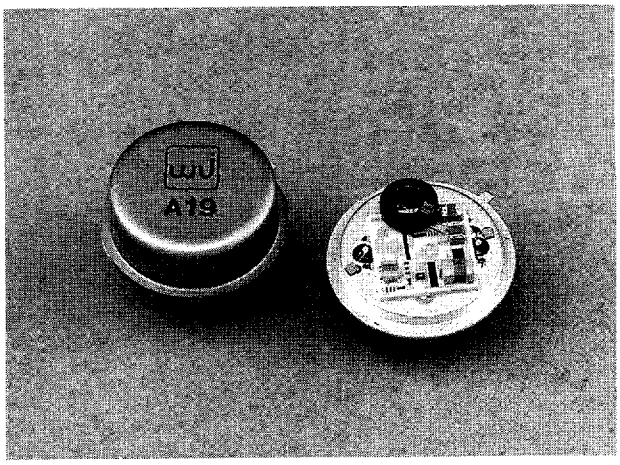
WJ-A19 / SMA19

10 TO 1000 MHZ
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER: +21 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +34 dBm (TYP.)



Specifications*

Characteristics	Typical	Guaranteed 0° to 50°C	Guaranteed -54° to +85°C
Frequency (Min.)	5-1050 MHz	10-1000 MHz	10-1000 MHz
Small Signal Gain (Min.)	7.5 dB	6.0 dB	5.5 dB
Gain Flatness (Max.)	< ±0.3 dB	±1.0 dB	±1.3 dB
Noise Figure (Max.)	9.0 dB	10.5 dB	11.0 dB
Power Output at 1 dB Compression (Min.)	+21 dBm	+20 dBm	+19 dBm
VSWR (Max.) Input/Output	< 1.8:1	2.2:1	2.2:1
DC Current (Max.) at 15 Volts	100 mA	109 mA	114 mA

*Measured in a 50-ohm system at +15 Vdc Nominal.
Notes:
1. WJ-CA19 is a standard WJ-A19 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 .....+40 dBm (Typ.)
Third Order Two-Tone Intercept Point .....+34 dBm (Typ.)

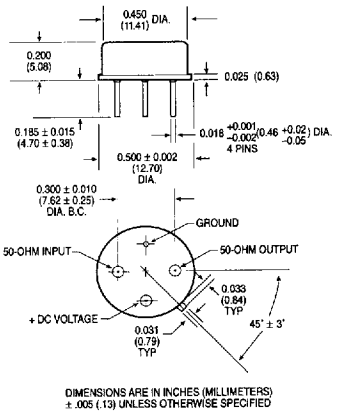
Absolute Maximum Ratings

Storage Temperature .....-62°C to +125°C
Maximum Case Temperature .....125°C
Maximum DC Voltage.....+ 17 Volts
Maximum Continuous RF Input Power .....+17 dBm
Maximum Short Term RF Input Power.....100 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.)

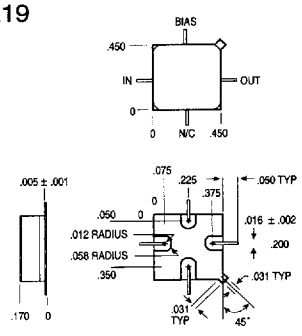
Outline Drawings

A19



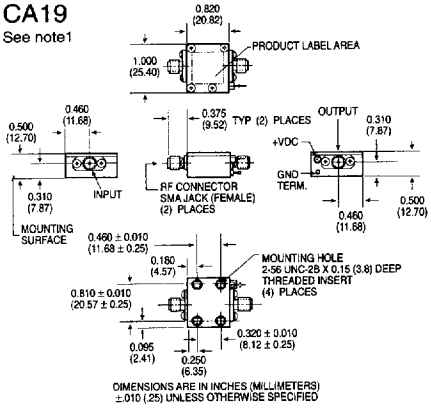
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.005 (.13) UNLESS OTHERWISE SPECIFIED

SMA19



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

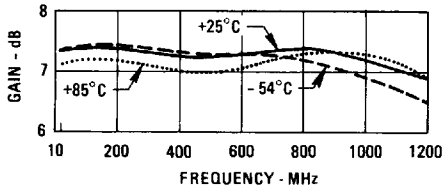
CA19
See note1



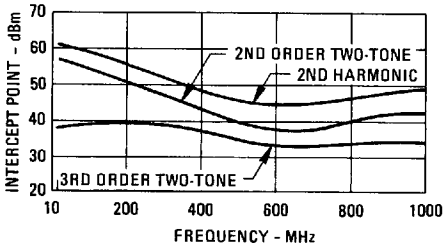
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

