



**SPECIFICATION
FOR
LCD Module
KD070C-4-C007A-LVDS**

MODULE:	KD070C-4-C007A-LVDS
CUSTOMER:	

REV	DESCRIPTION	DATE
1.0	FIRST ISSUE	2017.02.17

STARTEK	INITIAL	DATE
PREPARED BY		
CHECKED BY		
APPROVED BY		

CUSTOMER	INITIAL	DATE
APPROVED BY		

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 1 of 33
----------	---------------------	-----	------	--------------

常备库存
Stock For Sale

长期供货
Long-Time Supply

支持小量
NO MOQ

品种齐全
In Full Range

[illegible]

常备库存	长期供货	支持小量	品种齐全
Stock For Sale	Long-Time Supply	NO MOQ	In Full Range

Contents

1. Block Diagram.....	6
2. Outline dimension	7
3. Input terminal Pin Assignment.....	7
3.1 TFT	8
3.2 CTP.....	错误!未定义书签。
4. LCD Optical Characteristics	10
4.1 Optical specification.....	10
5. Electrical Characteristics.....	13
5.1 Absolute Maximum Ratings.....	14
5.2 Typical Operation Conditions.....	14
5.3 Current Consumption	14
5.4 Backlight Driving Conditions	错误!未定义书签。
5.5 Power Sequence	15
6. Timing Characteristics.....	16
6.1 AC Electrical Characteristics	16
6.2 Input Clock and Data Timing Diagram.....	17
6.3 DC Electrical Characteristics	17
6.4 Timing	18
6.5 Data Input Format.....	19
7. Reliability Test Items	19
8. CTP Specification.....	20
8.1 Electrical Characteristics.....	21
8.1.1 Absolute Maximum Rating.....	21
8.1.2 DC Electrical Characteristics (Ta=25℃)	21
8.1.3 AC Characteristics.....	21
8.2 I2C Timing.....	22
9 LCD Module Out-Going Quality Level.....	23
9.1 VISUAL & FUNCTION INSPECTION STANDARD	24
9.1.1 Inspection conditions.....	24
9.1.2 Definition.....	24
9.1.3 Sampling Plan.....	24
9.1.4 Criteria (Visual).....	25
10. Reliability Test Result.....	30
11. Cautions and Handling Precautions.....	31

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 3 of 33
----------	---------------------	-----	------	--------------

常备库存
Stock For Sale

长期供货
Long-Time Supply

支持小量
NO MOQ

品种齐全
In Full Range



11.1 Handling and Operating the Module.....31

11.2 Storage and Transportation.....32

12. Packing.....32

13. Product material BOM33

ISO9001 : 2008

ISO/TS16949 : 2009

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 4 of 33
	常 备 库 存 Stock For Sale	长 期 供 货 Long-Time Supply	支持小量 NO MOQ	品 种 齐 全 In Full Range

* Description

This is a color active matrix TFT (Thin Film Transistor) LCD (liquid crystal display) that uses amorphous silicon TFT as a switching device. This model is composed of a Transmissive type TFT LCD Panel, driver circuit, back-light unit. The resolution of a 7.0" TFT-LCD contains 800X480 pixels, and can display up to 16.7M colors.

* Features

- Low Input Voltage: 3.3V(TYP)
- Display Colors of TFT LCD: 65K/262K colors
- TFT Interface: 6Bit LVDS Interface
- CTP Interface: I2C

General Information Items	Specification	Unit	Note
	Main Panel		
Display area(AA)	154.08(H) *85.92(V) (7.0 inch)	mm	-
CTP View area	155.08(H)*86.92(V)	mm	
Driver element	TFT active matrix	-	-
Display colors	262K	colors	-
Number of pixels	800(RGB)*480	dots	-
TFT Pixel arrangement	RGB vertical stripe	-	-
Pixel pitch	0.1926 (H) x 0.1790 (V)	mm	-
Viewing angle	6	o'clock	-
CTP Driver IC	EK9713/EK7330		
Display mode	Transmissive/Normally WHITE	-	-
Touch mode	Five point		
Operating temperature	-20~+70	°C	-
Storage temperature	-30~+80	°C	-

* Mechanical Information

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)		182.07		mm	-
	Vertical(V)		117.60		mm	-
	Depth(D)		13.75		mm	-
Weight			TBD		g	-

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 5 of 33
----------	---------------------	-----	------	--------------

