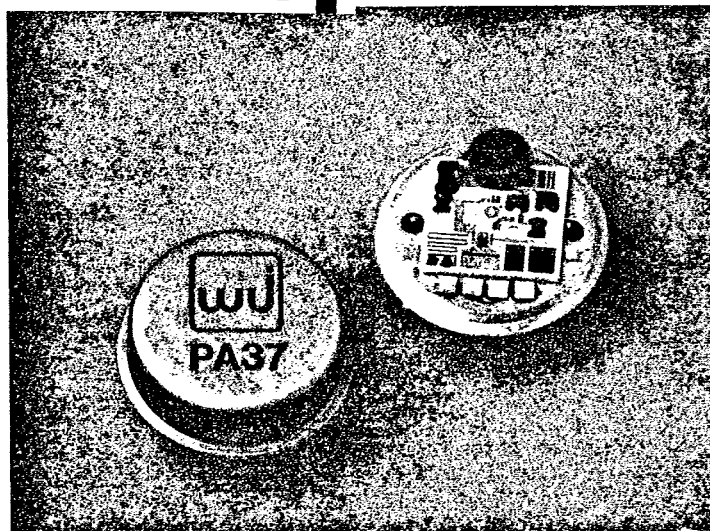


WJ-PA37

200 TO 2000 MHz TO-8B CASCADABLE AMPLIFIER

- HIGH DYNAMIC RANGE: +122 dBm (1 MHz BANDWIDTH)
- HIGH OUTPUT LEVEL: +23 dBm (TYP.)
- HIGH THIRD ORDER INTERCEPT POINT: 38 dBm (TYP.)
- NEW STATE-OF-THE-ART GaAs FET TO-8B AMPLIFIER
- LOW NOISE: 3.5 dB (TYP.)



Specifications

Characteristic	Typical	Guaranteed*	
		0°-50°C	-54°C-+85°C
Frequency (Min.)	100–2000 MHz	200–2000 MHz	200–2000 MHz
Small Signal Gain (Min.)	9.5 dB	8.0 dB	7.5 dB
Gain Flatness (Max.)	±0.5 dB	±0.8 dB	±1.0 dB
Noise Figure (Max.)	<3.5 dB	4.5 dB	5.0 dB
Power Output at 1 dB Compression (Min.)	200-1000 200-2000	23.0 dBm 22.0 dBm	22.0 dBm 20.0 dBm
VSWR (Max.) Input/Output	1.7:1	2.0:1	2.2:1
DC Current (Max.) at 15 Volts	175 mA	180 mA	184 mA

*Measured in a 50 ohm system at +15 Vdc Nominal
1. To-8B is larger than standard To-8 package.

Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point		+60 dBm (Typ.)
Second Order Two Tone Intercept Point		+55 dBm (Typ.)
Third Order Two Tone Intercept Point		+38 dBm (Typ.)

Absolute Maximum Ratings

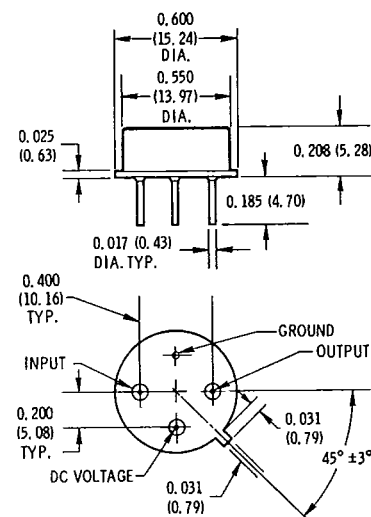
Ambient Operating Temperature	 -54°C to +85°C
Storage Temperature	 -62°C to +125°C
Maximum Case Temperature	 85°C
Maximum DC Voltage	 +17 Volts
Maximum Continuous RF Input Power	 50 Milliwatts
Maximum Short Term RF Input Power (1 Minute Max.)	 100 Milliwatts
Maximum Peak Power	1 Watt (3 μsec Max.)

"S" Series Burn-In Temperature 85°C
Proper heat sinking required to insure reliable performance.

