



LOONGSON

LS8T41505

V1.2

2024 09





19 11

(Tel) 025-58600707



		LS8T41505
		V1.2
1	V1.0	
2	V1.03	
3	V1.04	1
4	V1.1	-40 +105 1 VDD00 1.8V 3.3V XIN 1.8V 2 θ_{Jc} 42 /W 3VDD00 1.8V 4 PLL 5 OUT0B
5	V1.2	ESD 13 14 36 39 40 2 3 LS8T41505 A 245 ; B PCB

service@loongson.cn



1.	.....	1
2.	.....	1
3.	.....	1
4.	.....	4
5.	.....	5
6.	.....	6
7.	.....	7
8.	.....	8
9.	.....	10
10.	.....	11
11.	.....	11
12.	.....	11
13.	.....	12
14.	.....	12
A	.....	13
B PCB	.....	14



1.

LS8T41505	25MHz	LVDS	LVC MOS	LPHCSL
	LVC MOS	100MHz	LVDS	
200MHz	LPHCSL	100MHz		
	4			
PC	PCI E2.0			

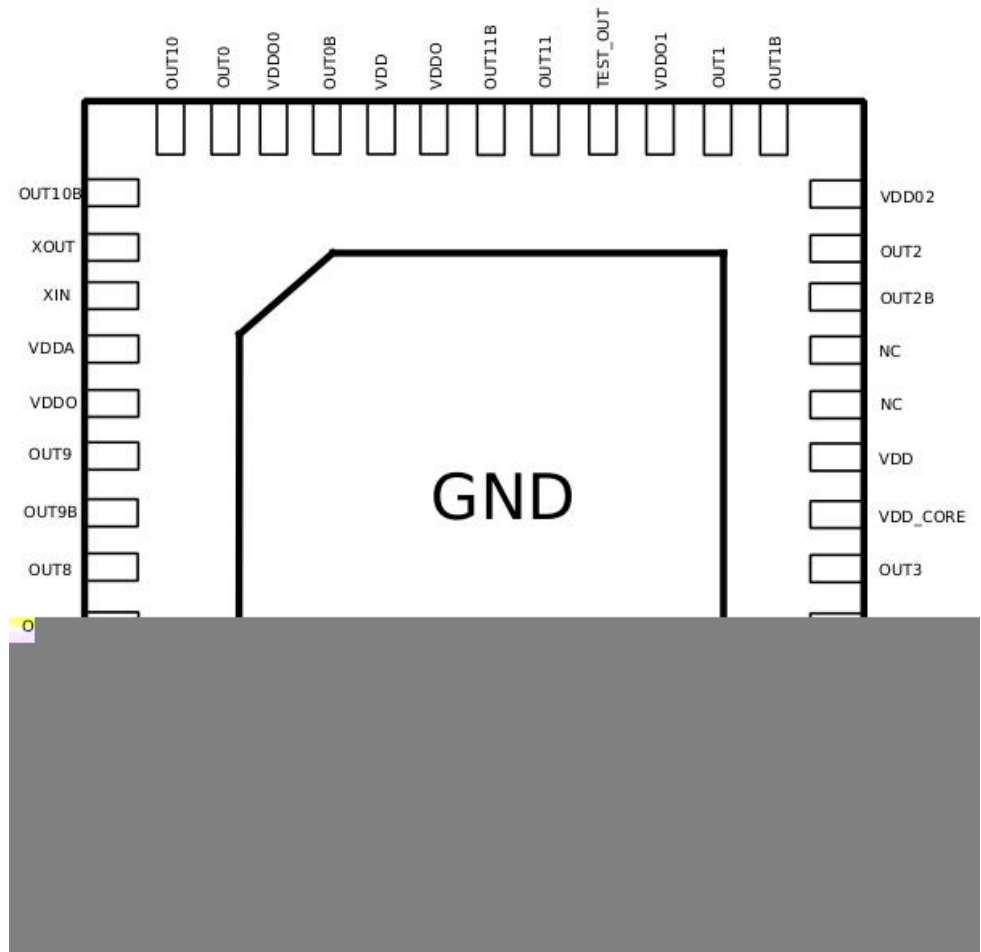
2.

