熙讯科技
SYSOLUTION

All-in-one Rockchip A133 Solution

Android Development L13Y

Product Specification

Version：Ver.1.1

Statement

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Update Record

No.	Version	Updates	Revision Date
1	Ver.1.0	Initial Release	2025.07.17

The document is subject to change without prior notice.

Product Introduction

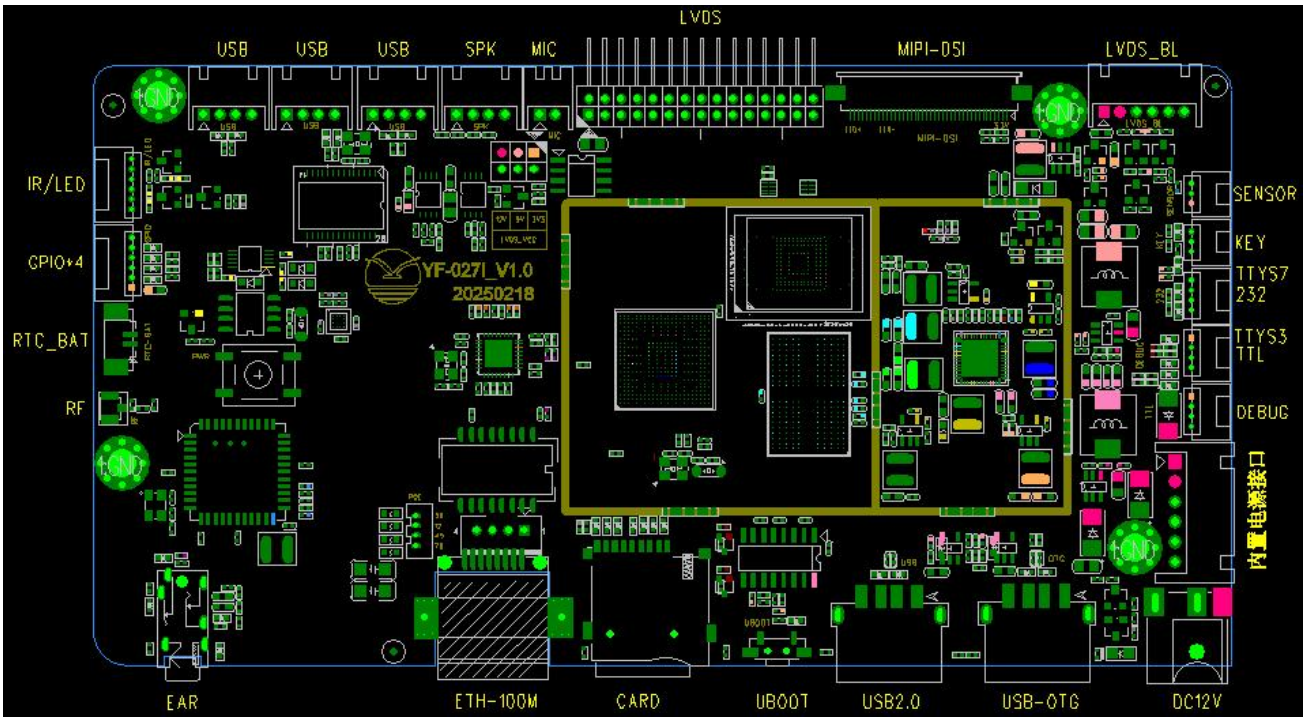
The L13Y board uses the Allwinner A133 (Cortex-a53) quad-core application processor with super performance, equipped with Android10.0 system, with a main frequency of up to 1.5GHz and PowerVR GE8300 GPU. It supports almost all formats of H.264 decoder 4K, and also supports H.264/H.265 encoder 1080p@60fps, high-quality JPEG encoder/decoder. . It integrates multi-channel LCD driver, Ethernet, WIFI, BT amplifier, and supports most of the current popular video and picture format decoding.

