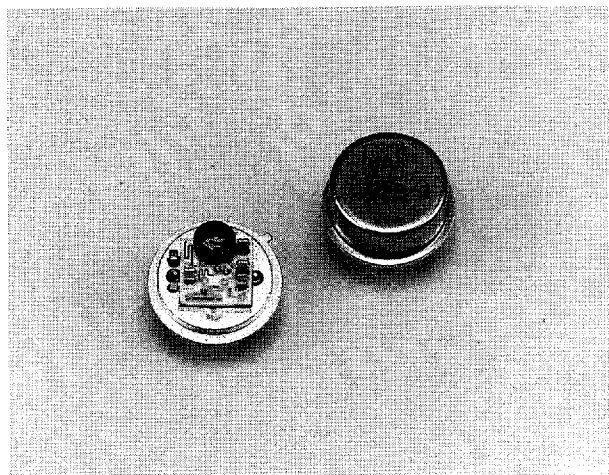


WJ-A29-1 / SMA29-1

10 to 1500 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER: +22 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +32 dBm (TYP.)



Specifications *

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	10-1600 MHz	10-1500 MHz	10-1500 MHz
Small Signal Gain (Min.)	9.0 dB	8.5 dB	7.5 dB
Gain Flatness (Max.)	±0.2 dB	±0.5 dB	±1.0 dB
Noise Figure (Max.)			
30-1000 MHz	7.0 dB	8.5 dB	9.0 dB
10-1500 MHz	8.0 dB	9.0 dB	9.5 dB
Power Output at			
1 dB Compression (Min.)	+22.0 dBm	+20.0 dBm	+19.0 dBm
VSWR (Max.) Input/Output	1.6:1	2.0:1	2.0:1
DC Current (Max.) at 15 Volts	90 mA	94 mA	99 mA

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

Notes:

1. WJ-CA29-1 is a standard WJ-A29-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

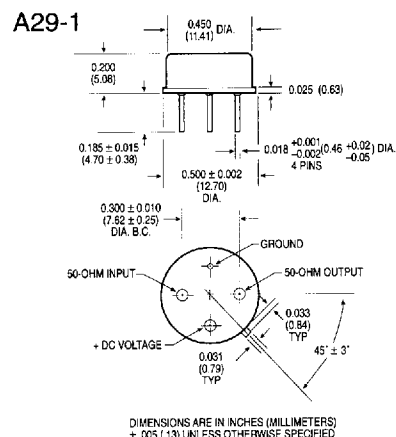
Second Order Harmonic Intercept Point.....+57 dBm (Typ.)
Second Order Two Tone Intercept Point.....+49 dBm (Typ.)
Third Order Two Tone Intercept Point.....+32 dBm (Typ.)

Absolute Maximum Ratings

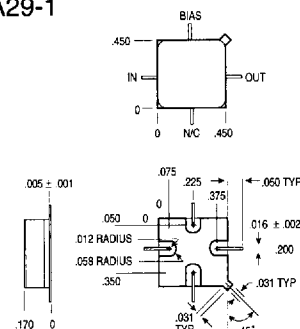
Storage Temperature-62°C to +125°C
Maximum Case Temperature125°C
Maximum DC Voltage.....+17 Volts
Maximum Continuous RF Input Power15.5 dBm
Maximum Short Term RF Input Power (1 Minute Max.)100 Milliwatts
Maximum Peak Power0.5 Watt (3 μsec Max.)
"S" Series Burn-in Temperature (Case)125°C

