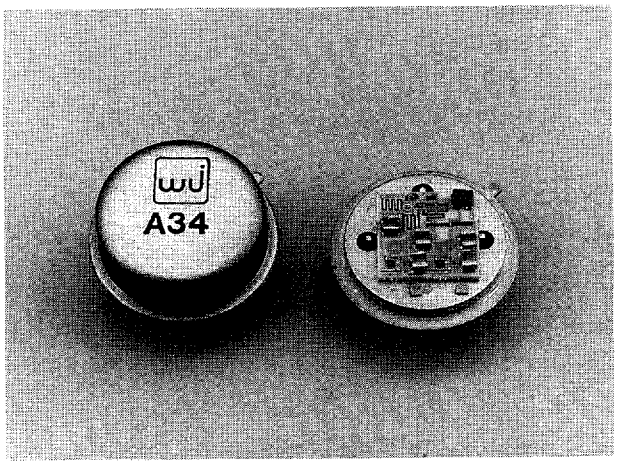
WJ-A34 / SMA34



100 to 2000 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN - TWO STAGES: 16 dB (TYP.)
- ◆ ULTRALOW PHASE DEVIATION FROM LINEARITY: < ±3° ; 500-2000 MHz
- ◆ LOW VSWR: < 1.5:1 (TYP.)
- ◆ MEDIUM LEVEL OUTPUT: +7 dBm (TYP.)

Specifications*

Characteristics	Typical	Guaranteed 0° to 50°C	Guaranteed -54° to +85°C
Frequency (Min.)	30-2100 MHz	100-2000 MHz	100-2000 MHz
Small Signal Gain (Min.)	16.0 dB	15.0 dB	14.0 dB
Gain Flatness (Max.)	< ±0.5 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)	5.5 dB	6.5 dB	7.0 dB
Power Output at 1 dB Compression (Min.)	+7 dBm	+6 dBm	+5 dBm
VSWR (Max.) Input/Output	< 1.5:1	1.9:1	2.0:1
DC Current (Max.) at 15 Volts	35 mA	39 mA	41 mA

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

Notes:

1. WJ-CA34 is a standard WJ-A34 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.....+46 dBm (Typ.)
Second Order Two Tone Intercept Point..... +42 dBm (Typ.)
Third Order Two Tone Intercept Point..... +18 dBm (Typ.)

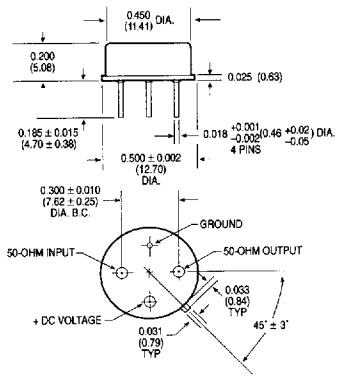
Absolute Maximum Ratings

Storage Temperature .....-62°C to +125°C
Maximum Case Temperature .....125°C
Maximum DC Voltage..... +20 Volts
Maximum Continuous RF Input Power ..... +10 dBm
Maximum Short Term Input Power .....50 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 (0.07oz)

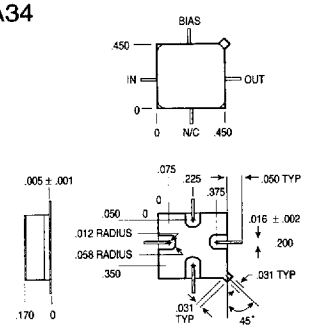
Outline Drawings

A34



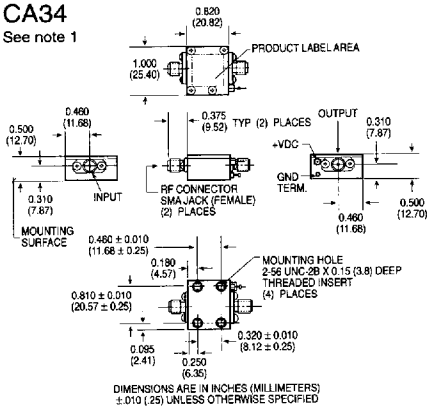
DIMENSIONS ARE IN INCHES (MILLIMETERS)
± .005 (.13) UNLESS OTHERWISE SPECIFIED

SMA34



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

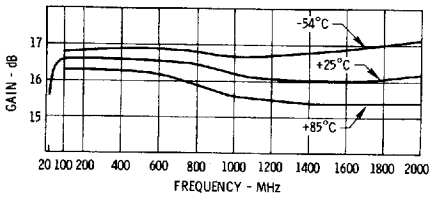
CA34
See note 1



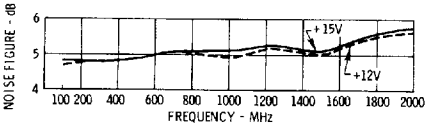
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

