Request information

PRODUCT SPECIFICATION

TFT-LCD MODULE

Module No: 1000087-01

☐ Preliminary Specification

☑ Approval Specification

Designed by	Checked by	Approved by

Final Approval by Customer

Approved by	Comment

For more information, contact us:

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※The specification of “TBD” should refer to the measured value of sample . If there is difference between the design specification and measured value, we naturally shall negotiate and agree to solution with customer.

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1. Document Revision History

Version	Contents	Date	Note
V0	Initial version	2026.07.22	

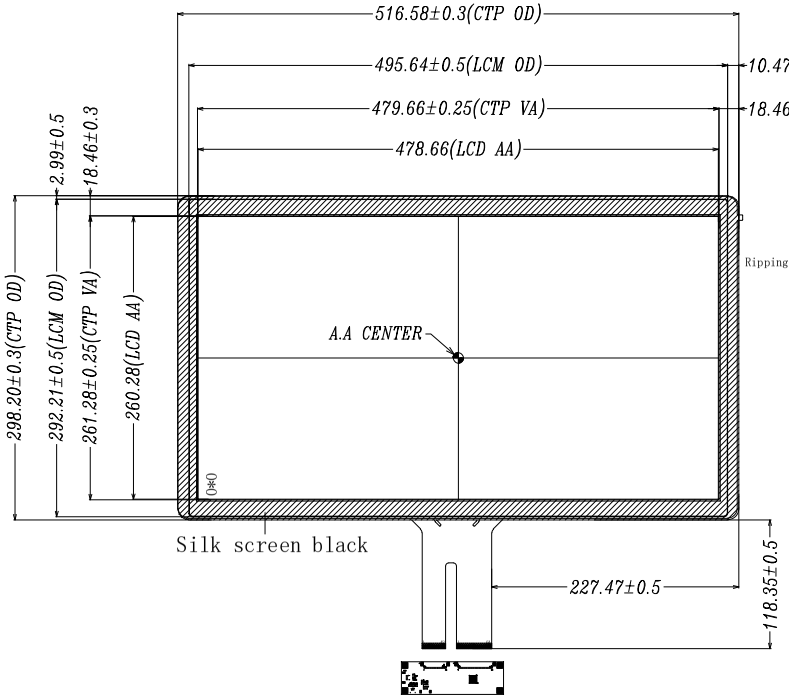
2.General Description

N0	Item	Specification	Unit	Remark
1	LCD Size	TFT"21.5	inch	-
2	Panel Type	IPS	-	-
3	Display Resolution	1920(H) x(RGB)x 1080 (V)	pixel	-
4	Display mode	Normally Black	-	-
5	Display colors	16.7M (8bit)	-	-
6	Viewing Direction	ALL	-	-
7	CTP+LCM Module Size	516.58(H) x298.20(V) x11.70(T)	mm	Note
8	Active Area	478.66(H) x 260.28 (V)	mm	Note
9	Pixel Pitch	0.2493(H) x 0.241 (V)	mm	-
10	Weight	-	g	-
11	Driver IC	-	-	-
12	Light Source	White LED	-	-
13	Interface	LVDS	-	-

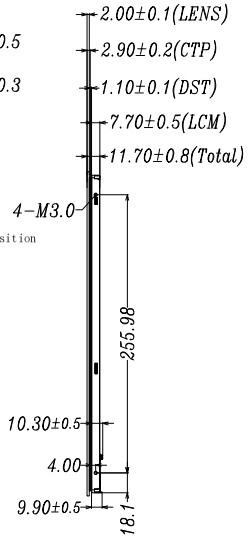
3.Outline Dimension

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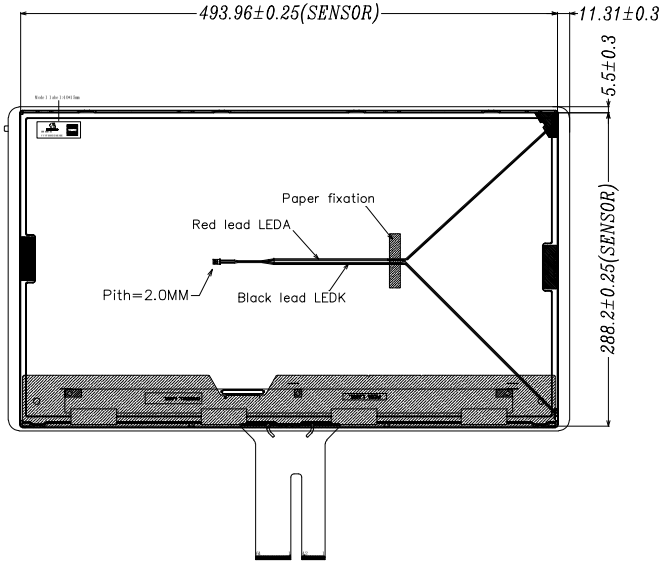
Front View



Side View



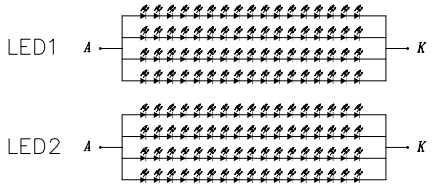
Back View



PIN	SYMBOL
1	RO(0)N
2	RO(0)P
3	RO(1)N
4	RO(1)P
5	RO(2)N
6	RO(2)P
7	GND
8	ROCLK-
9	ROCLK+
10	RO(3)N
11	RO(3)P
12	RE(0)N
13	RE(0)P
14	GND
15	RE(1)N
16	RE(1)P
17	GND
18	RE(2)N
19	RE(2)P
20	RECLK-
21	RECLK+
22	RE(3)N
23	RE(3)P
24	GND
25	WP
26	SCL
27	SDA
28	5V
29	5V
30	5V

Technical requirements:
1.structure：G+G.
2.transmittance：≥86%(550nm).
3.All unmarked tolerance：±0.15mm.
4.IC：ILI2510, USB
5.Toughened degrees：130g steel ball，40cm drop height is not broken，
surface hardness Test：≥6H（pencil hardness test）
6.CG unmarked hole and edge≤0.20mm.
7. operate temperature：W0.7;-20℃~60℃，20~85%RHW1;,
storage temperature:W0.7;-30~70℃，10-95%RHW1;
all material compliant with ROHS.

PIN	Definition
1	VCC
2	D-
3	D+
4	GND



CURRENT IF=60*4=240mA*2=480mA
15C*4B=60LED*2=120LED
Vf=43V(TYP) If=480mA(TYP)

Notes:
1.Display: 21.5″,TFT
2.Resolution: 1920*RGB*1080
3.LCD Viewing Direction: ALL
4.Display Mode: Normally Black/Transmissive
5.LCM+CTP Brightness:650cd/m²(TYP),Uniformity≥80%
6.*:Critical dimension:( )Reference dimension
7.Operating Temperature:-0℃~ +50℃
8.Storage Temperature:-10℃~ +60℃
9.Requirements on Environmental Protection: ROHS

REV	DESCRIPTION	DATE	NAME
3			
2			
1			
0	NEW	2026.07.22	

DCLTEK

SCALE:1/1	UNIT:mm	PAGE:1/1		Approve	Check	Drawn
Part No:	1000087-01		VER:V0			
Customer No:						

4.0 Electrical Specifications

4.1 Interface Pin Assignment

CN1: 1-301223-0 (XINDAYITONG) or equivalent (see Note (1))

Pin No.	Symbol	Description	Note
1	RO[0]N	Odd LVDS Signal -	
2	RO[0]P	Odd LVDS Signal +	
3	RO[1]N	Odd LVDS Signal -	
4	RO[1]P	Odd LVDS Signal +	
5	RO[2]N	Odd LVDS Signal -	
6	RO[2]P	Odd LVDS Signal +	
7	GND	Ground	
8	ROCLK-	Odd LVDS Clock -	
9	ROCLK+	Odd LVDS Clock +	
10	RO[3]N	Odd LVDS Signal -	
11	RO[3]P	Odd LVDS Signal +	
12	RE[0]N	Even LVDS Signal -	
13	RE[0]P	Even LVDS Signal +	
14	GND	Ground	
15	RE[1]N	Even LVDS Signal -	
16	RE[1]P	Even LVDS Signal +	
17	GND	Ground	
18	RE[2]N	Even LVDS Signal -	
19	RE[2]P	Even LVDS Signal +	
20	RECLK-	Even LVDS Clock -	
21	RECLK+	Even LVDS Clock +	
22	RE[3]N	Even LVDS Signal -	
23	RE[3]P	Even LVDS Signal +	
24	GND	Ground	
25	WP	Write Protect (High: Write Enable, Low or Open: Write Disable)	(2)
26	SCL	I2C Serial Clock (for adjust VCOM)	(2)
27	SDA	I2C Serial Data (for adjust VCOM)	(2)
28	5V	DC power supply	
29	5V	DC power supply	
30	5V	DC power supply	

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Note:

(1)The direction of pin assignment is shown as below:

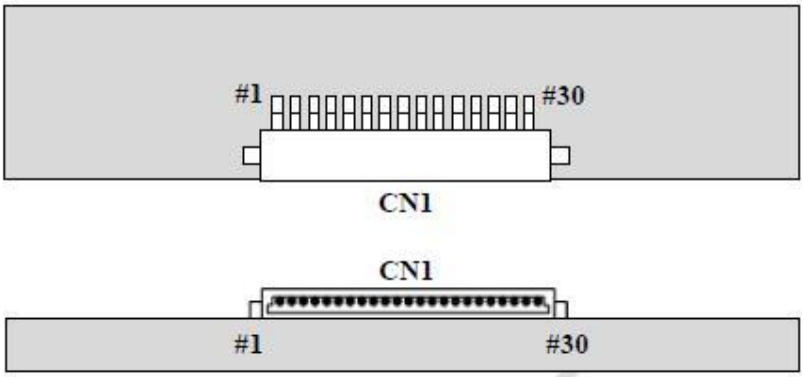


Fig. 4.1 LVDS connector direction sketch map

(2) a. Please let it open (Do not line out from PCBA connector) if it do not used.(for example：TV set)

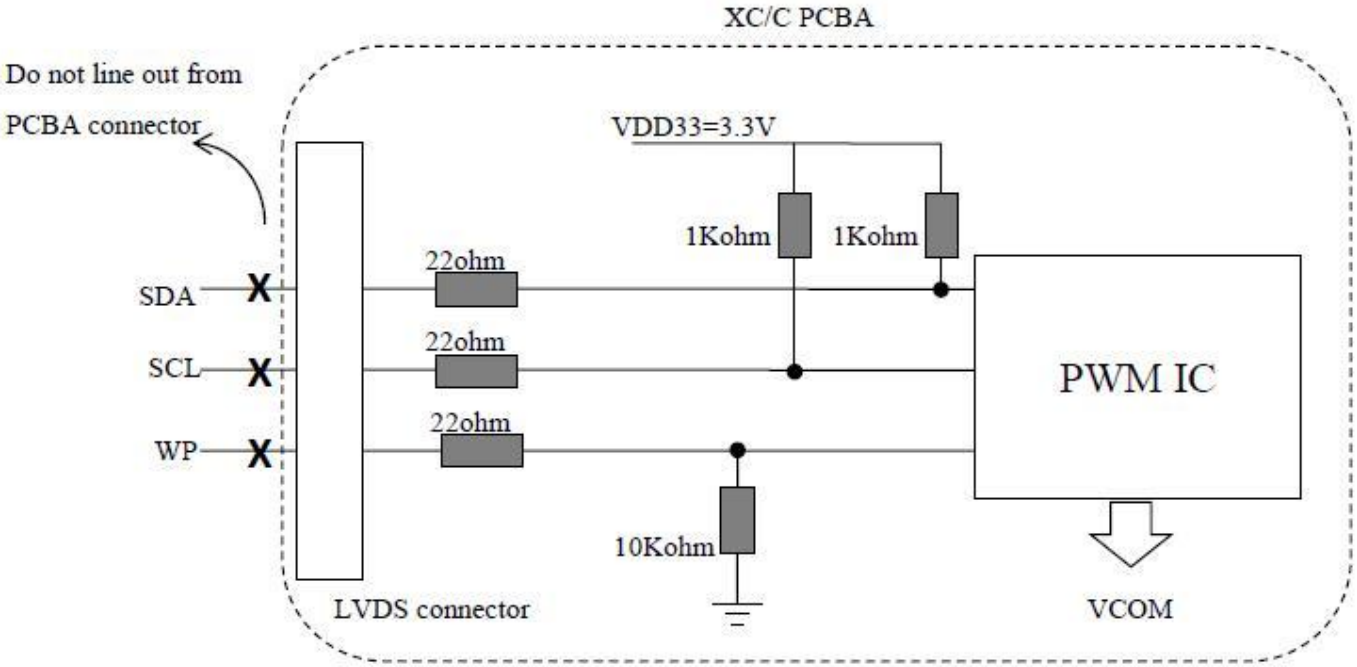


Fig. 4.2 WP/SDA/SCL PCBA set

b. For the VCOM (Flicker) regulation and control, SDA and SCL must pull high in the flicker set, and the flicker set's VDD must ready before the input power (VCC5V)

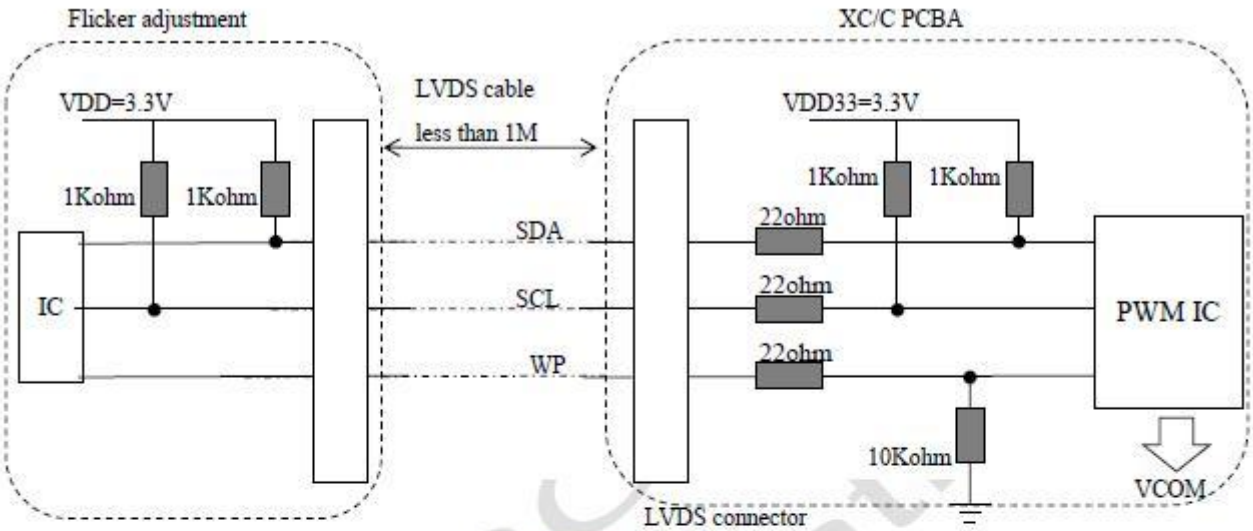


Fig. 4.3 WP/SDA/SCL flicker set

4.2 Block Diagram of Interface

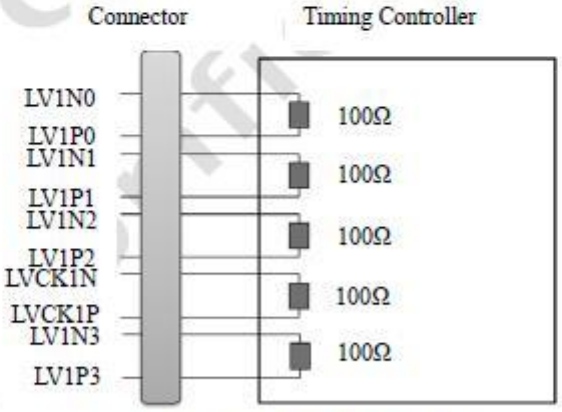


Fig. 4.4 Block diagram of interface

Attention:

(1) This open cell uses a 100 ohms (Ω) resistor between positive and negative lines of each receiver input.

(2) LVDS cable impedance shall be 50 ohms per signal line or about 100 ohms per twist-pair line respectively.

