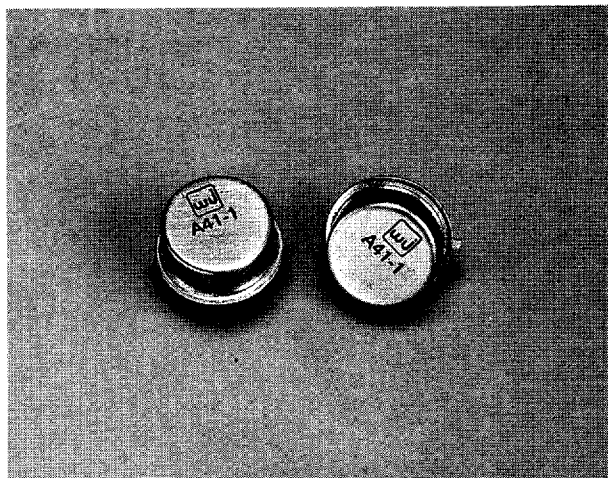


WJ-A41-1 / SMA41-1

1 to 4 GHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ WIDE BANDWIDTH
- ◆ HIGH OUTPUT LEVEL: +19.0 dBm (TYP.)
- ◆ LOW NOISE: 3.5 dB (TYP.)



Specifications*

Characteristics	Typical.	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	0.9-4.2 GHz	1-4 GHz	1-4 GHz
Small Signal Gain (Min.)	9.0 dB	8.0 dB	7.5 dB
Gain Flatness (Max.)	±4 dB	±7 dB	±1.0 dB
Noise Figure (Max.)	3.5 dB	4.7 dB	5.2 dB
Power Output at 1 dB Compression (Min.)	+19.0 dBm	+17.0 dBm	+16.5 dBm
VSWR (Max.)			
Input	1.7:1	2.0:1	2.1:1
output	1.4:1	2.0:1	2.1:1
DC Current (Max.) at 12 Volts	70 mA	75 mA	77 mA

*Measured in a 50-ohm system at +12 Vdc Nominal.

Notes:

1. WJ-CA41-1 is a standard WJ-A41-1 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.....	+50 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+44 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+30 dBm (Typ.)

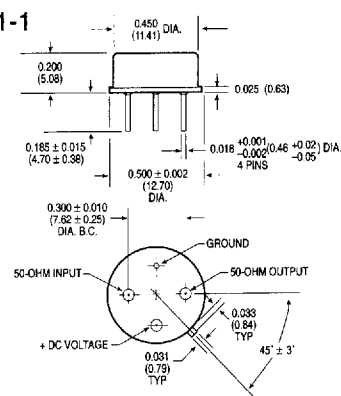
Absolute Maximum Ratings

Storage Temperature	-62°C to +125°C
Maximum Case Temperature	85°C
Maximum DC Voltage.....	+13 Volts
Maximum Continuous RF Input Power	+14 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	50 Milliwatts
Maximum Peak Power	0.25 Watt (3 μ sec Max.)
"S" Series Burn-in Temperature (Case).....	85°C

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

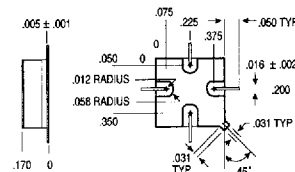
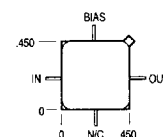
A41-1



DIMENSIONS ARE IN INCHES (MILLIMETERS)

±.005 (0.13) UNLESS OTHERWISE SPECIFIED

SMA41-1

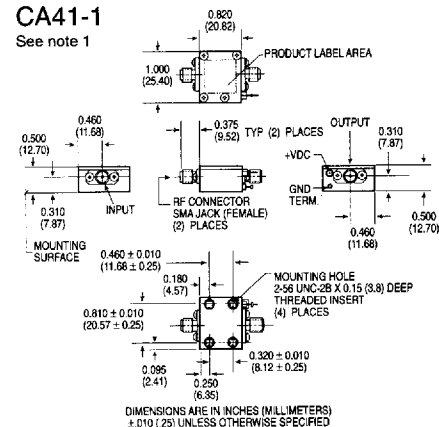


DIMENSIONS ARE IN INCHES (MILLIMETERS)

±0.010 (0.25) UNLESS OTHERWISE SPECIFIED

CA41-1

See note 1

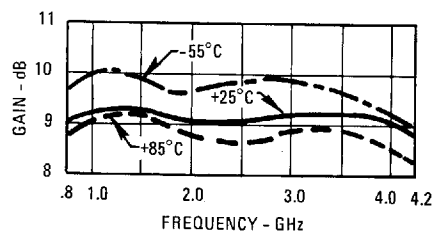


DIMENSIONS ARE IN INCHES (MILLIMETERS)

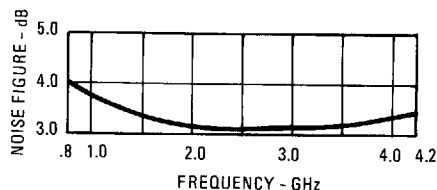
±0.010 (0.25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

