



820-930 MHz LOW NOISE POWER AMPLIFIER WLPA08-1850A¹

WLPA08-1850A is a very low noise figure and supper high linearity balance amplifier with unconditional stable design. The amplifier, using Wan7com proprietary technology, offers noise figure of 1.0 dB and minimum output IP3 of 48 dBm at the frequency range from 820 MHz to 930 MHz. Linearity-Power-Noise-Figure-Index (LPNFI) of the amplifier reaches 17 dB. WLPA08-1850A is most suitable for the applications of cellular base stations, tower top amplifiers, cellular micro-cells, and last-mile wireless communications.

Key Features:

Balance Amplifier

Low Noise:	1.0 dB
Output IP3:	48.0 dBm
Gain:	18 dB
P _{1dB} :	26 dBm
Current Consumption:	250 mA @ +11~+24V
Frequency Range:	820 – 930 MHz
Operating Temperature:	-40 – +85 °C
Alarm Output:	Soft Alarm, Hard Alarm, Soft Alarm Open Collector, Hard Alarm Open Corrector, Branch 1 Alarm, Branch 2 Alarm.



Specifications:

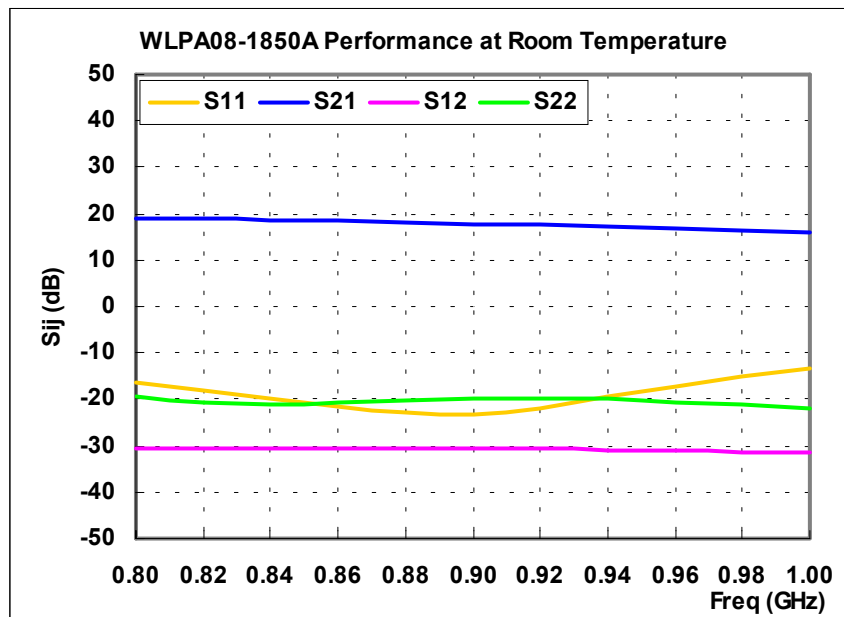


FIG. 1 Typical small signal performance of WLPA08-1850A

¹ Specifications subject to change without notice.



Table 1 Summary of the electrical specifications WA08-1850A

Index	Testing Item	Symbol	Test Constraints	Unit	Nom(RT)	Min	Max	Unit
1	Gain	S21	820- 930	MHz	18	17	19	dB
2	Gain Variation	ΔG	820- 930	MHz	1		2	dB
3	Input Return Loss	S11	820- 930	MHz	18	16		dB
4	Output Return Loss	S22	820- 930	MHz	18	16		dB
5	Reverse Isolation	S12	820- 930	MHz	30	28		dB
6	Noise Figure	NF	820- 930	MHz	1.0		1.2	dB
7	Output P1dB compression	P1dB	820- 930	MHz		26		dBm
8	Output-Third-Order Interception point	TOIP3	Two-Tone, 10dBm each at output, 1 MHz separation	MHz		48		dBm
9	Linearity-Power-Noise-Figure Index	LPNFI	820- 930	MHz	18			dB
10	Harmonic Attenuation:							
		G2	1640 - 1860	MHz			5	dB
		G3	2460 - 2790	MHz			0	dB
11	Current Consumption	I _{dd}	V _{dd} = 11 - 24	V	200		230	mA
12	Soft Alarm TTL Output	V _s	Normal/Fail, +/- 30% I _{d1} or I _{d2}	V	5.0/0.0			V
	Soft Alarm Open Collector Output	V _{so}	Normal/Fail, External 10K to an external +V _{cc}	V	Low/High			
	Hard Alarm TTL Output	V _h	Normal/Fail, +/- 30% I _{dd}	V	5.0/0.0			V
	Hard Alarm Open Collector Output	V _{ho}	Normal/Fail, External 10K to an external +V _{cc}		Low/High			
	Branch 1 Alarm TTL Output	V _{a1}	Normal/Fail, +/- 30% I _{d1}	V	5.0/0.0			V
	Branch 2 Alarm TTL Output	V _{a2}	Normal/Fail, +/- 30% I _{d2}	V	5.0/0.0			V
13	Maximum RF Input Power	Pin _{max}	100-6000MHz, single tone	MHz		20		dBm