Weight 5.5 grams (0.19 oz.) maximum

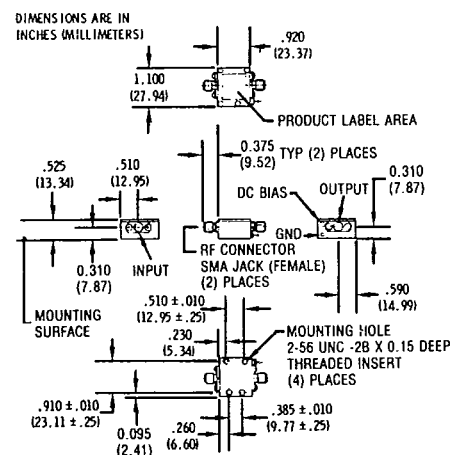
Outline Drawings

PA37



NOTE: DIMENSIONS ARE IN INCHES (MILLIMETERS).

CPA37

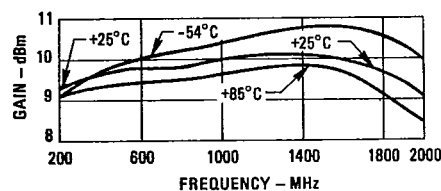


UNIT WEIGHT: 1.0 OUNCES MAX (20.0 GRAMS).

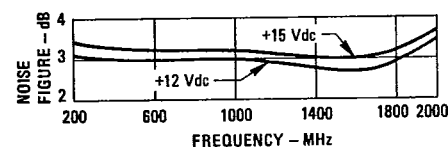
*WJ-CPA37 is standard and WJ-PA37 installed in miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range. See Cascaded Thin Film Amplifiers.

Typical Performance at 25°C

Gain

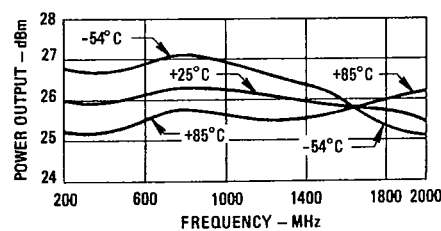


Noise Figure

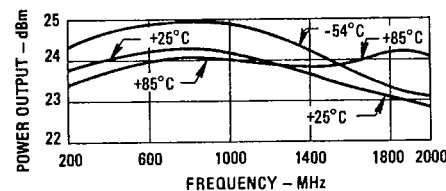


Power Output *

15V



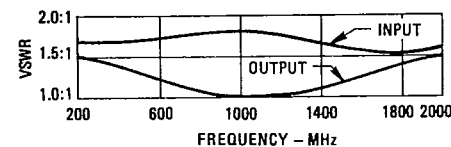
12V



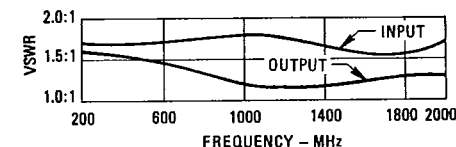
* at 1 dB Gain Compression.

VSWR

15V

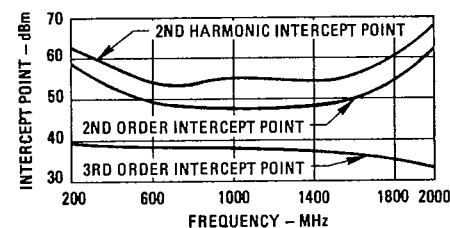


12V

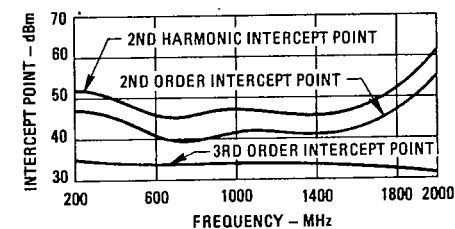


Intercept Point

15V



12V



Typical Automatic Test Data

 $V_{cc} = +12 \text{ Vdc}$

FREQ MHZ	USMR IN	USMR OUT	GAIN DB
200.	1.7	1.6	8.7
300.	1.7	1.5	9.2
400.	1.7	1.5	9.3
500.	1.7	1.4	9.4
600.	1.8	1.3	9.3
700.	1.9	1.3	9.4
800.	1.9	1.2	9.3
900.	2.0	1.2	9.3
1000.	2.0	1.1	9.3
1100.	2.0	1.1	9.3
1200.	1.9	1.1	9.3
1300.	1.9	1.1	9.4
1400.	1.7	1.1	9.6
1500.	1.6	1.2	9.5
1600.	1.4	1.2	9.5
1700.	1.3	1.3	9.3
1800.	1.2	1.4	9.2
1900.	1.3	1.4	8.9
2000.	1.5	1.5	8.5
2100.	1.7	1.5	8.0
2200.	2.1	1.5	7.2