Function Characteristics

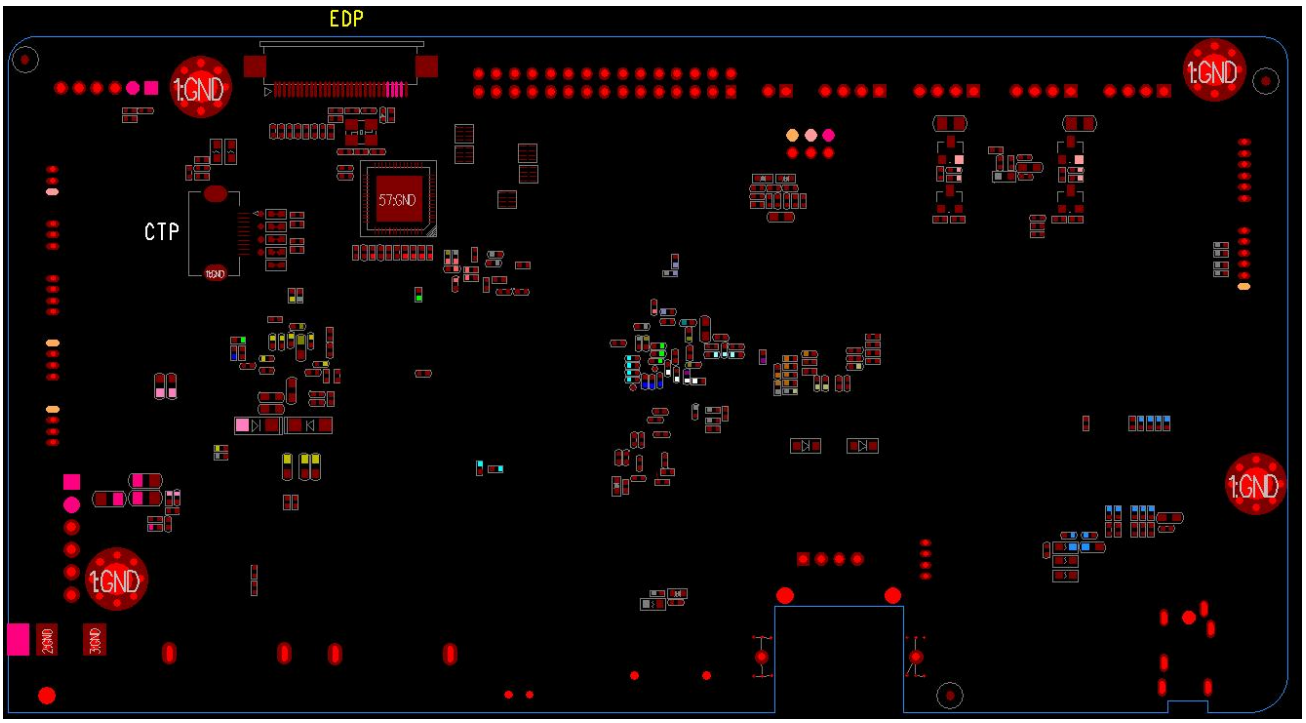
- High integration. Integrates USB/100M Ethernet/WIFI/BT/LVDS/MIPI/EDP/microphone and other functions to simplify the overall design and make it more beautiful.
- High definition. Supports 1080P/H.265 (4K2K) video decoding and various screen signals LCD display.
- Built-in amplifier. Supports single-channel 8R/2W amplifier.
- Rich interfaces. Supports USB/serial port interface expansion to meet the mainstream peripherals on the market.
- Full functions. Supports horizontal and vertical screen playback, video split screen, scrolling subtitles, timer switch, USB data import and other functions.
- Easy to manage: Humanized playlist making software for easy advertising playback management and control. Play log for easy understanding of playback status

Product Appearance

Front Side:



Back Side:

