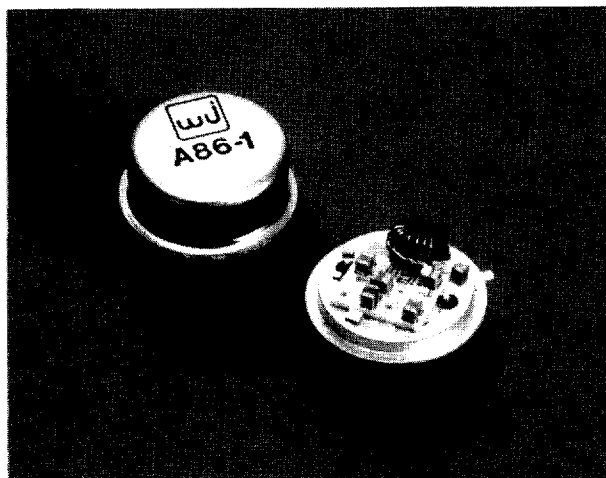


WJ-A86-1 / SMA86-1

10 to 200 MHz

TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ HIGH GAIN: TWO STAGES 28 dB (TYP.)
- ◆ LOW NOISE: 2.8 dB (TYP.)
- ◆ HIGH OUTPUT LEVEL: +16.0 dBm (TYP.)
- ◆ HIGH THIRD ORDER I.P.: +28 dBm (TYP.)



Specifications*

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	3-250 MHz	10-200 MHz	10-200 MHz
Small Signal Gain (Min.)	28 dB	27.0 dB	26.5 dB
Gain Flatness (Max.)	±0.3 dB	±0.6 dB	±0.8 dB
Noise Figure (Max.)	2.8 dB	3.5 dB	4.0 dB
Power Output			
at 1 dB Compression (Min.)	+16.0 dBm	+15.0 dBm	+14.5 dBm
VSWR (Max.) Input/Output	<1.5:1	1.9:1	2.0:1
DC Current (Max.) at +15 Volts	44.0 mA	47.0 mA	49.5 mA

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

Notes:

1. WJ-CA86-1 is a standard WJ-A86-1 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

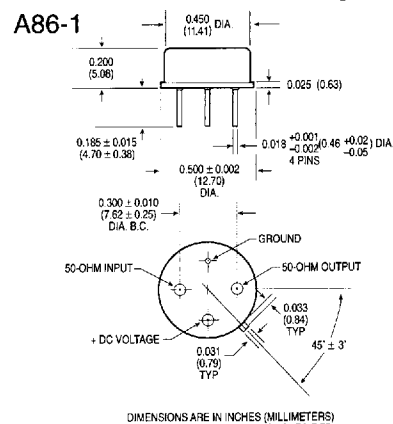
Second Order Harmonic Intercept Point.....+41 dBm (Typ.)
 Second Order Two Tone Intercept Point.....+35 dBm (Typ.)
 Third Order Two Tone Intercept Point.....+28 dBm (Typ.)

Absolute Maximum Ratings

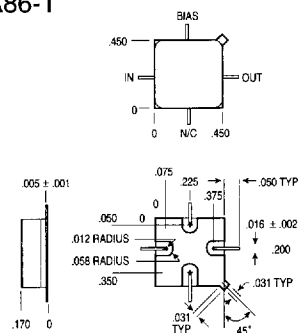
Storage Temperature-62°C to +125°C
 Maximum Case Temperature125°C
 Maximum DC Voltage.....+17 Volts
 Maximum Continuous RF Input Power.....+13 dBm
 Maximum Short Term RF Input Power (1 Minute Max.).....50 Milliwatts
 Maximum Peak Power0.5 Watt (3 μsec. Max.)
 "S" Series Burn-in Temperature (Case).....125°C

Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

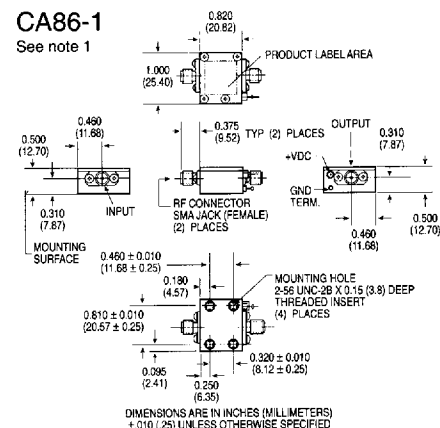


SMA86-1



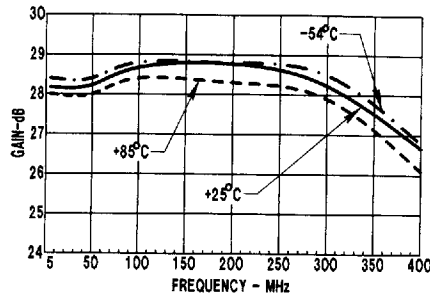
CA86-1

See note 1

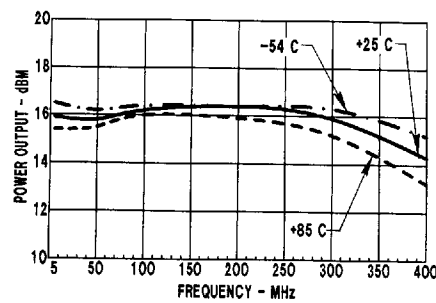


Typical Performance at 25°C

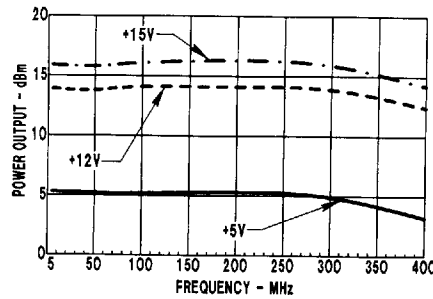
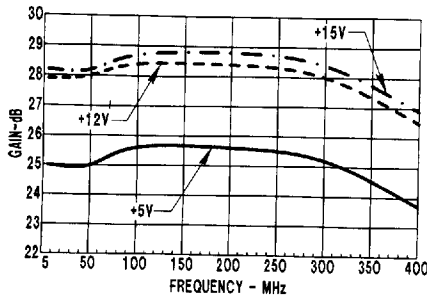
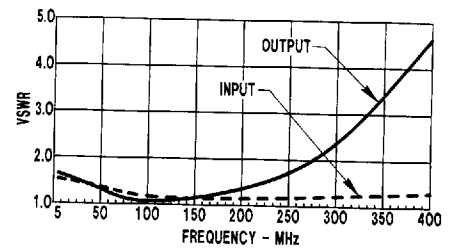
Gain



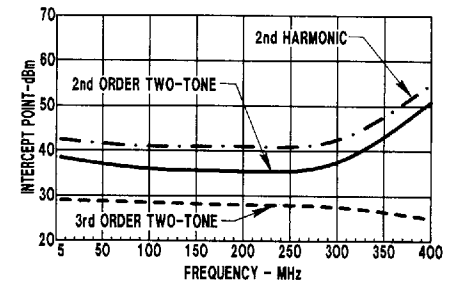
Power Output*



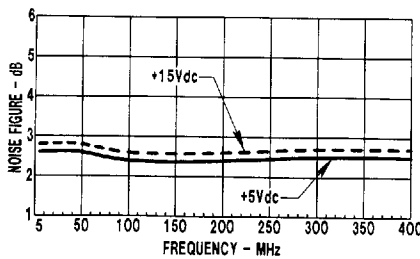
VSWR



Intercept Point



Noise Figure



*at 1 dB Gain Compression

Thermal Data: $V_{CC} = 15 \text{ Vdc}$

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d 0.246 W
 Junction Temperature Rise Above Case T_{JC} ... 11°C

Typical Automatic Test Data

$V_{CC} = 15.0 \text{ V}$

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	2.0	2.3	28.0
5.0	1.5	1.4	28.2
10.0	1.4	1.2	28.4
50.0	1.3	1.2	28.7
100.0	1.2	1.1	28.8
150.0	1.2	1.1	28.8
200.0	1.1	1.4	28.8
250.0	1.1	1.7	28.5
300.0	1.1	2.3	28.2

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.323	170	25.122	37	.007	26	.401	123
5.0	.191	160	25.852	13	.012	11	.159	77
10.0	.150	161	26.203	4	.012	4	.105	50
50.0	.122	155	27.197	-19	.012	-3	.074	-7
100.0	.108	134	27.477	-41	.012	-9	.027	-50
150.0	.083	115	27.619	-63	.012	-14	.057	155
200.0	.052	91	27.649	-87	.013	-20	.158	128
250.0	.033	41	26.694	-110	.012	-26	.271	110
300.0	.025	-39	25.840	-135	.011	-29	.389	93

$V_{CC} = 12.0 \text{ V}$

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.8	2.3	27.8
5.0	1.4	1.4	27.9
10.0	1.3	1.2	28.0
50.0	1.2	1.1	28.3
100.0	1.2	1.0	28.4
150.0	1.1	1.1	28.4
200.0	1.1	1.4	28.4
250.0	1.1	1.8	28.1
300.0	1.1	2.3	27.9

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.288	167	24.410	36	.008	29	.400	123
5.0	.160	157	24.819	12	.012	11	.155	79
10.0	.126	157	25.119	4	.013	4	.100	53
50.0	.099	151	26.023	-18	.013	-3	.066	-5
100.0	.086	130	26.272	-41	.013	-9	.019	-52
150.0	.064	103	26.431	-63	.012	-15	.062	151
200.0	.037	64	26.435	-86	.013	-19	.160	127
250.0	.034	4	25.534	-110	.012	-25	.273	110
300.0	.046	-55	24.771	-134	.012	-31	.391	93