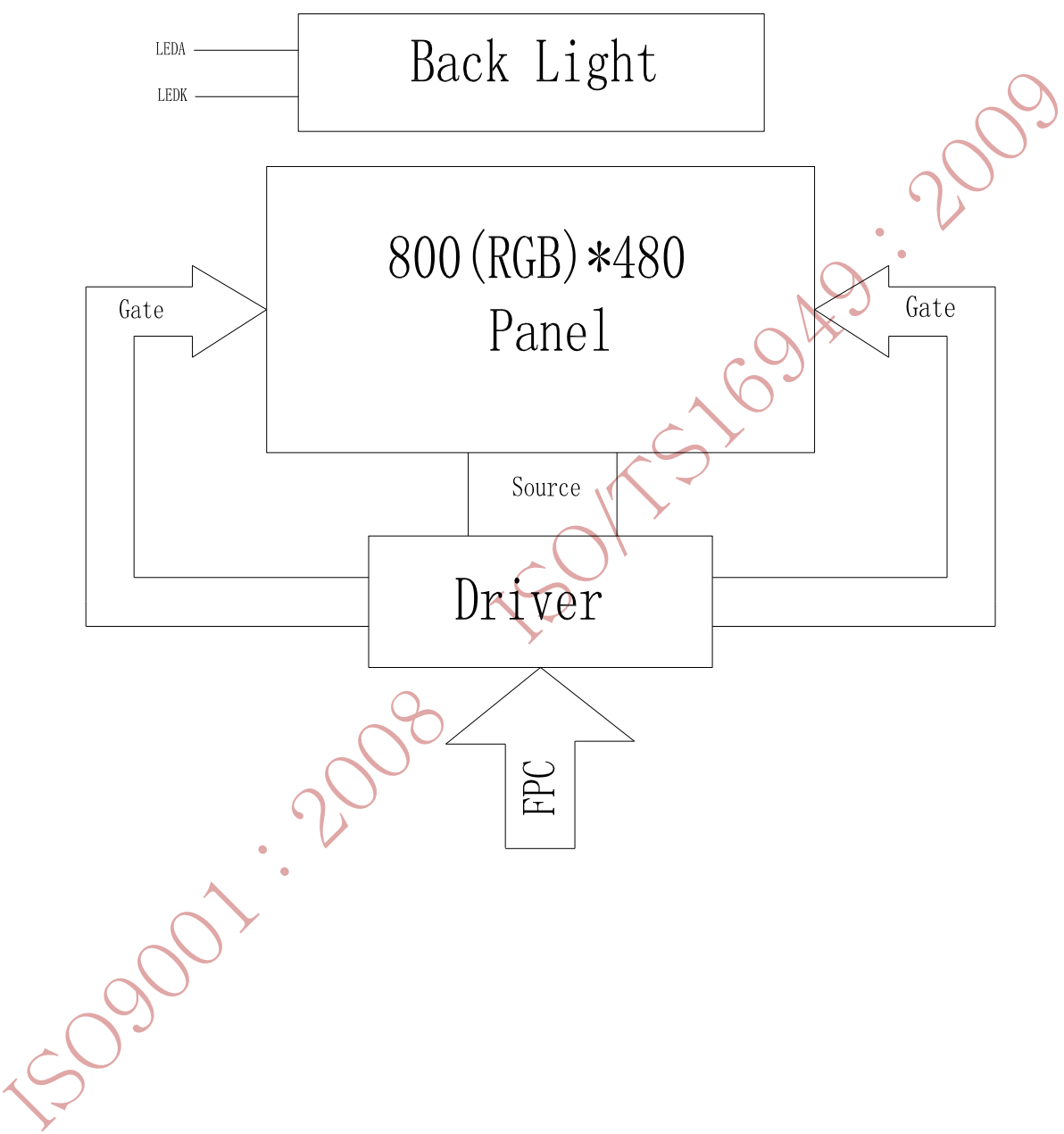
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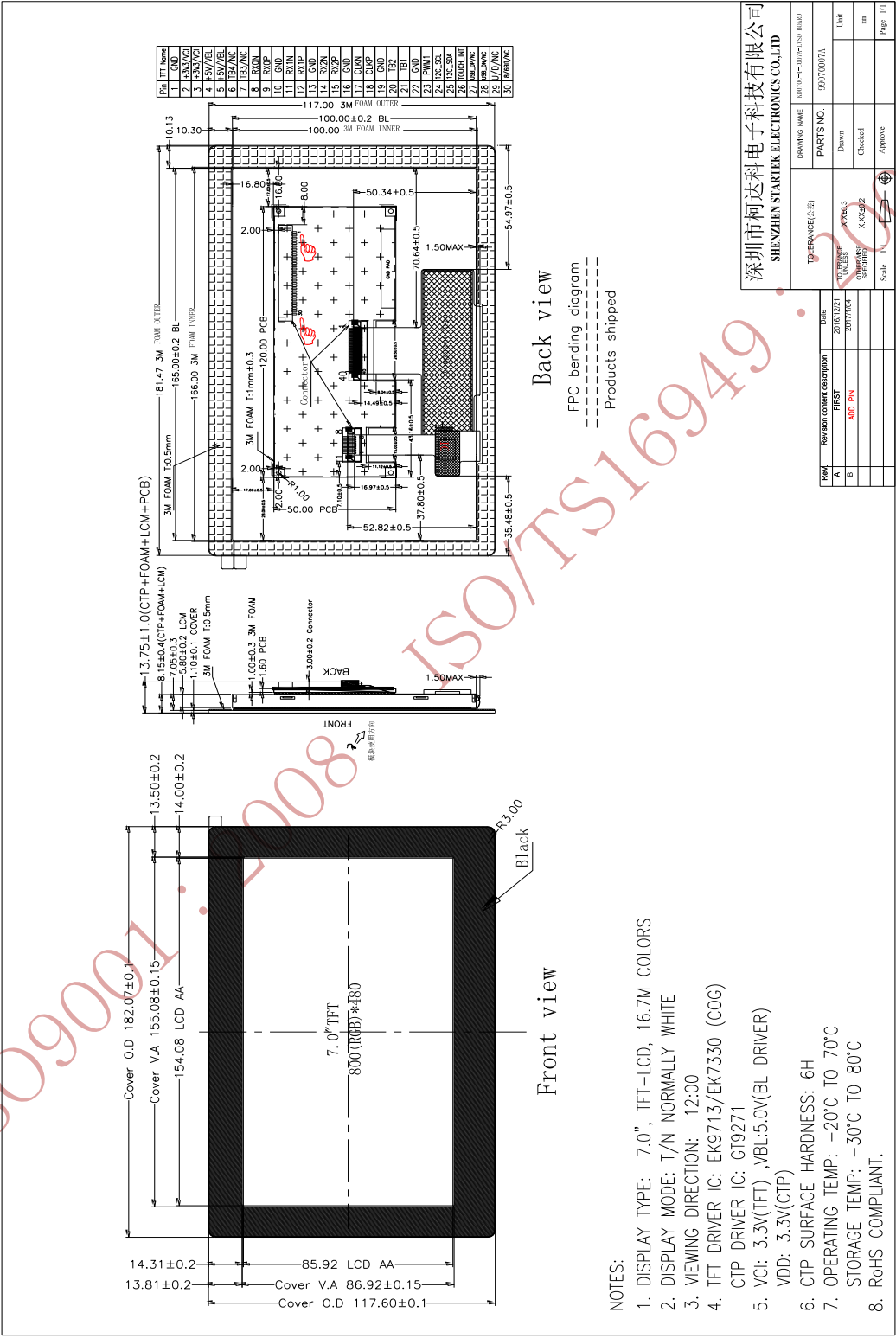
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1. Block Diagram



2. Outline dimension



3. Input terminal Pin Assignment

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 7 of 33
常备库存 Stock For Sale	长期供货 Long-Time Supply	支持少量 NO MOQ	品种齐全 In Full Range	

3.1 LCM+CTP

NO.	SYMBOL	DISCRIPTION	I/O
1	GND	Ground.	P
2	+3V3/VCI	Supply voltage(3.3V).	P
3	+3V3/VCI	Supply voltage(3.3V).	P
4	+5V/BL	Supply voltage(5.0V).	P
5	+5V/BL	Supply voltage(5.0V).	P
6	TB4/NC	No connection	
7	TB3/NC	No connection	
8	RXIN0-	- LVDS differential data input	I
9	RXIN0+	+ LVDS differential data input	I
10	GND	Ground.	P
11	RXIN1-	- LVDS differential data input	I
12	RXIN1+	+ LVDS differential data input	I
13	GND	Ground.	P
14	RXIN2-	LVDS differential data input	I
15	RXIN2+	+ LVDS differential data input	I
16	GND	Ground.	P
17	RXCLKIN-	- LVDS differential clock input	I
18	RXCLKIN+	+ LVDS differential clock input	I
19	GND	Ground.	P
20	TB2	No connection	
21	TB1	No connection	
22	GND	Ground.	P
23	PWM1	Backlight CABC controller signal output	O
24	I2C_SCL	I2C clock input.	I
25	I2C_SDA	I2C data input and output	I/O
26	TOUCH_INT	External interrupt to the host.	I

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 8 of 33
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27	USB_DP/NC	No connection	
28	USB_DN/NC	No connection	
29	U/D/NC	No connection	
30	8/6BIT/NC	No connection	

ISO9001 : 2008

ISO/TS16949 : 2009

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 9 of 33
----------	---------------------	-----	------	--------------

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Stock For Sale

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支持小量
NO MOQ

品种齐全
In Full Range

4. LCD Optical Characteristics

4.1 Optical specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit.	Note
Contrast Ratio		CR	$\Theta=0$ Normal viewing angle	400	500			
Response time	Rising	T _R		--	10	20	msec	Note3
	Falling	T _F		--	15	30		
Color Filter Chromaticity	White	W _X		0.27	0.308	0.34		Note2
		W _Y		0.29	0.327	0.357		
Viewing angle	Hor.	Θ_L	CR>10	--	70	--		Note1
		Θ_R		--	70	--		
	Ver.	Θ_U		--	50	--		
		Θ_D		--	70	--		
Option View Direction		12 Clock						

Test Conditions:

1. $DV_{DD}=9.6V$, $I_L=180mA$ (Backlight current), the ambient temperature is $25^{\circ}C$..
2. The test systems refer to Note 2.

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 10 of 33
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长期供货
Long-Time Supply

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Note 1: Definition of viewing angle range

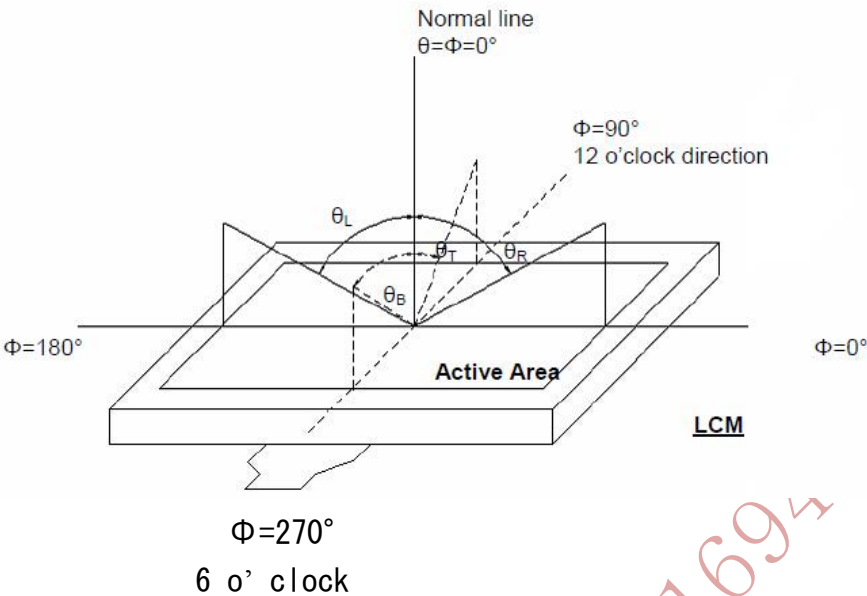


Fig. 4-1 Definition of viewing angle

Note 2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 30 minutes operation, the optical properties are measured at the center point of the LCD screen. (Viewing angle is measured by ELDIM-EZ contrast/Height :1.2mm, Response time is measured by Photo detector TOPCON BM-7, other items are measured by BM-5A/ Field of view: 1° /Height: 500mm.)

