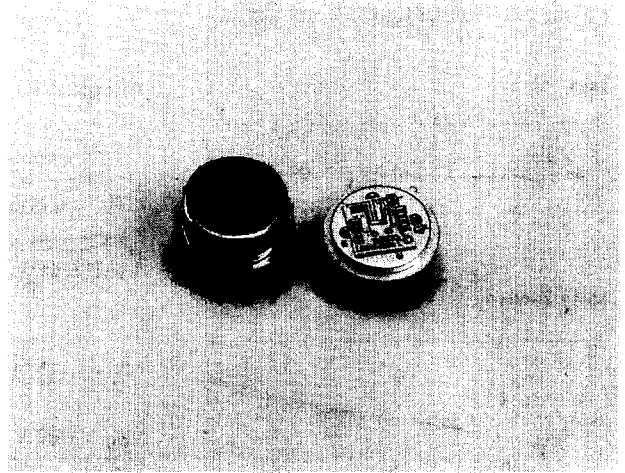




# A21-1 / SMA21-1

## 10 to 1200 MHz TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ LOW NOISE: < 2.8 dB (TYP.)
- ◆ LOW VSWR: 1.5:1 (TYP.)
- ◆ HIGH SINGLE STAGE GAIN: 15 dB (TYP.)



### Specifications\*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	1-1300 MHz	10-1200 MHz	10-1200 MHz
Small Signal Gain (Min.)	15.5 dB	14.0 dB	13.5 dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±1.0 dB
Noise Figure (Max.)	< 2.4 dB	3.5 dB	3.9 dB
Power Output at 1 dB Compression (Min.)	-1.0 dBm	-2.0 dBm	-3.0 dBm
VSWR (Max.) Input/Output	1.4:1	1.9:1	2.0 :1
DC Current (Max.) at 15 Volt	10 mA	11 mA	12 mA

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

#### Notes:

1. WJ-CA21-1 is a standard WJ-A21-1 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 .....	+17 dBm (Typ.)
Second Order Two Tone Intercept Point .....	+11 dBm (Typ.)
Third Order Two Tone Intercept Point .....	+11 dBm (Typ.)

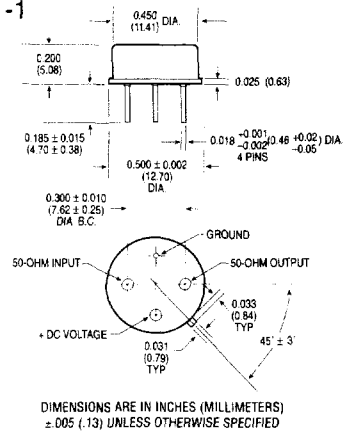
### Absolute Maximum Ratings

Storage Temperature .....	-62°C to +125°C
Maximum Case Temperature .....	125°C
Maximum DC Voltage .....	+17 Volts
Maximum Continuous RF Input Power .....	+13 dBm
Maximum Short Term RF Input Power .....	50 Milliwatts (1 Minute Max.)
Maximum Peak Power .....	0.5 Watt (3 μsec Max.)
"S" Series Burn-in Temperature (Case) .....	125°C

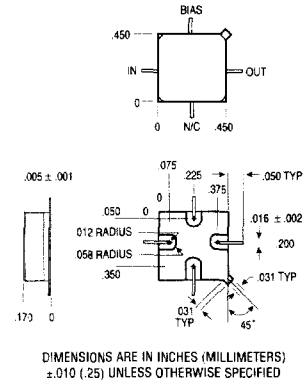
Weight approximately 2.0 grams (0.07 oz.)

