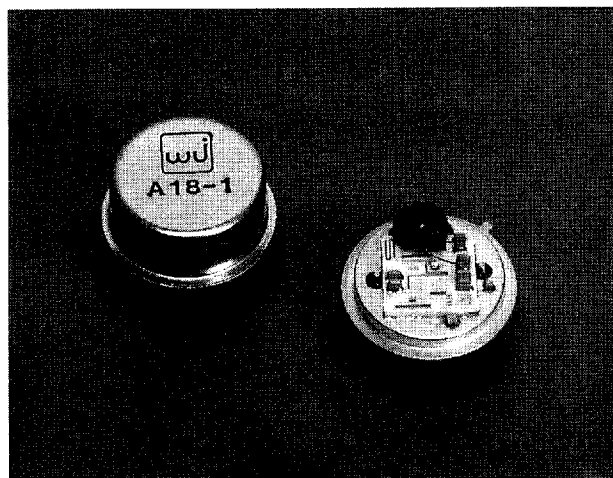


WJ-A18-1 / SMA18-1

10 to 1000 MHz

TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH DYNAMIC RANGE
- ◆ HIGH OUTPUT POWER: +16 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +30 dBm (TYP.)
- ◆ LOW NOISE: 3.8 dB (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.)	14.7 dB	14 dB	13.5 dB
Gain Flatness (Max.)	< ±0.3 dB	±0.5 dB	±1.0 dB
Noise Figure (Max.)	3.8 dB	5.0 dB	5.5 dB
Power Output at 1 dB Compression (Min.)	+16 dBm	+15 dBm	+14.5 dBm
VSWR (Max.) Input/Output	< 1.5:1	1.8:1	2.0:1
DC Current (Max.) at 15 Volts	44 mA	46 mA	48 mA

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

Notes:

1 WJ-CA18 is a standard WJ-A18 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

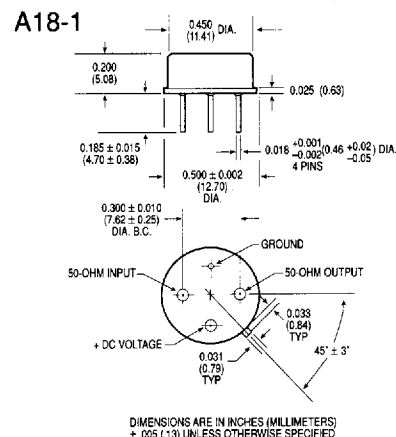
Second Order Harmonic Intercept Point.....+45 dBm (Typ.)
 Second Order Two Tone Intercept Point.....+42 dBm (Typ.)
 Third Order Two Tone Intercept Point.....+30 dBm (Typ.)

Absolute Maximum Ratings

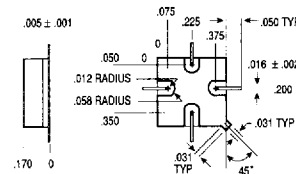
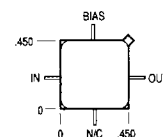
Storage Temperature-62°C to +125°C
 Maximum Case Temperature125°C
 Maximum DC Voltage.....+17 Volts
 Maximum Continuous RF Input Power +13 dBm
 Maximum Short Term RF Input Power.....50 Milliwatts (1 Minute Max.)
 Maximum Peak Power0.5 Watt (3 µsec Max.)
 "S" Series Burn-in Temperature (Case)125°C

Weight approximately 2.0 grams (0.07 oz.) max.