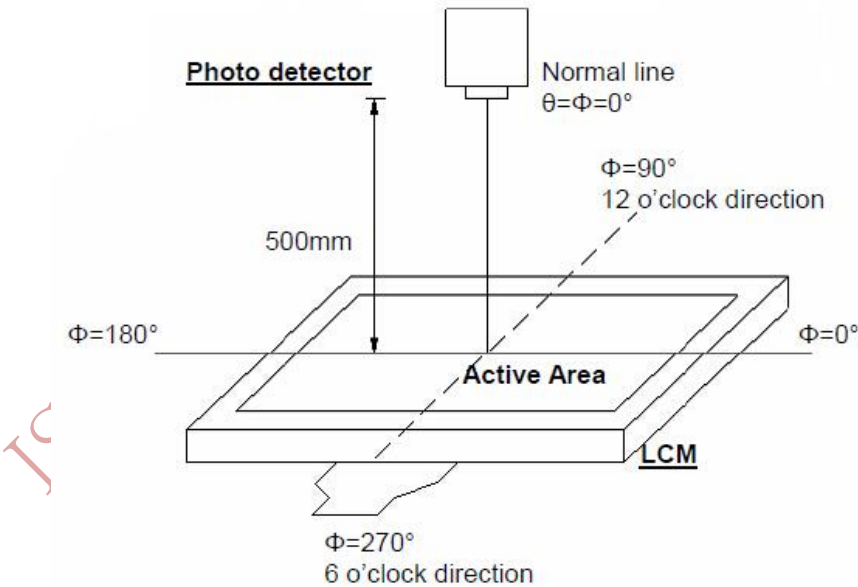


Fig. 4-2 Optical measurement system setup

Note 3: Definition of Response time

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 11 of 33
常备库存 Stock For Sale	长期供货 Long-Time Supply	支持小量 NO MOQ	品种齐全 In Full Range	



The response time is defined as the LCD optical switching time interval between "White" state and "Black" state. Rise time (T_{ON}) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_{OFF}) is the time between photo detector output intensity changed from 10% to 90%.

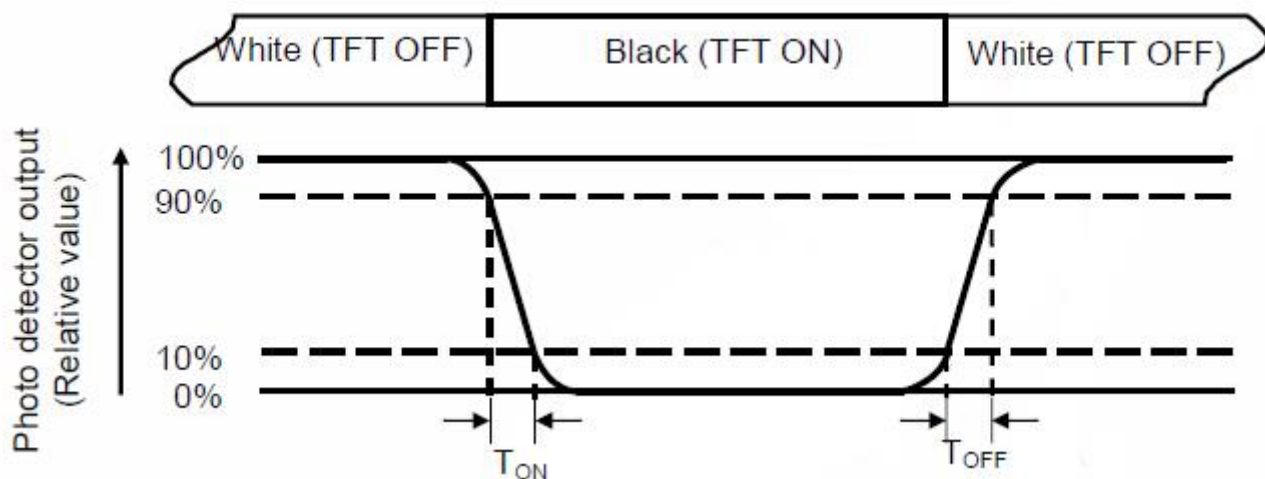


Fig. 4-3 Definition of response time

Note 4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: All input terminals LCD panel must be ground while measuring the center area of the panel. The LED driving condition is $I_L=260\text{mA}$.

Note 7: Definition of Luminance Uniformity

Measure the luminance of gray level 63 at 9 points

$$\delta W_{9p} = \frac{\text{Minimum [L (1) + L (6) + L (7) + L (8) + L (9) + L (10) + L (11) + L (12) + L (13)]}}{\text{Maximum [L (1) + L (6) + L (7) + L (8) + L (9) + L (10) + L (11) + L (12) + L (13)]}} * 100\%$$

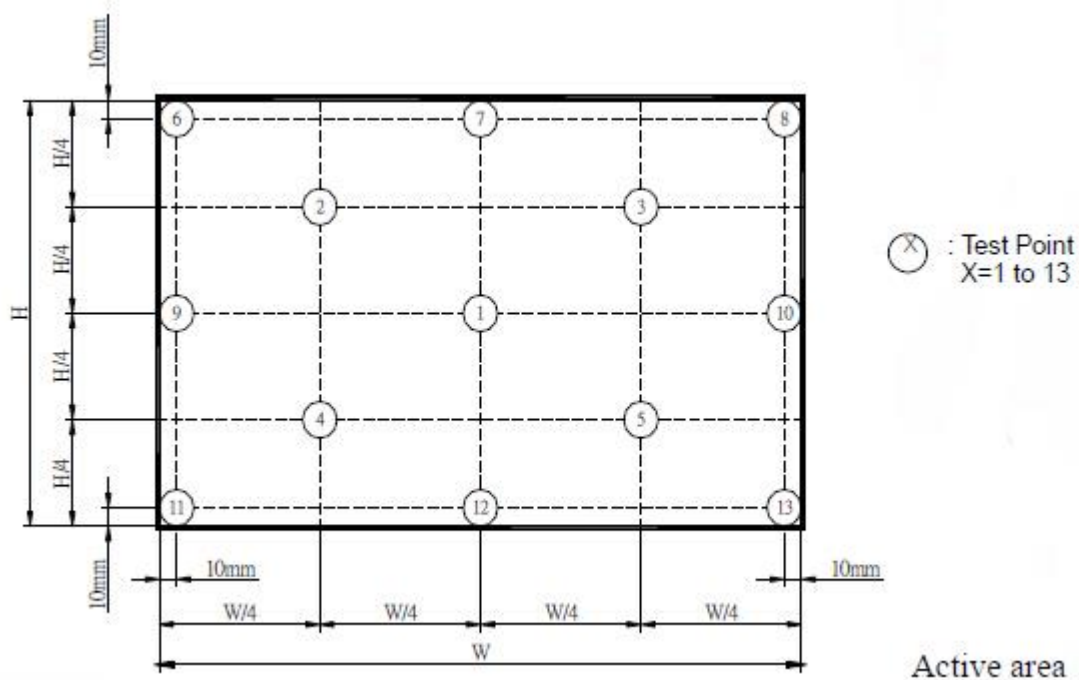
Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 12 of 33
----------	---------------------	-----	------	---------------