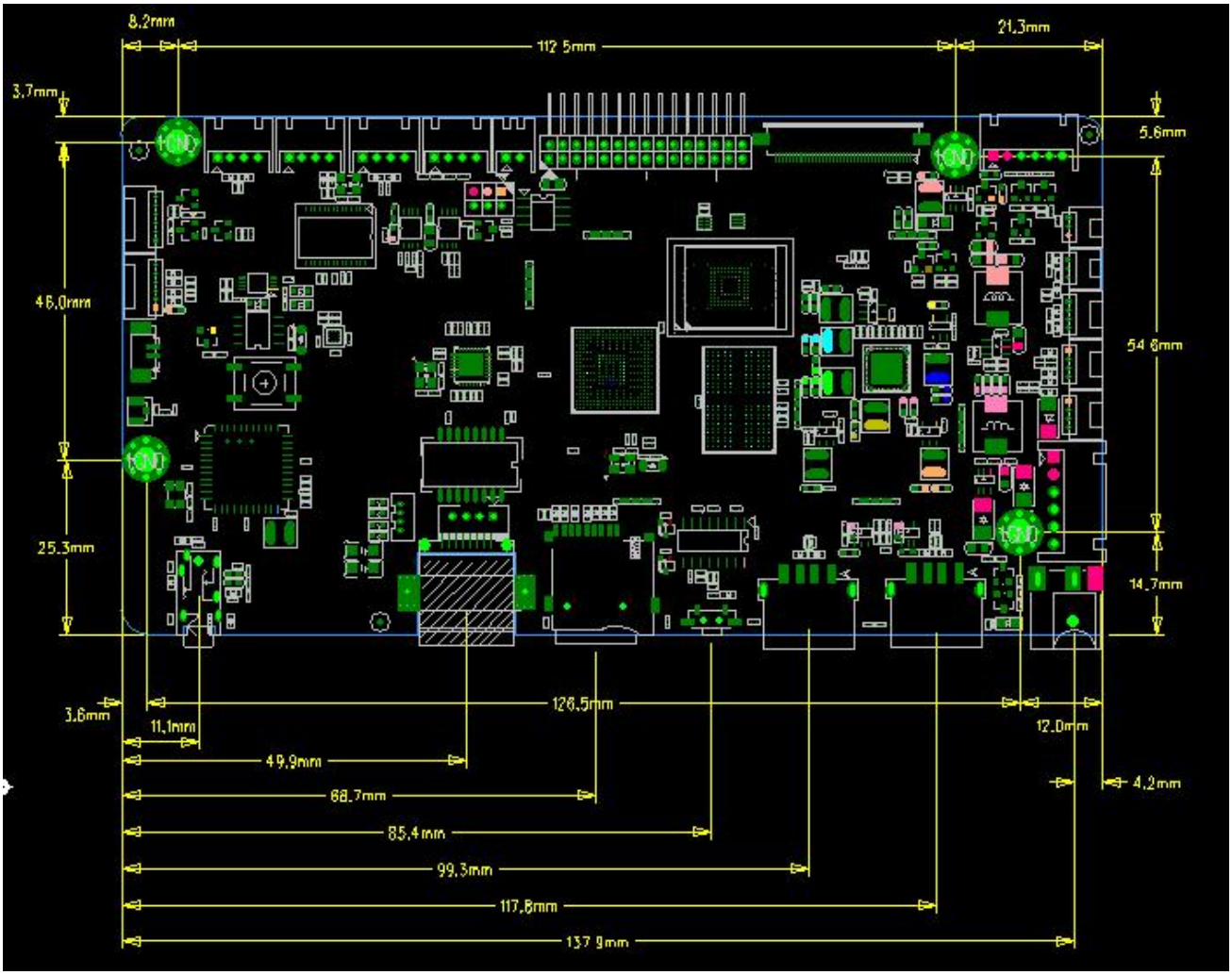


Product Parameters

Hardware Specification	
CPU	A133, quad-core, up to 1.5GHz
GPU	PowerVR GE8300
RAM	Standard 1G (2G optional)
ROM	Standard 8G (16/32/64G optional)
Decoding Resolution	Support 1080P/H.265(4K2K)
O.S.	Android10.0
Play Mode	Supports multiple playback modes such as loop, timing, and insert
Network	100M Ethernet,support WiFi/BT,wireless peripheral expansion
USB2.0	One USB-HOST, one USB-OTG, three built-in pin headers USB
Ethernet	1, 100M Ethernet
LVDS	Up to 1920*1080
MIPI	Up to 1920*1080
EDP	Up to 1920*1080
Audio Output	Left and right channel output 8R/2W speakers
RTC	Support
Hardware-Watch-dog	Support
Timing-on/off	Support
Serial port	1*TTL, 1*232, 1*Debug