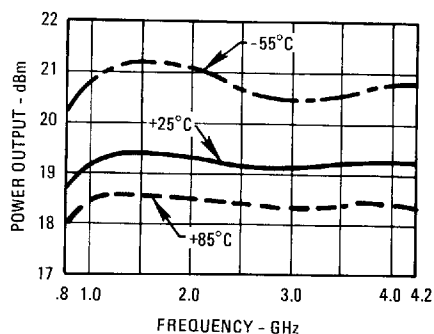
Gain



Noise Figure

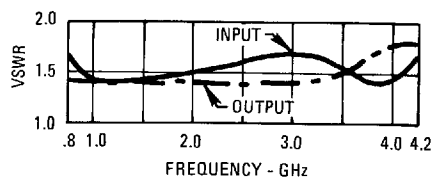


Power Output*

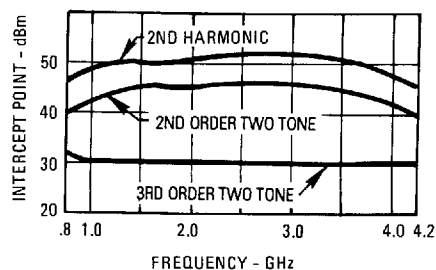


* at 1 dB Gain Compression

VSWR



Intercept Point



Typical Automatic Test Data

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
800.0	1.9	1.3	8.5
900.0	1.6	1.3	8.8
1000.0	1.5	1.3	8.9
1100.0	1.4	1.4	9.0
1200.0	1.3	1.4	9.1
1300.0	1.2	1.4	9.1
1400.0	1.2	1.4	9.2
1500.0	1.2	1.4	9.2
1600.0	1.2	1.4	9.2
1700.0	1.2	1.4	9.2
1800.0	1.2	1.4	9.1
1900.0	1.2	1.4	9.1
2000.0	1.2	1.4	9.1
2100.0	1.2	1.5	9.1
2200.0	1.3	1.5	9.1
2300.0	1.3	1.6	9.0
2400.0	1.3	1.6	9.0
2500.0	1.3	1.6	9.0
2600.0	1.3	1.7	9.0
2700.0	1.3	1.7	8.9
2800.0	1.4	1.7	8.9
2900.0	1.4	1.7	8.9
3000.0	1.4	1.7	8.9
3100.0	1.4	1.7	8.8
3200.0	1.5	1.7	8.9
3300.0	1.5	1.6	8.9
3400.0	1.5	1.6	9.0
3500.0	1.6	1.5	9.1
3600.0	1.6	1.5	9.1
3700.0	1.7	1.4	9.2
3800.0	1.7	1.4	9.2
3900.0	1.7	1.4	9.2
4000.0	1.7	1.4	9.4
4100.0	1.6	1.4	9.2
4200.0	1.7	1.4	9.2

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
800.0	.307	-55	2.654	50	.144	-105	.135	137
900.0	.240	-87	2.749	16	.146	-138	.129	74
1000.0	.204	-113	2.786	-15	.149	-167	.140	25
1100.0	.158	-141	2.821	-44	.149	165	.155	-14
1200.0	.130	-171	2.848	-73	.150	137	.165	-48
1300.0	.105	160	2.866	-100	.148	111	.167	-80
1400.0	.091	127	2.868	-128	.148	86	.165	-111
1500.0	.088	98	2.874	-156	.146	60	.162	-142
1600.0	.082	55	2.879	177	.146	36	.157	-171
1700.0	.088	29	2.872	151	.144	11	.159	158
1800.0	.085	-10	2.855	125	.144	-13	.158	126
1900.0	.089	-33	2.864	99	.142	-37	.166	95
2000.0	.109	-65	2.843	73	.141	-61	.179	66
2100.0	.110	-88	2.839	47	.139	-84	.190	38
2200.0	.126	-112	2.843	21	.138	-108	.204	11
2300.0	.128	-129	2.830	-5	.136	-131	.217	-13
2400.0	.140	-151	2.832	-30	.135	-155	.232	-36
2500.0	.149	-175	2.827	-56	.133	-178	.243	-58
2600.0	.147	168	2.805	-81	.130	159	.253	-80
2700.0	.144	150	2.798	-107	.130	135	.263	-100
2800.0	.149	128	2.781	-132	.128	114	.268	-120
2900.0	.161	109	2.775	-157	.125	91	.270	-140
3000.0	.163	87	2.776	177	.127	68	.269	-160
3100.0	.181	65	2.766	152	.128	46	.266	179
3200.0	.184	44	2.776	127	.125	22	.257	157
3300.0	.204	20	2.789	102	.127	0	.245	135
3400.0	.214	-3	2.811	76	.126	-23	.230	111
3500.0	.229	-26	2.836	50	.126	-46	.210	86
3600.0	.236	-52	2.846	24	.126	-69	.192	58
3700.0	.247	-78	2.873	-2	.127	-91	.174	28
3800.0	.249	-104	2.897	-28	.128	-115	.167	-6
3900.0	.248	-132	2.895	-55	.128	-139	.159	-40
4000.0	.257	-159	2.936	-81	.128	-163	.163	-76
4100.0	.245	172	2.894	-108	.127	174	.170	-109
4200.0	.246	141	2.891	-135	.125	151	.175	-140

Thermal Data: V_{CC} = 12 Vdc

Thermal Resistance θ_{JC} 108.9°C/W

Transistor Power Dissipation P_d 0.504 W

Junction Temperature Rise Above Case T_{Jc} ... 55°C