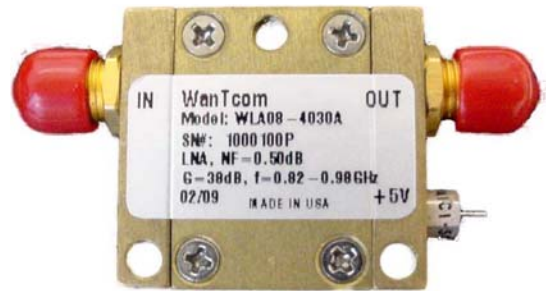




## 820-980 MHz LOW NOISE AMPLIFIER WLA08-4030A<sup>1</sup>

WLA08-4030A LNA is a low noise figure, wideband, and high linearity amplifiers with unconditional stable design. The amplifier offers typical noise figure of 0.50 dB and minimum output IP3 of 30 dBm at the frequency range from 820 MHz to 980 MHz. WLA08-4030A LNA is most suitable for cellular base stations, wireless data communications, tower top receiver amplifiers, cellular micro-cells, last-mile wireless communication systems, and wireless measurement applications.

WLA08-4030A can be configured with built-in bias-T for remote 5 V DC power supply.



### Key Features:

Unconditional Stability:	k>1
Low Noise:	0.50 dB
Output IP3:	30 dBm minimum
Gain:	40 dB
P1dB:	16 dBm minimum
Current Consumption:	100 mA @ +5V, option: built-in bias-T for remote power supply
Frequency Range:	820 ~ 980 MHz
Operating Temperature:	-40 ~ +85 °C
Return Losses:	20 dB typical

### Specifications:

a) Table 1 Summary of the electrical specifications WLA08-4030A at room temperature

Index	Testing Item	Symbol	Test Constraints	Unit	Nom (RT)	Min	Max	Unit
1	Gain	S21	820 - 980	MHz	40			dB
2	Gain Variation	$\Delta G$	20 MHz Bandwidth	MHz	0.20		0.30	dB
3	Input Return Loss	S11	820 - 980	MHz	20	16		dB
4	Output Return Loss	S22	820 - 980	MHz	20	16		dB
5	Reverse Isolation	S12	820 - 980	MHz		50		dB
6	Noise figure	NF	820 - 980	MHz	0.5		0.6	dB
7	Output compression P1dB	P1dB	820 - 980	MHz		16		dBm
8	Output-Third-Order Interception point	TOIP3	Two-Tone, Pout +0 dBm each, 1 MHz separation	MHz	31	30		dBm
10	Current Consumption	Idd	Vdd= +5	V	100			mA
11	Power Supply Voltage	Vdd			+5	+4.5	+5.5	V

<sup>1</sup> Specifications are subject to change without notice.



### b) Passband Frequency Response

As shown in **Figure 1**, the typical gain of the WLA08-4030A is 40 dB across 820 MHz to 980MHz. The input and output return losses are typical to be 20 dB.

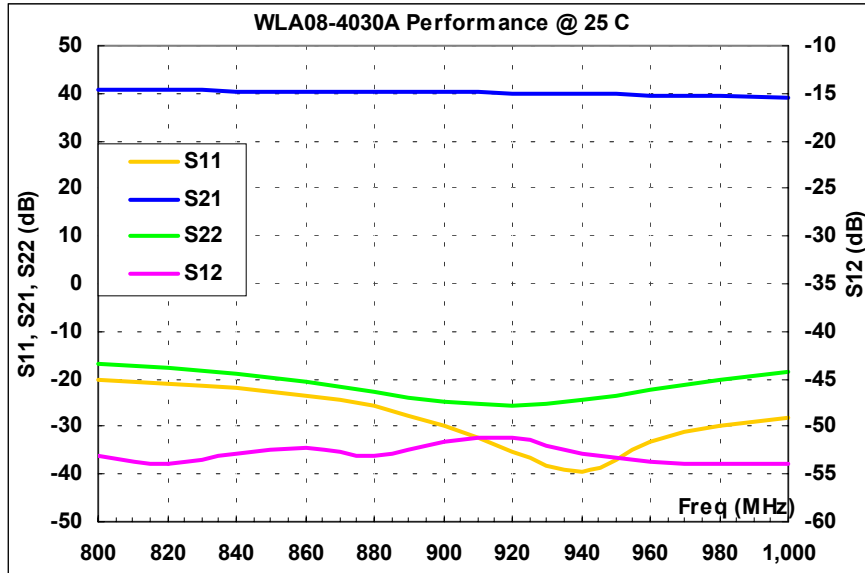
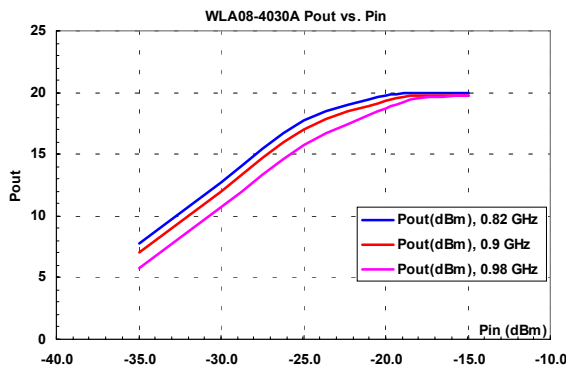