Typical Performance at 25°C

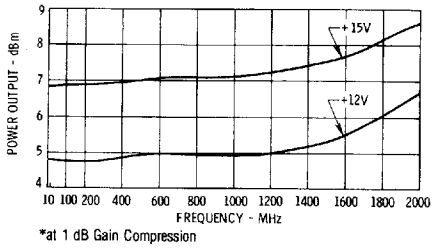
Gain



Noise Figure

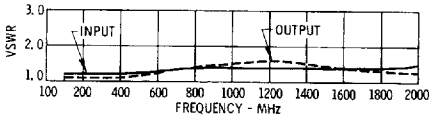


Power Output*



*at 1 dB Gain Compression

VSWR



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
10.0	2.9	2.5	12.0
50.0	1.3	1.2	15.7
100.0	1.2	1.1	16.0
200.0	1.1	1.0	16.3
300.0	1.0	1.1	16.3
400.0	1.1	1.2	16.1
500.0	1.1	1.2	16.0
600.0	1.1	1.2	16.1
700.0	1.2	1.3	16.1
800.0	1.2	1.4	16.2
900.0	1.3	1.4	16.2
1000.0	1.3	1.4	16.3
1100.0	1.3	1.5	16.2
1200.0	1.3	1.5	16.2
1300.0	1.4	1.5	16.2
1400.0	1.4	1.5	16.1
1500.0	1.3	1.5	16.0
1600.0	1.4	1.4	15.9
1700.0	1.4	1.4	16.0
1800.0	1.4	1.4	15.8
1900.0	1.5	1.3	15.7
2000.0	1.6	1.4	15.6
2100.0	2.0	1.4	15.4
2200.0	2.6	1.4	15.1

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.0	.486	–58	3.977	68	.017	89	.434	–62
50.0	.139	–89	6.106	9	.029	22	.107	–68
100.0	.074	–109	6.335	–8	.031	10	.056	–65
200.0	.043	–148	6.528	–31	.033	–1	.010	–16
300.0	.024	139	6.505	–52	.035	–9	.046	56
400.0	.032	21	6.370	–71	.035	–20	.083	34
500.0	.041	–40	6.293	–88	.034	–29	.099	15
600.0	.060	–73	6.352	–105	.032	–36	.111	4
700.0	.080	–88	6.407	–124	.032	–43	.131	–6
800.0	.102	–111	6.452	–142	.032	–49	.152	–17
900.0	.114	–133	6.448	–160	.031	–54	.172	–30
1000.0	.131	–157	6.523	–179	.030	–63	.183	–43
1100.0	.146	179	6.490	163	.029	–71	.196	–59
1200.0	.149	157	6.460	144	.028	–78	.207	–73
1300.0	.153	138	6.453	125	.027	–86	.210	–87
1400.0	.150	115	6.376	107	.025	–94	.207	–103
1500.0	.145	93	6.318	89	.025	–102	.196	–118
1600.0	.149	63	6.255	70	.024	–107	.180	–135
1700.0	.156	30	6.288	51	.024	–116	.161	–157
1800.0	.169	–7	6.164	31	.024	–121	.150	178
1900.0	.192	–41	6.090	11	.024	–127	.146	152
2000.0	.245	–76	6.023	–9	.023	–135	.151	126
2100.0	.340	–107	5.905	–30	.023	–141	.163	101
2200.0	.440	–140	5.675	–52	.024	–145	.171	77

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} ..... 45°C/W
Transistor Power Dissipation P_d ..... 0.180 W
Junction Temperature Rise Above Case T_{jc} ... 8°C

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
10.0	2.9	2.5	11.6
50.0	1.3	1.2	15.3
100.0	1.1	1.1	15.6
200.0	1.1	1.0	15.9
300.0	1.0	1.1	15.8
400.0	1.0	1.2	15.6
500.0	1.1	1.2	15.5
600.0	1.1	1.2	15.7
700.0	1.2	1.3	15.7
800.0	1.2	1.3	15.8
900.0	1.3	1.4	15.8
1000.0	1.3	1.4	15.8
1100.0	1.4	1.5	15.8
1200.0	1.4	1.5	15.7
1300.0	1.4	1.5	15.7
1400.0	1.4	1.5	15.6
1500.0	1.4	1.4	15.5
1600.0	1.4	1.4	15.4
1700.0	1.4	1.3	15.4
1800.0	1.5	1.3	15.3
1900.0	1.6	1.3	15.1
2000.0	1.8	1.3	15.0
2100.0	2.3	1.3	14.8
2200.0	3.0	1.4	14.4

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10.0	.483	–57	3.818	67	.017	89	.435	–61
50.0	.137	–83	5.832	9	.029	21	.109	–68
100.0	.069	–98	6.037	–8	.031	9	.057	–65
200.0	.040	–133	6.222	–32	.033	–1	.012	–22
300.0	.015	–173	6.201	–53	.035	–10	.044	53
400.0	.021	–8	6.047	–72	.036	–19	.080	33
500.0	.045	–63	5.967	–89	.034	–29	.095	13
600.0	.069	–83	6.065	–107	.033	–36	.108	2
700.0	.085	–102	6.078	–125	.032	–42	.126	–8
800.0	.110	–123	6.139	–144	.032	–49	.146	–19
900.0	.118	–144	6.134	–162	.031	–56	.164	–31
1000.0	.140	–168	6.158	179	.029	–62	.172	–45
1100.0	.156	172	6.164	160	.029	–71	.184	–61
1200.0	.157	149	6.098	141	.029	–77	.194	–75
1300.0	.159	128	6.074	122	.027	–86	.194	–89
1400.0	.163	104	6.024	103	.026	–92	.188	–104
1500.0	.151	76	5.967	85	.026	–99	.177	–120
1600.0	.161	50	5.899	66	.025	–106	.157	–137
1700.0	.174	17	5.900	47	.024	–112	.137	–160
1800.0	.190	–17	5.798	27	.025	–118	.126	173
1900.0	.232	–50	5.714	6	.025	–125	.122	145
2000.0	.290	–82	5.624	–14	.026	–132	.128	117
2100.0	.386	–111	5.490	–35	.026	–138	.141	91
2200.0	.494	–144	5.234	–58	.026	–143	.152	67