### Outline Drawings

A21-1

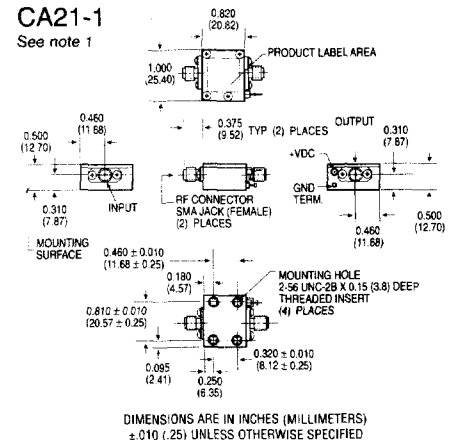


SMA21-1



CA21-1

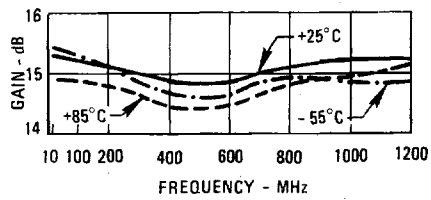
See note 1



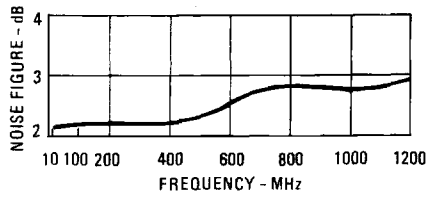
# Typical Performance at 25°C

WJ-A21-1/SMA21-1

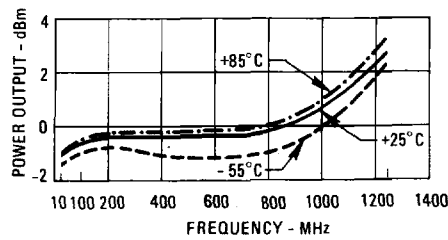
## Gain



## Noise Figure

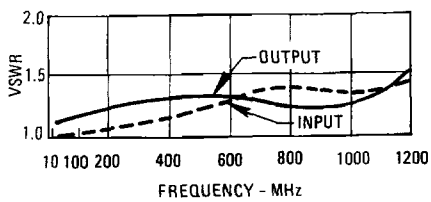


## Power Output\*

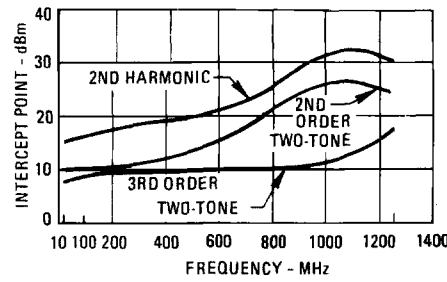


\* at 1 dB Gain Compression

## VSWR



## Intercept Point



## Typical Automatic Test Data

V<sub>CC</sub> = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.3	1.4	14.7
2.0	1.3	1.3	14.8
5.0	1.2	1.3	14.8
10.0	1.2	1.2	14.8
50.0	1.2	1.2	14.8
100.0	1.2	1.2	14.7
200.0	1.2	1.2	14.5
300.0	1.2	1.2	14.5
400.0	1.3	1.2	14.6
500.0	1.4	1.2	14.7
600.0	1.4	1.2	14.7
700.0	1.5	1.2	14.8
800.0	1.5	1.2	14.8
900.0	1.5	1.1	14.9
1000.0	1.4	1.1	15.0
1100.0	1.4	1.2	14.9
1200.0	1.6	1.5	14.6
1300.0	2.2	1.9	13.8

## Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.142	-128	5.442	-160	.102	23	.173	-131
2.0	.117	-150	5.489	-170	.105	12	.127	-151
5.0	.102	-167	5.501	-177	.107	5	.111	-170
10.0	.098	-174	5.502	-180	.107	2	.108	-178
50.0	.097	178	5.474	171	.108	-3	.104	159
100.0	.086	171	5.437	161	.108	-7	.101	137
200.0	.087	-175	5.329	144	.109	-14	.093	96
300.0	.102	-168	5.280	127	.108	-22	.084	58
400.0	.128	-170	5.369	110	.108	-30	.072	18
500.0	.170	179	5.427	93	.107	-38	.071	-18
600.0	.182	161	5.457	74	.105	-46	.078	-52
700.0	.188	146	5.482	55	.103	-54	.083	-85
800.0	.188	127	5.504	36	.102	-62	.073	-118
900.0	.185	101	5.567	16	.103	-70	.051	-162
1000.0	.167	67	5.612	-6	.104	-79	.040	109
1100.0	.159	14	5.571	-30	.106	-88	.091	29
1200.0	.237	-45	5.389	-56	.110	-101	.196	-16
1300.0	.375	-94	4.874	-84	.109	-117	.317	-51

## Thermal Data: V<sub>CC</sub> = 15 Vdc

Thermal Resistance  $\theta_{jC}$  .....171°C/W

Transistor Power Dissipation P<sub>d</sub> .....0.053 W

Junction Temperature Rise Above Case T<sub>jC</sub> .....9°C

