



A87-2 / SMA87-2

10 to 300 MHz

TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ LOW NOISE FIGURE: 3.0 dB (TYP.)
- ◆ HIGH EFFICIENCY: 15 mA @ +5 Vdc (TYP.)
- ◆ HIGH OUTPUT POWER AT 5 VOLTS:
+11 dBm (TYP.)
- ◆ LOW VSWR: <1.5:1 (TYP.)

Specifications *

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	5-350 MHz	10-300 MHz	10-300 MHz
Small Signal Gain (Min.)			
Vcc = +5 Vdc	16.0 dB	15.0 dB	14.5 dB
Vcc = +8 Vdc	16.3 dB	15.3 dB	14.8 dB
Gain Flatness (Max.)	±0.2 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)			
Vcc = +5 Vdc	2.9 dB	3.5 dB	4.0 dB
Vcc = +8 Vdc	3.2 dB	3.8 dB	4.3 dB
Power Output			
at 1 dB Compression (Min.)			
Vcc = +5 Vdc	+11.0 dBm	+9.0 dBm	+8.5 dBm
Vcc = +8 Vdc	+15.0 dBm	+13.0 dBm	+12.5 dBm
VSWR (Max.) Input/Output	<1.3:1	1.8:1	2.0:1
DC Current (Max.)			
Vcc = +5 Volts	15 mA	17 mA	18 mA
Vcc = +8 Volts	26 mA	28 mA	30 mA

*Measured in a 50-ohm system at +5 Vdc Nominal unless otherwise specified.

Notes:

1. WJ-CA87-2 is a standard WJ-A87-2 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

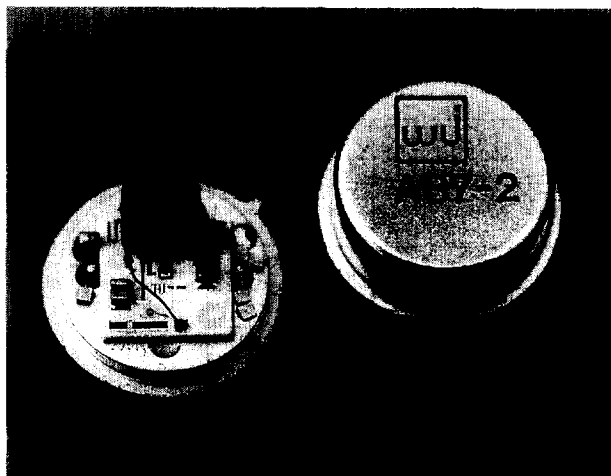
Typical Intermodulation Performance at 25°C

	Vcc = +5V	Vcc = +8V
Second Order Harmonic Intercept Point.....	+41 dBm	+48 dBm
Second Order Two Tone Intercept Point	+35 dBm	+42 dBm
Third Order Two Tone Intercept Point	+24 dBm	+30 dBm

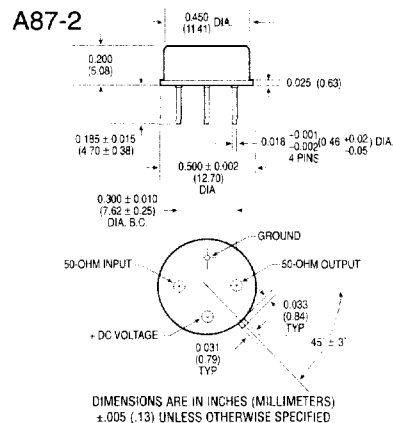
Absolute Maximum Ratings

Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°C
Maximum DC Voltage	10 Volts
Maximum Continuous RF Input Power.....	+13 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....	50 Milliwatts
Maximum Peak Power	0.5 Watt (3 µsec Max.)
"S"Series Burn-In Temperature (Case)	+125°C

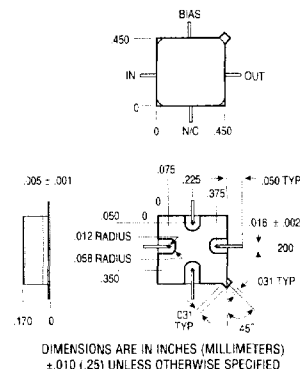
Weight approximately 2.0 grams (0.07oz.)