 $V_{cc} = +15 \text{ Vdc}$

FREQ MHZ	USMR IN	USMR OUT	GAIN DB
200.	1.7	1.5	9.1
300.	1.6	1.4	9.6
400.	1.6	1.4	9.8
500.	1.6	1.3	9.8
600.	1.7	1.2	9.8
700.	1.8	1.2	9.8
800.	1.8	1.1	9.8
900.	1.9	1.1	9.8
1000.	1.9	1.0	9.8
1100.	1.9	1.0	9.8
1200.	1.9	1.1	9.8
1300.	1.8	1.1	9.9
1400.	1.7	1.2	10.1
1500.	1.6	1.2	10.0
1600.	1.4	1.3	10.0
1700.	1.3	1.3	9.9
1800.	1.2	1.4	9.8
1900.	1.2	1.4	9.5
2000.	1.4	1.5	9.2
2100.	1.6	1.5	8.7
2200.	2.0	1.5	7.9

Linear S-Parameters

FREQ MHZ	MAG	S11 ANG	MAG	S21 ANG	MAG	S12 ANG	MAG	S22 ANG
200.	.27	-63.1	2.72	171.6	.12	-14.9	.22	-141.7
300.	.25	-75.6	2.87	154.0	.12	-17.2	.20	-167.4
400.	.25	-86.7	2.93	139.1	.11	-21.5	.19	-175.4
500.	.27	-95.8	2.94	124.8	.11	-24.6	.17	-158.6
600.	.29	-104.9	2.93	111.4	.12	-28.2	.15	-146.8
700.	.30	-114.4	2.94	98.3	.11	-31.7	.13	-133.8
800.	.32	-123.1	2.93	85.5	.12	-36.5	.10	-124.4
900.	.33	-131.5	2.93	72.9	.12	-40.9	.08	-118.1
1000.	.33	-141.1	2.92	60.0	.12	-45.3	.06	-114.2
1100.	.33	-151.5	2.93	46.8	.12	-50.0	.04	-119.0
1200.	.32	-161.6	2.93	33.2	.13	-54.7	.04	-143.5
1300.	.30	-171.8	2.96	19.2	.13	-60.1	.05	-155.2
1400.	.27	-175.7	3.00	5.1	.14	-63.6	.07	-152.4
1500.	.22	-161.8	2.99	-9.2	.14	-70.3	.09	-148.9
1600.	.17	-142.8	2.97	-23.9	.15	-77.8	.11	-126.7
1700.	.11	-111.6	2.93	-39.6	.16	-85.5	.13	-111.2
1800.	.09	-53.4	2.89	-55.5	.16	-93.7	.16	-92.7
1900.	.13	.7	2.79	-72.4	.17	-103.5	.18	-72.3
2000.	.21	-26.3	2.66	-89.0	.18	-113.3	.20	-53.6
2100.	.27	-47.4	2.50	-106.1	.18	-123.7	.20	-33.5
2200.	.35	-66.2	2.28	-123.1	.18	-135.3	.21	-13.6