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5. Electrical Characteristics

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 13 of 33
常备库存 Stock For Sale	长期供货 Long-Time Supply	支持小量 NO MOQ	品种齐全 In Full Range	

5.1 Absolute Maximum Ratings

Characteristics	Symbol	Min.	Max.	Unit
Digital Supply Voltage	VCI/VDD	-0.5	5.0	V
Digital interface supply Voltage	IOVCC	-0.5	VDD+0.3	V
Operating temperature	T _{OP}	-20	+70	°C
Storage temperature	T _{ST}	-30	+80	°C

5.2 Typical Operation Conditions

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Note
Digital Supply Voltage	VCI/VDD	3.0	3.3	3.6	V	
Digital interface supply Voltage	IOVCC	1.8	3.3	3.6	V	
Normal mode Current consumption	IDD	--	200	--	mA	
Level input voltage	V _{IH}	0.7V _{DDIO}	--	V _{DDIO}	V	
	V _{IL}	GND	--	0.3V _{DDIO}	V	
Level output voltage	V _{OH}	V _{DDIO} -0.4	--	V _{DDIO}	V	
	V _{OL}	GND	--	0.2V _{DDIO}	V	

5.3 Backlight Driving Conditions

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 14 of 33
----------	---------------------	-----	------	---------------

常备库存
Stock For Sale

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In Full Range

The back-light system is edge-lighting type with 4 chips White LED

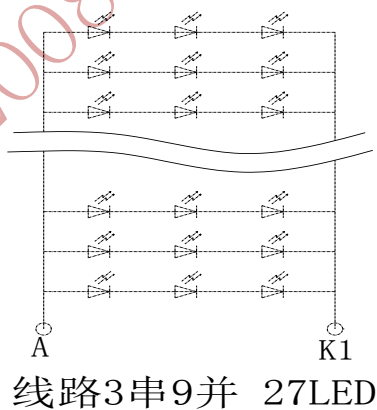
Item	Symbol	Min.	Typ.	Max.	Unit	Note
Forward Current	I_F	135	180	--	mA	
Forward Voltage	V_F	--	9.6	--	V	
LCM Luminance	L_v	450	--	--	cd/m ²	$I_f=180\text{mA}$
LED life time	Hr	50000	--	--	Hour	Note1,2
Uniformity	AVg	80	--	--	%	

Note (1) LED life time (Hr) can be defined as the time in which it continues to operate under the condition:

$T_a=25\pm 3\text{ }^{\circ}\text{C}$, typical IL value indicated in the above table until the brightness becomes less than 50%.

Note (2) The "LED life time" is defined as the module brightness decrease to 50% original brightness at

$T_a=25^{\circ}\text{C}$ and $I_L=180\text{mA}$. The LED lifetime could be decreased if operating I_L is larger than 180mA. The constant current driving method is suggested.



5.5 Power Sequence

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 15 of 33
----------	---------------------	-----	------	---------------

常备库存
Stock For Sale

长期供货
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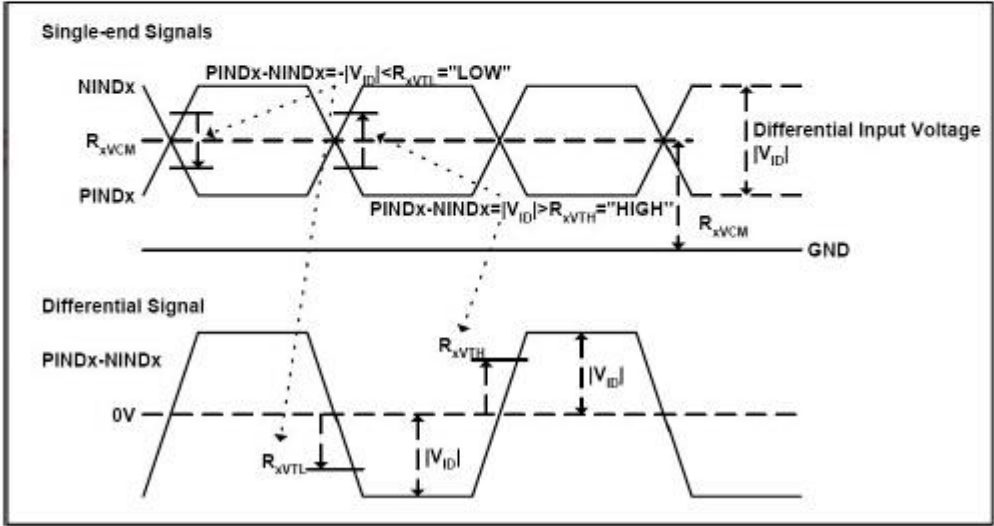
支持小量
NO MOQ

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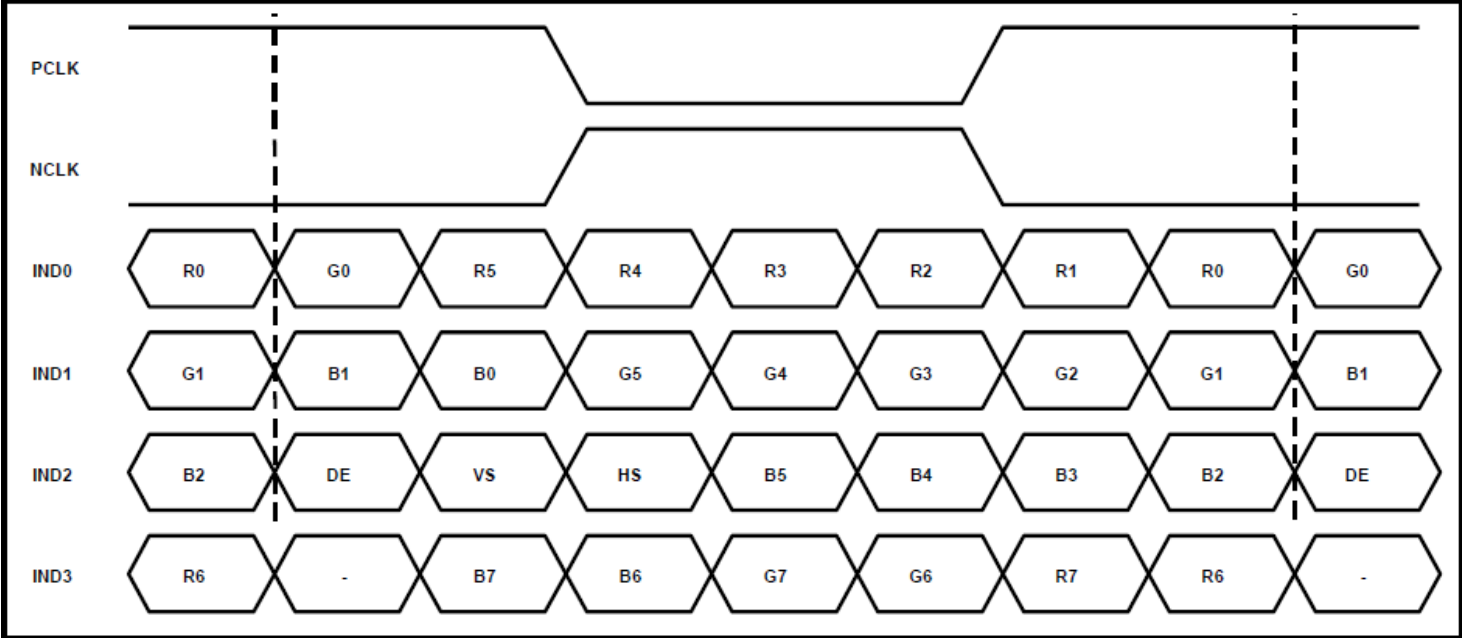
6. Timing Characteristics