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

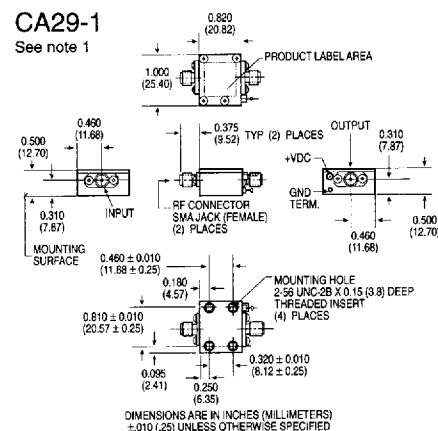


SMA29-1



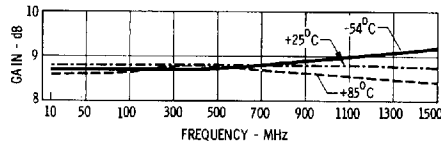
CA29-1

See note 1

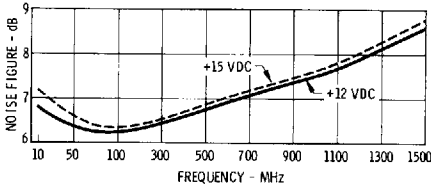


Typical Performance at 25°C

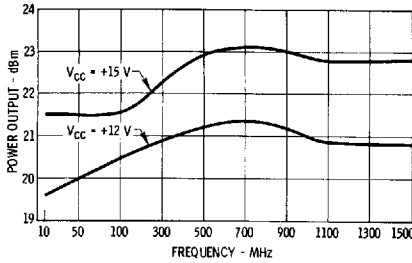
Gain



Noise Figure

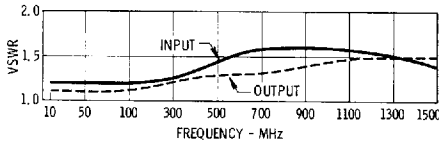


Power Output*

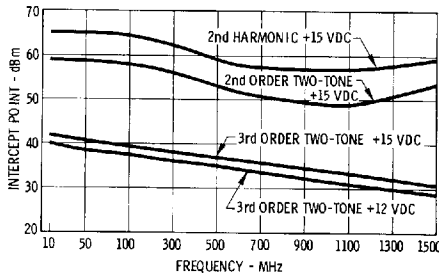


* at 1 dB Gain Compression

VSWR



Intercept Point



Vcc = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.6	2.1	8.8
5.0	1.5	1.6	9.7
10.0	1.4	1.5	9.8
50.0	1.4	1.5	9.9
100.0	1.4	1.5	9.8
200.0	1.4	1.4	9.7
300.0	1.3	1.4	9.7
400.0	1.3	1.4	9.9
500.0	1.3	1.3	10.1
600.0	1.3	1.3	10.2
700.0	1.2	1.3	10.3
800.0	1.2	1.3	10.4
900.0	1.2	1.3	10.4
1000.0	1.2	1.3	10.5
1100.0	1.2	1.3	10.4
1200.0	1.3	1.4	10.5
1300.0	1.4	1.4	10.4
1400.0	1.5	1.5	10.2
1500.0	1.7	1.6	10.0
1600.0	1.9	1.7	9.4
1700.0	2.4	1.7	8.8

Typical Automatic Test Data

Vcc = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.6	2.2	8.7
5.0	1.5	1.6	9.7
10.0	1.4	1.5	9.8
50.0	1.4	1.5	9.9
100.0	1.4	1.5	9.8
200.0	1.4	1.4	9.8
300.0	1.3	1.4	9.8
400.0	1.3	1.4	9.9
500.0	1.3	1.3	10.1
600.0	1.2	1.3	10.2
700.0	1.2	1.3	10.3
800.0	1.2	1.2	10.4
900.0	1.2	1.2	10.4
1000.0	1.2	1.2	10.4
1100.0	1.2	1.2	10.4
1200.0	1.3	1.2	10.5
1300.0	1.3	1.3	10.5
1400.0	1.4	1.3	10.3
1500.0	1.6	1.4	10.1
1600.0	1.8	1.5	9.6
1700.0	2.2	1.5	9.1

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.236	-105	2.731	-154	.141	27	.376	171
5.0	.192	-149	3.072	-171	.161	11	.235	168
10.0	.181	-164	3.102	-176	.163	5	.215	171
50.0	.182	173	3.122	174	.166	-1	.198	168
100.0	.175	165	3.102	167	.167	-4	.192	161
200.0	.157	153	3.082	155	.169	-8	.180	146
300.0	.146	142	3.073	143	.172	-13	.165	133
400.0	.127	131	3.142	131	.175	-19	.150	124
500.0	.124	122	3.204	119	.176	-24	.142	114
600.0	.105	112	3.252	105	.178	-30	.128	100
700.0	.088	98	3.269	91	.180	-36	.114	88
800.0	.078	97	3.303	77	.183	-42	.102	79
900.0	.077	96	3.319	63	.187	-48	.095	71
1000.0	.085	85	3.330	49	.189	-55	.094	64
1100.0	.094	64	3.324	35	.193	-62	.097	55
1200.0	.112	43	3.350	20	.197	-68	.107	37
1300.0	.121	14	3.332	5	.202	-76	.127	18
1400.0	.160	-14	3.263	-12	.206	-85	.145	-3
1500.0	.222	-43	3.196	-29	.210	-94	.170	-29
1600.0	.281	-70	3.013	-47	.213	-104	.192	-56
1700.0	.377	-96	2.851	-65	.214	-116	.201	-87

Thermal Data: Vcc = 15 Vdc

Thermal Resistance θ_{jc} 45°C/W
 Transistor Power Dissipation P_d 0.931 W
 Junction Temperature Rise Above Case T_{jc} ... 42°C

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.237	-108	2.766	-155	.144	27	.357	171
5.0	.189	-150	3.059	-171	.161	11	.227	169
10.0	.182	-165	3.085	-176	.164	5	.208	171
50.0	.177	174	3.108	174	.166	-1	.192	169
100.0	.173	165	3.086	167	.167	-3	.186	162
200.0	.159	154	3.059	155	.169	-8	.175	149
300.0	.144	141	3.063	143	.173	-12	.162	137
400.0	.125	133	3.139	131	.176	-18	.151	130
500.0	.124	124	3.196	119	.178	-23	.148	121
600.0	.115	113	3.237	104	.180	-29	.139	110
700.0	.093	102	3.268	90	.183	-35	.131	99
800.0	.084	102	3.296	76	.187	-41	.125	91
900.0	.092	95	3.321	62	.192	-47	.126	81
1000.0	.101	82	3.333	48	.195	-53	.132	72
1100.0	.105	69	3.326	33	.201	-61	.140	58
1200.0	.130	40	3.348	18	.206	-68	.154	40
1300.0	.153	17	3.320	2	.211	-76	.179	20
1400.0	.190	-16	3.232	-15	.217	-84	.202	-2
1500.0	.256	-44	3.154	-32	.222	-94	.229	-28
1600.0	.317	-71	2.952	-50	.225	-105	.251	-55
1700.0	.411	-98	2.760	-68	.226	-117	.257	-85