4.3 LVDS Interface

4.3.1 VESA Format

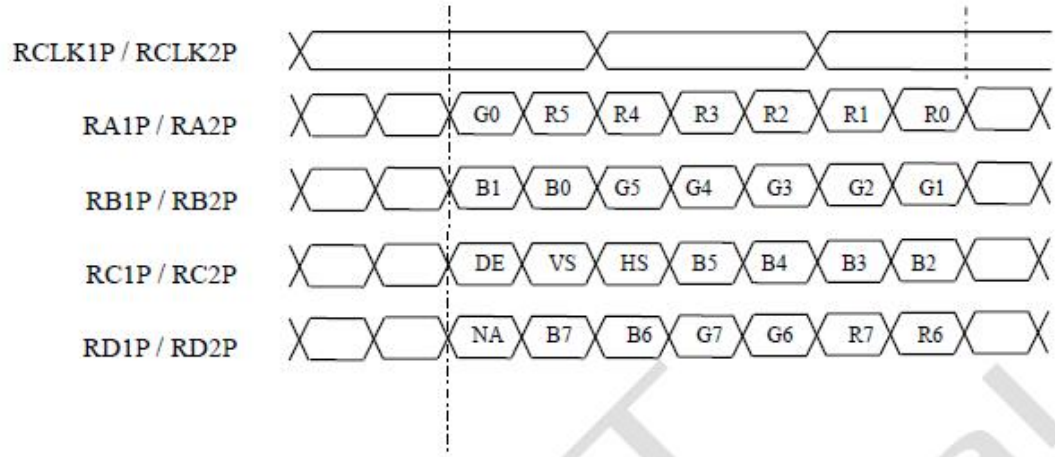


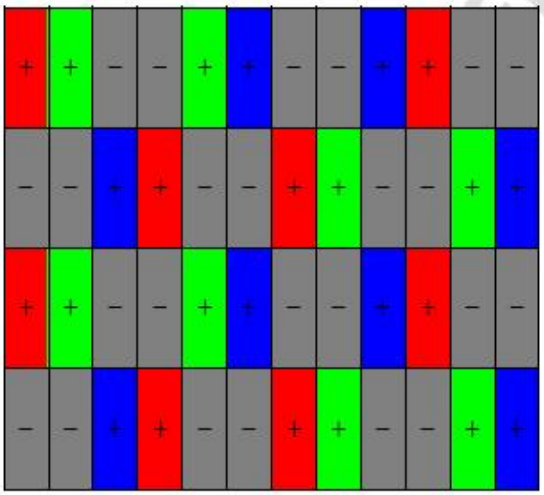
Fig. 4.5 VESA format

4.4 Flicker Pattern

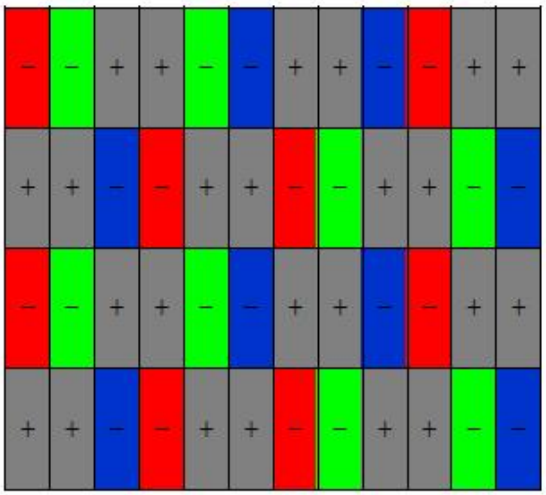
Flicker should be adjusted by the 2 Dot on/off pattern, where are displayed alternately at vertical line. (2 Dot inversio

2 Dot on/off pattern

Frame N



Frame N+1



4.5 Open Cell Power Consumption (TA = 25 ± 2 °C)

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		V_{CC}	4.5	5	5.5	V	(1)
Rush Current		I_{RUSH}	-	-	1.21	A	(2)
Power Supply Current	White Pattern	-	-	0.72	0.93	A	(3) 60Hz
	Horizontal Stripe	-	-	0.78	1.01	A	
	Black Pattern	-	-	0.54	0.71	A	
Power Supply Current	White Pattern	-	-	0.83	1.07	A	(3) 75H
	Horizontal Stripe	-	-	0.9	1.17	A	
	Black Pattern	-	-	0.62	0.81	A	
Power Consumption	Horizontal Stripe			3.51	4.56	Watt	60Hz
	Horizontal Stripe			4.05	5.26	Watt	75Hz

Note:

(1) The ripple voltage should be controlled less than 10% of V_{CC}.

(2) Measurement condition: V_{CC}=5V, rising time = 470μs.

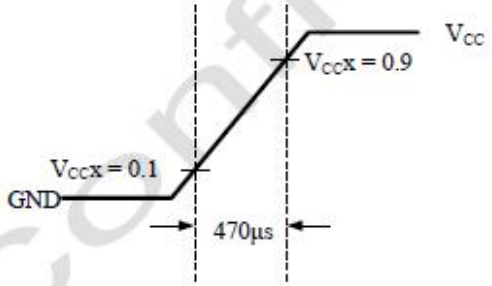


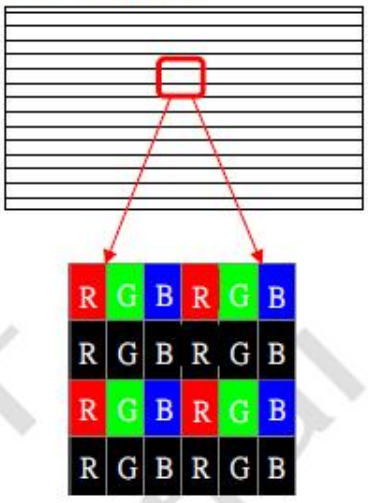
Fig. 3.1 V_{CC} rising time condition

(3) Measurement condition: V_{CC} = 5V, Ta = 25 ± 2°C, F = 75 Hz. The test patterns are shown as below.

A. White Pattern



B. Horizontal Pattern



C. Black Pattern



Fig. 3.2 Test patterns

4.6 LVDS Characteristics

Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
LVDS Interface	Differential Input High Threshold Voltage	V_{TH}	+100	-	-	mV	(1)
	Differential Input Low Threshold Voltage	V_{TL}	-	-	-100	mV	
	Common Input Voltage	V_{CM}	1.0	1.2	1.4	V	
	Differential Input Voltage	$\|V_{ID}\|$	100	-	600	mV	
	Terminating Resistor	R_T	87.5	100	112.5	ohm	
CMOS Interface	Input High Threshold Voltage	VIH	2.7	-	3.3	V	
	Input Low Threshold Voltage	VIL	0	-	0.7	V	

Note:

(1) The product should be always operated within above ranges.

(2) The LVDS input signal has been defined as follows:

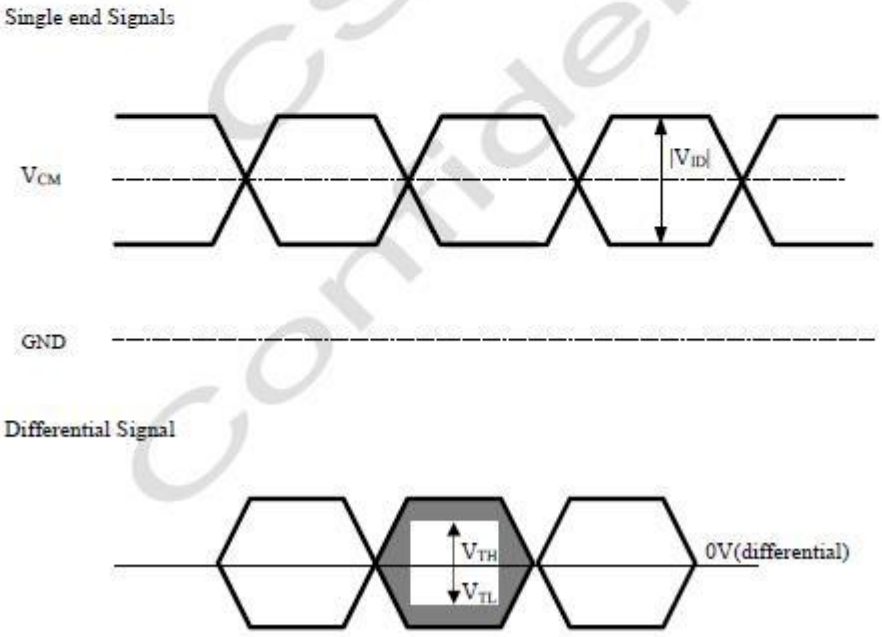


Fig. 3.3 LVDS input signal

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4.7 Temperature Specifications

Parameter	Symbol	Specification			Unit	Recommend test pattern	Note
		Min.	Typ.	Max.			
Surface Temperature	T_{TCON}	-	-	105	℃	Horizontal Pattern	(1)
	T_{Driver}	-	-	115		Horizontal Pattern	(1)

Note:

(1) Any point on the IC surface must be less than Max. specification under any condition ,If the surface temperature is out of the specification, thermal solutions should be applied to avoid to be damaged;

4.8 Driver ICESD Specification

The Electro-Static Discharge tolerance of Source COF IC is ±2KV tested by ESD Gun. Especially if the LCD module is designed with the Plastic Bezel, we suggest ESD protection solutions should be applied to avoid be damaged, as shown in Fig.3.4.

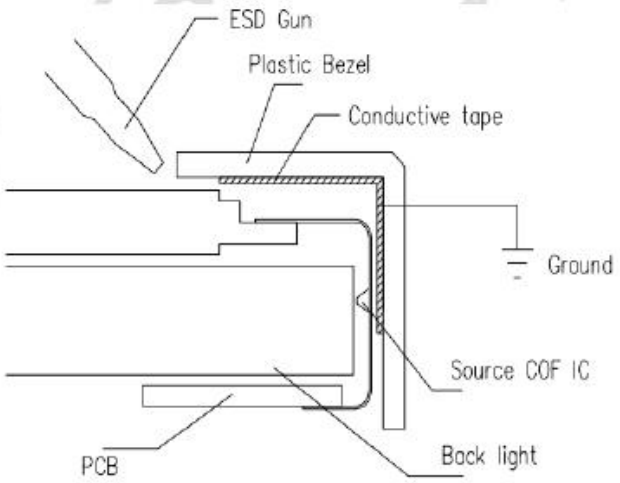


Fig. 3.4 Diver IC ESD protection

5. Interface Timing

5.1 Timing Table (DE Only Mode)

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
LVDS Receiver Clock	Frequency	Fclkin (=1/T_{Clk})	64	74.25	96	MHz	(1) (2)
	Input cycle to cycle jitter	Trcl	—	—	200	ps	(3)
	Spread spectrum modulation range	Fclkin_mod	Fclkin-3%	—	Fclkin+3%	MHz	(4)
	Spread spectrum modulation frequency	F_{SSM}	30	—	200	KHz	
LVDS Receiver Data	Receiver Skew Margin	T_{RSM}	-400	—	400	ps	(5)
Vertical Active Display Term	Frame Rate	F	48	60	75	Hz	
	Total	T_V	1092	1125	1745	T_H	$T_V = T_{VD} + T_{VB}$
	Display	T_{VD}		1080			1080
	Blank	T_{VB}	12	45	665	T_H	
Horizontal Active Display Term	Total	T_H	1046	1100	1174	T_{CLK}	$T_H = T_{HD} + T_{HB}$
	Display	T_{HD}		960			
	Blank	T_{HB}	86	140	214	T_{CLK}	

Note:

(1) The TFT LCD open cell is operated in DE only mode, H sync and V sync input signal have no effect on normal operation.

(2) Please make sure the range of pixel clock follows the following equations:

$Fclkin(max) \geq Fmax \times Tv \times Th$ $Fmin \times Tv \times Th \geq Fclkin(min)$

Main frequency Max is 96Mhz without spread spectrum

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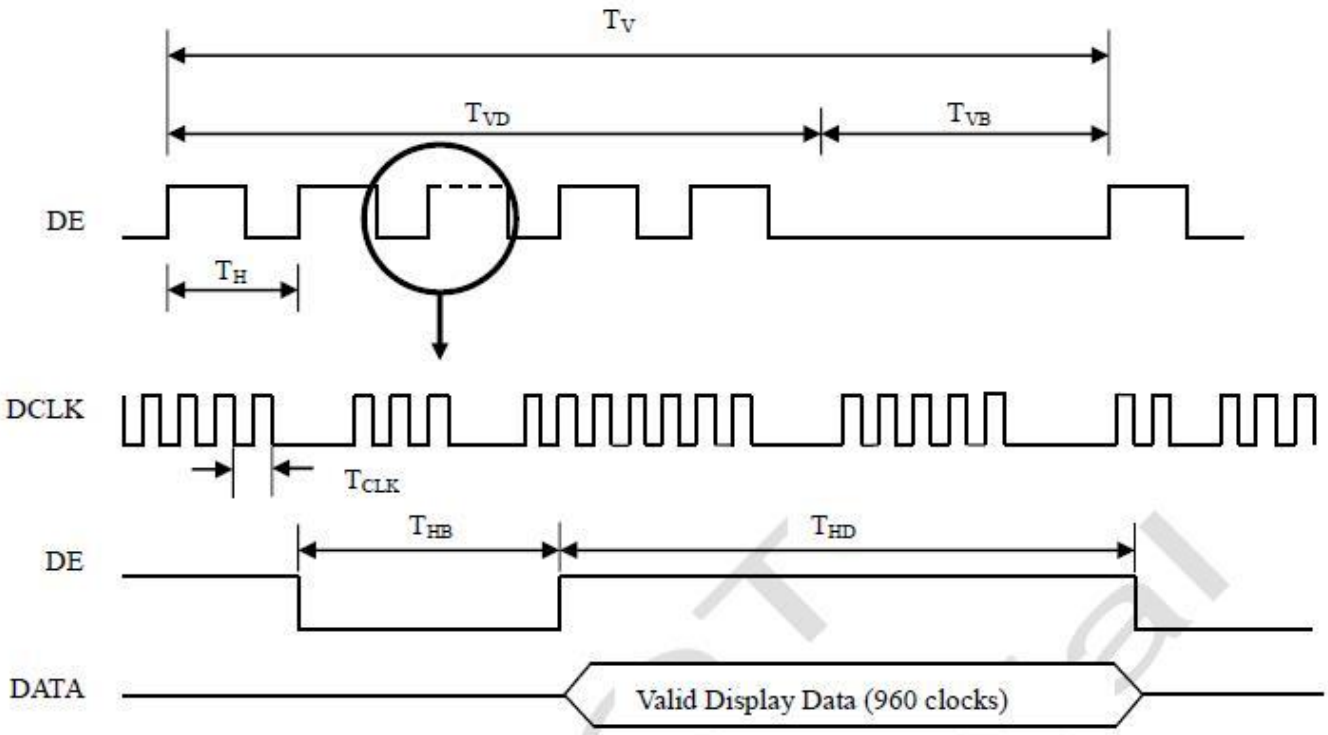


Fig. 5.1 Interface signal timing diagram

(3)The input clock cycle-to-cycle is defined as below figures.

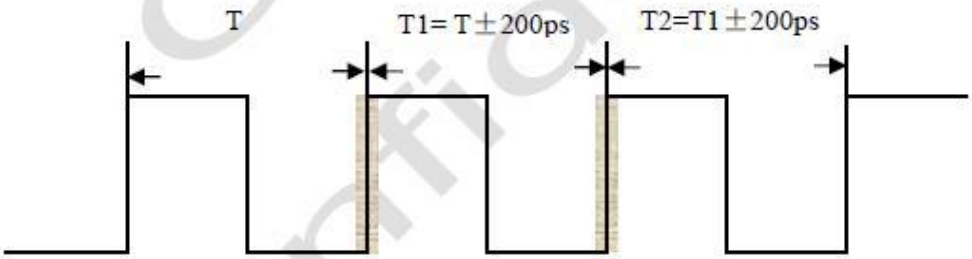


Fig. 5.2 Jitter

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(4) The SSCG (Spread Spectrum Clock Generator) is defined as the following figure.

The LVDS SSCG 's suggestion is off by default, SOC board must test all validation if SOC board open the LVDS SSCG.