FIG. 1 Typical small signal performance of WLA08-4030A

### c) Output Power

Figure 2 shows the output power vs. input power of WLA08-4030A.



Vdd=+5.0V, Idd=100 mA

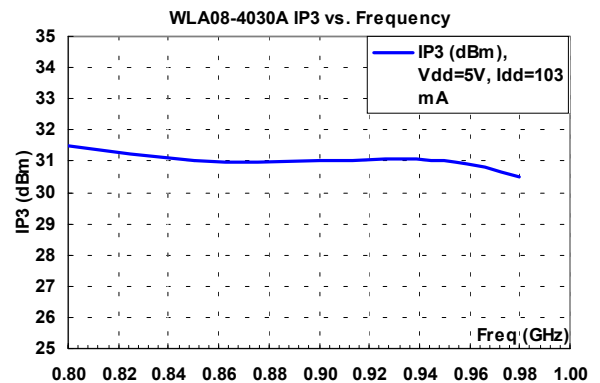


FIG. 2 Typical output power at room temperature.

FIG. 3 Output IP3 of WLA08-4030A.



d) Output IP3

Figure 3 demonstrate the output IP3 performance of WLA08-4030A. The typical IP3 is 31 dBm.

e) Noise Figure

The noise figure of WLA08-4030A is 0.50 dB at room temperature and add 0.20 dB at +85 °C.

