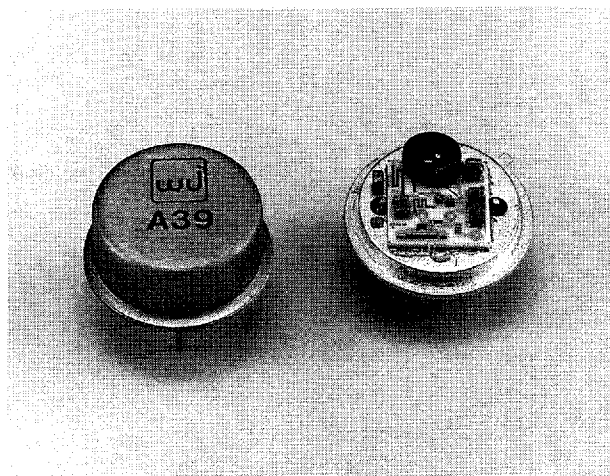


WJ-A39 / SMA39

10 to 2000 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH OUTPUT POWER: +22 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +34 dBm (TYP.)
- ◆ WIDE BANDWIDTH: 10-2000 MHz



Specifications *

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	5-2050 MHz	10-2000 MHz	10-2000 MHz
Small Signal Gain (Min.)	7.5 dB	6.5 dB	6.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)			
10-1500 MHz	< 8.0 dB	9.0 dB	9.5 dB
1500-2000 MHz	8.5 dB	9.5 dB	10.0 dB
Power Output			
at 1 dB Compression (Min.)	+22 dBm	+20 dBm	+19.5 dBm
VSWR (Max.) Input/Output	1.6:1	2.2:1	2.2:1
DC Current (Max.) at 15 Volts	90 mA	94 mA	98 mA

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

Notes:

1. WJ-CA39 is a standard WJ-A39 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..... +55 dBm (Typ.)
 Second Order Two Tone Intercept Point..... +50 dBm (Typ.)
 Third Order Two Tone Intercept Point..... +34 dBm (Typ.)

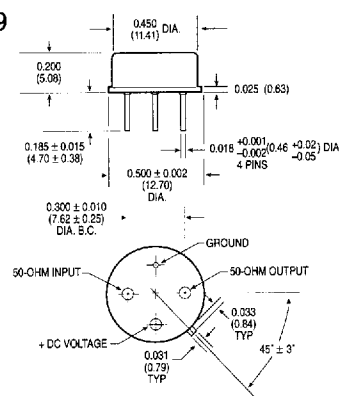
Absolute Maximum Ratings

Storage Temperature -62°C to +125°C
 Maximum Case Temperature 125°C
 Maximum DC Voltage +17 Volts
 Maximum Continuous RF Input Power +50 Milliwatts
 Maximum Short Term RF Input Power 100 Milliwatt (1 Minute Max.)
 Maximum Peak Power 0.5 Watts (3 µsec Max.)
 "S" Series Burn-in Temperature (Case) 125°C

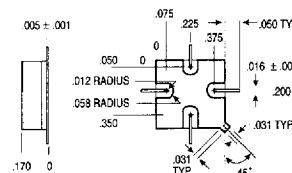
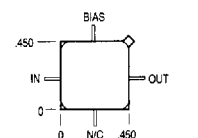
Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