- 3.3V 1.8V
- LVC MOS LPHCSL LVDS
- - OUT0 25MHz/100MHz LVC MOS
 - OUT1 33.33MHz LVC MOS/100MHz LP-HCSL/25MHz LP-HCSL
 - OUT2 100MHz LVC MOS/100MHz LP-HCSL/200MHz LVDS/156.25MHz LP-HCSL
 - OUT3 5-11 100MHz LP-HCSL
 - OUT4 100MHz/200MHz LVDS/100MHz LP-HCSL
- 25MHz
- -40 +105

3.

1 LS8T41505

1 LS8T41505



1

1

1	OUT10B	Output	Output Clock10 100MHz LP-HCSL
2	XOUT	Input	
3	XIN/REF	Input	25MHz 25MHz 1.8V
4	VDDA	Power	1.80V
5	VDD0	Power	OUT3 OUT5~11/OUT3B OUT5B~11B 1.80V
6	OUT9	Output	Output Clock9 100MHz LP-HCSL
7	OUT9B	Output	Output Clock9 100MHz LP-HCSL
8	OUT8	Output	Output Clock8 100MHz LP-HCSL
9	OUT8B	Output	Output Clock8 100MHz LP-HCSL
10	OUT7	Output	Output Clock7 100MHz LP-HCSL
11	OUT7B	Output	Output Clock7 100MHz LP-HCSL
12	OE	Input	
13	SEL1	Input	5
14	SEL0	Input	5
15	VDD	Power	1.80V
16	VDD0	Power	OUT3 OUT5~11/OUT3B OUT5B~11B 1.80V
17	OUT6	Output	Output Clock6 100MHz LP-HCSL



18	OUT6B	Output	Output Clock6 100MHz LP-HCSL
19	OUT5	Output	Output Clock5 100MHz LP-HCSL
20	OUT5B	Output	Output Clock5 100MHz LP-HCSL
21	VDD04	Power	OUT4 3.30V
22	OUT4	Output	Output Clock4 100MHz LP-HCSL 100MHz/200MHz LVDS
23	OUT4B	Output	Output Clock4 100MHz LP-HCSL 100MHz/200MHz LVDS
24	NC	NC	
25	NC	NC	
26	NC	NC	
27	VDD0	Power	OUT3 OUT5~11/OUT3B OUT5B~11B 1.80V
28	OUT3B	Output	Output Clock3 100MHz LP-HCSL
29	OUT3	Output	Output Clock3 100MHz LP-HCSL
30	VDD_Core	Power	VCO 1.80V
31	VDD	Power	1.80V
32	NC	NC	
33	NC	NC	
34	OUT2B	Output	Output Clock2 100MHz LVCMOS 100MHz LP-HCSL 200MHz LVDS 156.25MHz LP-HCSL
35	OUT2	Output	Output Clock2 100MHz LVCMOS 100MHz LP-HCSL 200MHz LVDS 156.25MHz LP-HCSL
36	VDD02	Power	OUT2/OUT2B PLL 3.30V
37	OUT1B	Output	Output Clock1 33.33MHz LVCMOS 100MHz LP-HCSL 25MHz LP-HCSL
38	OUT1	Output	Output Clock1 33.33MHz LVCMOS 100MHz LP-HCSL 25MHz LP-HCSL
39	VDD01	Power	OUT1/OUT1B OSC 3.30V
40	TEST_OUT	Output	
41	OUT11	Output	Output Clock11 100MHz LP-HCSL
42	OUT11B	Output	Output Clock11 100MHz LP-HCSL
43	VDD0	Power	OUT3 OUT5~11/OUT3B OUT5B~11B 1.80V
44	VDD	Power	1.80V
45	OUT0B	Output	Output Clock0B 25MHz/100MHz LVCMOS
46	VDD00	Power	OUT0/OUT0B 1.80V 3.30V
47	OUT0	Output	Output Clock0 25MHz/100MHz LVCMOS
48	OUT10	Output	Output Clock10 100MHz LP-HCSL
ePAD	GND	GND	



4.