Outline Drawings

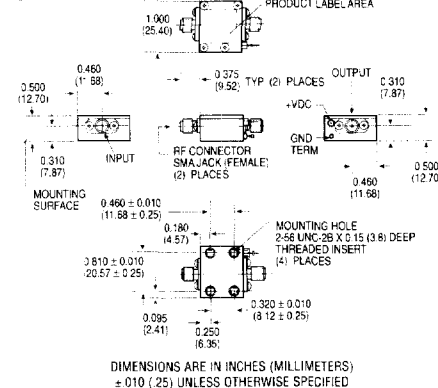


SMA87-2

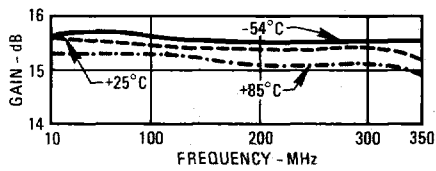


CA87-2

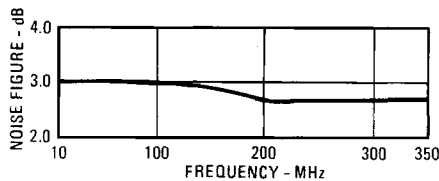
See note 1



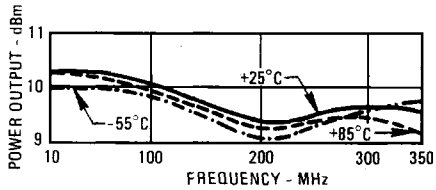
Gain



Noise Figure

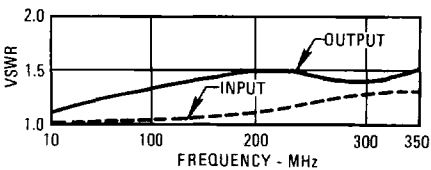


Power Output*

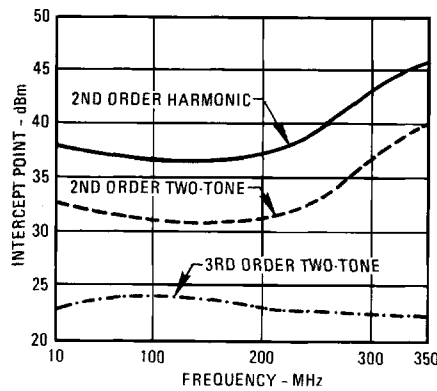


*at 1 dB Gain Compression

VSWR



Intercept Point



Typical Automatic Test Data

V_{CC} = 8.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	2.0	2.4	16.4
5.0	1.3	1.3	16.2
10.0	1.1	1.2	16.1
50.0	1.1	1.1	16.2
100.0	1.1	1.3	16.1
150.0	1.1	1.3	16.1
200.0	1.1	1.3	16.2
250.0	1.2	1.2	16.3
300.0	1.4	1.3	16.3
350.0	1.6	2.0	16.1

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.335	-82	6.584	-153	.079	26	.406	128
5.0	.119	-98	6.445	-172	.092	8	.146	115
10.0	.063	-109	6.412	-178	.094	3	.075	122
50.0	.027	149	6.459	162	.095	-10	.055	-133
100.0	.033	68	6.410	143	.095	-21	.116	-141
150.0	.038	-2	6.360	125	.094	-32	.144	-161
200.0	.050	-62	6.470	105	.095	-43	.131	174
250.0	.088	-108	6.522	85	.096	-56	.081	122
300.0	.156	-151	6.559	61	.097	-71	.132	13
350.0	.237	168	6.348	34	.092	-90	.339	-36

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	2.1	2.5	16.1
5.0	1.3	1.3	15.9
10.0	1.1	1.1	15.8
50.0	1.0	1.1	15.9
100.0	1.1	1.3	15.8
150.0	1.1	1.4	15.7
200.0	1.2	1.4	15.8
250.0	1.3	1.2	15.9
300.0	1.4	1.3	15.9
350.0	1.7	2.1	15.6

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.0	.677	-51	5.386	-116	.014	47	.824	172
2.0	.350	-77	6.369	-151	.080	27	.424	125
5.0	.121	-86	6.254	-172	.095	8	.143	105
10.0	.061	-83	6.188	-178	.097	3	.066	105
50.0	.007	62	6.243	162	.098	-9	.060	-112
100.0	.039	22	6.160	142	.098	-21	.131	-134
150.0	.064	-16	6.115	123	.097	-32	.166	-157
200.0	.080	-62	6.197	104	.098	-43	.156	174
250.0	.116	-104	6.222	83	.100	-55	.108	124
300.0	.175	-144	6.259	58	.102	-70	.146	23
350.0	.246	173	6.007	31	.099	-90	.356	-33

Thermal Data: V_{CC} = 15 Vdc

Thermal Resistance θ_{JC} 185°C/W
 Transistor Power Dissipation P_D0.034 W
 Junction Temperature Rise Above Case T_{JC}6°C