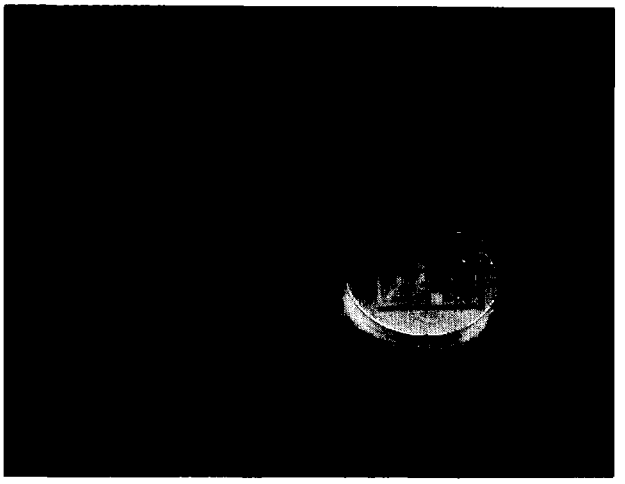
A79 / SMA79



5 to 250 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH DYNAMIC RANGE: +116 dB/1 MHz
- ◆ HIGH OUTPUT POWER: +22 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +38 dBm (TYP.)
- ◆ LOW NOISE FIGURE: 4.0 dB (TYP.)

Specifications*

Characteristics	Typical	Guaranteed 0° to 50°C	Guaranteed -54° to +85°C
Frequency (Min.)	2-350 MHz	5-300 MHz	5-300 MHz
Small Signal Gain (Min.)	14.0 dB	13.0 dB	12.5 dB
Gain Flatness (Max.)	±0.3 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)	4.0 dB	5.0 dB	5.5 dB
Power Output at 1 dB Compression (Min.)	+22 dBm	+20.5 dBm	+20 dBm
VSWR (Max.) Input/Output	< 1.5:1	1.9:1	2.0:1
DC Current (Max.) at 15 Volts	88 mA	93 mA	98 mA

*Measured in a 50-ohm system at +15 Vdc Nominal.
Notes:
1. WJ-CA79 is a standard WJ-A79 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 .....+61 dBm (Typ.)
Second Order Two Tone Intercept Point .....+55 dBm (Typ.)
Third Order Two Tone Intercept Point .....+38 dBm (Typ.)

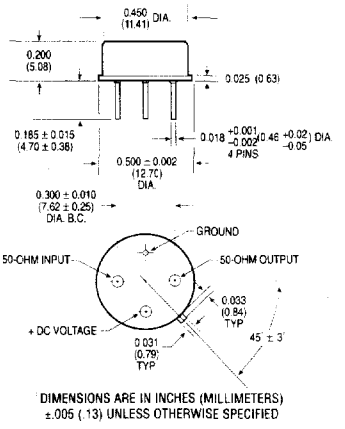
Absolute Maximum Ratings

Storage Temperature .....-62°C to+125°C
Maximum Case Temperature .....+125°C
Maximum DC Voltage .....+17 Volts
Maximum Continuous RF Input Power .....+18 dBm
Maximum Short Term RF Input Power (1 Minute Max.) .....+100 Milliwatts
Maximum Peak Power ..... 0.5 Watt (3 µsec Max.)
"S" Series Burn-in Temperature (Case) .....+125°C

Weight approximately 2.0 grams (0.07oz.)

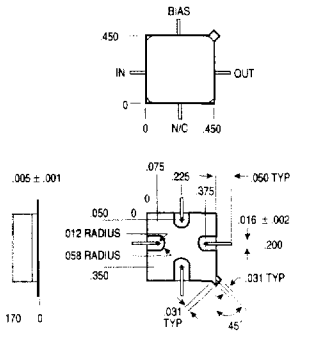
Outline Drawings

A79



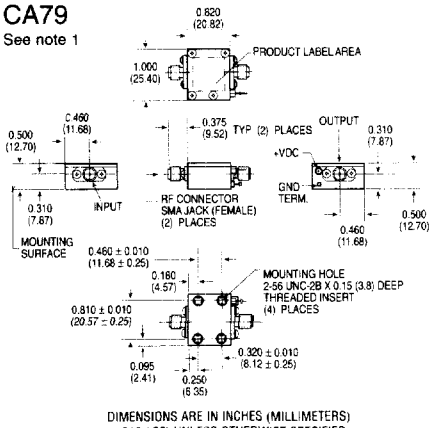
DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.005 (.13) UNLESS OTHERWISE SPECIFIED

SMA79



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

CA79
See note 1



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

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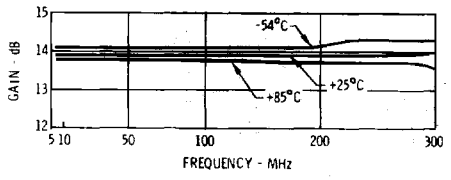
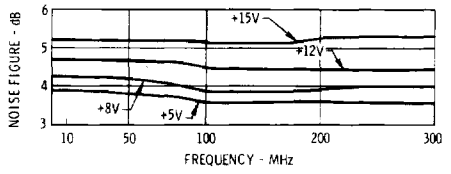
Typical Performance at 25°C