6.1 AC Electrical Characteristics

Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
LVDS Differential input high Threshold voltage	R_{xVTH}	-	-	+100	mV	$R_{xVCM}=1.2V$
LVDS Differential input low Threshold voltage	R_{xVTL}	-100	-	-	mV	
LVDS Differential input common mode voltage	R_{xVCM}	0.7	-	1.6	V	
LVDS Differential voltage	$ V_{ID} $	100	-	600	mV	



6.2 Input Clock and Data Timing Diagram

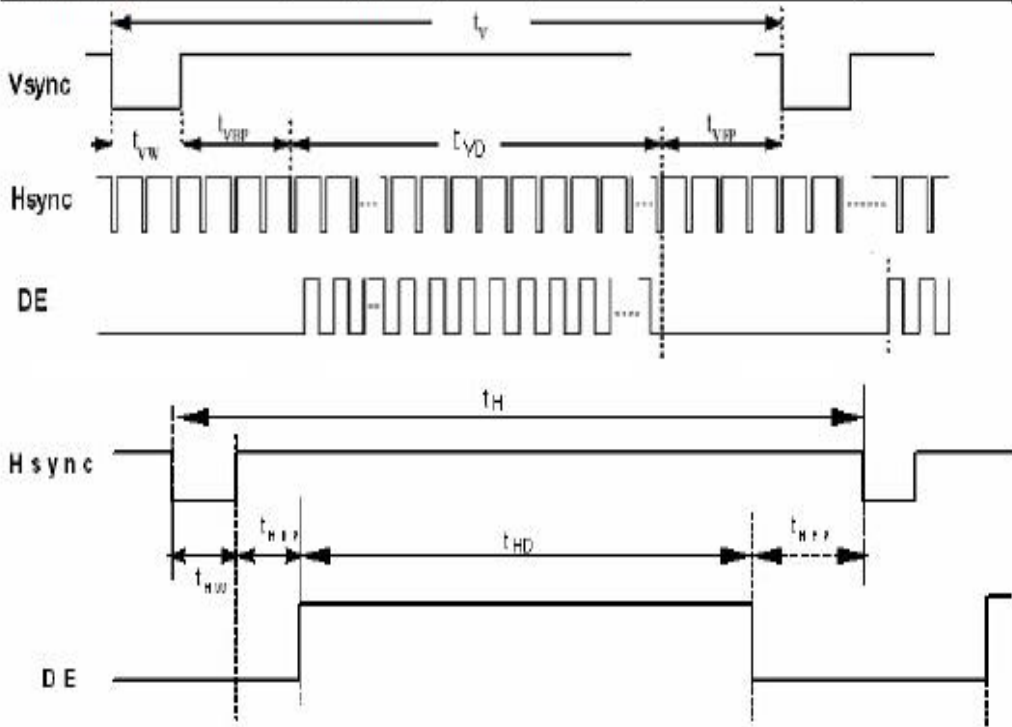


6.3 DC Electrical Characteristics

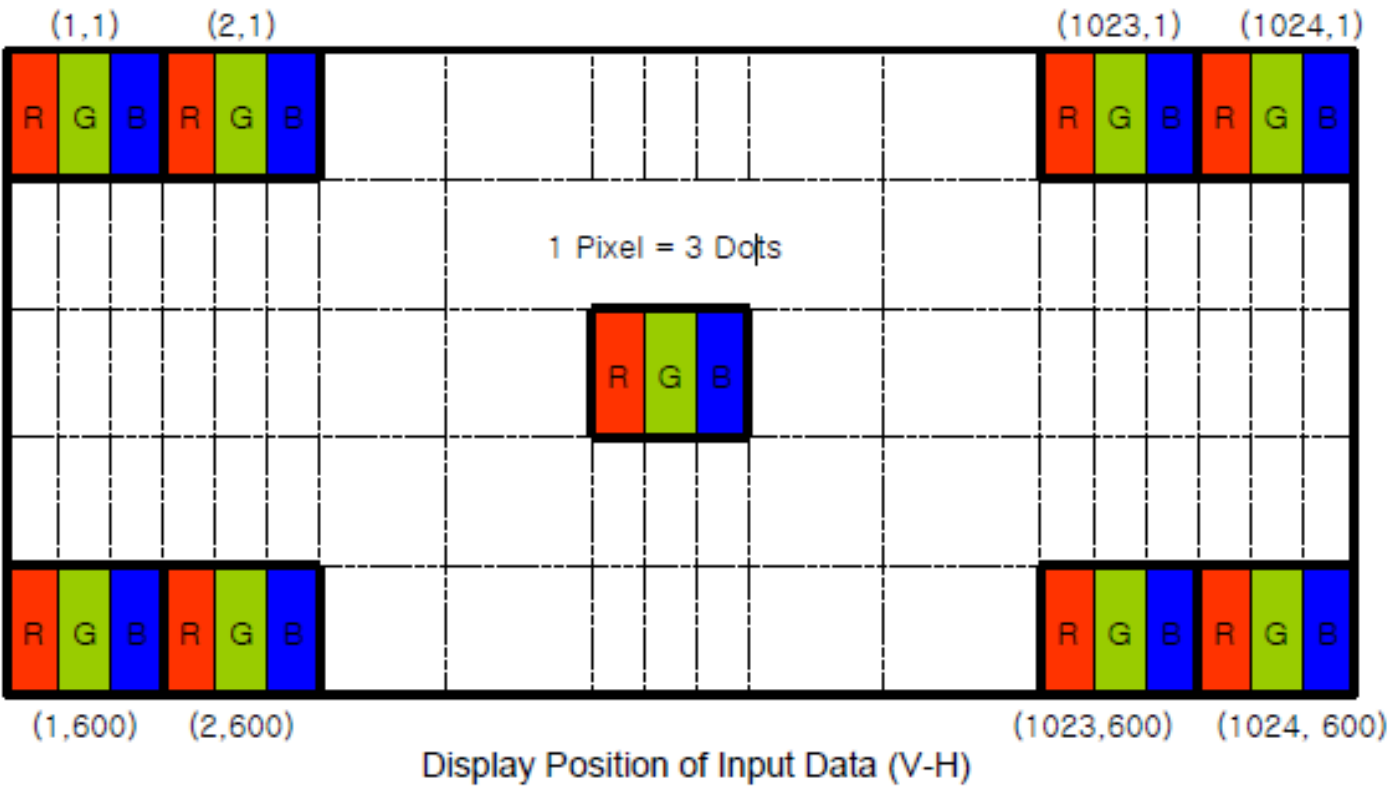
Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Differential input high Threshold voltage	R_{xVTH}	-	-	+0.1	V	$R_{xVCM}=1.2V$
Differential input low Threshold voltage	R_{xVTL}	-0.1	-	-	V	
Input voltage range (singled-end)	R_{xVIN}	0	-	2.4	V	
Differential input common mode voltage	R_{xVCM}	$ V_{ID} /2$	-	$2.4- V_{ID} /2$	V	
Differential voltage	$ V_{ID} $	0.2	-	0.6	V	
Differential input leakage current	RV_{xliz}	-10	-	+10	uA	

6.4 Timing

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Clock Frequency	1/Tc	(68.9)	71.1	(73.4)	MHz	Frame rate =60Hz
Horizontal display area	tHD	1280			Tc	
HS period time	tH	(1410)	1440	(1470)	Tc	
HS Width +Back Porch +Front Porch	tHW+ tHBP +tHFP	(60)	160	(190)	Tc	
Vertical display area	tVD	800			tH	
VS period time	tV	(815)	823	(833)	tH	
VS Width +Back Porch +Front Porch	tvw+ tvBP +tvFP	(15)	23	(33)	tH	



6.5 Data Input Format



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7. Reliability Test Items

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 19 of 33
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(Note3)