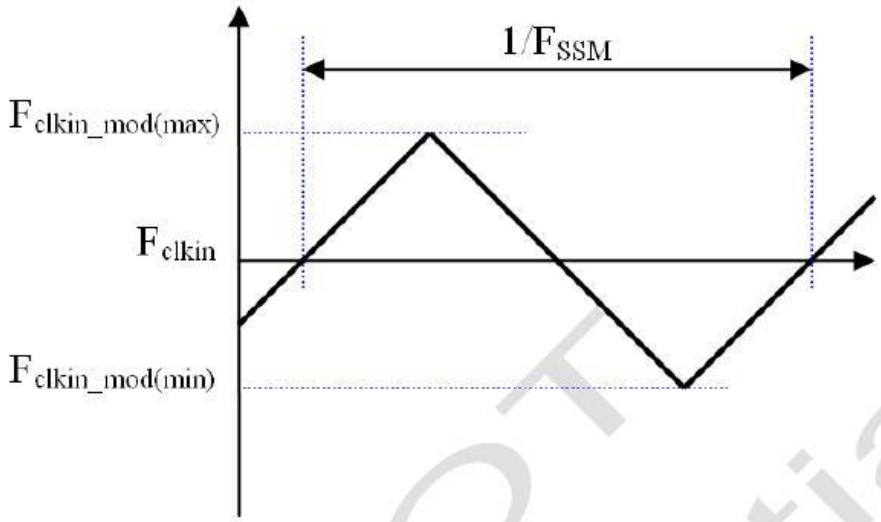


Fig. 5.3 SSCG

(5) The LVDS timing diagram and setup/hold time is defined and showed as the following figure.

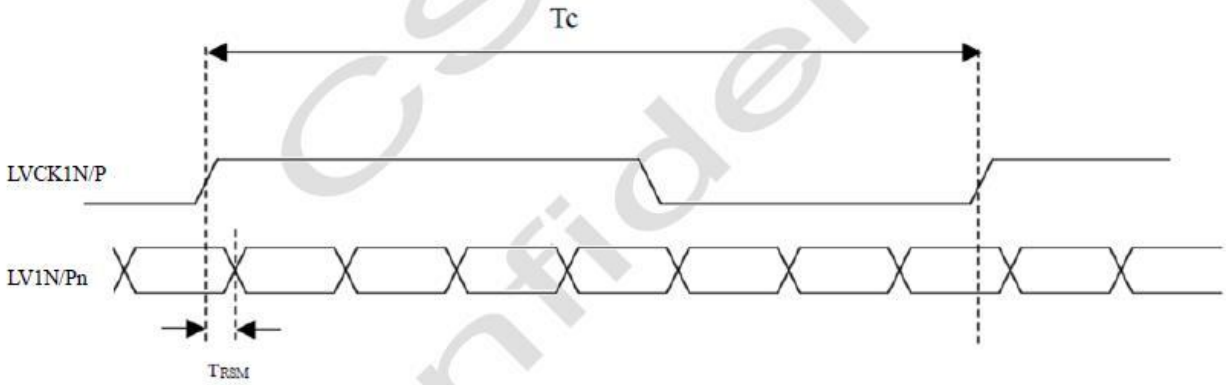


Fig.5.4 LVDS receive interface timing diagram

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5.2 Power On/Off Sequence

To prevent a latch-up or DC operation of the Open cell, the power on/off sequence should be as the diagram below.

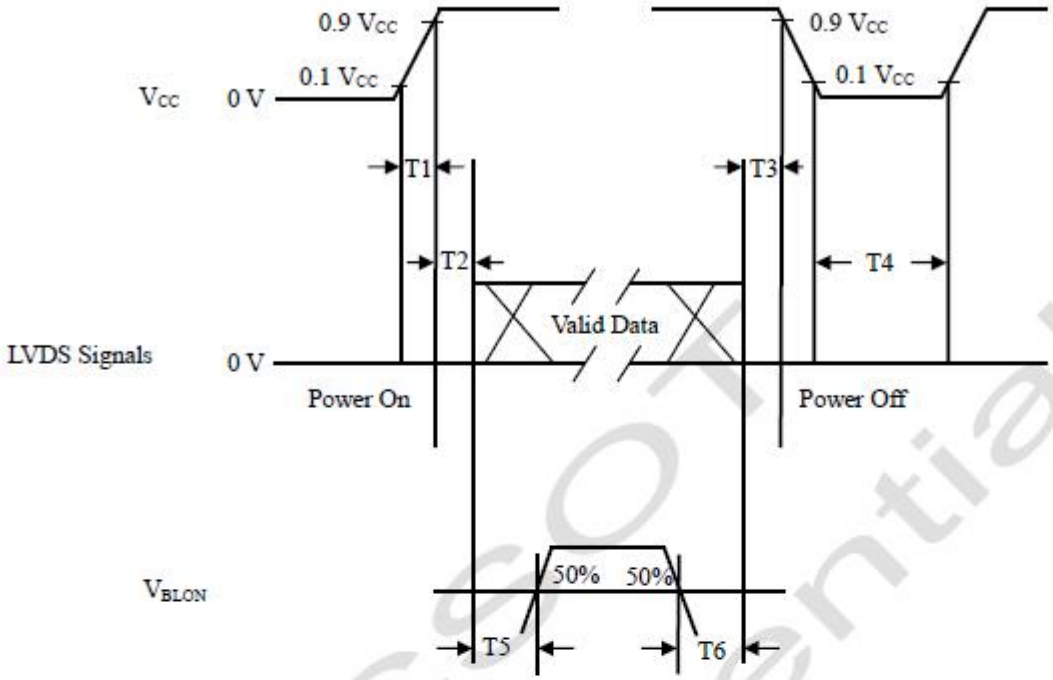


Fig.5.5 Power on/off sequence

Parameter	Values			Unit
	Min.	Typ.	Max.	
T1	0.5	-	10.0	ms
T2	0.0	-	50	ms
T3	0.0	-	50	ms
T4	1000.0	-	-	ms
T5	500.0	-	-	ms
T6	100.0	-	-	ms

Attention:

(1) The supply voltage of the external system for the open cell input should follow the definition of VCC.

(2) When the customer's backlight turns on before the LCD operation or the LCD turns off before the backlight turns off, the display may momentarily become abnormal screen.

(3) In case that VCC is in off level, please keep the level of input signals on the low or high impedance. If T2 < 0, that may cause electrical overstress.

(4) T4 should be measured after the module has been fully discharged between power off and on period.

(5) Interface signal shall not be kept at high impedance when the power is on.

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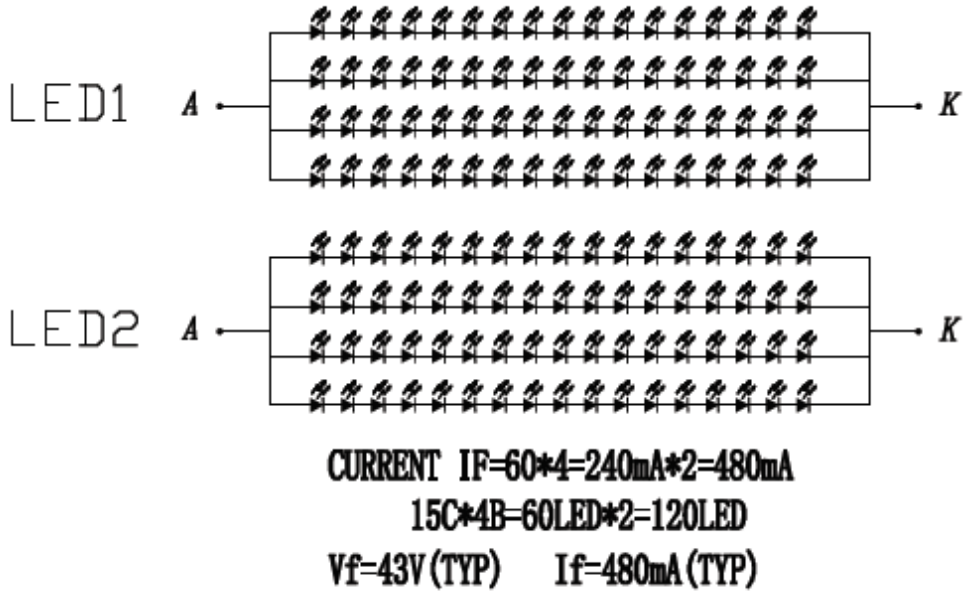
5.3 Back-light Unit:

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
LED Current	IF	–	480	–	mA	–	–
LED Voltage	VF	42	43	45	V	I=480mA	–
Life Time		25000	–	–	Hr.	I=480mA	–
CTP+LCM Brightness		–	650	–	cd/㎡	I=480mA	
Color	White						

Note (1) Permanent damage may occur to the LCD module if beyond this specification. Functional operation should be restricted to the conditions described under normal operating conditions.

(2)Ta=25±2℃

(3)Test condition: LED Current 480 mA



6. Functional Block Diagram

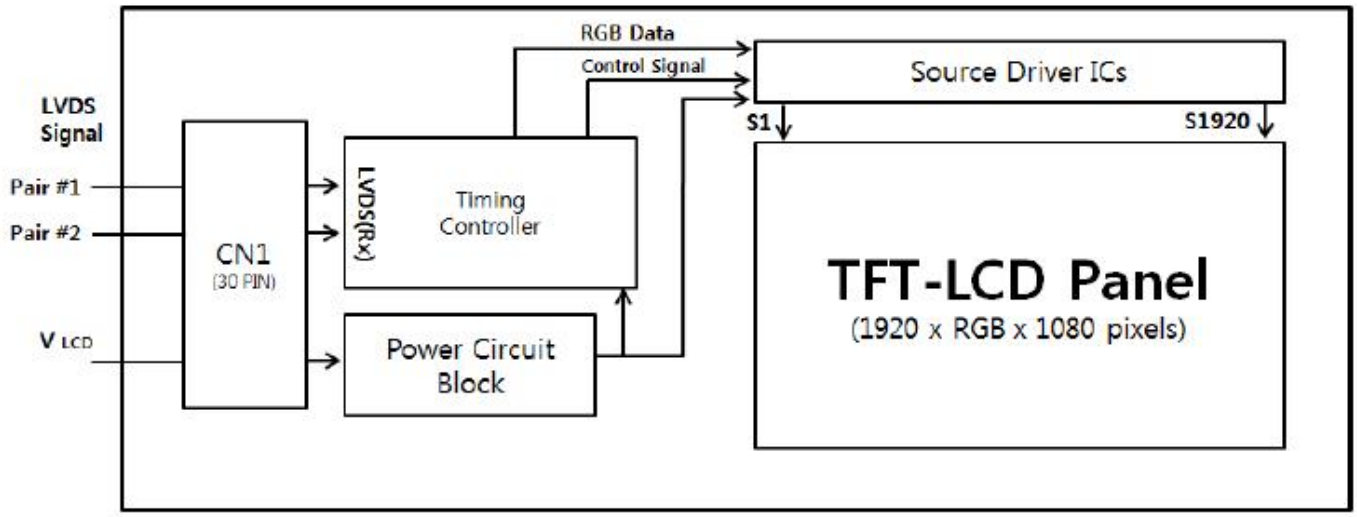


Fig. 1.1 Block Diagram

7.0 Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	Vcc	-0.3	5.75	V	Ta=25 ℃
Input Signal Voltage	Vin	-0.3	3.6	V	Ta=25 ℃

7.1 Environment Requirement(Based on CSOT's BLU)

(1) Temperature and relative humidity range are shown as below.

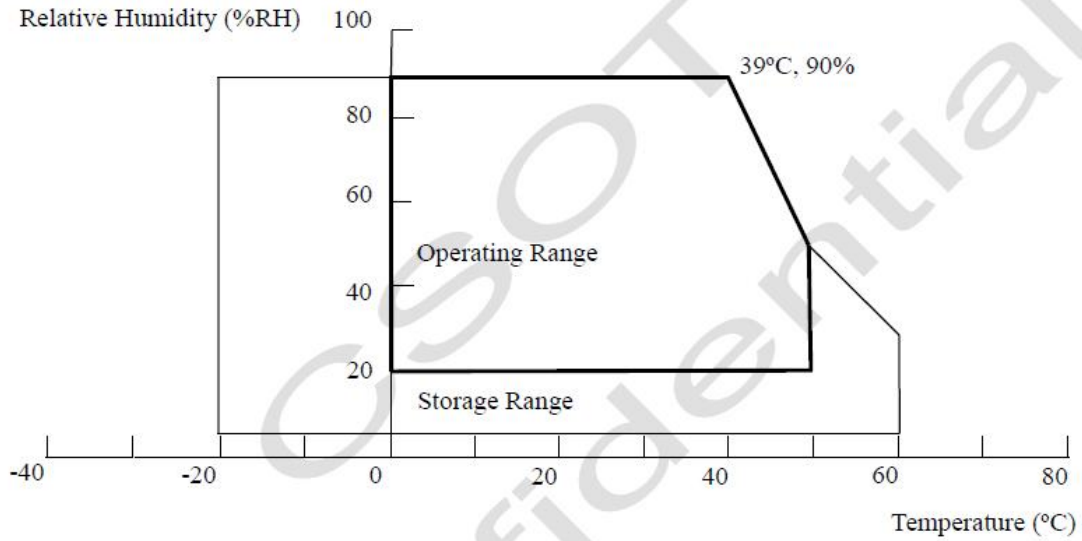


Fig. 2.1 Operating and storage environment

(a) 90%RH maximum ($T_A \leq 39$ °C).

(b) Wet-bulb temperature should be 39°C maximum ($T_A > 39$ °C).

(c) No condensation.

(2) The storage temperature is between - 20 °C to 60 °C, and the operating ambient temperature is between 0 °C to 50 °C

The maximum operating temperature is based on the test condition that the surface temperature of display area is less than or equal to 65°C with LCD module in a temperature controlled chamber alone. Thermal management should be considered in final product design to prevent the surface temperature of display area from being over 65°C. The range of operating temperature may degrade in case of improper thermal management in the end product design.

(3) The rating of environment is based on LCD module. Leave LCD cell alone, this environment condition can't be guaranteed. Except LCD cell, the customer has to consider the ability of other parts of LCD module and LCD module process.

7.2 Absolute Ratings of Environment (Open Cell)

When storing open cell as spares for a long time, please follow the precaution instructions:

(1) Do not store the open cell in high temperature and high humidity for a long time. It is highly recommended to store the c cell with temperature from 20°C to 30°C in normal humidity (50 ± 10%RH) with shipping package.

(2) The open cell should be kept within one month shelf life.

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8.0 Optical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit	Remark
Response Time	Tr+Tf	θ= 0°	-	6.5	12	ms	Note 3
Contrast Ratio	CR	θ= 0°	2000	3000	-		Note 2,4
Viewing Angle	Top(12 o'clock)	CR≧10	85	89	-	deg	Note 1
	Bottom(6 o'clock)		85	89	-		
	Left(9 o'clock)		85	89	-		
	Right(3 o'clock)		85	89	-		
Color Chromaticity	Wx	θ= 0°	-0.03	0.305	+0.03		Note 5
	Wy			0.318			
	Rx			-			
	Ry			-			
	Gx			-			
	Gy			-			
	Bx			-			
	By			-			
Cross Talk	Ct		-		4	%	Note 6
Color Gamut	CG		68	72	-	%	NTSC
Luminance uniformity	YU		70%	-	-	%	

1.5 Measuring Condition

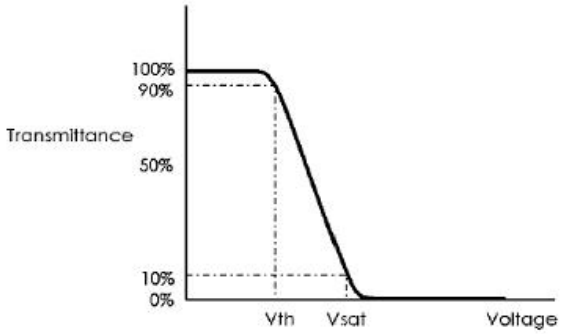
- Measuring surrounding : dark room
- Ambient temperature : 25±2℃
- 30min. warm-up time.