LS8T41505

CPU

7A1000 7A2000



2

1 41505

			/			/			
45	OUT0B	LVC MOS	30		45	5		20	
47	OUT0	LVC MOS	20		40	10		30	
37,38	OUT1/	LVC MOS	20		30	20	24	30	
	OUT1B	LP-HCSL	13		19	31	33	37	
34,35	OUT2/	LVC MOS	20		30	20	24	30	



		LP-HCSL	13		19	31	33	37	
		LVDS	70		90	10		30	
28, 29	OUT3/ OUT3B	LP-HCSL	13		19	31	33	37	
22, 23	OUT4/ OUT4B	LP-HCSL	13		19	31	33	37	
		LVDS	70		90	10		30	
19, 20, 17, 18, 1 0, 11, 8, 9, 6, 7, 1, 48, 41, 42	OUT5-OUT11 /OUT5B-OUT 11B	LP-HCSL	13		19	31	33	37	

2

3

4 OUT1 OUT1B OUT2 OUT2B OUT3 OUT3B OUT4 OUT4B OUT5 OUT5B OUT6
OUT6B OUT7 OUT7B OUT8 OUT8B OUT9 OUT9B OUT10 OUT10B OUT11 OUT11B

5 epad

PCB

5.

2

VDD	0V 2.7V
VDD_CORE	0V 2.7V
VDDA	0V 2.7V
VDD0	0V 2.7V
VDD00	0V 5.0V
VDD01	0V 5.0V
VDD02	0V 5.0V
VDD04	0V 5.0V
	-65 150
	200mA
θJ_c	42 /W
ESD HBM	1000V

3

VDD	1.8V $\pm$ 5%
VDD_CORE	1.8V $\pm$ 5%



VDDA	1.8V ± 5%
VDD0	1.8V ± 5%
VDD00	1.8V ± 5% 3.3V ± 5%
VDD01	3.3V ± 5%
VDD02	3.3V ± 5%
VDD04	3.3V ± 5%
	25MHz ± 20ppm bE
	-40 +105

6.

4

4

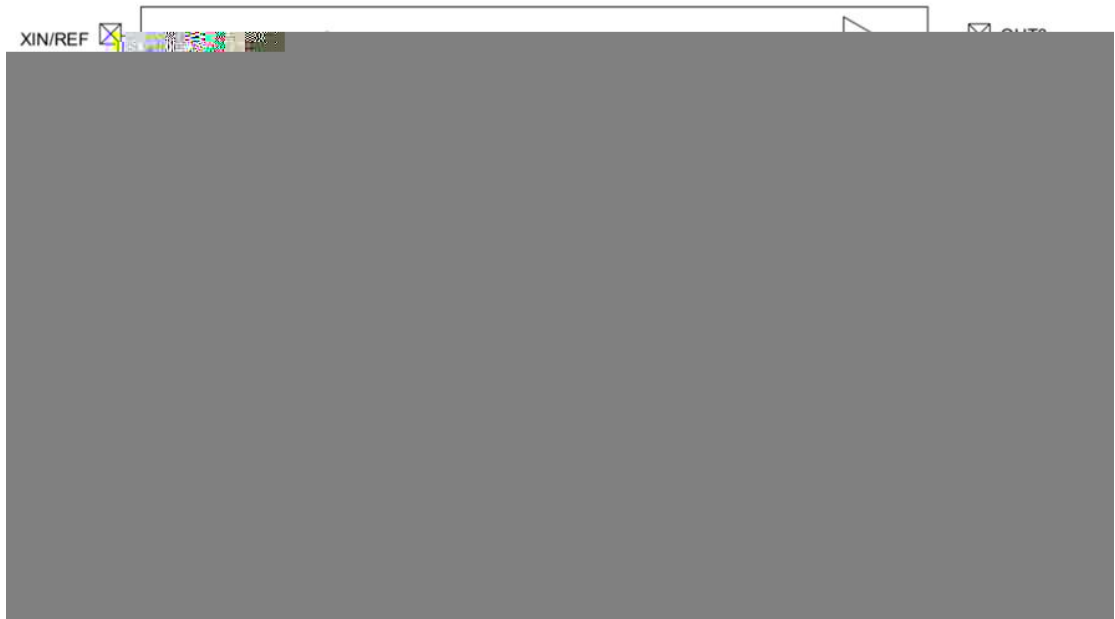
VDD00=VDD01=VDD02=VDD04=3.3V × 1 ± 10% , VDD0=VDDA=VDD_CORE=VDD=1.8V × 1 ± 10% -40 T _A 105				
V _{IL}	OE	-0.3	0.5	V
V _{IH}	SELO SEL1	1.2	1.8 2.1	V
I _{VDD}			7.5	mA
I _{VDDA}			1	mA
I _{VDD_CORE}			1	mA
I _{VDD0}	VDD00=VDD01=VDD02=VDD04=3.63V ,		80	mA
I _{VDD00}	VDD0=VDDA=VDD_CORE=VDD=1.98V		4.5	mA
I _{VDD01}			23	mA
I _{VDD02}			65	mA
I _{VDD04}			20	mA
t _{PU}		0.05	5	ms