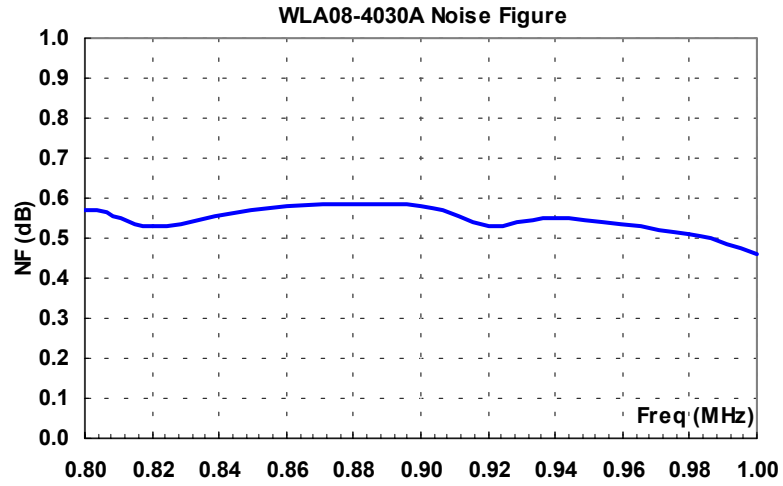


FIG. 4 WLA08-4030A noise figure performance at full temperature

f) WLA08-4030A Mechanical Outline: WP-5

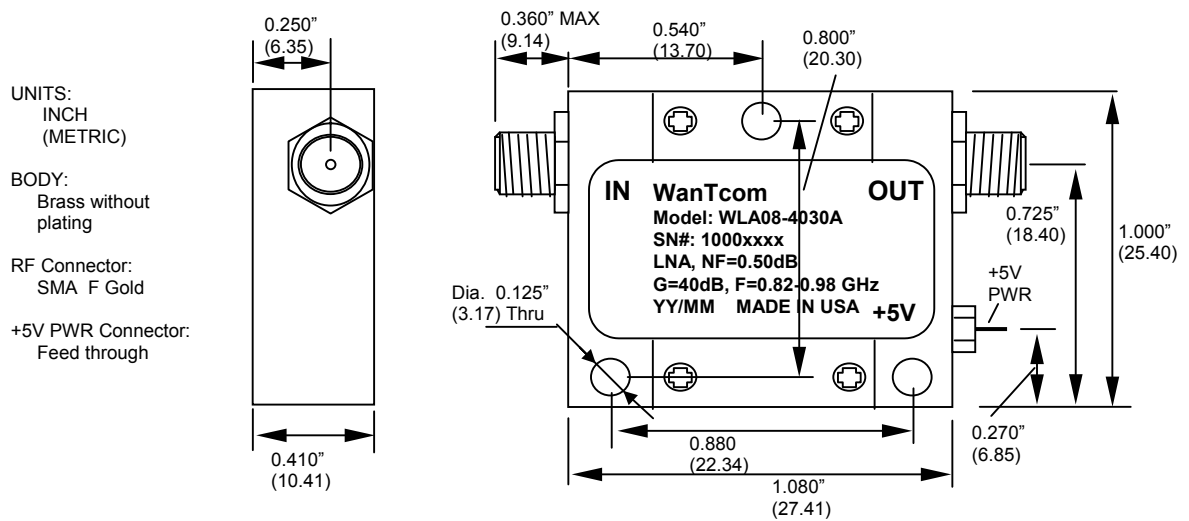


FIG. 5 WP-5 Outline



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**g) Ordering Information**

Model Number	WLA08-4030A	WLA08-4030ABT
Built-In Bias-T	NO	Yes

**h) Small Signal S-Parameters:**

WLA08-4030A

Is-parameters at Vds=5V, Id=100mA. Last updated 8/15/02.

# GHZ s MA R 50

IF(GHz) MAG S11 ANG S11 MAG S21 ANG S21 MAG S12 ANG S12 MAG S22 ANG S22

0.05	0.12	-100.2	2.80	-155.6	0.0001	-75.6	0.60	149.9
0.1	0.12	141.2	14.06	169.6	0.0003	-141.3	0.31	100.7
0.2	0.53	14.7	94.26	100.5	0.0005	-150.2	0.09	16.9
0.3	0.27	-52.1	127.31	16.9	0.0006	-172.3	0.14	-96.8
0.4	0.15	-49.5	121.94	-26.4	0.0005	151.7	0.23	-139.3
0.5	0.15	-44.8	117.67	-58.6	0.0009	119.9	0.26	-168.1
0.6	0.15	-55.3	113.84	-86.4	0.0018	94.7	0.26	165.9
0.7	0.14	-71.7	111.29	-112.4	0.0016	93.3	0.22	139.2
0.8	0.10	-94.0	108.23	-137.4	0.0022	70.6	0.15	108.6
0.9	0.03	-114.7	103.34	-164.3	0.0026	62.1	0.06	28.8
1	0.04	6.3	91.18	168.1	0.0020	36.9	0.12	-88.1
1.1	0.09	-11.9	75.53	144.3	0.0027	52.6	0.22	-120.4
1.2	0.13	-34.5	61.46	124.3	0.0028	41.1	0.30	-141.3
1.3	0.13	-58.6	50.72	108.9	0.0031	28.5	0.36	-158.9
1.4	0.11	-77.6	43.29	97.5	0.0037	19.0	0.39	-175.3
1.5	0.09	-96.6	38.49	82.0	0.0041	21.3	0.41	174.5
1.6	0.07	-114.8	34.96	64.0	0.0050	12.0	0.43	167.0
1.7	0.06	-147.1	32.25	50.6	0.0053	1.1	0.46	158.2
1.8	0.05	165.6	29.13	37.6	0.0056	-6.9	0.48	149.6
1.9	0.06	117.5	25.43	21.4	0.0061	-23.8	0.50	142.5
2	0.10	89.8	23.10	6.7	0.0063	-31.9	0.53	135.2
2.1	0.15	69.9	21.36	-7.7	0.0067	-33.5	0.56	127.7
2.2	0.21	53.8	19.35	-22.0	0.0085	-55.2	0.56	119.9
2.3	0.27	38.1	18.34	-36.7	0.0082	-59.6	0.58	113.0
2.4	0.35	22.9	16.61	-50.1	0.0094	-73.8	0.60	106.4
2.5	0.44	7.4	13.97	-66.8	0.0092	-82.0	0.62	100.3
2.6	0.51	-8.4	12.16	-87.6	0.0091	-96.0	0.65	94.9
2.7	0.59	-23.8	11.67	-107.0	0.0087	-113.3	0.68	87.9
2.8	0.66	-38.5	10.55	-118.9	0.0091	-129.3	0.72	81.1
2.9	0.73	-53.4	8.65	-131.4	0.0092	-141.3	0.75	73.7
3	0.77	-68.4	6.97	-148.5	0.0076	-155.1	0.80	66.0
3.5	0.83	-131.4	2.38	142.5	0.0036	146.3	0.91	24.2
4	0.73	175.3	0.47	99.7	0.0011	116.4	0.96	-15.4
4.5	0.50	132.7	0.42	-159.8	0.0016	-112.8	0.96	-54.4
5	0.31	107.1	0.88	155.7	0.0055	-177.3	0.94	-92.6
5.5	0.30	125.8	1.10	94.4	0.0100	140.6	0.90	-129.3
6	0.43	105.1	1.03	37.5	0.0150	71.5	0.86	-163.5