1.6 Measuring Equipment

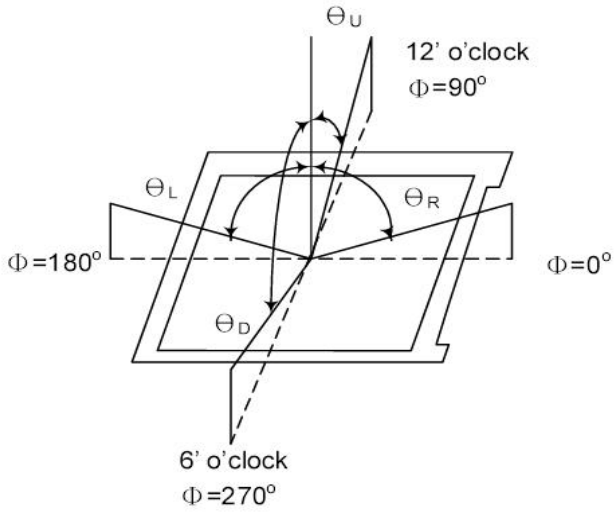
- TOPCON BM-7

- Measuring spot size : field 2°

Note (1) Definition of Vsat and Vth (at 20℃)



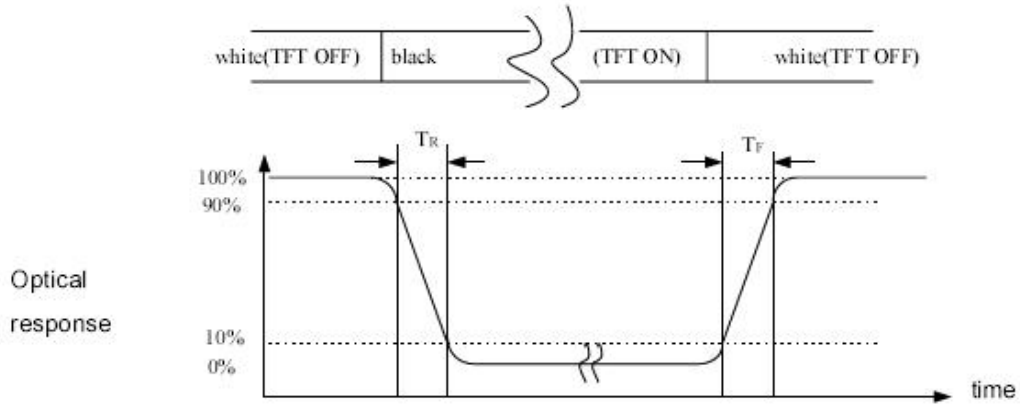
Note (2) Definition of Viewing Angle :



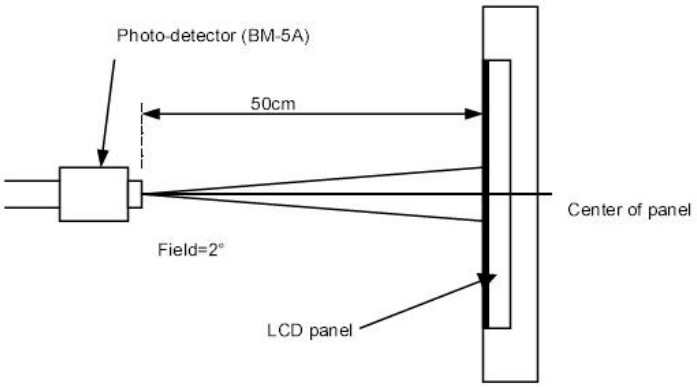
Note (3) Definition of Contrast Ratio(CR) :
measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

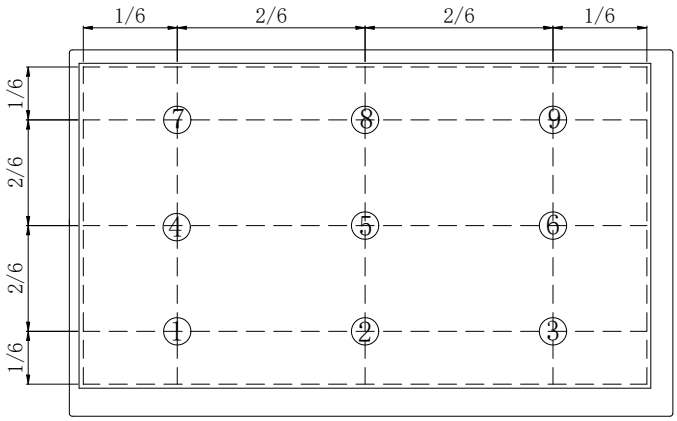
Note (4) Definition of Response Time : Sum of T_R and T_F



Note (5) Definition of optical measurement setup



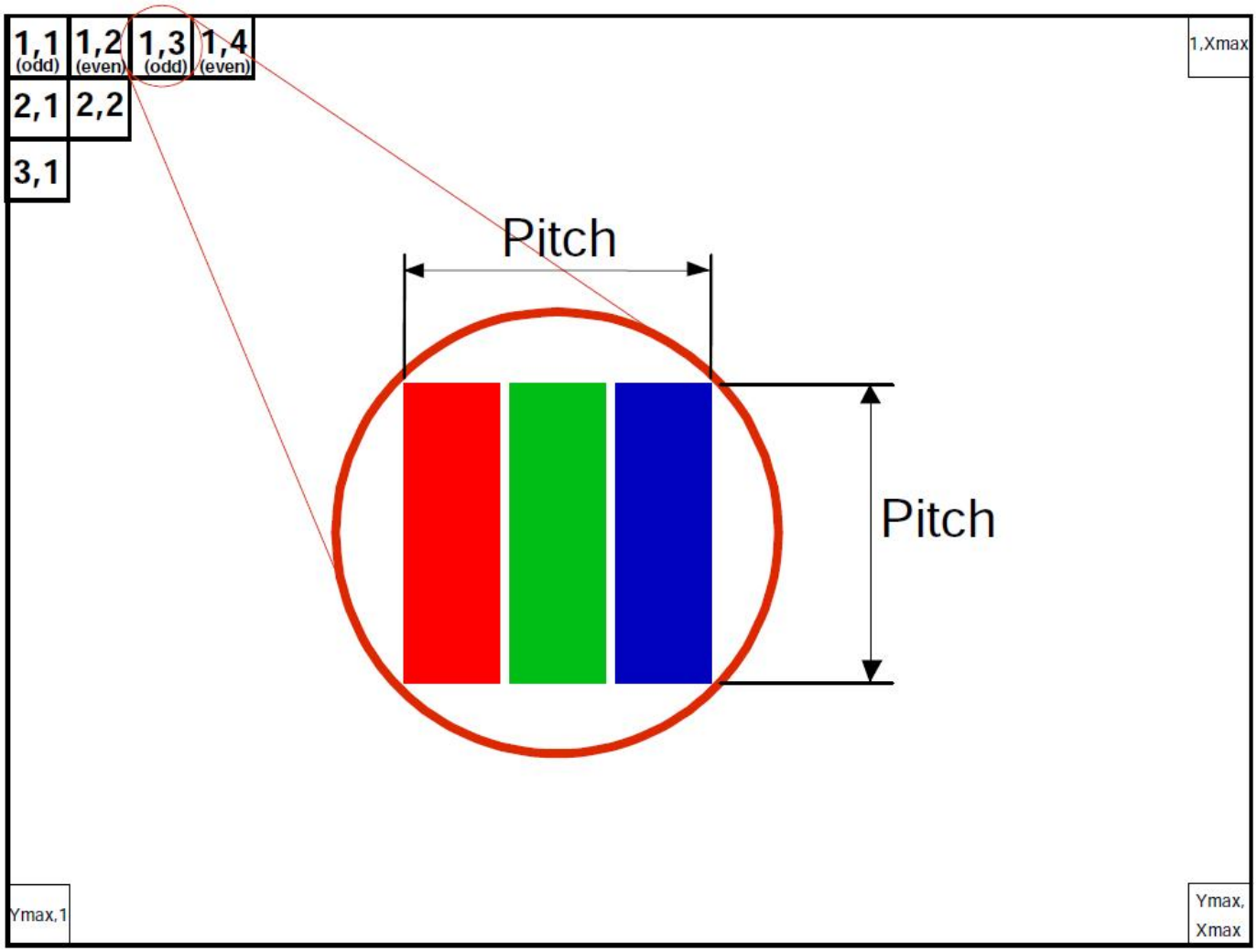
Note (6) Definition of brightness uniformity



Note (7) Rubbing Direction (The different Rubbing Direction will cause the different optima view direction.

9.0 Signal Characteristic

9.1 Pixel Format Image



10. 主芯片简介 RK3566 Brief

10.1 RK3566 芯片具备高性能、高扩展性特点，硬件性价比处于行业领先地位。

- CPU：四核 64 位 Cortex-A55 架构，基于高端 22nm 工艺打造，主频最高 1.8GHz。
- GPU：ARM Mali-G52 2EE，支持 OpenGL ES 1.1/2.0/3.2，OpenCL 2.0，Vulkan 1.1，内嵌高性能 2D 加速硬件
- NPU：支持 1Tops 算力
- 多媒体：支持 4K 60fps H.265/H.264/VP9 视频解码；支持 1080P 100fps H.265/H.264 视频编码；支持 8M ISP
- 显示：支持 eDp/HDMI2.0/MIPI/LVDS/24bit RGB/T-CON 和双屏同显
- 接口：支持 USB2.0/USB3.0/PCIE2.0/SATA3.0/GMAC



***相关功能为 CPU 内部特性，主板是否支持请以相应的接口说明为准。**

2.产品概述 Product Overview

H-3566 主板基于瑞芯微 RK3566 高性能大小核架构应用处理器平台，RK3566 主芯片集成四核 Cortex-A55、Mali-G52 2EE 高性能 GPU，主频最高可达 1.8GHz，具备超强的计算性能、2D/3D 图形处理能力和全高清视频编解码能力，完美支持 4Kx2K@60fps 超清解码和 4Kx2K HDMI 超清输出。

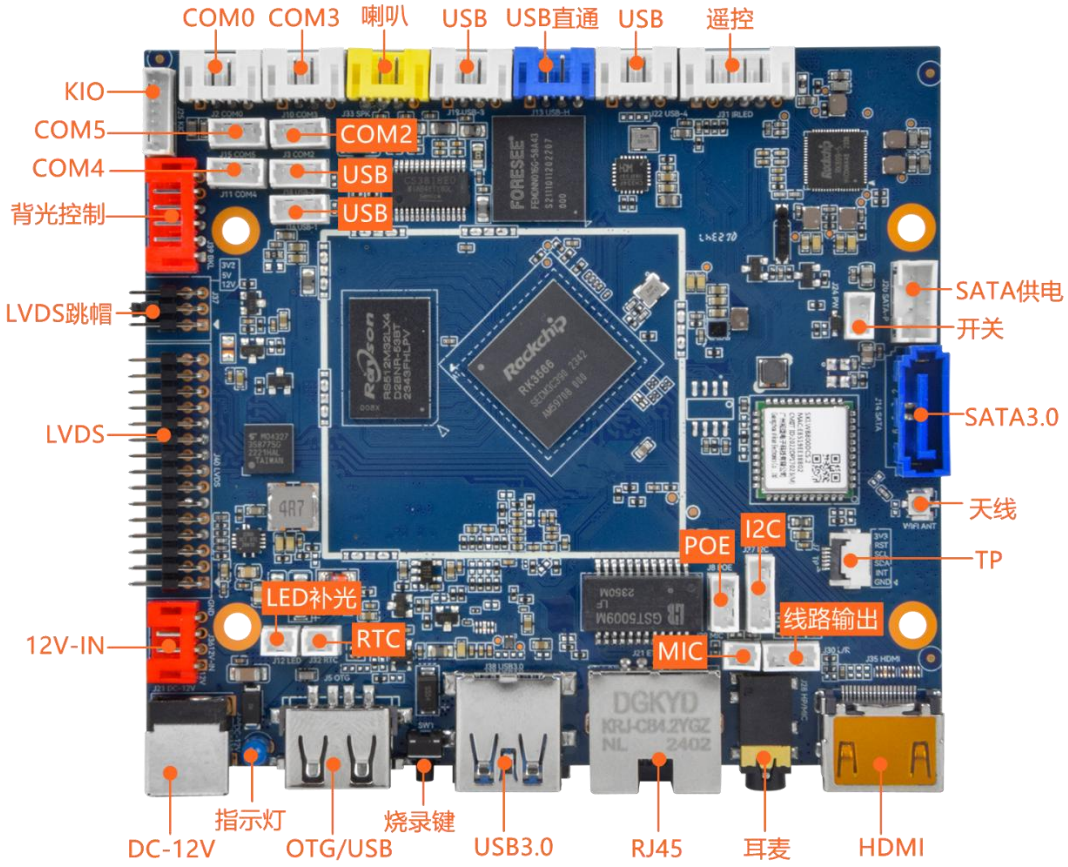
H-3566 mainboard is based on Rockchip RK3566 high-performance application processor platform. RK3566 is a low power, high performance processor for computing, personal mobile internet devices and other smart device applications. It integrates quad-core Cortex-A55 clocked at up to 1.8GHz, with superior computing performance, 2D/3D graphics processing capabilities and Full HD video codec capabilities. It perfectly supports 4Kx2K@60fps decoding and 4Kx2K HDMI output.

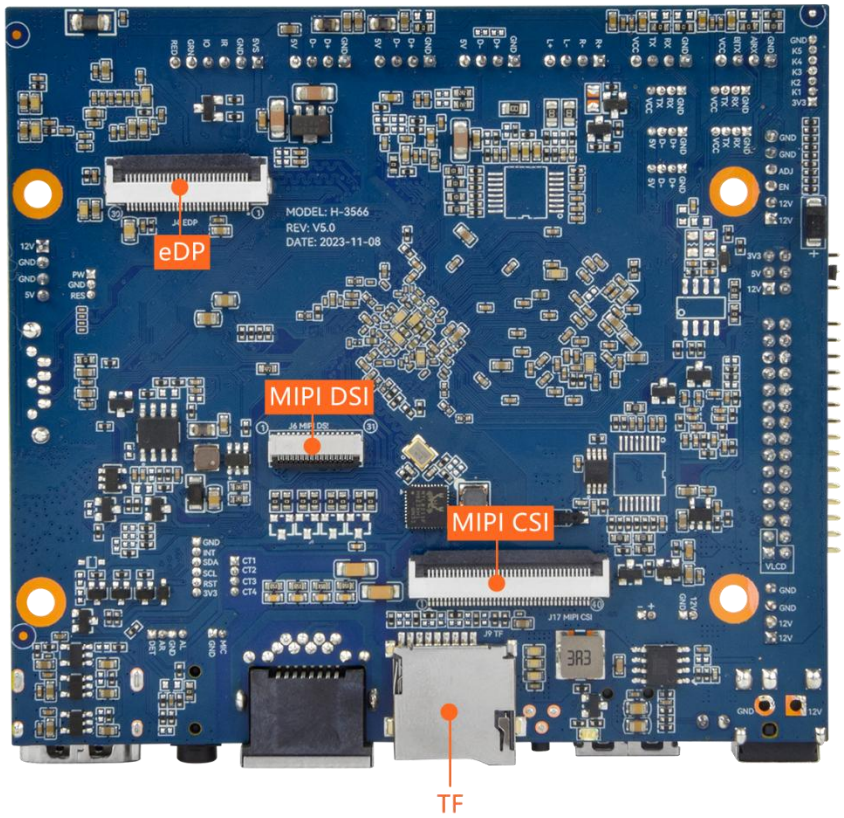
此款主板专门针对**超薄**应用进行严格选材和设计，紧凑的尺寸和丰富的接口方便其集成到整机中，为最终的产品带来流畅的体验和超强的性能，可应用于数字标牌、触摸互动、消费电子、娱乐系统等行业。

This mainboard is specially designed for **ultra-thin** applications with strict material selection and design. The compact size and rich interface facilitate its integration into the complete machine, bringing a smooth experience and superior performance to the final product. It can be applied to digital signage, touch interactive, consumer electronics, entertainment systems and other industries.

H-3566 V5.0 主板实物照片接口示意图如下所示。

H-3566 V5.0 mainboard actual interface diagram as shown below.


COM0
COM3
喇叭
USB
USB直通
USB
遥控
KIO
COM5
COM4
背光控制
LVDS跳帽
LVDS
12V-IN
COM2
USB
USB
SATA供电
开关
SATA3.0
天线
TP
I2C
POE
LED补光
RTC
MIC
线路输出
DC-12V
指示灯
OTG/USB
烧录键
USB3.0
RJ45
耳麦
HDMI


eDP
MODEL: H-3566
REV: V5.0
DATE: 2023-11-08
MIPI DSI
MIPI CSI
TF

3.规格清单 Specification List

H-3566 的系统功能和接口特性如下表所示。H-3566's system functions and interface features are shown in the following table.