A39



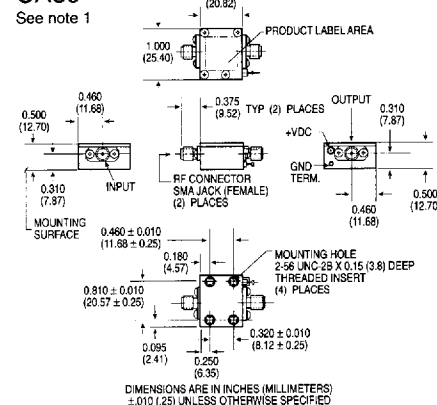
SMA39



DIMENSIONS ARE IN INCHES (MILLIMETERS)
± 0.010 (0.25) UNLESS OTHERWISE SPECIFIED

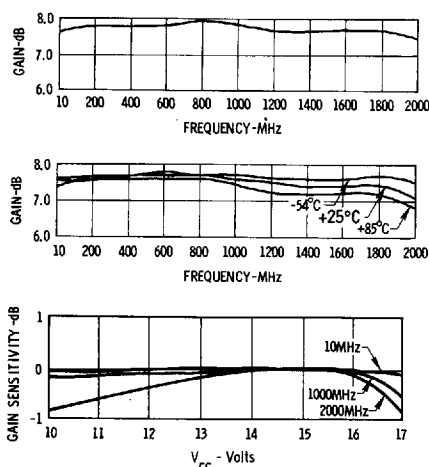
CA39

See note 1

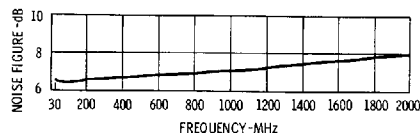


Typical Performance at 25°C

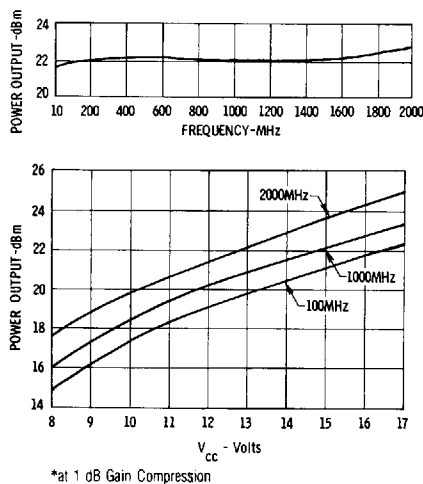
Gain



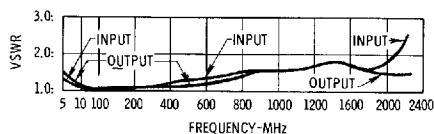
Noise Figure



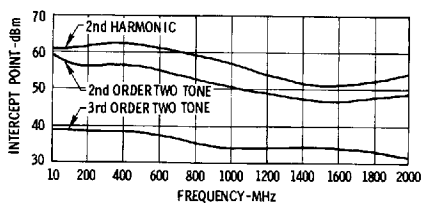
Power Output *



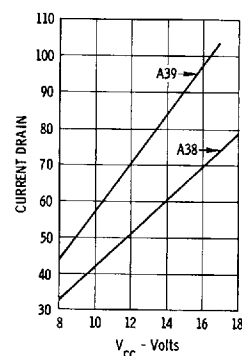
VSWR



Intercept Point



Current Drain vs. Vcc



Typical Automatic Test Data

V_{cc} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.8	2.3	7.6
5.0	1.7	1.8	8.3
10.0	1.7	1.7	8.4
50.0	1.7	1.7	8.5
100.0	1.7	1.7	8.5
200.0	1.7	1.7	8.5
300.0	1.6	1.6	8.5
400.0	1.6	1.6	8.7
500.0	1.5	1.5	8.7
600.0	1.5	1.4	8.8
700.0	1.4	1.3	8.9
800.0	1.4	1.2	9.0
900.0	1.5	1.1	9.0
1000.0	1.5	1.1	9.1
1100.0	1.6	1.1	9.2
1200.0	1.6	1.2	9.2
1300.0	1.7	1.3	9.2
1400.0	1.7	1.4	9.1
1500.0	1.7	1.5	9.0
1600.0	1.8	1.6	9.0
1700.0	1.7	1.8	8.9
1800.0	1.5	1.9	8.6
1900.0	1.4	1.9	8.5
2000.0	1.1	1.9	8.1
2100.0	1.3	1.8	7.6
2200.0	1.7	1.7	7.4

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.294	-122	2.389	-155	.160	28	.386	-179
5.0	.264	-156	2.612	-171	.176	11	.285	176
10.0	.259	-168	2.632	-176	.179	5	.272	176
50.0	.265	178	2.664	176	.181	-1	.260	170
100.0	.252	171	2.652	170	.181	-3	.255	162
200.0	.246	166	2.667	159	.181	-8	.247	146
300.0	.238	158	2.669	150	.182	-11	.237	130
400.0	.220	151	2.717	139	.185	-16	.217	114
500.0	.212	146	2.723	129	.186	-20	.192	97
600.0	.195	142	2.743	118	.187	-24	.159	79
700.0	.174	143	2.774	107	.188	-29	.125	60
800.0	.180	144	2.807	96	.191	-35	.086	36
900.0	.187	143	2.828	85	.193	-39	.055	-2
1000.0	.198	139	2.860	73	.194	-44	.037	-71
1100.0	.216	135	2.869	61	.195	-49	.064	-133
1200.0	.239	128	2.872	50	.195	-54	.098	-161
1300.0	.255	122	2.868	38	.194	-59	.135	173
1400.0	.260	113	2.853	25	.192	-64	.178	152
1500.0	.264	101	2.832	13	.193	-69	.213	133
1600.0	.273	89	2.818	1	.195	-74	.244	113
1700.0	.249	74	2.787	-12	.197	-79	.278	96
1800.0	.212	58	2.706	-24	.202	-84	.299	79
1900.0	.156	33	2.671	-38	.212	-91	.304	64
2000.0	.058	-2	2.541	-51	.214	-99	.303	49
2100.0	.119	-147	2.399	-63	.213	-109	.294	33
2200.0	.252	176	2.340	-76	.207	-115	.270	11

Thermal Data: V_{cc} = 15 Vdc

Thermal Resistance θ_{jc} 45°C/W
 Transistor Power Dissipation P_d 0.932 W
 Junction Temperature Rise Above Case T_{jc} ... 42°C