Item	Test Conditions	Remark
High Temperature Storage	Ta = 70℃ 240hrs	Note 1, Note 4
Low Temperature Storage	Ta = -30℃ 240hrs	Note 1, Note 4
High Temperature Operation	Ts = 60℃ 240hrs	Note 2, Note 4
Low Temperature Operation	Ta = -20℃ 240hrs	Note 1, Note 4
Operate at High Temperature and Humidity	+40℃, 90%RH 240hrs	Note 4
Thermal Shock	-20℃/30 min ~ +60℃/30 min for a total 100 cycles, Start with cold temperature and end with high temperature.	Note 4
Vibration Test	Frequency range:10~55Hz Stroke:1.5mm Sweep:10Hz~55Hz~10Hz 2 hours for each direction of X. Y. Z. (6 hours for total)	
Mechanical Shock	100G 6ms,±X, ±Y, ±Z 3 times for each direction	
Package Vibration Test	Random Vibration : 0.015G*G/Hz from 5-200HZ, -6dB/Octave from 200-500HZ 2 hours for each direction of X. Y. Z. (6 hours for total)	
Package Drop Test	Height:60 cm 1 corner, 3 edges, 6 surfaces	
Electro Static Discharge	± 2KV, Human Body Mode, 100pF/1500Ω	

Note 1: Ta is the ambient temperature of samples.

Note 2: Ts is the temperature of panel's surface.

Note 3: In the standard condition, there shall be no practical problem that may affect the display function. After the reliability test, the product only guarantees operation, but don't guarantee all of the cosmetic specification.

Note 4: Before cosmetic and function test, the product must have enough recovery time, at least 2 hours at room temperature.

8. CTP Specification

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 20 of 33
----------	---------------------	-----	------	---------------

常备库存
Stock For Sale

长期供货
Long-Time Supply

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8.1 Electrical Characteristics

8.1.1 Absolute Maximum Rating

Item	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	VDD	2.66	3.47	V	--
Operating temperature	T _{OP}	-20	+70	°C	--
Storage temperature	T _{ST}	-30	+80	°C	--
ESD protection voltage (HB Model)	--	--	±2	KV	--

8.1.2 DC Electrical Characteristics (Ta=25°C)

(Ambient temperature:25°C, AVDD=2.8V, VDDIO=1.8V or VDDIO=AVDD)

Item	Min.	Typ.	Max.	Unit	Note
Normal mode operating current	--	8	14.5	mA	
Green mode operating current	--	3.3	--	mA	
Sleep mode operating current	70	--	120	uA	
Doze mode operating current	--	0.78	--	mA	
Digital Input low voltage/VIL	-0.3	--	0.25*VDDIO	V	
Digital Input high voltage/VIH	0.75*VDDIO	--	VDDIO+0.3	V	
Digital Output low voltage/VOL	--		0.15*VDDIO	V	
Digital Output high voltage/VOH	0.85*VDDIO			V	

8.1.3 AC Characteristics

(Ambient temperature:25°C, AVDD=2.8V, VDDIO=1.8V)

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 21 of 33
----------	---------------------	-----	------	---------------

常备库存
Stock For Sale

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支持小量
NO MOQ

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In Full Range

Parameter	Min	Type	Max	Unit
OSC oscillation frequency	59	60	61	MHZ
I/O output rise time, low to high	-	14	-	ns
I/O output fall time, high to low	-	14	-	ns

8.2 I2C Timing

The I2C is always configured in the Slave mode. The data transfer format is shown in Figure 2-4.

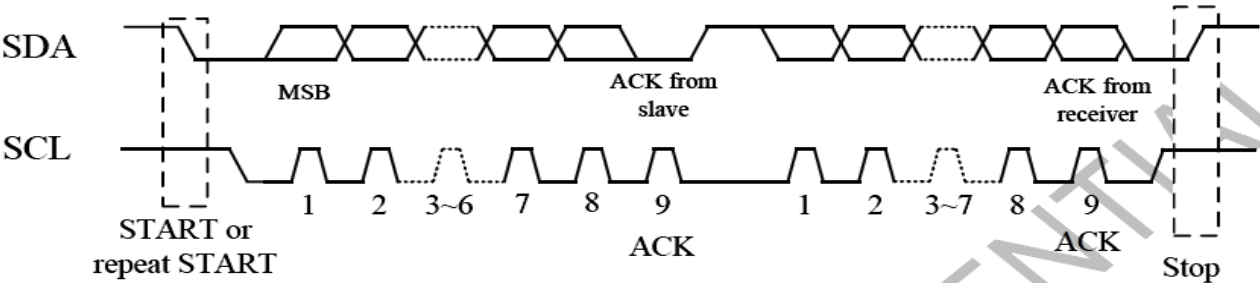


Figure 2-4 I2C Serial Data Transfer Format

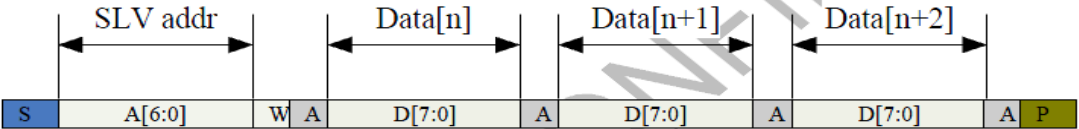


Figure 2-5 I2C master write, slave read

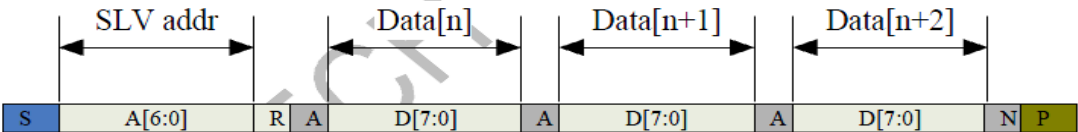


Figure 2-6 I2C master read, slave write

Table 2-1 lists the meanings of the symbols used in the above figures.

Table 2-1 Mnemonics Description

Mnemonics	Description
S	I2C Start or I2C Restart
A[6:0]	Slave address
R/W	READ/WRITE bit, '1' for read, '0' for write
A(N)	ACK(NACK) bit
P	STOP: the indication of the end of a packet (if this bit is missing, S will indicate the end of the current packet and the beginning of the next packet)

I2C Interface Timing Characteristics is shown in Table 2-2.

Table 2-2 I2C Timing Characteristics

Parameter	Min	Max	Unit
-----------	-----	-----	------

SCL frequency	10	400	KHz
Bus free time between a STOP and START condition	4.7	\	us
Hold time (repeated) START condition	4.0	\	us
Data setup time	250	\	ns
Setup time for a repeated START condition	4.7	\	us
Setup Time for STOP condition	4.0	\	us

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9 LCD Module Out-Going Quality Level

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 23 of 33
----------	---------------------	-----	------	---------------

常备库存
Stock For Sale

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Long-Time Supply

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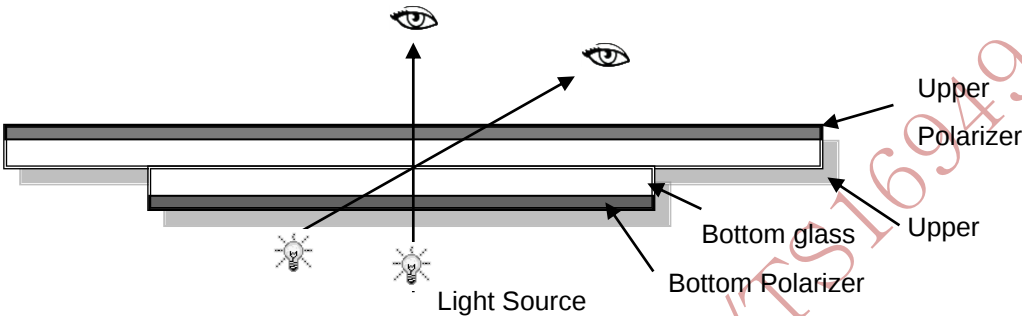
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9.1 VISUAL & FUNCTION INSPECTION STANDARD

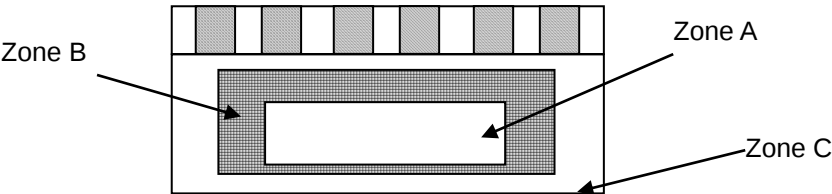
9.1.1 Inspection conditions

Inspection performed under the following conditions is recommended.