PCB Dimensions and Interface Layout

PCB Size



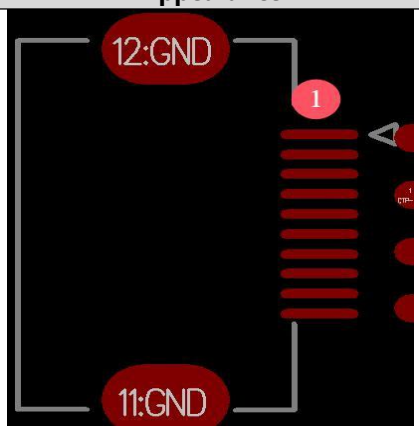
PCB：4-layer

Size：142*75*1.6mm

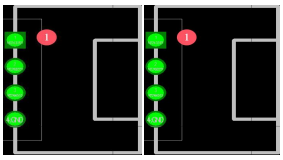
Screw Hole Dia：ϕ3.5mm x 4

Interface Pin Map Specification

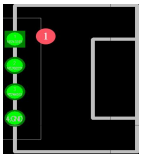
1.Touch screen interface (JP1) 10P/0.5 pitch

PinNo.	Definition	Property	Description	Appearance
1	GND	Ground	Ground	
2	GND	Ground	Ground	
3	RST	Input/Output	Reset	
4	INT	Input/Output	Interrupt	
5	GND	Ground	Ground	
6	SCL	clock	clock	
7	SDA	data	data	
8	VCC	Power	V3.3 Power	
9	GND	Ground	Ground	
10	GND	Ground	Ground	

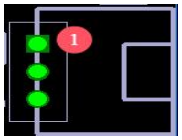
2.serial port socket TTL interface (CON14) 4P-1.25 spacing

PinNo.	Definition	Property	Description	Appearance
1	5V	Output	3.3V output	
2	TX	transmit	TTL level signal	
3	RX	Receive	TTL level signal	
4	GND	Ground	Ground	

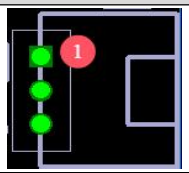
3.serial port socket 232 interface (CON11) optional TTL 4P-1.25 spacing

PinNo.	Definition	Property	Description	Appearance
1	5V	Output	5V output (optional3.3V)	
2	TX	transmit	232 signal (TTL-TXoptional)	
3	RX	Receive	232 signal (TTL-RXoptional)	
4	GND	Ground	Ground	

4.Human body sensing interface SENSOR (CN3) 3P-1.25 spacing

PinNo.	Definition	Property	Description	Appearance
1	SENSOR	Input	Signal Input	
2	GND	Ground	Ground	
3	5V	Output	Power	

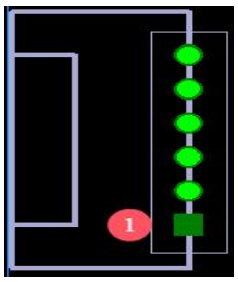
5.button interface KEY (J2) 3P-1.25 spacing

PinNo.	Definition	Property	Description	Appearance
1	PWR	Powerbutton	Power switch button	
2	ADC	Function buttons	Function buttons	
3	GND	Ground	Ground	

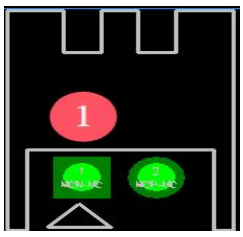
6.IR/LED socket interface (CON7) 6P-1.25 pitch