功能&接口 Function & Interface	详细描述 Detailed Description
CPU	RK3566 Cortex-A55 四核，最高主频 1.8GHz RK3566 Cortex-A55 quad-core, up to 1.8GHz
DDR	LPDDR4 2GB（4GB|8GB 可选） LPDDR4 2GB (4GB|8GB optional)
存储 Storage	默认标配 8GB EMMC NAND 芯片，可扩展至最大 128GB The default comes with an 8GB EMMC NAND chip that can scale up to 128GB
LVDS	30 针行业标准双路 LVDS 接口，支持 VESA/JEITA 格式，最高支持 1080P 输出 30-pin industry-standard dual LVDS supporting VESA/JEITA format up to 1080P output
HDMI 输出 HDMI Output	HDMI 2.0a 标准显示接口，最高支持 4K 输出 HDMI 2.0a standard display interface supports up to 4K output
MPI-DSI 输出 MIPI-DSI Output	31 针行业标准 FPC MIPI 屏接口，可扩展 MIPI 显示输出 31-Pin common MIPI DSI interface for extended MIPI panel sub-board
EDP	30 针行业标准 FPC EDP 接口，支持 1~2 通道模式，最高支持 1080P 输出 30-pin common FPC EDP supporting 1~2 lanes format up to 1080P output
MIPI-CSI	40-Pin FPC 双目 MIPI-CSI 摄像头接口 40-Pin FPC Dual MIPI-CSI camera port
耳机/麦克 HP/MIC	支持美标 4 段耳麦一体 3.5mm 插座（左-右-地-麦克） Support CTIA 4-pole HP/MIC socket (Left-Right-GND-Mic)
线路输出 Line Output	支持标准左右声道线路输出（排针接口） Support standard left and right channel line output (pin header)
功放输出 Amplifier output	8 欧·6W 双路音频功放输出 8 Ohm 6W Dual Audio Amplifier Output
MIC 输入 MIC Input	单端 MIC 输入（排针接口） Single-End MIC input (pin header)
USB 接口 USB Interface	1 个横插 USB 3.0 接口，1 个横插 USB 2.0 OTG 口，5 个内置排针（其中 1 个 CPU 直通 USB） 1 horizontal USB 3.0, 1 horizontal USB 2.0 OTG, 5 pin headers (one is CPU raw USB)
串口 Serial Port	4 个 TTL/RS-232 兼容内置、1 个 TTL/RS-485 兼容内置 4 TTL/RS-232 compatible, 1 TTL/RS-485 compatible
TF 卡 Micro SD Card	自弹式 TF 卡插座，最高支持 256GB TF 卡 Self-elastic micro SD card socket, up to 256GB capacity
摄像头 Camera	支持 800 万像素以内 USB 摄像头 Support USB camera within 8 million pixels
WiFi	内置高性能 SDIO 接口 WiFi6 模块，支持 IEEE 802.11 b/g/n/ax，默认配置单频 2.4GHz Built-in high performance SDIO interface WiFi6 module, support IEEE 802.11 b/g/n/ax

功能&接口 Function & Interface	详细描述 Detailed Description
蓝牙 **Bluetooth**	内置高性能串口蓝牙模块，支持 V2.1+EDR/BT v3.0/BT v3.0+HS/BT v4.0/BT v5.2 Built-in high performance serial interface BT module with support for V2.1+EDR/BT v3.0/BT v3.0+HS/BT v4.0/BT v5.2
以太网口 **Ethernet**	10/100/1000M 自适应以太网 RJ45 网口**+4 芯 POE 供电排针** 10/100/1000M Adaptive Ethernet RJ45 connector with **4-Pin POE header**
背光控制 **Backlight Control**	行业标准液晶屏背光控制接口，支持背光开关和亮度调节 Industry standard LCD backlight control header, support for backlight switch and brightness adjustment
红外遥控 **Infrared RC**	标准红外接收排针接口 Standard infrared receiver pin header
GPIO 信号 **GPIO Signals**	5 路 GPIO 信号，可扩展 GPIO 按键和/或 3.3V 输入/输出 5-way GPIO signals for such as GPIO buttons and/or 3.3V digital input/output
I2C 总线 **I2C Bus**	I2C 排针+FPC 接口，可扩展 I2C 电容屏等 I2C pin header and FPC for I2C capacitive screen and etc
SATA 硬盘 **SATA HD**	标准 SATA 3.0 硬盘接口（带电源排针） Standard SATA 3.0 hard disk port with power supply header
实时时钟 **Real Time Clock**	超低功耗 RTC 电路（带 CR1220 纽扣电池），并可支持定时开关机 Ultra-low-power RTC circuit (CR1220 battery) with timer and alarm functionalities
指示灯 **LED Indicator**	蓝色工作指示灯 Blue LED indicator for running
按键 **Buttons**	烧录键（RECOVERY）和电源键 Recovery mode button and power switch button
电源输入 **DC Input**	支持 9~15V 宽电压直流电源输入 Supports 9~15V wide voltage DC power input
环境要求 **Ambient Requirement**	工作温度-20°C ~ 70°C，工作湿度 0%~95%（不结露） Working temperature -20°C ~ 70°C, working humidity 0%~95% (non-condensing)
物理尺寸 **Physical Size**	长*宽*高（100mm*90mm*9mm），**PCB 正面高度 7mm** Length*Width*Height (100mm*90mm*9mm), **PCB top side height 7mm**
操作系统 **Operating System**	推荐安卓 11，可选 Linux Buildroot/Debian 10/Ubuntu-18.04 Recommended Android 11，Linux Buildroot/Debian 10/Ubuntu-18.04 optional

4.接口定义 Interface definition

➢ J1 DC-12V 插座 DC-12V Socket

【J1】DC-12V 电源插座，内正外负，内芯直径 2.0mm，外圈孔径 5.5mm。[J1] DC-12V power socket, positive outer and negative inner, inner pin diameter 2.0mm, outer ring diameter 5.5mm.

注意：该接口的丝印在板卡上错误标注为 J21。

➢ J2 数据串口 0 Data Serial Port 0

【J2】内置串口 0（单排 2.0mm-方孔为 1 脚）,默认为 TTL 3.3V 电平且可配置为 RS-485 电平（焊接 U67 则为 RS-485 电平）；**对应的软件编程设备节点为 ttyS0。**[J2] Built-in Serial Port 0 (SIP 2.0mm-Square pad is pin 1). The output level is TTL 3.3V by default and it could be setup to RS-485 if required (RS-485 if U67 mounted). **The related software device node name is ttyS0**.

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	RX|A	数据接收或 A+（TTL 或 RS-485电平）Data receive (TTL or RS-485 level)
3	TX|B	数据发送或 B-（TTL 或 RS-485电平）Data transmit (TTL or RS-485 level)
4	VCC	电源输出（默认3.3V，可选5V）Power output (Default 3.3V, 5V option)

➢ J3 数据串口 2 Data Serial Port 2

【J3】内置串口 2（单排 1.25mm-方孔为 1 脚）,默认为 TTL 3.3V 电平且可配置为 RS-232 电平（焊接 U9843 则为 RS-232 电平）；**对应的软件编程设备节点为 ttyS2。**[J3] Built-in Serial Port 2 (SIP 1.25mm-Square pad is pin 1). The output level is TTL 3.3V by default and it could be setup to RS-232 if required (RS-232 if U9843 mounted). **The related software device node name is ttyS2**.

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	RX	数据接收（TTL 或 RS-232电平）Data receive (TTL or RS-232 level)
3	TX	数据发送（TTL 或 RS-232电平）Data transmit (TTL or RS-232 level)
4	VCC	电源输出（默认3.3V，可选5V）Power output (Default 3.3V, 5V option)

注意：内置串口 2 为系统调试信息输出口，如果作为数据串口使用，则请联系供应商获取定制版本软件；在上电的前 5 秒此串口会输出启动信息（上位机或下位机需要处理数据容错）。Note: If you need to use the built-in serial port 2 as a data serial port, please contact the supplier to obtain the

customized software; this serial port will output the startup information in the first 5 seconds of power on (the upper or lower machine should handle this kind of data fault tolerance).

➢ J4 eDP 输出 FPC 接口 eDP Output FPC Header

【J4】eDP 屏 FPC 接口（FPC-0.5m 30-Pin **下接触**）。[J4] eDP Panel FPC Connector (FPC-0.5mm 30-Pin Bottom Contact).

Pin#	Definition	Note
1	NC	未连接 Not Connected
2	GND	数字地 Digital Ground
3	EDP_TX1N	TX1-差分数据输出 TX1- differential output
4	EDP_TX1P	TX1+差分数据输出 TX1+ differential output
5	GND	数字地 Digital Ground
6	EDP_TX0N	TX0-差分数据输出 TX0- differential output
7	EDP_TX0P	TX0+差分数据输出 TX0+ differential output
8	GND	数字地 Digital Ground
9	EDP_AUXP	AUX+差分辅助通道 AUX+ differential channel
10	EDP_AUXN	AUX-差分辅助通道 AUX- differential channel
11	GND	数字地 Digital Ground
12	LCD_VCC	逻辑电源（3.3V 或5V） Logic Power (3.3V or 5V)
13	LCD_VCC	逻辑电源（3.3V 或5V） Logic Power (3.3V or 5V)
14	NC	未连接 Not Connected
15	GND	数字地 Digital Ground
16	GND	数字地 Digital Ground
17	NC	未连接 Not Connected
18	BL_GND	背光 LED 地 Backlight LED Ground
19	BL_GND	背光 LED 地 Backlight LED Ground
20	BL_GND	背光 LED 地 Backlight LED Ground
21	BL_GND	背光 LED 地 Backlight LED Ground
22	BL_EN	背光使能 Backlight Enable
23	BL_PWM	背光亮度 PWM Backlight Brightness PWM
24	NC	未连接 Not Connected
25	NC	未连接 Not Connected
26	BL_POWER	背光电源（12V） Backlight Power (12V)
27	BL_POWER	背光电源（12V） Backlight Power (12V)
28	BL_POWER	背光电源（12V） Backlight Power (12V)
29	BL_POWER	背光电源（12V） Backlight Power (12V)
30	NC	未连接 Not Connected

说明：LVDS 屏线可参考如下图片，常规的LVDS可使用反向的转接排线，具体请根据屏的手册确定。

➢ J5 USB 2.0 OTG 插座 USB 2.0 OTG Type A

【J5】USB 2.0 OTG 横插标准 Type A 插座（标准插座）。[J5] USB 2.0 OTG Horizontal Type A (Standard jack).

注意：此接口接到内部 USB_OTG0 信号，上电瞬间默认为固件烧录口，可连接 PC 电脑进行软件烧录；进入安卓后可通过软件设置为 USB ADB 调试口或者普通 USB Host 接口。

➢ J6 MIPI 输出接口 MIPI Output Header

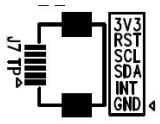
【J6】MIPI 屏 FPC 接口（FPC-0.3mm 31-Pin **上/下接触**）。[J6] MIPI Panel FPC Connector (FPC-0.3mm 31-Pin Top/Bottom Contact).

Pin#	Definition	Note
1	LED+	LED 阳极 LED Anode
2	LED+	LED 阳极 LED Anode

3	LED+	LED 阳极 LED Anode
4	NC	未连接 Not Connected
5	LED-	LED 阴极 LED Cathode
6	LED-	LED 阴极 LED Cathode
7	LED-	LED 阴极 LED Cathode
8	LED-	LED 阴极 LED Cathode
9	GND	数字地 Digital Ground
10	GND	数字地 Digital Ground
11	MIPI_D2P	+MIPI 差分数据输出 +MIPI differential lane2
12	MIPI_D2N	-MIPI 差分数据输出 -MIPI differential lane2
13	GND	数字地 Digital Ground
14	MIPI_D1P	+MIPI 差分数据输出 +MIPI differential lane1
15	MIPI_D1N	-MIPI 差分数据输出 -MIPI differential lane1
16	GND	数字地 Digital Ground
17	MIPI_CKP	+MIPI 差分时钟输出 +MIPI differential clock output
18	MIPI_CKN	-MIPI 差分时钟输出 -MIPI differential clock output
19	GND	数字地 Digital Ground
20	MIPI_D0P	+MIPI 差分数据输出 +MIPI differential lane0
21	MIPI_D0N	-MIPI 差分数据输出 -MIPI differential lane0
22	GND	数字地 Digital Ground
23	MIPI_D3P	+MIPI 差分数据输出 +MIPI differential lane3
24	MIPI_D3N	-MIPI 差分数据输出 -MIPI differential lane3
25	GND	数字地 Digital Ground
26	VDD-1V8	供电输出1.8V Power Supply 1.8V （默认不连接，需加焊 R9232 0R）
27	RESET	复位信号（1.8V 电平） Reset Signal in 1.8V
28	GND	数字地 Digital Ground
29	VDD-1V8	供电输出1.8V Power Supply 1.8V
30	VDD-3V3	供电输出3.3V Power Supply 3.3V
31	VDD-3V3	供电输出3.3V Power Supply 3.3V

➢ J7 触摸屏 FPC 接口 TP FPC Header

【J7】触摸屏 FPC 接口（FPC-0.5mm 前插后翻盖上下接触-三角为 1 脚）。[J7] TP FPC Header (FPC-0.5mm Bottom Contact Triangle Pin-1).



Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	INT	中断输入（3.3V 电平） Interrupt input (3.3V level)
3	SDA	I2C 总线数据信号 I2C Bus data signal

4	SCL	I2C 总线时钟信号 I2C Bus clock signal
5	RST	复位输出（3.3V 电平） Mainboard reset output (3.3V level)
6	3V3	3.3V 供电输出 Power output supply 3.3V

➢ J8 POE 受电接口 POE PD Header

【J8】POE 受电接口（单排 1.25mm-方孔为 1 脚）。[J8] POE PD Header (SIP 1.25mm-Square pad is pin 1)

Pin#	Definition	Note
1	CT1	中心抽头4 Transformer Center1
2	CT2	中心抽头3 Transformer Center2
3	CT3	中心抽头2 Transformer Center3
4	CT4	中心抽头1 Transformer Center4

注意：POE 受电接口电源来自于 J21 以太网口，此接口外接 POE 受电转换板进行 12V 供电转换，12V 电源的电流大小受 POE 交换机的供电能力和转接板转换能力影响，典型电流在 1~1.5A。此接口支持网线 1/2 线为正、3/6 线为负的 POE 供电设备，也可以接网线 4/5 线为正、7/8 线为负的 POE 供电设备。

➢ J9 TF 卡插座 TF Card Socket

【J9】标准 TF 卡插座。[J9] Standard TF Card Socket.

➢ J10 数据串口 3 Data Serial Port 3

【J10】内置串口 3（单排 2.0mm-方孔为 1 脚）,默认为 TTL 3.3V 电平且可配置为 RS-232 电平（焊接 U9833 则为 RS-232 电平）；**对应的软件编程设备节点为 ttyS3。**[J10] Built-in Serial Port 3 (SIP 2.0mm-Square pad is pin 1). The output level is TTL 3.3V by default and it could be setup to RS-232 if required (RS-232 if U9833 mounted). **The related software device node name is ttyS3**.

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	RX	数据接收（TTL 或 RS-232电平） Data receive (TTL or RS-232 level)
3	TX	数据发送（TTL 或 RS-232电平） Data transmit (TTL or RS-232 level)
4	VCC	电源输出（默认3.3V，可选5V） Power output (Default 3.3V, 5V option)

➢ J11 数据串口 4 Data Serial Port 4

【J11】内置串口 4（单排 1.25mm-方孔为 1 脚）,默认为 TTL 3.3V 电平且可配置为 RS-232 电平（焊接 U9833 则为 RS-232 电平）；**对应的软件编程设备节点为 ttyS4。**[J11] Built-in Serial Port 4 (SIP 1.25mm-Square pad is pin 1). The output level is TTL 3.3V by default and it could be setup to RS-232 if required (RS-232 if U9833 mounted). **The related software device node name is ttyS4**.

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	RX	数据接收（TTL 或 RS-232电平） Data receive (TTL or RS-232 level)
3	TX	数据发送（TTL 或 RS-232电平） Data transmit (TTL or RS-232 level)
4	VCC	电源输出（默认3.3V，可选5V） Power output (Default 3.3V, 5V option)

➢ J12 LED 补光开关 LED Power Switch

【J12】LED 补光电源 12V（单排 1.25mm-方孔为 1 脚）。[J12] LED Power Switch (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	GND	电源地 Power Ground
2	12V	12V 可开关控制电源输出（编号118） 12V Switch Power Output (IO #118)

➢ J13 USB 2.0 接口 USB 2.0 Host Header

【J13】USB 2.0 接口（单排 2.0mm-方孔为 1 脚）。[J13] USB 2.0 Host Header (SIP 2.0mm-Square pad is pin 1).