Outline Drawings



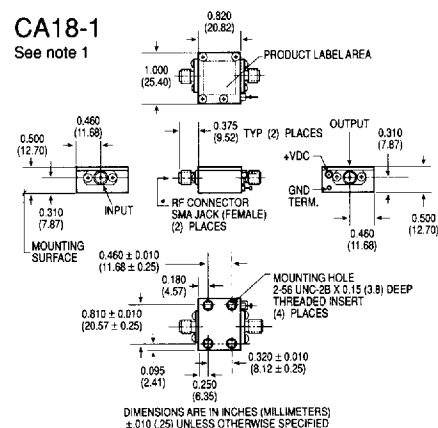
SMA18-1



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

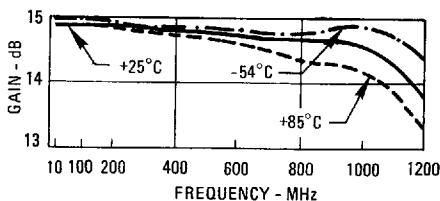
CA18-1

See note 1

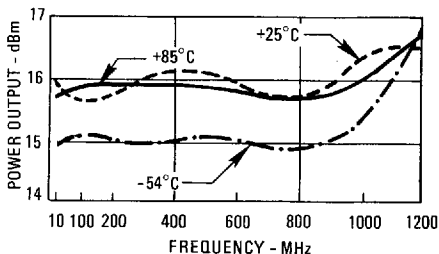


Typical Performance at 25°C

Gain

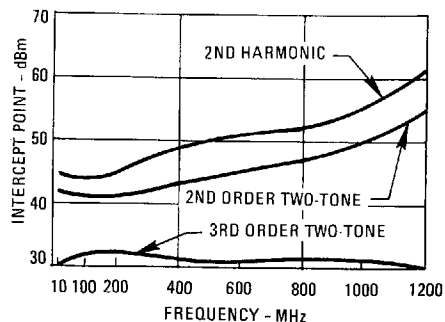


Power Output*

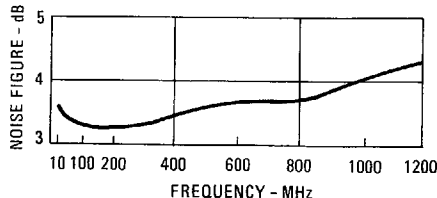


* at 1 dB Gain Compression

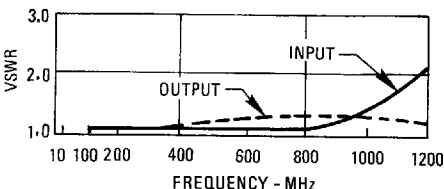
Intercept Point



Noise Figure



VSWR



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.2	1.2	14.8
2.0	1.1	1.2	14.8
5.0	1.1	1.1	14.9
10.0	1.0	1.0	14.9
50.0	1.0	1.0	14.8
100.0	1.1	1.0	14.7
200.0	1.1	1.0	14.6
300.0	1.1	1.1	14.6
400.0	1.2	1.1	14.8
500.0	1.2	1.2	15.0
600.0	1.2	1.2	15.1
700.0	1.2	1.3	15.2
800.0	1.1	1.3	15.3
900.0	1.1	1.4	15.4
1000.0	1.2	1.5	15.4
1100.0	1.6	1.6	15.0

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.4	1.3	13.2
2.0	1.4	1.3	13.2
5.0	1.3	1.3	13.2
10.0	1.3	1.3	13.3
50.0	1.3	1.3	13.2
100.0	1.3	1.3	13.1
200.0	1.3	1.3	13.0
300.0	1.3	1.3	13.0
400.0	1.4	1.4	13.1
500.0	1.3	1.5	13.2
600.0	1.3	1.5	13.3
700.0	1.3	1.5	13.4
800.0	1.3	1.6	13.3
900.0	1.4	1.6	13.2
1000.0	1.7	1.6	12.8
1100.0	2.2	1.6	12.0

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.078	-65	5.517	-174	.107	8	.078	110
2.0	.068	-64	5.511	-175	.107	7	.071	110
5.0	.038	-61	5.543	-179	.109	3	.046	100
10.0	.016	-44	5.529	175	.110	-1	.022	73
50.0	.022	9	5.513	167	.111	-4	.015	42
100.0	.028	9	5.443	159	.111	-7	.014	12
200.0	.040	-5	5.377	147	.112	-11	.037	-74
300.0	.055	-28	5.361	132	.113	-18	.066	-113
400.0	.077	-51	5.495	116	.117	-25	.089	-147
500.0	.075	-76	5.610	100	.119	-33	.101	-175
600.0	.075	-92	5.711	81	.121	-41	.117	158
700.0	.077	-110	5.758	63	.124	-49	.139	127
800.0	.066	-141	5.836	44	.127	-58	.166	93
900.0	.035	143	5.916	24	.131	-68	.196	55
1000.0	.078	39	5.890	1	.134	-79	.223	12
1100.0	.216	-8	5.651	-24	.134	-93		

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.158	-24	4.554	-174	.120	8	.122	50
2.0	.153	-23	4.581	-175	.121	7	.118	45
5.0	.139	-18	4.587	-179	.122	3	.115	26
10.0	.127	-18	4.607	174	.123	-1	.119	2
50.0	.133	-21	4.582	166	.123	-4	.120	-14
100.0	.134	-35	4.537	158	.123	-7	.120	-28
200.0	.140	-54	4.478	145	.124	-11	.127	-46
300.0	.145	-79	4.446	129	.126	-18	.143	-73
400.0	.150	-106	4.539	112	.131	-24	.169	-103
500.0	.146	-137	4.582	95	.135	-32	.188	-132
600.0	.137	-168	4.632	75	.139	-41	.201	-161
700.0	.128	157	4.651	56	.144	-50	.211	172
800.0	.128	112	4.624	35	.148	-60	.224	141
900.0	.170	63	4.557	14	.153	-71	.233	107
1000.0	.251	17	4.345	-9	.152	-84	.236	70
1100.0	.371	-22	3.970	-33	.151	-96	.225	29

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} 45°C/W
 Transistor Power Dissipation P_d 0.407 W
 Junction Temperature Rise Above Case T_{jc} ... 18°C