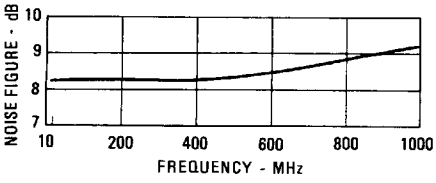
Gain



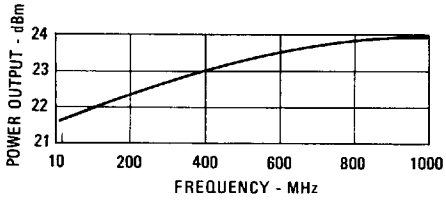
Intercept Point



Noise Figure

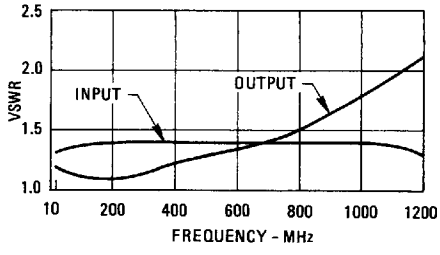


Power Output*



* at 1 dB Gain Compression

VSWR



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.2	1.4	6.8
2.0	1.1	1.3	6.8
5.0	1.1	1.3	6.9
10.0	1.1	1.4	7.0
50.0	1.0	1.4	7.0
100.0	1.1	1.4	6.9
200.0	1.1	1.4	6.8
300.0	1.2	1.4	6.7
400.0	1.2	1.5	6.8
500.0	1.3	1.5	6.9
600.0	1.4	1.6	7.1
700.0	1.4	1.6	7.2
800.0	1.5	1.6	7.2
900.0	1.6	1.6	7.2
1000.0	1.7	1.6	7.2
1100.0	1.9	1.5	6.9

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.079	−78	2.195	−169	.165	3	.151	35
2.0	.069	−79	2.198	−170	.165	3	.148	32
5.0	.044	−78	2.216	−177	.166	2	.146	19
10.0	.025	−86	2.227	176	.168	−0	.151	6
50.0	.022	−88	2.226	167	.168	−2	.154	−2
100.0	.035	−101	2.203	159	.168	−4	.157	−8
200.0	.054	−116	2.181	147	.170	−6	.164	−17
300.0	.075	−135	2.169	132	.174	−10	.179	−30
400.0	.101	−155	2.199	116	.180	−14	.196	−47
500.0	.131	180	2.218	99	.185	−18	.209	−65
600.0	.155	156	2.264	83	.191	−23	.222	−83
700.0	.174	133	2.284	66	.199	−28	.230	−102
800.0	.194	110	2.295	48	.207	−34	.233	−122
900.0	.232	85	2.289	32	.220	−39	.227	−143
1000.0	.269	58	2.282	13	.230	−46	.217	−167
1100.0	.301	32	2.221	−5	.242	−53	.200	169

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	1.2	1.4	6.8
2.0	1.2	1.4	6.8
5.0	1.1	1.3	6.8
10.0	1.1	1.4	6.9
50.0	1.0	1.4	6.9
100.0	1.1	1.4	6.8
200.0	1.1	1.4	6.7
300.0	1.2	1.4	6.7
400.0	1.2	1.5	6.8
500.0	1.3	1.5	6.9
600.0	1.4	1.5	7.0
700.0	1.4	1.6	7.1
800.0	1.5	1.6	7.1
900.0	1.6	1.5	7.1
1000.0	1.8	1.5	7.0
1100.0	1.9	1.4	6.8

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.074	−76	2.178	−169	.165	3	.153	33
2.0	.071	−77	2.180	−171	.165	3	.150	29
5.0	.040	−78	2.197	−177	.166	1	.149	18
10.0	.026	−95	2.207	176	.168	−0	.154	4
50.0	.023	−92	2.208	167	.168	−2	.158	−3
100.0	.030	−103	2.187	159	.169	−4	.160	−10
200.0	.053	−115	2.169	147	.170	−6	.165	−19
300.0	.081	−135	2.153	131	.175	−9	.178	−33
400.0	.102	−155	2.190	115	.181	−13	.193	−51
500.0	.133	180	2.203	99	.187	−18	.205	−69
600.0	.158	155	2.246	82	.194	−22	.214	−87
700.0	.179	133	2.276	65	.203	−27	.219	−107
800.0	.204	109	2.277	47	.213	−33	.219	−127
900.0	.243	84	2.263	31	.227	−39	.212	−150
1000.0	.278	57	2.246	12	.237	−46	.199	−175
1100.0	.309	30	2.179	−6	.249	−53	.181	160

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} ..... 45°C/W
Transistor Power Dissipation P_d ..... 0.944 W
Junction Temperature Rise Above Case T_{jc} ... 42°C