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	D+	USB 差分数据+ USB Differential Data+
3	D-	USB 差分数据- USB Differential Data-
4	5V	5V 输出 Power output 5V

注意：此接口为 CPU 内部直通 USB2_Host3 口，USB 2.0 摄像头等高速设备建议使用此独立接口。

➢ J14 SATA 3.0 硬盘数据线插座 SATA 3.0 Hard Disk Socket

【J14】SATA 3.0 硬盘标准 7 芯数据线插座。[J14] SATA 3.0 Hard Disk Standard 7-Pin Data Cable Socket.

➢ J15 数据串口 5 Data Serial Port 5

【J15】内置串口 5（单排 1.25mm-方孔为 1 脚）,默认为 TTL 3.3V 电平且可配置为 RS-232 电平（焊接 U9843 则为 RS-232 电平）；**对应的软件编程设备节点为 ttyS5。**[J15] Built-in Serial Port 5 (SIP 1.25mm-Square pad is pin 1). The output level is TTL 3.3V by default and it could be setup to RS-232 if required (RS-232 if U9843 mounted). **The related software device node name is ttyS5**.

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	RX	数据接收（TTL 或 RS-232电平） Data receive (TTL or RS-232 level)
3	TX	数据发送（TTL 或 RS-232电平） Data transmit (TTL or RS-232 level)
4	VCC	电源输出（默认3.3V，可选5V） Power output (Default 3.3V, 5V option)

➢ J16 USB 2.0 接口 USB 2.0 Host Header

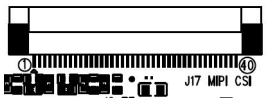
【J16】USB 2.0 接口（单排 1.25mm-方孔为 1 脚）。[J16] USB 2.0 Host Header (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	D+	USB 差分数据+ USB Differential Data+
3	D-	USB 差分数据- USB Differential Data-
4	5V	5V 输出 Power output 5V

注意：该 USB 接口连接到 USB2_Host2 的 1x4 Hub 组。

➢ J17 双目 MIPI 摄像头 FPC 接口 Dual MIPI Camera FPC Connector

【J17】双 MIPI 摄像头 FPC 接口（FPC-0.5mm 40-Pin **上/下接触**）。[J17] Dual MIPI Camera FPC Connector (FPC-0.5mm 40-Pin **Top/Bottom Contact**).



Pin#	Definition	Note
1	IR_AVDD_2V8	2.8V 红外摄像头供电 2.8V IR Camera Power Supply
2	RGB_AVDD_3V3	3.3V 彩色摄像头供电 3.3V RGB Camera Power Supply
3	IR_PWDN	红外摄像头电源控制 IR Camera Power Down
4	IR_RST	红外摄像头复位 IR Camera Reset
5	I2C_SCL	I2C 时钟线 I2C Clock
6	I2C_SDA	I2C 数据线 I2C Data

7	GND	数字地 Digital Ground
8	IR_MCLK	红外摄像头主时钟 IR Camera Main Clock
9	GND	数字地 Digital Ground
10	IR_MCP	红外摄像头 MIPI 差分时钟+ IR Camera MIPI Clock Positive
11	IR_MCN	红外摄像头 MIPI 差分时钟- IR Camera MIPI Clock Negative
12	GND	数字地 Digital Ground
13	IR_MDP0	红外摄像头 MIPI 差分数据0+ IR Camera MIPI Data0 Positive
14	IR_MDN0	红外摄像头 MIPI 差分数据0- IR Camera MIPI Data0 Negative
15	GND	数字地 Digital Ground
16	IR_MDP1	红外摄像头 MIPI 差分数据1+ IR Camera MIPI Data1 Positive
17	IR_MDN1	红外摄像头 MIPI 差分数据1- IR Camera MIPI Data1 Negative
18	GND	数字地 Digital Ground
19	DOVDD_1V8	1.8V 电源供电 1.8V Power Supply
20	NC	无连接 Not Connected
21	NC	无连接 Not Connected
22	IR_DVDD_1V3	1.2V 电源供电 1.3V Power Supply
23	RGB_DVDD_1V3	1.2V 电源供电 1.3V Power Supply
24	RGB_PWDN	彩色摄像头电源控制 RGB Camera Power Down
25	RGB_RST	彩色摄像头复位 RGB Camera Reset
26	GND	数字地 Digital Ground
27	RGB_MCLK	彩色摄像头主时钟 RGB Camera Main Clock
28	GND	数字地 Digital Ground
29	RGB_MCP	彩色摄像头 MIPI 差分时钟+ RGB Camera MIPI Clock Positive
30	RGB_MCN	彩色摄像头 MIPI 差分时钟- RGB Camera MIPI Clock Negative
31	GND	数字地 Digital Ground
32	RGB_MDP0	彩色摄像头 MIPI 差分数据0+ RGB Camera MIPI Data0 Positive
33	RGB_MDN0	彩色摄像头 MIPI 差分数据0- RGB Camera MIPI Data0 Negative
34	GND	数字地 Digital Ground
35	RGB_MDP1	彩色摄像头 MIPI 差分数据1+ RGB Camera MIPI Data1 Positive
36	RGB_MDN1	彩色摄像头 MIPI 差分数据1- RGB Camera MIPI Data1 Negative
37	GND	数字地 Digital Ground
38	VCC_5V	5V 电源供电 5V Power Supply
39	VCC_5V	5V 电源供电 5V Power Supply
40	VCC_5V	5V 电源供电 5V Power Supply

➢ J18 USB 2.0 接口 USB 2.0 Host Header

【J18】USB 2.0 接口（单排 1.25mm-方孔为 1 脚）。[J18] USB 2.0 Host Header (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	GND	数字地 Digital Ground

2	D+	USB 差分数据+ USB Differential Data+
3	D-	USB 差分数据- USB Differential Data-
4	5V	5V 输出 Power output 5V

注意：该 USB 接口连接到 USB2_Host2 的 1x4 Hub 组。

➢ J19 USB 2.0 接口 USB 2.0 Host Header

【J19】USB 2.0 接口（单排 2.0mm-方孔为 1 脚）。[J19] USB 2.0 Host Header (SIP 2.0mm-Square pad is pin 1).

Pin#	Definition	Note
1	GND	数字地 Digital Ground
2	D+	USB 差分数据+ USB Differential Data+
3	D-	USB 差分数据- USB Differential Data-
4	5V	5V 输出 Power output 5V

注意：该 USB 接口连接到 USB2_Host2 的 1x4 Hub 组。

➢ J20 SATA 供电接口 SATA Power Supply Header

【J20】SATA 供电接口（单排 2.0mm-方孔为 1 脚）。[J20] SATA Power Supply Header (SIP 2.0mm-Square pad is pin 1)

Pin#	Definition	Note
1	12V	12V 输出 Power output 12V
2	GND	电源地 Power Ground
3	GND	电源地 Power Ground
4	5V	5V 输出 Power output 5V

注意：此接口 12V 和 5V 最大输出电流不超过 1A，对于 3.5 寸大硬盘如果出现供电不足则建议外接电源供电！

➢ J21 以太网 RJ45 插座 Ethernet RJ45

【J21】千兆以太网 RJ45 插座（标准插座）。[J21] G-bit Ethernet RJ45 (Standard jack).

➢ J22 USB 2.0 接口 USB 2.0 Host Header

【J22】USB 2.0 接口（单排 2.0mm-方孔为 1 脚）。[J22] USB 2.0 Host Header (SIP 2.0mm-Square pad is pin 1).

Pin#	Definition	Note

1	GND	数字地 Digital Ground
2	D+	USB 差分数据+ USB Differential Data+
3	D-	USB 差分数据- USB Differential Data-
4	5V	5V 输出 Power output 5V

注意：该 USB 接口连接到 USB2_Host2 的 1x4 Hub 组。

➢ J24 开关和复位接口 Power Switch & Reset Header

【J24】开关和复位接口(单排 1.25mm-方孔为 1 脚)。[J24] Power switch & reset Header (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	PW	一键开关机/开关屏信号 Power on/off and screen on/off signal
2	GND	数字地 Digital Ground
3	RES	硬件复位信号 Hardware reset signal

➢ J25 KIO 按键接口 Keypad and Switch Header

【J25】KIO 按键接口（单排 1.25mm-方孔为 1 脚）。[J25] KIO Keypad Header (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	3V3	3.3V 供电输出 Power output supply 3.3V
2	K1	按键1（GPIO 编号5） K1 (Regular GPIO #5)
3	K2	按键2（GPIO 编号23） K2 (Regular GPIO #23)
4	K3	按键3（GPIO 编号146） K3 (Regular GPIO #146)
5	K4	按键4（GPIO 编号113） K4 (Regular GPIO #113)
6	K5	按键5（GPIO 编号108） K5 (Regular GPIO #108)
7	GND	数字地 Digital Ground

注意：所有 KIO 信号均可以通过单独的软件版本调整为按键使用，比如 K1 音量+/K2 音量-/K3 待机/K4 退出/K5 主屏。Note: All KIO signals can be adjusted to keypad via a separated software version, such as K1 Volume+/K2 Volume-/K3 Standby/K4 Exit/K5 Home.

➢ J27 I2C 总线接口 I2C Bus Header

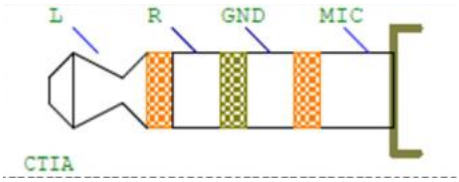
【J27】I2C 总线接口（单排 1.25mm-方孔为 1 脚）。[J27] I2C Bus Header (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	GND	数字地 Digital Ground

2	INT	中断输入（3.3V 电平） Interrupt input (3.3V level)
3	SDA	I2C 总线数据信号 I2C Bus data signal
4	SCL	I2C 总线时钟信号 I2C Bus clock signal
5	RST	复位输出（3.3V 电平） Mainboard reset output (3.3V level)
6	3V3	3.3V 供电输出 Power output supply 3.3V

➢ J28 四段式耳麦插座 4-Pole HP/Mic

【J28】四段式 3.5mm 耳机/麦克风插座（CTIA 美标定义-如下图），支持耳机插入喇叭静音。[J28] 4-Pole 3.5mm Headphone & Microphone (CTIA Standard jack). It supports insert detection for speaker mute.



➢ J29 麦克风接口 Mic Input Header

【J29】麦克风接口（单排 1.25mm-方孔为 1 脚）。[J29] Audio input header (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	GND	音频地 Audio Ground
2	MIC	单声道麦克风输入 Mono microphone input

➢ J30 音频线路输出 Audio Line Output

【J30】音频线路输出（单排 1.25mm-方孔为 1 脚）。[J30] Audio Line Output (SIP 1.25mm-Square pad is pin 1).

Pin#	Definition	Note
1	DET	耳机检测 IO（3.3V 电平，编号#42） HP detection IO (3.3V Level IO #42)
2	AR	立体声输出右声道 Stereo output right channel
3	GND	音频地 Audio Ground
4	AL	立体声输出左声道 Stereo output left channel

➢ J31 遥控-LED 接口 Remote Control & LED Header

【J31】遥控-LED 接口（单排 2.0mm-方孔为 1 脚）。[J31] Remote Control & LED Header (SIP 2.0mm-Square pad is pin 1).

Pin#	Definition	Note
1	5VS	5V Standby 供电输出 Power output supply 5V standby
2	GND	数字地 Digital Ground
3	IR	5V 电平红外遥控输入信号 5V level Irda remote control input signal
4	IO	3.3V 电平 GPIO 输入信号 3.3V level GPIO input signal
5	GRN	运行指示灯信号（外接绿灯） Running indicator for external green LED
6	RED	待机指示灯信号（外接红灯） Standby indicator for external red LED

➢ J32 RTC 电池座 RTC Battery Header

【J32】RTC 电池座（单排-1.25mm 方孔为 1 脚）。[J32] RTC Battery Header (SIP-1.25mm Square pad is pin 1).

Pin#	Definition	Note
1	BAT-	3V 纽扣电池负极 3V Coin Battery Negative
2	BAT+	3V 纽扣电池正极 3V Coin Battery Positive

➢ J33 喇叭接口 Speaker Header

【J33】喇叭接口（单排 2.0mm-方孔为 1 脚）。[J33] Speaker Header (SIP 2.0mm-Square pad is pin 1).

Pin#	Definition	Note
1	R+	喇叭右声道+ Speaker right channel +
2	R-	喇叭右声道- Speaker right channel -
3	L-	喇叭左声道- Speaker left channel -
4	L+	喇叭左声道+ Speaker left channel +

➢ J35 HDMI 插座 HDMI

【J35】HDMI 插座（标准插座）。[J35] HDMI (Standard Jack).

➢ J36 DC-12V 输入接口 DC-12V Input Header

【J36】DC-12V 输入接口（单排 2.0mm-方孔为 1 脚）。[J36] DC-12V Input Header (SIP 2.0mm-Square pad is pin 1).

Pin#	Definition	Note
1	12V	直流电源输入（9~15V）DC Power Input (9~15V)
2	12V	直流电源输入（9~15V）DC Power Input (9~15V)
3	GND	电源地 Power Ground
4	GND	电源地 Power Ground

➢ J37 LVDS 电压接口 LVDS Voltage Header

【J37】LVDS 驱屏跳线接口（双排 2.0mm-方孔为 1 脚）。1 和 2 脚跳线帽短接则 J40 的 VLCD 为 12V，3 和 4 脚跳线帽短接则 J40 的 VLCD 为 5V，5 和 6 脚跳线帽短接则 J40 的 VLCD 为 3.3V。请根据实际使用的液晶屏的逻辑电压调整跳线帽位置，注意不要跳错位置否则会造成液晶屏和主板电路的损坏。

[J37] LVDS Voltage Header (DIP 2.0mm-Square pad is pin 1). If pin 1 and 2 are jumper shorted, the VLCD of J40 is 12V. If pin 3 and 4 are jumper shorted, the VLCD of J40 is 5V. If pin 5 and 6 are jumper shorted, the VLCD of J40 is 3.3V. Please adjust the jumper position according to the actual logic voltage of the LCD screen. Be careful not to jumper to the wrong position or it may damage the LCD screen and the motherboard circuit.

➢ J38 USB 3.0 Host 插座 USB 3.0 Host Type A

【J38】USB 3.0 Host 横插标准 Type A 插座（标准插座）。[J38] USB 3.0 Host Horizontal Type A (Standard jack).

注意：此接口接到内部 USB3_Host1 USB 信号，为高速直通 USB 3.0 Host 接口。

➢ J39 背光控制接口 Backlight Control Header

【J39】背光控制接口（单排 2.0mm-方孔为 1 脚）。[J39] Backlight Control Header (SIP 2.0mm-Square pad is pin 1).

Pin#	Definition	Note
1	12V	If the current exceeds 2A, external 12V is recommended
2	12V	如果电流超过2A 则建议外接12V 供电

3	EN	默认输出5V The default output is 5V
4	ADJ	3.3V 方波（1KHz 频率）3.3V square wave (1KHz Freq.)
5	GND	电源地 Power Ground
6	GND	电源地 Power Ground

➢ J40 LVDS 接口 LVDS Header

【J40】双路 LVDS 接口 （双排 2.0mm-方孔为 1 脚）。[J40] Dual LVDS header [DIP 2.0mm-Square pad is pin 1].

Pin#	Definition	Pin#	Definition
1	VLCD	2	VLCD
3	VLCD	4	GND
5	GND	6	GND
7	RXO0-	8	RXO0+
9	RXO1-	10	RXO1+
11	RXO2-	12	RXO2+
13	GND	14	GND
15	RXOC-	16	RXOC+
17	RXO3-	18	RXO3+
19	RXE0-	20	RXE0+
21	RXE1-	22	RXE1+
23	RXE2-	24	RXE2+
25	GND	26	GND
27	RXEC-	28	RXEC+
29	RXE3-	30	RXE3+

➢ J50 DC-12V 输入接口 DC-12V Input Header

【J50】DC-12V 输入接口(单排 3.81mm-方孔为 1 脚,**选配**)。[J50] DC-12V Input Header (SIP 3.81mm-Square pad is pin 1, **optional**).

Pin#	Definition	Note
1	12V	直流电源输入（9~15V）DC Power Input (9~15V)
2	GND	电源地 Power Ground

➢ ANT WiFi 天线座 WiFi Antenna IPEX

【ANT】标准 IPEX 天线座（Φ2.0mm）。[ANT] Standard IPEX antenna connector (Φ2.0mm).