Fundamental			
REF		25.00	MHz
ESR		10 100	Ω
C ₀		3.1 7	pF
C _L		6 6.8 10	pF
			100 μW
C _{LOAD_OUT}	3.3V LVCMOS		15 pF

LVCMOS			
V _{OH}		2.4	3.3 V
V _{OL}	VDD00=VDD01=VDD02=VDD04=3.3V , VD		0.4 V
V _{IH}	DO=VDDA=VDD_CORE=VDD=1.8V		



LVDS						
LVDS	V_{OT}	VDD00=VDD01=VDD02=VDD04=3.3V, VD DO=VDDA=VDD_CORE=VDD=1.8V	240	460	mV	
LVDS	ΔV_{OD}		50 mV			
LVDS	V_{OS}		1.12	1.3	1.40	V
LVDS	ΔV_{OS}		50 mV			
LVDS	I_{OS}		12 24 mA			
LVDS	I_{OSD}		6.8 24 uA			
LP-HCSL						
LPHCSL	V_{OH}	VDD00=VDD01=VDD02=VDD04=3.3V, VD	0.60	0.85	V	
LPHCSL	V_{OL}	DO=VDDA=VDD_CORE=VDD=1.8V	-0.15	0.15	V	
/	t_R/t_F	VDD00=VDD01=VDD02=VDD04=3.3V, VD DO=VDDA=VDD_CORE=VDD=1.8V	1	3	ns	
	t_{RF}		0.22	0.85	V/ns	
	f_{IN}		25.00			MHz
	f_{OUT}		25	200	MHz	
VCO	f_{VCO}	VCO	2000/ 2500			MHz
	f_{PFD}		25			MHz
	f_{BW}	25MHz	0.05	0.3	MHz	
	t_2		45	55	%	
	t_3		40	60	%	
	t_4	3.3V LVCMOS =5pF	1.2	2.7	V/ns	
/	t_5	LVDS	0.5	1	3	ns
jitter	t_6	RMS jitter OUT0 25MHz LVCMOS	0.5	1	3	ps
		RMS jitter 100MHz LP-HCSL		1	3	ps
	t_7	PLL	10			ms
		PLL	2			4 ms
		PCB LVCMOS	30			cm
		PCB LVDS	30			cm
		PCB LP-HCSL	30			cm



3

8.

25MHz
LVDS LVCMOS LPHCSL
LVCMOS 100MHz LVDS
200MHz LPHCSL 100MHz SEL1 SEL0
SEL1 SEL0 1

5

SEL1/SEL0	11	01	10	00
OUT0	25MHz LVCMOS	100MHz LVCMOS	100MHz LVCMOS	100MHz LVCMOS
OUT0B	25MHz LVCMOS	100MHz LVCMOS	100MHz LVCMOS	100MHz LVCMOS
OUT1/OUT1B	33.33MHz LVCMOS	100MHz LP-HCSL	25MHz LP-HCSL	25MHz LP-HCSL
OUT2/OUT2B	100MHz LVCMOS 180		200MHz LVDS	156.25MHz LP-HCSL
OUT4/OUT4B	200MHz LVDS		100MHz LVDS	100MHz LVDS
OUT3,OUT5~11/ OUT3B,OUT5~11B	100MHz LP-HCSL		100MHz LP-HCSL	100MHz LP-HCSL