Mechanical Outline:

LNA Module—WLPA08-1850A-00:

- 1) PCB Material
Thickness: 20 mils.
- 2) Finished PCB total thickness: 23 +/-1.5 mils.
- 3) Finished traces: hard gold plating.
- 4) PCB solder-side finish (ground layer): whole layer hard gold plating.
- 5) Minimum LNA housing depth: a) 0.30" without by pass function; b) 0.500" with by pass function.
- 6) #2-56 screws for mounting the PCB to a metal housing.

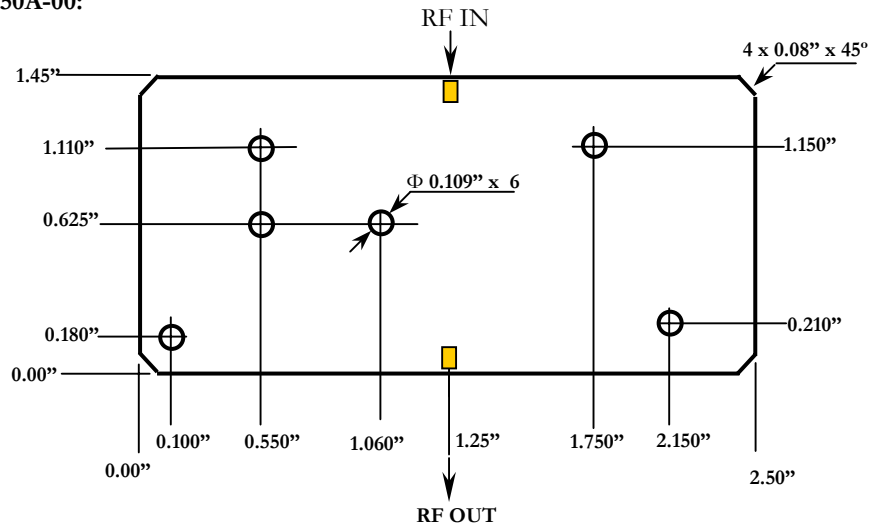


FIG. 2 PCB mechanical information

WLPA08-1850A: WP-2



Wan7com, Inc.

S-Parameters:

! FILE NAME: WLPA08-1850A.S2P
! DATE: 05/02
! BIAS CONDITIONS: VDS=12V, IDS=250mA
GHZ S MA R 50

0.1	0.55	54.4	0.40	-6.0	0.0049	90.1	0.98	-44.1
0.2	0.78	-59.9	3.05	-112.2	0.0025	160.2	0.73	-97.2
0.3	0.85	-153.4	4.40	158.2	0.0060	66.9	0.25	-90.8
0.4	0.73	146.5	5.00	104.5	0.0087	17.3	0.37	-90.6
0.5	0.54	101.7	6.46	53.3	0.0140	-32.2	0.35	-119.7
0.6	0.43	62.8	7.89	-3.3	0.0200	-87.8	0.27	-142.3
0.7	0.31	2.4	8.89	-61.5	0.0250	-144.8	0.19	-161.8
0.8	0.15	-87.7	8.77	-122.0	0.0290	153.4	0.11	-164.3
0.9	0.07	-132.4	7.78	179.2	0.0290	96.1	0.10	-147.7
1	0.22	-144.5	6.39	122.9	0.0270	40.3	0.08	-156.6
1.1	0.40	166.6	4.93	71.6	0.0230	-9.6	0.06	-115.8
1.2	0.52	124.7	3.83	24.4	0.0190	-56.2	0.13	-103.1
1.3	0.60	89.9	3.13	-21.1	0.0170	-104.0	0.22	-116.5
1.4	0.72	55.0	2.53	-69.0	0.0150	-151.1	0.31	-135.4
1.5	0.83	9.5	1.94	-116.9	0.0130	164.0	0.41	-154.8
1.6	0.84	-43.8	1.60	-165.4	0.0120	123.1	0.50	-176.5
1.7	0.82	-105.0	1.42	145.1	0.0100	74.4	0.59	160.2
1.8	0.78	-172.3	1.18	93.8	0.0089	25.0	0.66	136.5
1.9	0.76	124.4	0.84	46.2	0.0062	-5.3	0.66	110.2
2	0.71	69.4	0.81	3.4	0.0090	-64.0	0.63	97.7
2.1	0.62	22.1	0.70	-46.0	0.0057	-106.9	0.68	74.0
2.2	0.51	-23.0	0.63	-89.7	0.0049	-158.2	0.66	50.3
2.3	0.34	-71.5	0.59	-134.7	0.0042	144.8	0.62	25.7
2.4	0.16	-138.2	0.58	179.8	0.0021	-96.5	0.53	2.8
2.5	0.14	100.7	0.56	140.5	0.0070	116.6	0.48	-28.0
2.6	0.28	34.5	0.53	100.5	0.0049	36.8	0.41	-60.2
2.7	0.41	-11.5	0.51	63.1	0.0039	11.8	0.37	-100.6
2.8	0.53	-57.3	0.49	22.7	0.0042	-37.1	0.37	-145.8
2.9	0.63	-110.4	0.50	-19.5	0.0047	-100.7	0.43	172.4
3	0.73	-176.0	0.48	-69.0	0.0075	-173.0	0.51	139.1
3.1	0.77	112.2	0.41	-120.8	0.0110	125.4	0.59	109.8
3.2	0.77	50.2	0.29	-167.5	0.0140	76.1	0.64	85.0
3.3	0.77	1.9	0.20	153.4	0.0140	42.5	0.67	62.6
3.4	0.78	-37.3	0.14	118.4	0.0150	10.8	0.67	42.6
3.5	0.79	-72.2	0.11	91.7	0.0150	-19.9	0.62	26.2
3.6	0.78	-107.0	0.09	69.5	0.0130	-49.1	0.59	17.1
3.7	0.72	-141.7	0.09	41.8	0.0120	-73.3	0.63	7.0
3.8	0.62	-175.2	0.08	11.0	0.0079	-98.9	0.67	-6.1
3.9	0.51	152.2	0.09	-20.3	0.0043	-102.8	0.68	-20.5
4	0.40	120.5	0.08	-49.0	0.0012	-53.0	0.68	-34.5
4.1	0.29	86.8	0.08	-72.9	0.0045	19.7	0.66	-48.8
4.2	0.18	51.6	0.08	-100.5	0.0170	9.7	0.65	-61.9
4.3	0.06	38.2	0.07	-118.0	0.0560	-27.0	0.62	-77.5
4.4	0.11	50.2	0.16	-179.6	0.0880	-159.2	0.51	-80.6
4.5	0.14	59.6	0.12	123.8	0.0240	163.0	0.53	-95.0
4.6	0.18	19.6	0.11	70.5	0.0340	147.1	0.49	-105.2
4.7	0.21	-26.6	0.13	-20.5	0.0064	5.9	0.46	-113.4
4.8	0.16	-51.9	0.09	-113.3	0.0099	-137.2	0.41	-120.6
4.9	0.16	-59.7	0.04	175.1	0.0076	-172.9	0.40	-123.7
5	0.23	-81.8	0.01	131.1	0.0096	179.2	0.41	-129.3
5.1	0.28	-121.3	0.01	-129.9	0.0097	167.6	0.40	-136.6
5.2	0.31	-172.0	0.03	-171.9	0.0100	150.6	0.41	-142.4
5.3	0.34	125.8	0.04	141.7	0.0090	123.1	0.42	-150.9
5.4	0.39	54.4	0.04	91.7	0.0059	110.7	0.42	-162.6
5.5	0.43	-9.7	0.03	38.1	0.0050	121.3	0.40	-173.1
5.6	0.41	-59.0	0.03	-9.8	0.0061	112.9	0.38	177.1
5.7	0.34	-99.2	0.02	-74.2	0.0054	117.2	0.34	165.0
5.8	0.22	-121.2	0.02	-142.8	0.0110	82.9	0.30	154.5
5.9	0.15	-130.9	0.01	177.1	0.0130	45.9	0.24	147.1
6	0.23	-57.0	0.02	126.4	0.0170	10.1	0.19	142.5