PinNo.	Definition	Property	Description	Appearance
1	LED-R	Output	LED positive terminal	
2	GND	Ground	Grond	
3	LED-G	Output	LED positive terminal	
4	IRVCC	Output	3.3V IR power	
5	GND	Ground	Ground	
6	IR-OUT	Input	Infrared remote control signal input	

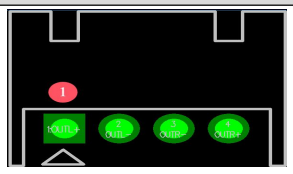
7.GPIO socket interface (CON9) 6P-1.25 pitch

PinNo.	Definition	Property	Description	Appearance
1	VCC	Output	3.3Vpower	
2	GPIO1	Output/Input	GPIO signal, default 3.3V pull-up	
3	GPIO2	Output/Input	GPIO signal, default 3.3V pull-up	
4	GPIO3	Output/Input	GPIO signal, default 3.3V pull-up	
5	GPIO4	Output/Input	GPIO signal, default 3.3V pull-up	
6	GND	Ground	Ground	

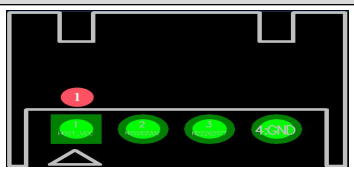
8.MIC Interface (MIC1)

PinNo.	Definition	Property	Description	Appearance
1	MCIN	Input	MIC negative electrode	
2	MCIP	Input	MIC positive electrode	

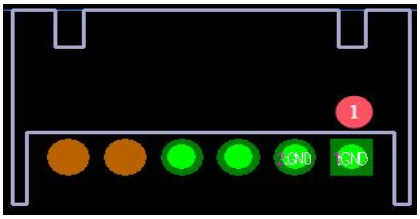
9.speaker socket interface 4P-2.0 spacing (CON4)

PinNo.	Definition	Property	Description	Appearance
1	OUTL+	Output	Audio output left +	
2	OUTL-	Output	Audio output left -	
3	OUTR-	Output	Audio Out Right -	
	OUTR+	Output	Audio output right +	

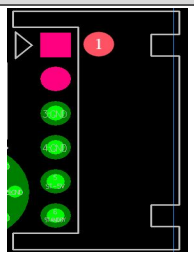
10.USB interface (CON1, CON2, CON3) 4P-2.0 spacing

PinNo.	Definition	Property	Description	Appearance
1	USB-5V	Output	5V output	
2	DM	Input/Output	Data Input/Output	
3	DP	Input/Output	Data Input/Output	
4	GND	Ground	Ground	

11.LVDS backlight control interface (CON6) 6P-2.0 pitch

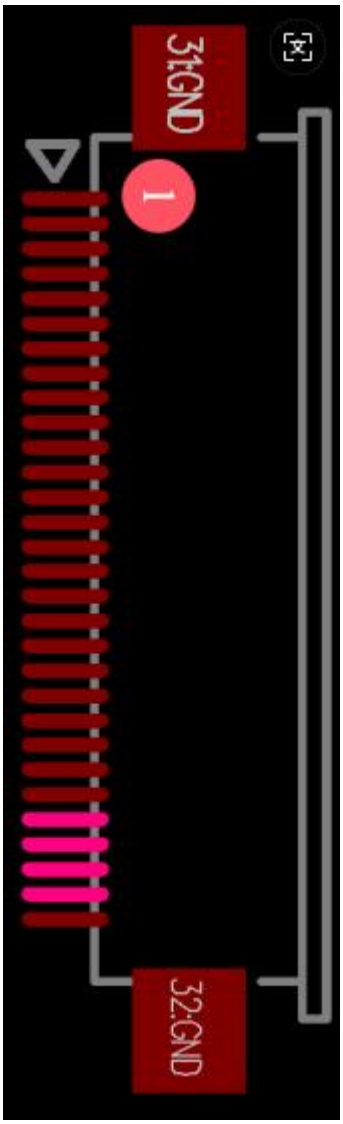
PinNo.	Definition	Property	Description	Appearance
1	GND	Power	Ground	
2	GND	Ground	Ground	
3	ADJ	ADJ	Backlight brightness adjustment	
4	EN	EN	Backlight power switch	
5	VCC	Power	Power input 12V	
6	VCC	Power	Power input 12V	