PLL

PLL



MHz	KHz	KHz
25	50	400

(XIN/REF)

XIN XOUT
25MHz 1.8V

OE

12	OE		

OUT1 OUT2 OUT4 LVCMOS LP-HCSL LVDS
OUT3 5-11 LP-HCSL OE

1.8V 3.3V 1.8V 3.3V 1ms

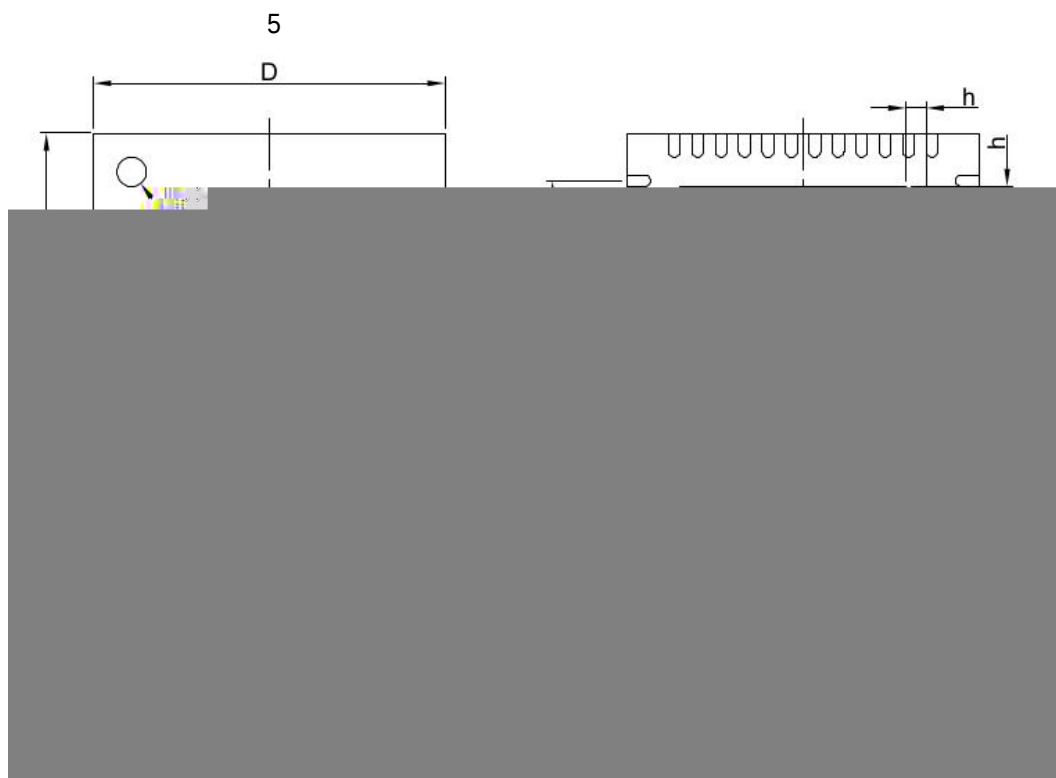




9.

6.00 mm × 6.00 mm × 0.60 mmMAX

QFN48



	MIN	NOM	MAX		MIN	NOM	MAX
A	0.50	0.55	0.60	b	0.15	0.20	0.25
A1	—	0.02	0.05	c	0.12	0.15	0.18
D	5.90	6.00	6.10	h	0.30	0.35	0.40
D1	4.10	4.20	4.30	e	-	0.40	-
E	5.90	6.00	6.10	Ne	-	4.40	-
E1	4.10	4.20	4.30	Nd	-	4.40	-
L	0.35	0.40	0.45				



10.



- a •
- b “ LS8T41505-A ” A -i -H
- c B 4 5
- d C 00001

11.

6 LS8T41505

LS8T41505		0 ~+70
LS8T41505- i		-40 ~+85
LS8T41505- H		-40 ~+105

12.



a	
b	
c	
d	ESD
e	
f	45%~75%
g	MSL3,
168	

13.

10 ~30

14.



A



B PCB



EPAD 4.5mm SQ

B.1 PCB