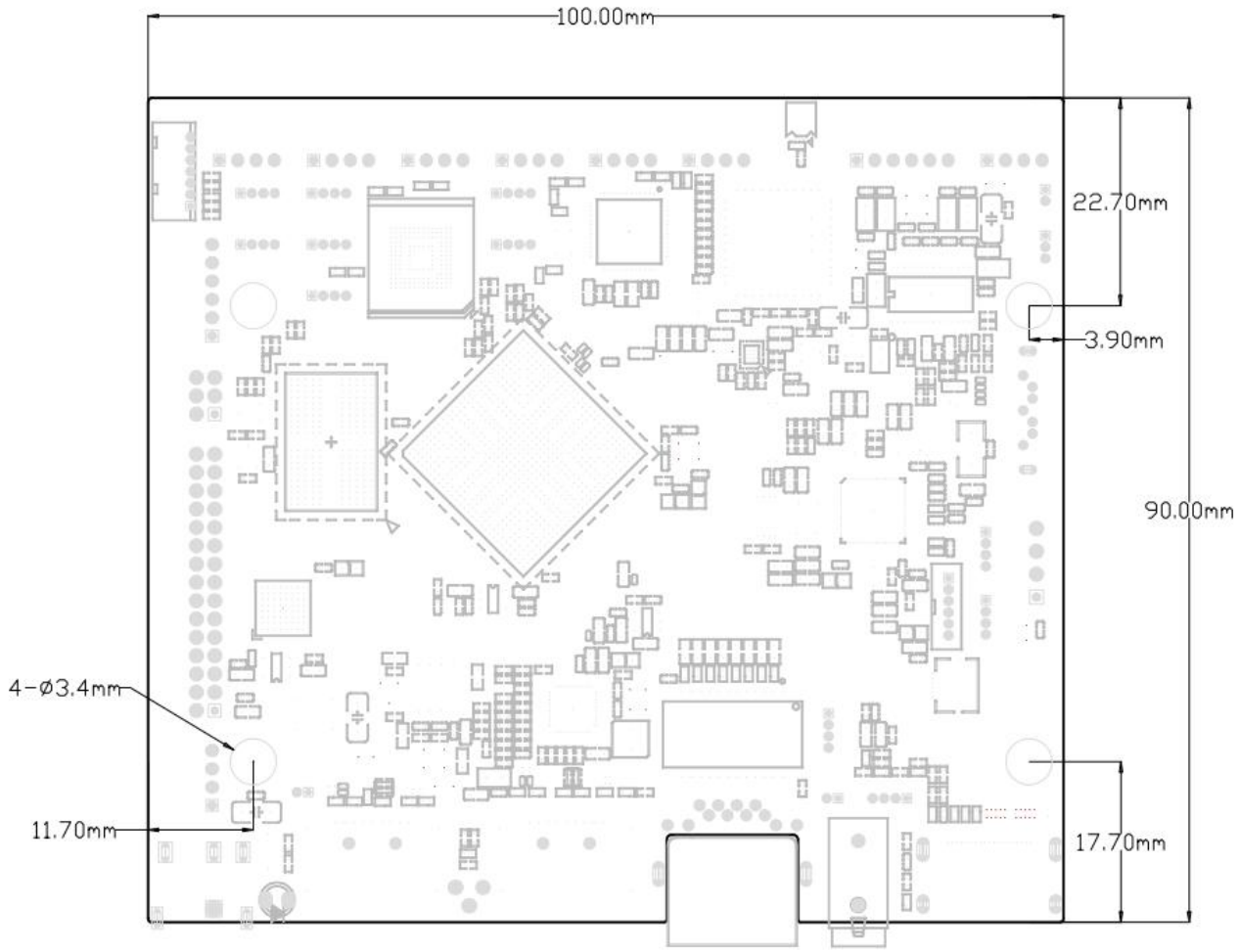
➢ SW1 烧录模式按键 Recovery Mode Button

【SW1】直插烧录小按键，先按住且保持然后上电约 3 秒后松开则进入烧录模式。[SW1] On-board recovery mode button. First press and then hold for about 3-second while power on will enter the recovery mode.

5 物理尺寸 Physical Size

PCB 大小为 100mm*90mm，PCBA 高度 7mm，固定孔直径 3.4mm，相应的物理尺寸参数如下图所示。如需详细尺寸信息请咨询厂家索取 DXF 文档文件。

The PCB size is 100mm*90mm, PCBA height is 7mm, fixed hole diameter is 3.4mm. The corresponding physical size parameters are shown in the figure below. For detailed size information, please consult the manufacturer for DXF file.



6 注意事项 Assemble Precautions

H-3566 主板组装和使用时请注意以下关键事项：Please note the following key points when using the H-3566 mainboard:

1. 本产品相对湿度：10%～90%，无凝露。Relative humidity of this product: 10% to 90%, no condensation.
2. 本产品工作温度：-20°C ~ 70°C。The working temperature of this product: -20°C ~ 70°C.
3. 本产品存储温度：-40°C ~ 70°C。This storage temperature of this product: -40°C ~ 70°C.
4. 整机装配和运输过程中需做防静电处理。Anti-static treatment is required during assembly and transportation of this product.
5. 本板接口连接线缆不可过长，否则可能会影响信号质量。The board interface connection cable must not be too long. Otherwise, the signal quality may be affected.
6. 整机装配时严禁使板子受到扭曲或重压而变形。Never allow the board to be distorted or heavily stressed during assembly.
7. 严禁裸板与其他外设之间发生短路。Do not short circuit between mainboard and other peripherals.
8. 外接 LVDS 或 eDP 液晶屏时，注意驱屏电压和电流是否符合要求，且注意屏线插座 1 脚方向。When connecting to external LVDS or eDP LCD screen, pay attention to whether the screen voltage and current meet the requirements, and pay attention to the screen connector pin-1 direction.
9. 外接 LVDS 或 eDP 液晶屏时，注意背光电压和电流是否符合要求。**液晶屏背光功率在 20W 以上则建议使用单独的电源板进行背光供电**。When connecting to external LVDS or eDP LCD screen, pay attention to whether the backlight voltage and current meet the requirements.
10. 外接接口（USB、GPIO、串口、I2C、SPI、HDMI 等）外接设备时，注意外设的 IO 电平和电流是否符合要求。**使用主板接插件上的电源管脚给外设供电时，常规电源脚电流严禁超过 100mA、USB 电源脚电流严禁超过 500mA**。串口连接外设时还需要电平匹配（3.3V TTL 电平、RS-232 电平和 RS-485 电平）。When connecting to peripherals using USB, GPIO, Serial, I2C, SPI, HDMI, etc., pay attention to whether the IO voltage level and current of the peripheral meet the requirements. When using the power pin on these connectors to

supply power to the external circuit, the regular power pin must not exceed 100mA, and the USB power pin must not exceed 500mA.

11. 主板输入电源请务必接入电源输入接口或插座，并根据总外设评估整板电流是否符合要求；**严禁为了方便操作从背光插座接口直接给主板供电。**Please connect the power to the power input socket or connector, and evaluate whether the current of the whole board meets the requirements according to the total peripherals. It is strictly forbidden to directly supply power from the backlight connector.

12. 通信模块部分距离金属壳体至少 5 毫米，避免信号受到干扰。The communication module should be mounted at least 5mm away from the metal housing to avoid signal interference.

7 软件指南 Software Guide

H-3566 主板支持 LVDS/eDP/MIPI/HDMI 任意两种输出的双屏异显组合！相关输出组合请咨询厂家提供相应的异显补丁。

H-3566 主板内部串口和扩展串口软件端口号如下：

端口 Port	软件设备节点 Software Device Node
J2	/dev/ttyS0
J3	/dev/ttyS2
J10	/dev/ttyS3
J11	/dev/ttyS4
J15	/dev/ttyS5

11. Reliability test items

No.	Test Item	Test Condition	Notes
1	High Temp. Storage	+60°C / 48H	1. Functional test isOK. Missing Segment,short, unclear segment non-display,display abnormally and liquid crystal leakare un-allowed. 2. No low temperature bubbles,end seal loose andfall, frame rainbow.
2	Low Temp. Storage	-10°C / 48H	
3	High Tempe. Operating	+50°C / 48H	
4	Low Tempe. Operating	-0°C / 48H	
5	High Temperature / Humidity storage	40°C x 90%RH /48H	
6	Thermal and cold shock	Static state，-20℃（30min）~60℃（30min），50 cycles	

12.0 General Precaution

12.1 Use Restriction

This product is not authorized for use in life supporting systems, aircraft navigation control systems, military systems and any other application where performance failure could be life-threatening or otherwise catastrophic.

12.2 Asembly Precaytton

1、Please use the mounting hole on the module side in installing and do not bending or wrenching LCD in assembling. And please do not drop, bend or twist LCD module in handling.

2、Please design display housing in accordance with the following guide lines.

3、Housing case must be destined carefully so as not to put stresses on LCD all sides and not to wrench module. The stresses may cause non-uniformity even if there is no non-uniformity statically.

4、Keep sufficient clearance between LCD module back surface and housing when the LCD module is mounted. The clearance in the design is recommended taking into account the tolerance of LCD module thickness and mounting structure height on the housing.

5、 Please do not push or scratch LCD panel surface with any-thing hard. And do not soil LCD panel surface by touching with bare hands. (Polarizer film, surface of LCD panel is easy to be flawed.)

6、Please do not press any parts on the rear side such as source IC, gate IC, and FPC during handling LCD module. If pressing rear part is unavoidable, handle the LCD module with care not to damage them.

7、Please wipe out LCD panel surface with absorbent cotton or soft cloth in case of it being soiled.

8、 Please wipe out drops of adhesives like saliva and water on LCD panel surface immediately. They might damage to cause panel surface variation and color change.

9、 Please do not take a LCD module to pieces and reconstruct it. Resolving and reconstructing modules may cause them not to work well.

12.3 Disassembling or Modification

1、Do not disassemble or modify the module. It may damage sensitive parts inside LCD module, and may cause scratches or dust on the display. does not warrant the module, if customers disassemble or modify the module.

12.4 Breakage of LCD Panel

1、If LCD panel is broken and liquid crystal spills out, do not ingest or inhale liquid crystal, and do not contact liquid crystal with skin.

2、 If liquid crystal contacts mouth or eyes, rinse out with water immediately.

3、 If liquid crystal contacts skin or cloths, wash it off immediately with alcohol and rinse thoroughly with water.

4、 Handle carefully with chips of glass that may cause injury, when the glass is broken.

12.5 Absolute Maximum Ratings and Power Protection Circuit

1、Do not exceed the absolute maximum rating values, such as the supply voltage variation, input voltage variation, variation in parts' parameters, environmental temperature, etc., otherwise LCD module may be damaged.

2、 Please do not leave LCD module in the environment of high humidity and high temperature for a long time.

3、 It's recommended employing protection circuit for power supply.

11.6 Operation

1、Do not touch, push or rub the polarizer with anything harder than HB pencil lead.Use fingerstalls of soft gloves in order to keep clean display quality, when persons handle the LCD module for incoming inspection or assembly.

2、 When the surface is dusty, please wipe gently with absorbent cotton or other soft material.

3、Wipe off saliva or water drops as soon as possible. If saliva or water drops contact with polarizer for a long time, they may causes deformation or color fading.

4、When cleaning the adhesives, please use absorbent cotton wetted with a little petroleum benzine or other adequate solvent.

12.6 Static Electricity

1、Protection film must remove very slowly from the surface of LCD module to prevent from electrostatic occurrence.

2、 Because LCD module uses CMOS-IC on TFT-LCD panel, it is very weak to electrostatic discharge. Please be careful with electrostatic discharge.

3、Persons who handle the module should be grounded through adequate methods.

12.7 Disposal

When disposing LCD module, obey the local environmental regulations.

12.8 OTHERS

1、A strong incident light into LCD panel might cause display characteristics' changing inferior because of polarizer film, color filter, and other materials becoming inferior. Please do not expose LCD module direct sunlight land strong UV rays.

2、 Please pay attention to a panel side of LCD module not to contact with other materials in preserving it alone.

3、 For the packaging box, please pay attention to the followings:

4、Packaging box and inner case for LCD are designed to protect the LCDs from the damage or scratching during transportation. Please do not open except picking LCDs up from the box.

5、 Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.

6、Packing box and inner case for LCDs are made of cardboard. So please pay attention not to get them wet. (Such like keeping them in high humidity or wet place can occur getting them wet.)

13. Packing form-TBD

DCLTEK

Incoming Inspection Standard

品质允收标准

Model N0. /产品型号: Applicable to Touch Screen

Updated Date /生效日期: 2025.04.01

Version / 版 本 号: V0

Record of Revision /修订履历.

Version /版本号	Revision Record /修订内容	Reviser /修订人	Revision Date /修订日期
V0	首发 / Initial release		2025.04.01

1、Scope of application /适用范围.

Applicable to Touch Screen.

2、Inspection conditions and environment / 检验条件与环境.

2.1、Inspection Conditions / 检验条件:

2.1.1、Inspection Distance / 检测距离: 35cm ±5cm.

2.1.2、Inspection time /检验时间：Displays performance test /功能测试：2~3S /Image，

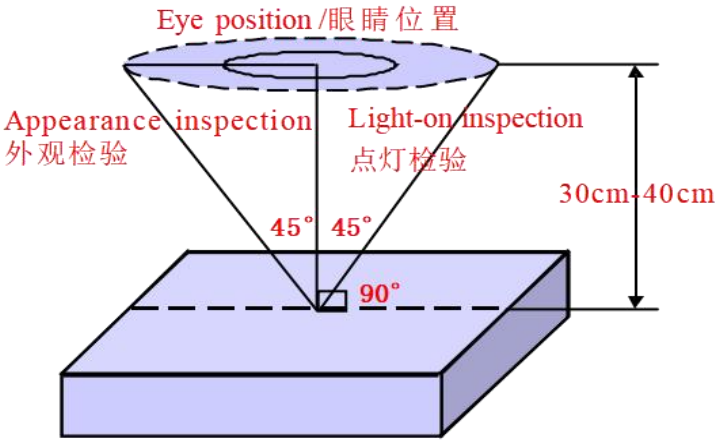
Appearance Inspection / 外观检验：8~10S.

2.1.3、Inspection the viewing angle /检验视角:

Display Inspection Angle /显示检验角度： ±45°.

Appearance Inspection Angle /外观检验角度：±45°.

Eye position /眼睛位置：



(Perpendicular to LCD panel surface /垂直于LCD表面)

2.2、 Inspection environment /检验环境:

Temperature / 温度		25±5℃
Humidity / 湿度		55±5%RH
Brightness 亮度	Appearance Inspection / 外观检验	800~1000 Lux
	Display Inspection / 功能检验	200~300 Lux

2.3、Sampling conditions / 抽样方式.

Sampling Plan /抽样计划		GB/T 2828.1- 2003
		Batch single sampling/批量单次抽样
		General inspection level：Ⅱ/一般检验水平：二级
AQL	Major Defect /主要缺陷	0.25
	Minor Defect /次要缺陷	0.65

3、Terms and definitions /术语和定义.

3.1、Defect classification / 缺陷分类：

3.1.1、Major defects /主要缺陷: Defects that cause the product to fail or reduce the usability of the product / 引起产品功能失效和减少产品的有效使用与操作的缺陷.

3.1.2、Minor defects / 次要缺陷: Defects that do not affect the functionality and effective use and operation of the product / 不影响产品功能和有效使用与操作的缺陷.

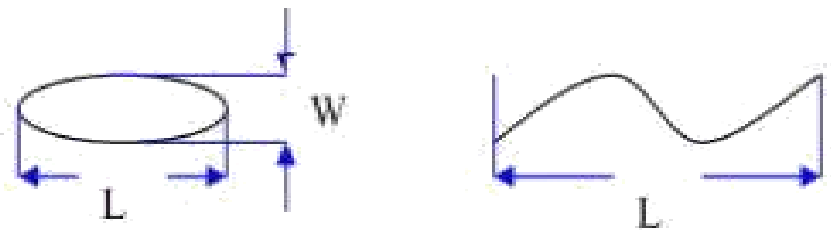
3.2、Point defects / 点状缺陷：

The size of a punctate defect is defined by the diameter D, and the average diameter of the defect is D=1/2(W+L) / 点状缺陷由直径 D 定义大小，缺陷的平均直径 D=1/2(W+L).

3.3、line defects / 线状缺陷：

When defect size L ≥ 2W,the defect count as liner type defect.Size of linear defect is defined by length (L) and the maximum width (W)

当缺陷尺寸 L≥2W 时，被视为线状缺陷，线状缺陷是由长度（L）和最大宽度（W）定义的.