12.Power input interface (CON18) 4P-2.54 spacing

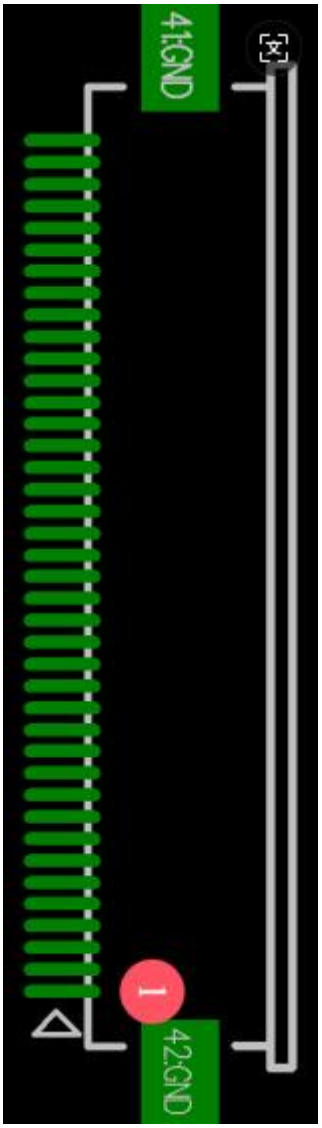
PinNo.	Definition	Property	Description	Appearance
1	VCC	Power	Power input 12V triangle mark 1PIN	
2	VCC	Power	Power input 12V	
3	GND	Ground	Ground	
4	GND	Ground	Ground	
5	ST-5V	Standby power	Standby power 5V	
6	STB	Standby signal	Standby signal	

◆eDP Interface（CN4）

Pin	Symbol	Function
1	APS_EN	APS on/off or No connection (optional)
2	H_GND	High Speed Ground
3	Lane1_N	Complement Signal Link Lane 1
4	Lane1_P	True Signal Link Lane 1
5	H_GND	High Speed Ground
6	Lane0_N	Complement Signal Link Lane 0
7	Lane0_P	True Signal Link Lane 0
8	H_GND	High Speed Ground
9	AUX_CH_P	True Signal Auxiliary Channel
10	AUX_CH_N	Complement Signal Auxiliary Channel
11	H_GND	High Speed Ground
12	LCD_VCC	LCD logic and driver power
13	LCD_VCC	LCD logic and driver power
14	LCD_Self_Test	LCD Panel Self-Test Enable
15	LCD_GND	LCD logic and driver ground
16	LCD_GND	LCD logic and driver ground
17	HPD	Hot Plug Detect
18	BL_GND	Backlight Ground
19	BL_GND	Backlight Ground
20	BL_GND	Backlight Ground
21	BL_GND	Backlight Ground
22	BL_ENABLE	Backlight on/off
23	BL_PWM_DIM	System PWM signal input for dimming
24	NC (WPN)	Reserved for the use by LCD manufacturer (WPN)
25	NC	No connection
26	BL_PWR	Backlight power
27	BL_PWR	Backlight power
28	BL_PWR	Backlight power
29	BL_PWR	Backlight power
30	NC	CLR_EN on/off or No connection (optional)