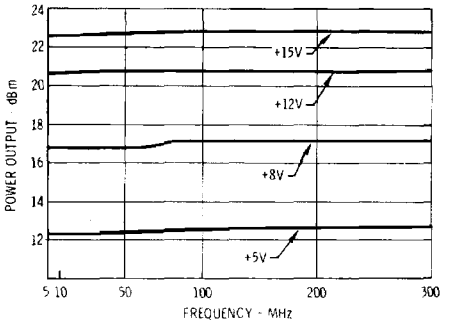
Gain



Noise Figure

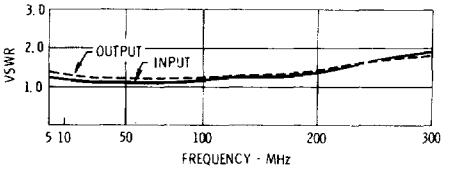


Power Output*

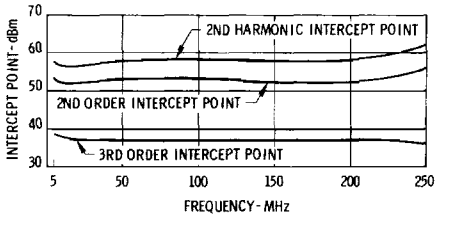


*at 1 dB Gain Compression

VSWR



Third-Order Intercept Point



Typical Automatic Test Data

V_{CC} = 15.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.2	2.5	12.2
2.0	1.6	1.7	13.9
5.0	1.2	1.2	14.0
10.0	1.1	1.1	14.0
50.0	1.1	1.1	14.0
100.0	1.2	1.1	13.9
150.0	1.2	1.1	13.9
200.0	1.4	1.1	13.9
250.0	1.5	1.1	13.8
300.0	1.6	1.1	13.8
350.0	1.8	1.1	13.7
400.0	1.9	1.1	13.6

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.382	–60	4.086	–145	.075	16	.428	158
2.0	.220	–83	4.978	–162	.105	17	.261	107
5.0	.095	–107	5.018	–174	.116	7	.104	69
10.0	.063	–123	4.993	–179	.118	4	.069	45
50.0	.054	–142	5.025	171	.119	1	.056	–4
100.0	.078	–130	4.978	161	.121	1	.051	–29
150.0	.110	–129	4.974	151	.124	1	.044	–54
200.0	.154	–132	4.974	141	.128	0	.035	–82
250.0	.196	–139	4.923	132	.131	0	.029	–126
300.0	.239	–144	4.890	122	.137	–1	.032	–178
350.0	.278	–152	4.834	112	.142	–3	.047	145
400.0	.322	–160	4.799	101	.149	–5	.065	120

V_{CC} = 12.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.1	2.4	12.4
2.0	1.5	1.7	13.9
5.0	1.2	1.2	13.9
10.0	1.1	1.2	13.9
50.0	1.1	1.1	14.0
100.0	1.2	1.1	13.9
150.0	1.3	1.1	13.8
200.0	1.4	1.1	13.8
250.0	1.5	1.1	13.7
300.0	1.7	1.1	13.6
350.0	1.9	1.2	13.5
400.0	2.1	1.2	13.4

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.347	–61	4.162	–146	.076	17	.416	155
2.0	.214	–85	4.947	–163	.106	17	.248	103
5.0	.092	–109	4.964	–175	.116	7	.105	62
10.0	.061	–125	4.960	–179	.117	4	.075	37
50.0	.060	–138	4.990	171	.120	1	.067	–10
100.0	.083	–131	4.939	160	.121	1	.063	–37
150.0	.121	–129	4.910	150	.124	2	.058	–66
200.0	.170	–134	4.911	140	.129	2	.053	–96
250.0	.212	–139	4.846	130	.133	1	.053	–133
300.0	.260	–147	4.804	120	.140	0	.058	–170
350.0	.308	–155	4.739	110	.146	–2	.073	159
400.0	.352	–162	4.684	99	.154	–4	.091	134

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{jc} .....75°C/W
Transistor Power Dissipation P_d .....0.878 W
Junction Temperature Rise Above Case T_{jc} .....66°C

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
1.0	2.1	2.3	12.2
2.0	1.5	1.6	13.4
5.0	1.2	1.3	13.4
10.0	1.1	1.2	13.4
50.0	1.2	1.2	13.4
100.0	1.3	1.2	13.3
150.0	1.5	1.2	13.1
200.0	1.7	1.2	13.0
250.0	2.0	1.2	12.6
300.0	2.2	1.3	12.4
350.0	2.5	1.3	12.0
400.0	2.8	1.4	11.6

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.359	–62	4.057	–147	.079	20	.388	146
2.0	.198	–81	4.700	–164	.110	16	.238	90
5.0	.084	–95	4.700	–175	.118	7	.125	44
10.0	.054	–104	4.699	–179	.120	4	.106	22
50.0	.078	–110	4.692	168	.122	3	.106	–20
100.0	.133	–119	4.622	156	.126	3	.103	–51
150.0	.196	–125	4.543	144	.131	4	.103	–81
200.0	.271	–137	4.448	132	.139	4	.104	–112
250.0	.328	–147	4.273	120	.145	2	.110	–143
300.0	.383	–158	4.158	109	.155	1	.119	–172
350.0	.436	–167	3.969	97	.162	–2	.136	162
400.0	.480	–178	3.821	85	.171	–5	.152	138

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