Linear S-Parameters

FREQ MHZ	MAG	S11 ANG	MAG	S21 ANG	MAG	S12 ANG	MAG	S22 ANG
200.	.25	-66.8	2.85	172.3	.13	-14.8	.20	-137.5
300.	.23	-78.0	3.01	154.7	.12	-18.7	.17	-164.7
400.	.23	-88.1	3.07	139.8	.12	-23.5	.15	-176.8
500.	.24	-96.1	3.09	125.6	.12	-27.0	.13	-158.7
600.	.26	-104.2	3.09	112.2	.12	-31.0	.11	-145.2
700.	.28	-112.9	3.09	99.1	.11	-35.0	.08	-131.2
800.	.29	-121.3	3.09	86.4	.12	-40.0	.06	-120.0
900.	.31	-128.9	3.09	73.8	.12	-44.6	.03	-112.4
1000.	.31	-137.8	3.09	60.9	.12	-49.0	.03	-107.0
1100.	.32	-147.6	3.09	47.9	.12	-53.7	.02	-116.7
1200.	.31	-156.9	3.10	34.2	.12	-58.7	.05	-130.8
1300.	.29	-166.6	3.14	20.3	.12	-63.7	.07	-144.7
1400.	.26	-177.8	3.19	6.1	.13	-67.0	.09	-161.0
1500.	.22	-169.3	3.17	-8.2	.13	-72.7	.11	-179.0
1600.	.17	-153.2	3.17	-22.8	.13	-78.6	.12	-162.1
1700.	.12	-127.5	3.13	-38.4	.14	-85.4	.14	-141.3
1800.	.08	-77.8	3.09	-54.5	.15	-92.8	.15	-121.8
1900.	.10	-10.1	3.00	-71.4	.15	-101.7	.18	-98.5
2000.	.18	-22.0	2.87	-88.0	.16	-110.9	.19	-77.5
2100.	.23	-42.6	2.72	-105.2	.16	-121.1	.19	-56.8
2200.	.32	-62.9	2.49	-122.7	.16	-132.2	.20	-34.9

Deviation from Linear Phase, Gain and Group Delay

FREQ MHZ	DEV LIN DEG	REL DEG	GAIN DEV DB	ABS GAIN DB	GROUP DELAY N-SEC
200.	1.70	.00	-.33	8.70	.49
300.	-1.86	-17.58	.13	9.16	.45
400.	-2.78	-32.51	.30	9.33	.41
500.	-3.04	-46.79	.32	9.35	.39
600.	-2.50	-60.25	.31	9.34	.37
700.	-1.60	-73.37	.34	9.37	.36
800.	-.37	-86.15	.31	9.34	.35
900.	1.06	-98.74	.31	9.34	.35
1000.	2.14	-111.67	.28	9.31	.36
1100.	3.00	-124.92	.27	9.30	.37
1200.	3.39	-138.44	.31	9.34	.38
1300.	3.44	-152.41	.38	9.41	.39
1400.	3.37	-166.49	.52	9.55	.40
1500.	3.01	-180.87	.47	9.50	.42
1600.	2.37	-195.52	.44	9.47	.44
1700.	.70	-211.20	.31	9.34	.44
1800.	-1.21	-227.12	.19	9.22	.46
1900.	-4.13	-244.06	-.11	8.92	.47
2000.	-6.67	-260.61	-.52	8.51	.46

Deviation from Linear Phase, Gain and Group Delay

FREQ MHZ	DEV LIN DEG	REL DEG	GAIN DEV DB	ABS GAIN DB	GROUP DELAY N-SEC
200.	1.63	.00	-.49	9.09	.43
300.	-1.92	-17.54	-.02	9.56	.45
400.	-2.88	-32.49	.18	9.75	.40
500.	-3.08	-46.68	.21	9.79	.38
600.	-2.50	-60.08	.22	9.80	.37
700.	-1.53	-73.15	.23	9.80	.36
800.	-.33	-85.89	.23	9.81	.35
900.	1.06	-98.49	.23	9.81	.35
1000.	2.23	-111.32	.23	9.80	.36
1100.	3.13	-124.39	.21	9.79	.37
1200.	3.48	-138.03	.25	9.82	.38
1300.	3.51	-151.99	.35	9.93	.39
1400.	3.37	-166.11	.49	10.07	.40
1500.	3.05	-180.43	.45	10.03	.40
1600.	2.37	-195.09	.44	10.01	.42
1700.	.76	-210.69	.32	9.90	.44
1800.	-1.27	-226.71	.22	9.79	.46
1900.	-4.21	-243.64	-.03	9.55	.47
2000.	-6.81	-260.23	-.40	9.17	.46