13.MIPI interface (CN1) 40P-0.5 pitch

PinNo.	Definition	Property	Description
1	IOVDD	IOVDD VDDIN=1.8V	
2	VDD	Power supply VDDIN=3.3V	
3	VDD	Power supply VDDIN=3.3V	
4	GND	Groud	
5	RESET	Global reset signal(3.3)	
6	NC	No connection	
7	GND	Groud	
8	D0N	MIPI Differential data	
9	D0P	0+MIPI Differential data	
10	GND	Groud	
11	D1N	MIPI Differential data	
12	D1P	1+MIPI Differential data	
13	GND	Groud	
14	CLKN	-MIPI Differential clock data	
15	CLKP	+MIPI Differential clock data	
16	GND	Groud	
17	D2N	MIPI Differential data	
18	D2P	2+MIPI Differential data	
19	GND	Groud	
20	D3N	MIPI Differential data	
21	D3P	3+MIPI Differential data	
22	GND	Groud	
23	NC	No connection	
24	NC	No connection	
25	GND	Groud	
26	NC	No connection	
27	NC	No connection	
28	NC	No connection	
29	NC	No connection	
30	GND	Groud	
31	LED-	LED Cathode	
32	LED-	LED Cathode	
33	NC	No connection	
34	NC	No connection	
35	NC	No connection	
36	NC	No connection	
37	NC	No connection	
38	NC	No connection	
39	LED+	LED Anode	
40	LED+	LED Anode	

14.LVDS Interface(CON5)

PinNo.	Definition	Property	Description	Appearance
1	PVCC	Power Output	LCD power output, +3.3V/+5V/+12V optional, selected by CN2	
2				
3				
4	GND	Ground	Ground	
5				
6				
7	RXO0-	Output	Pixel0 Negative Data (Odd)	
8	RXO0+	Output	Pixel0 Positive Data (Odd)	
9	RXO1-	Output	Pixel1 Negative Data (Odd)	
10	RXO1+	Output	Pixel1 Positive Data (Odd)	
11	RXO2-	Output	Pixel2 Negative Data (Odd)	
12	RXO2+	Output	Pixel2 Positive Data (Odd)	
13	GND	Ground	Ground	
14	GND	Ground	Ground	
15	RXOC-	Output	Negative Sampling Clock (Odd)	
16	RXOC+	Output	Positive Sampling Clock (Odd)	
17	RXO3-	Output	Pixel3 Negative Data (Odd)	
18	RXO3+	Output	Pixel3 Positive Data (Odd)	
19	RXE0-	Output	Pixel0 Negative Data (Even)	
20	RXE0+	Output	Pixel0 Positive Data (Even)	
21	RXE1-	Output	Pixel1 Negative Data (Even)	
22	RXE1+	Output	Pixel1 Positive Data (Even)	
23	RXE2-	Output	Pixel2 Negative Data (Even)	
24	RXE2+	Output	Pixel2 Positive Data (Even)	
25	GND	Ground	Ground	
26	GND	Ground	Ground	
27	RXEC-	Output	Negative Sampling Clock (Even)	
28	RXEC+	Output	Positive Sampling Clock (Even)	
29	RXE3-	Output	Pixel3 Negative Data (Even)	
30	RXE3+	Output	Pixel3 Positive Data (Even)	

Electrical Performance

Item		Min	Typical	Max
Power Voltage	Voltage	--	12	--
	Wave	--	--	50mV
Current output (without other device connected)	Work Current	--	250mA	300mA
	Stand-by Current	--	10uA	5mA
	USB Current Output	--	--	500mA
	LCD Panel Current Output	--	--	1A
Work environment	Relative Humidity	--	--	80%
	Work Temperature	-20℃	--	70℃

Notes

During assembly and use, please pay attention to the following (but not limited to) problems.

1.Short circuit between bare board and peripherals.

2.During installation and fixing, avoid deformation of bare board due to fixing.

3.When installing LVDS screen, pay attention to whether the screen voltage and current are in compliance. Pay attention to the direction of the first pin of the screen holder.

4.When installing LVDS screen, pay attention to whether the screen backlight voltage and current are in compliance. If the screen backlight power is above 20W, use other power boards for power supply.

5.When installing peripherals (USB, IO), pay attention to the peripheral IO level and current output.

6.When installing the serial port, pay attention to whether the 232,485 device is directly connected. Is the TX, RX connection method correct?

7.Whether the input power is connected to the power input interface, according to the total peripheral evaluation, whether the input power voltage, current, etc. meet the requirements. Avoid connecting the power input power from the backlight socket for easy operation.