- Temperature : 25±5℃
- Humidity: 65%±10%RH
- Viewing Angle: Normal viewing Angle.
- Illumination: Single fluorescent lamp (300 to 700Lux)
- Viewing distance:30-50cm



9.1.2 Definition



- Zone A: Effective Viewing Area (Character or Digit can be seen)
- Zone B: Viewing Area except Zone A
- Zone C: COVER

9.1.3 Sampling Plan

According to GB/T 2828-2003 ; , normal inspection, Class II

AQL:

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 24 of 33
常备库存 Stock For Sale		长期供货 Long-Time Supply		品种齐全 In Full Range

支持小量
NO MOQ

Major defect	Minor defect
0.65	1.5

LCD: Liquid Crystal Display, TP: Touch Panel, LCM: Liquid Crystal Module

No	Items to be inspected	Criteria	Classification of defects
1	Functional defects	1) No display, Open or miss line 2) Display abnormally, Short 3) Backlight no lighting, abnormal lighting. 4) TP no function	Major
2	Missing	Missing component	
3	Outline dimension	Overall outline dimension beyond the drawing is not allowed	
4	Color tone	Color unevenness, refer to limited sample	Minor
5	Soldering appearance	Good soldering, peeling off is not allowed.	
6	LCD/Polarizer/TP	Black/White spot/line, scratch, crack, etc.	

9.1.4 Criteria (Visual)

Number	Items	Criteria(mm)
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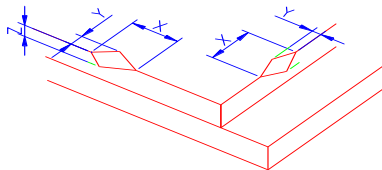
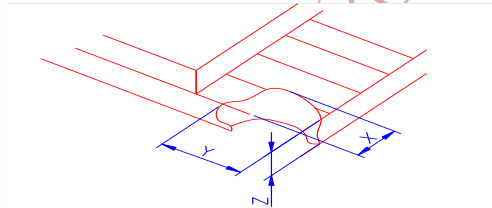
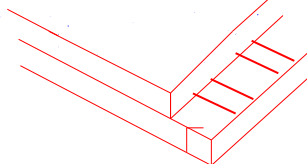
Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 25 of 33
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常备库存
Stock For Sale

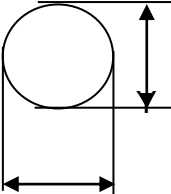
长期供货
Long-Time Supply

支持小量
NO MOQ

品种齐全
In Full Range

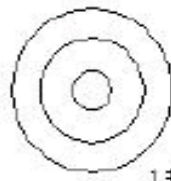
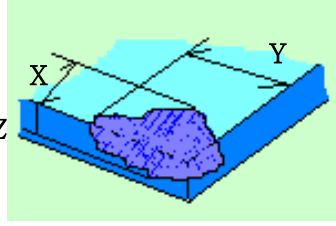
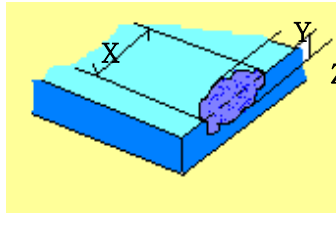
1.0 LCD Crack/Broken								
NOTE: X: Length Y: Width Z: Height L: Length of ITO T: Height of LCD	(1) The edge of LCD broken	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤3.0mm</td><td><Inner border line of the seal</td><td>≤T</td></tr></table>	X	Y	Z	≤3.0mm	<Inner border line of the seal	≤T
X	Y	Z						
≤3.0mm	<Inner border line of the seal	≤T						
	(2) LCD corner broken	 <table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>≤5.0mm</td><td>≤L</td><td>≤T</td></tr></table>	X	Y	Z	≤5.0mm	≤L	≤T
X	Y	Z						
≤5.0mm	≤L	≤T						
	(3) LCD crack	 Crack Not allowed						

Number	Items	Criteria (mm)
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2.0	Spot defect	① light dot (LCD/TP/Polarizer black/white spot , light dot, pinhole, dent, stain)																																
		Zone Size (mm)		Acceptable Qty																														
				A	B	C																												
		$\Phi \leq 0.3$	Ignore		Ignore																													
		$0.3 < \Phi \leq 0.4$	3(distance $\geq 10\text{mm}$)		3(distance $\geq 10\text{mm}$)																													
		$0.4 < \Phi \leq 0.5$	1		2																													
	$\Phi > 0.5$	0		0																														
	X	②Dim spot (LCD/TP/Polarizer dim dot, light leakage, dark spot)																																
	$\Phi=(X+Y)/2$	Zone Size (mm)		Acceptable Qty																														
				A	B	C																												
		$\Phi \leq 0.3$	Ignore		Ignore																													
		$0.3 < \Phi \leq 0.4$	3(distance $\geq 10\text{mm}$)		3(distance $\geq 10\text{mm}$)																													
		$0.4 < \Phi \leq 0.5$	1		2																													
	$\Phi > 0.5$	0		0																														
	③ Polarizer accidented spot																																	
		Zone Size (mm)		Acceptable Qty																														
				A	B																													
		$\Phi \leq 0.5$	Ignore																															
$0.5 < \Phi \leq 1.0$		5(distance $\geq 10\text{mm}$)																																
$\Phi > 1.0$		0																																
Line defect (LCD/TP /Polarizer black/white line, scratch, stain)	<table><tr><td rowspan="2">Width(mm)</td><td rowspan="2">Ignore(mm)</td><td colspan="3">Acceptable Qty</td></tr><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>$\Phi \leq 0.05$</td><td>Ignore</td><td colspan="2">Ignore</td><td>Ignore</td></tr><tr><td>$0.05 < W \leq 0.08$</td><td>$L \leq 10$</td><td colspan="2">$N \leq 3$</td><td>$N \leq 3$</td></tr><tr><td>$0.08 < W \leq 0.15$</td><td>$L \leq 10$</td><td colspan="2">$N \leq 2$</td><td>$N \leq 2$</td></tr><tr><td>$0.15 < W$</td><td colspan="4">Define as spot defect</td></tr></table>						Width(mm)	Ignore(mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.05$	Ignore	Ignore		Ignore	$0.05 < W \leq 0.08$	$L \leq 10$	$N \leq 3$		$N \leq 3$	$0.08 < W \leq 0.15$	$L \leq 10$	$N \leq 2$		$N \leq 2$	$0.15 < W$	Define as spot defect			
Width(mm)	Ignore(mm)	Acceptable Qty																																
		A	B	C																														
$\Phi \leq 0.05$	Ignore	Ignore		Ignore																														
$0.05 < W \leq 0.08$	$L \leq 10$	$N \leq 3$		$N \leq 3$																														
$0.08 < W \leq 0.15$	$L \leq 10$	$N \leq 2$		$N \leq 2$																														
$0.15 < W$	Define as spot defect																																	