3.4、LCD sub-pixels / LCD 子像素点:

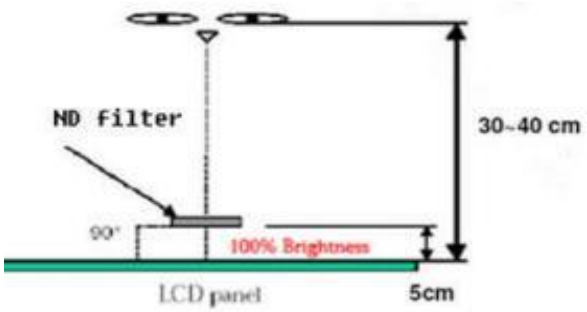
The sub-pixel defect area is greater than 50% of the LCD sub-pixel area, and is visible through ND5% masking

子像素点缺陷面积大于 50% LCD 子像素面积，且透过 ND5%遮盖是可见的.

3.5、ND card test method / ND 卡检验方法:

Hold the ND card about 5cm above the display area, with your eyes 30-40cm away from the panel, and observe for 2~3 seconds

在显示区域上方大约 5cm 处握住 ND 卡，眼睛距离面板 30-40cm，观察 2~3 秒.



3.6、Surface substances that can be cleaned are not considered defects (e.g. finger prints on the protective film, dust particles)

可以被清洁干净的表面物质不视为缺陷 (如保护膜上的手指印，尘粒) .

3.7、Defects that can be covered by the material and are not visible to the eye, and do not affect the function and use are not considered defects

能被物料覆盖目视不可见，且不影响功能与使用的缺陷不视为缺陷.

3.8、AA shows that damage to the glass outside the area does not affect the effective line and does not expand the loss is acceptable

AA 显示区域以外的玻璃损伤，不影响有效线路和不会在扩大损失的是可以接受的.

3.9、Issues not specified or defined in this document shall be dealt with through friendly negotiation between the parties / 本文件中未规定或定义的问题，双方友好协商处理.

4.0、Inspection standards /检验标准:

4.1、Structural size standards / 结构尺寸标准:

Measurement items /测量项目		Specification /规格	Remark /备注
Name/名称	Unit /单位	Tolerance /公差	
Outside dimension：Length 尺寸：长	mm /毫米	0.10mm~0.3mm	Please refer to the product specification for detailed dimensions and tolerances 详细的尺寸规格和公差请参考产品规格书
Outside dimension：Width 尺寸：宽	mm /毫米	0.10mm~0.3mm	
Outside dimension：Thickness 尺寸：厚	mm /毫米	0.20mm~0.50mm	

4.2、Appearance Inspection standards:

(D ： diameter, W ： width, L ： length, N ： quantity, DS ： spacing)

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
LCD	ITO	Full size 全尺寸	ITO can't open circuit, short circuit, ITO notch cannot exceed 70% of width. ITO 不能有开路和短路，ITO 缺口不能超过宽度的 70%.	MA	
	Corners broken 崩边/崩角	Full size 全尺寸	1、It cannot affect the appearance of valid routes and functions; 不能影响有效线路和功能外观.	MA	
			2、There must be no extensible rips 不能有可延伸性裂纹.	MA	
Silicone 硅胶	Silicone coating 硅胶涂布	Full size 全尺寸	1、The height cannot exceed the LCD CF surface / 高度不能超过 LCD CF 面.		MI
			2、No overflow and lack of glue / 不能溢胶和缺胶.		MI
			3、Silicone cannot cover POL and FPC/ 硅胶不能覆盖到 POL 和 FPC.		MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
PCBA FPC Connector 连接器	Appearance 表面外观	Full size 全尺寸	1.FPC is not allowed to have drape/bubble/fold / 不允许有披锋/气泡/褶皱.		MI
			2.Surface scratches do not allow copper leakage / 表面划伤不允许出现漏铜.	MA	
			3.Cracking is not allowed / 不允许破裂.	MA	
			4.Gold finger oxidation is not allowed 不允许金手指氧化.	MA	
			5.Chromatic aberration is not allowed 不允许出现色差.	MA	
	Components 元器件	Full size 全尺寸	1. Damage, missing parts, and incorrect models are not allowed 不允许损伤、缺件、型号错误.	MA	
			2.Components need to be insulated with high temperature adhesive (unless not required by the drawings) / 元器件需要有高温胶绝缘保护（除非图纸无要求）.		MI
	Weld 焊接	Full size 全尺寸	1. False soldering, virtual soldering, and tinning are not allowed 不允许假焊、虚焊、连锡.	MA	
			2. No solder bead residue is allowed 不允许有锡珠残留.		MI
			3.The pads need to be glued with high temperature (unless not required by the drawings) / 焊盘需贴高温胶（除非图纸无要求）.		MI
POL 偏光片	Scratches 划伤	Under 6 inches 6 寸以下	1.W≤0.05mm；L≤5mm，Ignore（忽略）. 2.0.05mm＜W≤0.10mm；L≤5mm；N≤2; DS≥10mm. 3.0.10mm＜W；5mm＜L，Not allowable（不允许）.		MI
		6~10.0 inches 6 寸~10.0 寸	1.W≤0.07mm；L≤5mm，Ignore（忽略）. 2.0.07mm＜W≤0.12mm；L≤10mm；N≤3；DS≥10mm. 3.0.12mm＜W；10mm＜L，Not allowable（不允许）.		MI
		More than 10 inches 10 寸以上	1.W≤0.10mm；L≤5mm，Ignore（忽略）. 2.0.10mm＜W≤0.15mm；L≤10mm；N≤4；DS≥10mm. 3.0.15mm＜W；10mm＜L，Not allowable（不允许）.		MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
POL 偏光片	Bubbles	Under 6 inches 6 寸以下	1.D≤0.15mm，Ignore（忽略）. 2.0.15mm＜D≤0.30mm；N≤2；DS≥10mm. 3.D＞0.30mm，Not allowable（不允许）.		MI
		More than 6 inches 6 寸以上	1.D≤0.20mm，Ignore（忽略）. 2.0.20mm＜D≤0.40mm；N≤3；DS≥10mm. 3.D＞0.40mm，Not allowable（不允许）.		MI
	Bubbles around the edges 边缘气泡	Full size 全尺寸	1.Within 1/2BM of the display area, it is not allowed 显示区往外 1/2BM 区域内，不允许. 2.The display area is 1/2 outside the BM area, and it is not controlled 显示区往外 1/2BM 区域以外，不管控.		MI
	Point defects Embossing	Under 6 inches 6 寸以下	1.D≤0.15mm，Ignore（忽略）. 2.0.15mm＜D≤0.30mm；N≤2；DS≥10mm. 3.D＞0.30mm，Not allowable（不允许）.		MI
		6~10.0 inches 6 寸~10.0 寸	1.D≤0.20mm，Ignore（忽略）. 2.0.20mm＜D≤0.40mm；N≤3；DS≥10mm. 3.D＞0.40mm，Not allowable（不允许）.		MI
		More than 10 inches 10 寸以上	1.D≤0.25mm，Ignore（忽略）. 2.0.25mm＜D≤0.50mm；N≤4；DS≥10mm. 3.D＞0.50mm，Not allowable（不允许）.		MI
	Dirty 脏污	Full size 全尺寸	Dirt, finger prints, etc. are not allowed 不允许有脏污、手指印等.		MI
	Warping 起翘	Full size 全尺寸	Not allowed 不允许.		MI
	Paste offset 贴附偏位	Full size 全尺寸	It is not allowed to exceed the patch tolerance required by the drawing; After TP lamination, it is not allowed to leak the edges of the polarizer 不允许超出图纸要求的贴片公差；在 TP 贴合后不允许漏偏光片边缘.		MI
	Angle mistake 角度错误	Full size 全尺寸	Not allowed 不允许.	MA	
	Mixture 混料	Full size 全尺寸	Not allowed 不允许.	MA	

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
TP	Scratches 划伤	Under 6 inches 6 寸以下	1.W≤0.05mm；L≤5mm，Ignore（忽略）. 2.0.05mm＜W≤0.10mm；L≤5mm；N≤2；DS≥10mm. 3.0.10mm＜W；5mm＜L，Not allowable（不允许）. 4.There is a feeling scratch，Not allowable 有感划伤，不允许.		MI
		6~10.0 inches 6 寸~10.0 寸	1.W≤0.07mm；L≤5mm，Ignore（忽略）. 2.0.07mm＜W≤0.12mm；L≤10mm；N≤3；DS≥10mm. 3.0.12mm＜W；10mm＜L，Not allowable（不允许）. 4.There is a feeling scratch，Not allowable 有感划伤，不允许.		MI
		More than 10 inches 10 寸以上	1.W≤0.10mm；L≤5mm，Ignore（忽略）. 2.0.10mm＜W≤0.15mm；L≤10mm；N≤4；DS≥10mm. 3.0.15mm＜W；10mm＜L，Not allowable（不允许）. 4.There is a feeling scratch，Not allowable 有感划伤，不允许.		MI
	Black dots white dots 黑点/白点	Under 6 inches 6 寸以下	1.D≤0.15mm，Ignore（忽略）. 2.0.15mm＜D≤0.30mm；N≤2；DS≥10mm. 3.D＞0.30mm，Not allowable（不允许）.		MI
		6~10.0 inches 6 寸~10.0 寸	1.D≤0.20mm，Ignore（忽略）. 2.0.20mm＜D≤0.40mm；N≤3；DS≥10mm. 3.D＞0.40mm，Not allowable（不允许）.		MI
		More than 10 inches 10 寸以上	1.D≤0.25mm，Ignore（忽略）. 2.0.25mm＜D≤0.50mm；N≤4；DS≥10mm. 3.D＞0.50mm，Not allowable（不允许）.		MI
	OCA Bubbles 气泡	Full size 全尺寸	Not allowed 不允许.		MI
	Corners broken 崩边/崩角	Full size 全尺寸	1.Product front /产品正面：Edge and corner chipping is not allowed / 崩角、崩边不允许 2.Product back /产品背面: X≤ 0.5 , Y≤0.5，Z≤1/2T；N≤4；DS≥10mm.	MA	
	Silk screen 丝印	Full size 全尺寸	The silk screen is clear, complete and correct 丝印清晰、完整、内容正确.		MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
TP	Dirty 脏污	Full size 全尺寸	Uncleanable dirt，Not allowable. 不可擦拭的脏污，不允许.		MI
	Broken 破损	Full size 全尺寸	Not allowable. 不允许.		MI
	Ink color aberration 油墨色差	Full size 全尺寸	ΔE>1，Not allowable（不允许）.		MI
	Cover pinholes 针孔	Full size 全尺寸	1.D≤0.20mm , N≤2 , DS≥10mm，allowable 2.D > 0.20mm，intensive pinholes（密集型针孔），Not allowable（不允许）.		MI
	Paint off 掉漆	Full size 全尺寸	Touch-up on the back of the cover is allowed, and the touch-up area cannot exceed 2.0mm in diameter / 允许在盖板背面补漆，补漆面积不能超过直径 2.0mm.		MI
BL 背光	Backlight separation 背光分离	Full size 全尺寸	Not allowable 不允许.		MI
	Deformed 变形	Full size 全尺寸	Measured using a plug gauge，If the deformation exceeds 0.3mm, NG is judged 使用塞规测量，形变超过 0.3mm，判定 NG.		MI
	Iron frame Oxidation /abscission 铁框氧化/脱落	Full size 全尺寸	Not allowable 不允许.		MI
	Dirt/adhesive residue/solder beads 脏污/残胶/锡珠	Full size 全尺寸	Not allowable 不允许.		MI
	Inkjet/barcode/ QR code 喷码/条码/二维码	Full size 全尺寸	The inkjet code is clear and complete, the barcode and QR code can be scanned normally, and the content and format meet the requirement / 喷码清晰完整、条码和二维码可正常扫描，内容和格式与要求相符.		MI
	Auxiliary materials 辅料	Full size 全尺寸	Accessories (vinyl, double-sided tape, insulating glue, etc.) are not allowed to be missed, misguided, defective, etc 辅料（黑胶、双面胶、绝缘胶等）不允许有漏贴、贴偏、残缺等.		MI

4.3、Functional inspection standards:

(D : diameter, W : width, L : length, N : quantity, DS : spacing)

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
Display Screen 模组	Light leakage / Mura 漏光/ Mura	Full size 全尺寸	1.Use ND5% filter masking, visual invisibility is OK 使用 ND5%遮盖，目视不可见即为 OK. 2.If necessary, sign off on the sample 必要时，签限定样.		MI
	Brightness uniformity 亮度均匀性	Full size 全尺寸	Brightness uniformity < 75.0%，Not allowable 亮度均匀性 < 75.0%，不允许.	MA	
	LCD bright spots/dark spots 玻璃亮点/暗点	Under 6 inches 6 寸以下	1.D≤0.10mm，Ignore（忽略）. 2.0.10mm < D≤0.20mm；N≤2；DS≥10mm. 3.D > 0.20mm，Not allowable（不允许）.		MI
		6~10.0 inches 6 寸~10.0 寸	1.D≤0.15mm，Ignore（忽略）. 2.0.15mm < D≤0.30mm；N≤3；DS≥10mm. 3.D > 0.30mm，Not allowable（不允许）.		MI
		More than 10 inches 10 寸以上	1.D≤0.20mm，Ignore（忽略）. 2.0.20mm < D≤0.40mm；N≤4；DS≥10mm. 3.D > 0.40mm，Not allowable（不允许）.		MI
	Backlight black dots/white dots 背光黑点/白点	Under 6 inches 6 寸以下	1.D≤0.15mm，Ignore（忽略）. 2.0.15mm < D≤0.30mm；N≤2；DS≥10mm. 3.D > 0.30mm，Not allowable（不允许）.		MI
		6~10.0 inches 6 寸~10.0 寸	1.D≤0.20mm，Ignore（忽略）. 2.0.20mm < D≤0.40mm；N≤3；DS≥10mm. 3.D > 0.40mm，Not allowable（不允许）.		MI
		More than 10 inches 10 寸以上	1.D≤0.25mm，Ignore（忽略）. 2.0.25mm < D≤0.50mm；N≤4；DS≥10mm. 3.D > 0.50mm，Not allowable（不允许）.		MI
	Linear foreign bodies 线状异物	Under 6 inches 6 寸以下	1.W≤0.05mm；L≤5mm，Ignore（忽略）. 2.0.05mm < W≤0.10mm ; L≤5mm ; N≤2; DS≥10mm. 3.0.10mm < W；5mm < L，Not allowable（不允许）.		MI
		6~10.0 inches 6 寸~10.0 寸	1.W≤0.07mm；L≤5mm，Ignore（忽略）. 2.0.07mm < W≤0.12mm ; L≤10mm ; N≤3 ; DS≥10mm. 3.0.12mm < W；10mm < L，Not allowable（不允许）.		MI
		More than 10 inches 10 寸以上	1.W≤0.10mm；L≤5mm，Ignore（忽略）. 2.0.10mm<W≤0.15mm ; L≤10mm ; N≤4 ; DS≥10mm. 3.0.15mm < W；10mm < L, Not allowable（不允许）.		MI

Material 检验区域	Inspection items 检验项目	Product size 适用尺寸	Inspection standards 检验规格	Category 缺陷类别	
Display Screen 模组	White/Black print 白印/黑印	Full size 全尺寸	Use ND5% filter masking, visual invisibility is OK 使用 ND5%遮盖，目视不可见即为 OK.		MI
	Interference pattern/Newton pattern 干涉纹/牛顿纹	Full size 全尺寸	Not allowable 不允许.		MI
	Membranes displacement 膜材移位	Full size 全尺寸	Not allowable 不允许.		MI
	Color blocks 色斑	Full size 全尺寸	Use ND5% filter masking, visual invisibility is OK /使用 ND5%遮盖，目视不可见即为 OK.		MI
	Display abnormal 画异	Full size 全尺寸	Not allowable 不允许.	MA	
	No display 无显示	Full size 全尺寸	Not allowable 不允许.	MA	
	Line/Missing Drawing 线条/缺画	Full size 全尺寸	Not allowable 不允许.	MA	
	Splash screen 闪屏	Full size 全尺寸	Not allowable 不允许.	MA	
	LCD grid LCD 网格	Full size 全尺寸	Not allowable 不允许.	MA	
	Afterimage 残影	Full size 全尺寸	Not allowable 不允许.	MA	
	Wrong viewing angle 可视角错误	Full size 全尺寸	Not allowable 不允许.	MA	
TP	No touch 无触摸	Full size 全尺寸	Not allowable 不允许.	MA	
	Touch the jump point 触摸跳点	Full size 全尺寸	Not allowable 不允许.	MA	
	Touch not sensitive 触摸不灵敏	Full size 全尺寸	Not allowable 不允许.	MA	