



Wan7com, Inc.

1750-2050 MHz LOW NOISE POWER AMPLIFIER WLPA19-3048A¹

WLPA19-3048A 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 0.6 dB and minimum output IP3 of 48 dBm at the frequency range from 1750 MHz to 2050 MHz. Linearity-Power-Noise-Figure-Index (LPNFI) of the amplifier reaches 19 dB. WLPA19-3048A 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, Unconditional Stability.

Low Noise:	0.6 dB	Preliminary
Output IP3:	48.0 dBm	
Gain:	31 dB	
P _{1dB} :	27 dBm	
Current Consumption:	350 mA @ +12 V	
Frequency Range:	1750 – 2050 MHz	
Operating Temperature:	-40 – +85 °C	
Alarm Output:	Soft Alarm, Hard Alarm, Soft Alarm Open Collector, Hard Alarm Open Collector, Branch 1 Alarm, Branch 2 Alarm.	

Specifications:

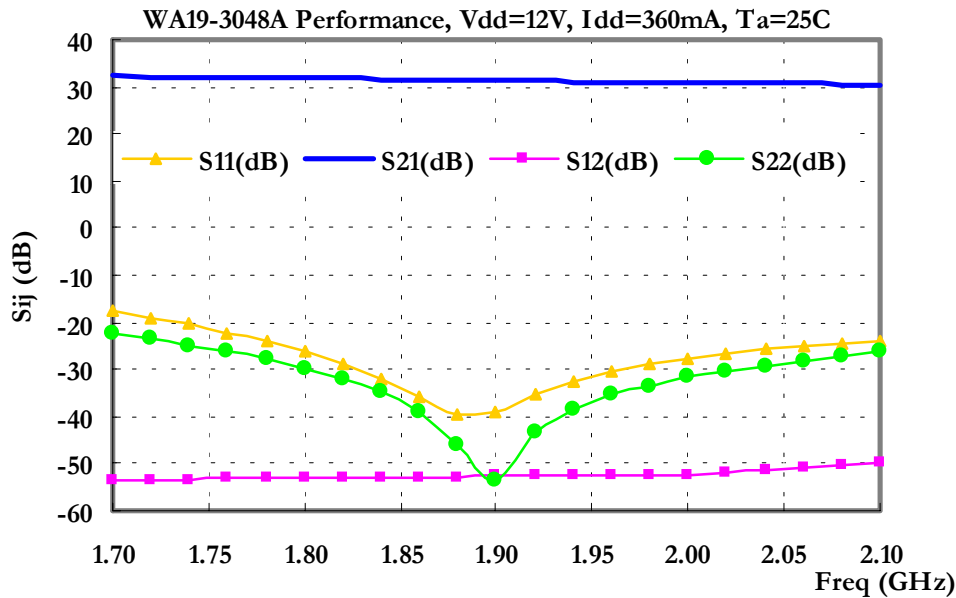


FIG. 1 Typical small signal performance of WLPA19-3048A

¹ Specifications are subject to change without notice.



Table 1 Summary of the electrical specifications WLPA19-3048A at room temperature

Index	Testing Item	Symbol	Test Constraints	Unit	Nom(RT)	Min	Max	Unit
1	Gain	S21	1750-2050	MHz	31	30		dB
2	Gain Variation	ΔG	1750-2050	MHz	1		3	dB
3	Input Return Loss	S11	1750-2050	MHz	18	16		dB
4	Output Return Loss	S22	1750-2050	MHz	18	16		dB
5	Reverse Isolation	S12	1750-2050	MHz	52	48		dB
6	Noise Figure	NF	1750-2050	MHz	0.5		0.65	dB
7	Output P1dB compression	P1dB	1750-2050	MHz	28	27		dBm
8	Output-Third-Order Interception point	TOIP3	Two-Tone, 15dBm each at output, 1 MHz separation	MHz	50	48		dBm
9	Linearity-Power-Noise-Figure Index	LPNFI	1750-2050	MHz	17			dB
10	Current Consumption	I _{dd}	V _{dd} = +12	V	350			mA
11	Power Supply Voltage	V _{dd}			+12			V
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 1 Alarm Open Collector Output	V _{a1o}	Normal/Fail, External 10K to an external +V _{cc}		Low/High			
	Branch 2 Alarm TTL Output	V _{a2}	Normal/Fail, +/- 30% I _{d2}	V	5.0/0.0			V
	Branch 2 Alarm Open Collector Output	V _{a2o}	Normal/Fail, External 10K to an external +V _{cc}		Low/High			
13	Maximum RF Input Power	Pin _{max}	1750-2050, single tone	MHz		20		dBm

Mechanical Outline: WP-1

Small Signal S-Parameters:

! WA19-3048A S-parameter. **PRELIMINARY**

! T_a=25deg. C, V_{dd}=+12V, I_{dd}=350 mA

! Jan. 2002

# GHz	S	MA	R	50	S12	S22	
f _{freq} (GHz)	S11 (mag)	(ang)	S21 (mag)	(ang)	(mag)	(ang)	(mag) (ang)
0.5	0.83	-109.7	8.58	-78.7	0.0001	146.2	0.8 83.3
1	0.62	152.8	18.23	-137.1	0.0004	97.6	0.34 -115.6
1.5	0.47	-0.5	42.86	35.1	0.0019	-81.8	0.18 128.3
1.7	0.14	-64.9	40.76	-31.7	0.0021	-145.5	0.08 103.6
1.8	0.05	-89.1	39	-62.4	0.0022	-174.6	0.03 93.7
1.9	0.01	-11.5	36.75	-92.8	0.0023	156.6	0 -28.2
2	0.04	7.3	34.69	-123.1	0.0024	127.9	0.03 -78.4
2.1	0.07	-9.6	33.54	-151.9	0.0032	100.4	0.05 -70.1
2.2	0.08	-19.9	32.25	178.8	0.004	72.5	0.09 -60.7
2.5	0.24	-41.8	25.5	91.4	0.004	-10.8	0.34 -88.6
3	0.64	-116.3	13.47	-36.9	0.003	-132.6	0.63 -153.8
3.5	0.84	-175.4	7.06	-142.6	0.0021	126.9	0.8 147.1
4	0.93	108	6.53	119.3	0.0026	33.9	0.72 54.7
4.5	0.87	-2.3	4.74	-10.8	0.0024	-91.7	0.69 -80.5
5	0.62	-124.2	1.93	-110.3	0.0013	173.4	0.54 -172.1
5.5	0.25	142.8	1.33	170	0.0011	97.1	0.19 129.8
6	0.2	-65.5	0.97	80.8	0.001	11.1	0.21 -109.5