3.0	LCD Polarizer Bubble	<table><tr><th rowspan="2">Zone Size (mm)</th><th colspan="2">Acceptable Qty</th></tr><tr><th>A</th><th>B</th></tr><tr><td>$\Phi \leq 0.5$</td><td colspan="2">Ignore</td></tr><tr><td>$0.5 < \Phi \leq 0.8$</td><td colspan="2">3(distance $\geq 10\text{mm}$)</td></tr><tr><td>$0.8 < \Phi \leq 1.0$</td><td colspan="2">2</td></tr><tr><td>$1.0 < \Phi$</td><td colspan="2">0</td></tr></table>	Zone Size (mm)	Acceptable Qty		A	B	$\Phi \leq 0.5$	Ignore		$0.5 < \Phi \leq 0.8$	3(distance $\geq 10\text{mm}$)		$0.8 < \Phi \leq 1.0$	2		$1.0 < \Phi$	0	
Zone Size (mm)	Acceptable Qty																		
	A	B																	
$\Phi \leq 0.5$	Ignore																		
$0.5 < \Phi \leq 0.8$	3(distance $\geq 10\text{mm}$)																		
$0.8 < \Phi \leq 1.0$	2																		
$1.0 < \Phi$	0																		
4.0	TP COVER Pinhole/ Lack of ink	<table><tr><th rowspan="2">Zone Size (mm)</th><th colspan="2">Acceptable Qty</th></tr><tr><th colspan="2">C</th></tr><tr><td>$\Phi \leq 0.05$</td><td colspan="2">Ignore</td></tr><tr><td>$0.05 < \Phi \leq 0.08$</td><td colspan="2">3(distance $\geq 10\text{mm}$)</td></tr><tr><td>$0.08 < \Phi \leq 0.15$</td><td colspan="2">2</td></tr><tr><td>$0.15 < \Phi$</td><td colspan="2">0</td></tr></table>	Zone Size (mm)	Acceptable Qty		C		$\Phi \leq 0.05$	Ignore		$0.05 < \Phi \leq 0.08$	3(distance $\geq 10\text{mm}$)		$0.08 < \Phi \leq 0.15$	2		$0.15 < \Phi$	0	
Zone Size (mm)	Acceptable Qty																		
	C																		
$\Phi \leq 0.05$	Ignore																		
$0.05 < \Phi \leq 0.08$	3(distance $\geq 10\text{mm}$)																		
$0.08 < \Phi \leq 0.15$	2																		
$0.15 < \Phi$	0																		
5.0	SMT	According to IPC-A-610C class II standard . Function defect and missing part are major defect, the others are min or defect.																	

6.0	TP Related	TP Bonding bubble/ accident spot	Size Φ (mm)	Acceptable Qty	
				A	B
			$\Phi \leq 0.15$	Ignore	
			$0.15 < \Phi \leq 0.2$	3(distance $\geq 10\text{mm}$)	
			$0.2 < \Phi \leq 0.25$	2	
			$0.25 < \Phi$	0	

				 1 规律性  2 非规律性  似牛顿环						
		Newton Ring	Newton Ring area>1/3 TP area NG Newton Ring area≤1/3 TP area OK							
		TP corner broken	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>X≤3.0mm</td><td>Y≤3.0mm</td><td>Z<LCD thickness</td></tr></table>	X	Y	Z	X≤3.0mm	Y≤3.0mm	Z<LCD thickness	
X	Y	Z								
X≤3.0mm	Y≤3.0mm	Z<LCD thickness								
		TP edge broken	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>X≤6.0mm</td><td>Y≤2.0mm</td><td>Z<LCD thickness</td></tr></table>	X	Y	Z	X≤6.0mm	Y≤2.0mm	Z<LCD thickness	
X	Y	Z								
X≤6.0mm	Y≤2.0mm	Z<LCD thickness								

Criteria (functional items)

Number	Items	Criteria (mm)
1	No display	Not allowed
2	Missing segment	Not allowed
3	Short	Not allowed
4	Backlight no lighting	Not allowed
5	TP no function	Not allowed

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 29 of 33
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常备库存
Stock For Sale

长期供货
Long-Time Supply

支持小量
NO MOQ

品种齐全
In Full Range



10. Reliability Test Result

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 30 of 33
	常 备 库 存 Stock For Sale	长 期 供 货 Long-Time Supply	支持小量 NO MOQ	品 种 齐 全 In Full Range

Item	Condition	Sample Size	Test Result	Note
Low Temperature Operating Life test	-20°C, 96HR	3ea	pass	-
Thermal Humidity Operating Life test	70°C90%RH, 96HR	3ea	pass	-
Temperature Cycle ON/OFF test	-20°C ↔ 70°C, ON/OFF, 20CYC	3ea	pass	(1)
High Temperature Storage test	80°C, 96HR	3ea	pass	-
Low Temperature Storage test	- 30°C, 96HR	3ea	pass	-
ESD test	150pF, 330Ω, ±6KV(Contact)/± 8KV(Air), 5 points/panel, 10 times/point	3ea	pass	
Thermal Shock Resistance	The sample should be allowed to stand the following 5 cycles of operation: TSTL for 30 minutes -> normal temperature for 5 minutes -> TSTH for 30 minutes -> normal temperature for 5 minutes, as one cycle, then taking it out and drying it at normal temperature, and allowing it stand for 24 hours	3ea	pass	
Box Drop Test	1 Corner 3 Edges 6 faces, 66cm(MEDIUM BOX)	1box	pass	-

Note (1) ON Time over 10 seconds, OFF Time under 10 seconds

11. Cautions and Handling Precautions

11.1 Handling and Operating the Module

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 31 of 33
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常备库存
Stock For Sale

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Long-Time Supply

支持小量
NO MOQ

品种齐全
In Full Range

- (1) When the module is assembled, it should be attached to the system firmly. Do not warp or twist the module during assembly work.
- (2) Protect the module from physical shock or any force. In addition to damage, this may cause improper operation or damage to the module and back-light unit.
- (3) Note that polarizer is very fragile and could be easily damaged. Do not press or scratch the surface.
- (4) Do not allow drops of water or chemicals to remain on the display surface. If you have the droplets for a long time, staining and discoloration may occur.
- (5) If the surface of the polarizer is dirty, clean it using some absorbent cotton or soft cloth.
- (6) The desirable cleaners are water, IPA (Isopropyl Alcohol) or Hexane. Do not use ketene type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanent damage to the polarizer due to chemical reaction.
- (7) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs, or clothes, it must be washed away thoroughly with soap.
- (8) Protect the module from static; it may cause damage to the CMOS ICs.
- (9) Use finger-stalls with soft gloves to keep display clean during the incoming inspection and assembly process.
- (10) Do not disassemble the module.
- (11) Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.
- (12) Pins of I/F connector shall not be touched directly with bare hands.
- (13) Do not connect, disconnect the module in the "Power ON" condition.
- (14) Power supply should always be turned on/off by the item 6.1 Power on Sequence & 6.2 Power Off Sequence

11.2 Storage and Transportation.

- (1) Do not leave the panel in high temperature, and high humidity for a long time. It is highly recommended to store the module with temperature from 0 to 35 °C and relative humidity of less than 70%.
- (2) Do not store the TFT-LCD module in direct sunlight.
- (3) The module shall be stored in a dark place. When storing the modules for a long time, be sure to adopt effective measures for protecting the modules from strong ultraviolet radiation, sunlight, or fluorescent light.
- (4) It is recommended that the modules should be stored under a condition where no condensation is allowed. Formation of dewdrops may cause an abnormal operation or a failure of the module. In particular, the greatest possible care should be taken to prevent any module from being operated where condensation has occurred inside.
- (5) This panel has its circuitry FPC on the bottom side and should be handled carefully in order not to be stressed.

12. Packing

----TBD-----

Part. No	KD070C-4-C007A-LVDS	REV	V1.0	Page 32 of 33
常备库存 Stock For Sale	长期供货 Long-Time Supply	支持小量 NO MOQ	品种齐全 In Full Range	



13. Product material BOM

NO.	MATERIAL	BRAND	NOTE
1	TFT	EJ101IA-01G	
2	LEN	南玻	
3	Sensor	旭肖子	
4	CTP IC	FT5626	

ISO9001 : 2008 ISO/TS16949 : 2009