

SPECIFICATION FOR LCM Module

MODULE No:	KD080WXFID008
CUSTOMER:	

STARTEK	INITIAL	DATE
PREPARED BY		
CHECKED BY		
APPROVED BY		

CUSTOMER	INITIAL	DATE
APPROVED BY		

[illegible]

Part. No	KD080WXFID008	REV	V1.0	Page 2 of 29
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	

Contents

1. Block Diagram	5
2. Outline dimension	6
3. Input terminal Pin Assignment	7
4. LCD Optical Characteristics	8
4.1 Optical specification	8
5. Electrical Characteristics	12
5.1 Absolute Maximum Rating	12
5.2 DC Electrical Characteristics	12
5.3 LED Backlight Characteristics	13
6. TFT AC Characteristics	15
6.1 Signal timing	15
6.2 MIPI Rx Interface Timing Parameter The specification of the LVDS Rx interface timing parameter	16
6.3 Input Clock and Data Timing Diagram	18
6.4 POWER SEQUENCE	19
7. LCD Module Out-Going Quality Level	20
7.1 VISUAL & FUNCTION INSPECTION STANDARD	20
7.1.1 Inspection conditions	20
7.1.2 Definition	20
7.1.3 Sampling Plan	21
7.1.4 Criteria (Visual)	22
8. Reliability Test Result	27
9. Cautions and Handling Precautions	28
9.1 Handling and Operating the Module	28
9.2 Storage and Transportation	28
10. Packing	29

Part. No	KD080WXFID008	REV	V1.0	Page 3 of 29
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 module is composed of a Transmissive type TFT-LCD Panel, driver circuit, back-light unit. The resolution of a 8.0 " TFT-LCD contains 800*1280 pixels, and can display up to 16.7M colors.

***Features**

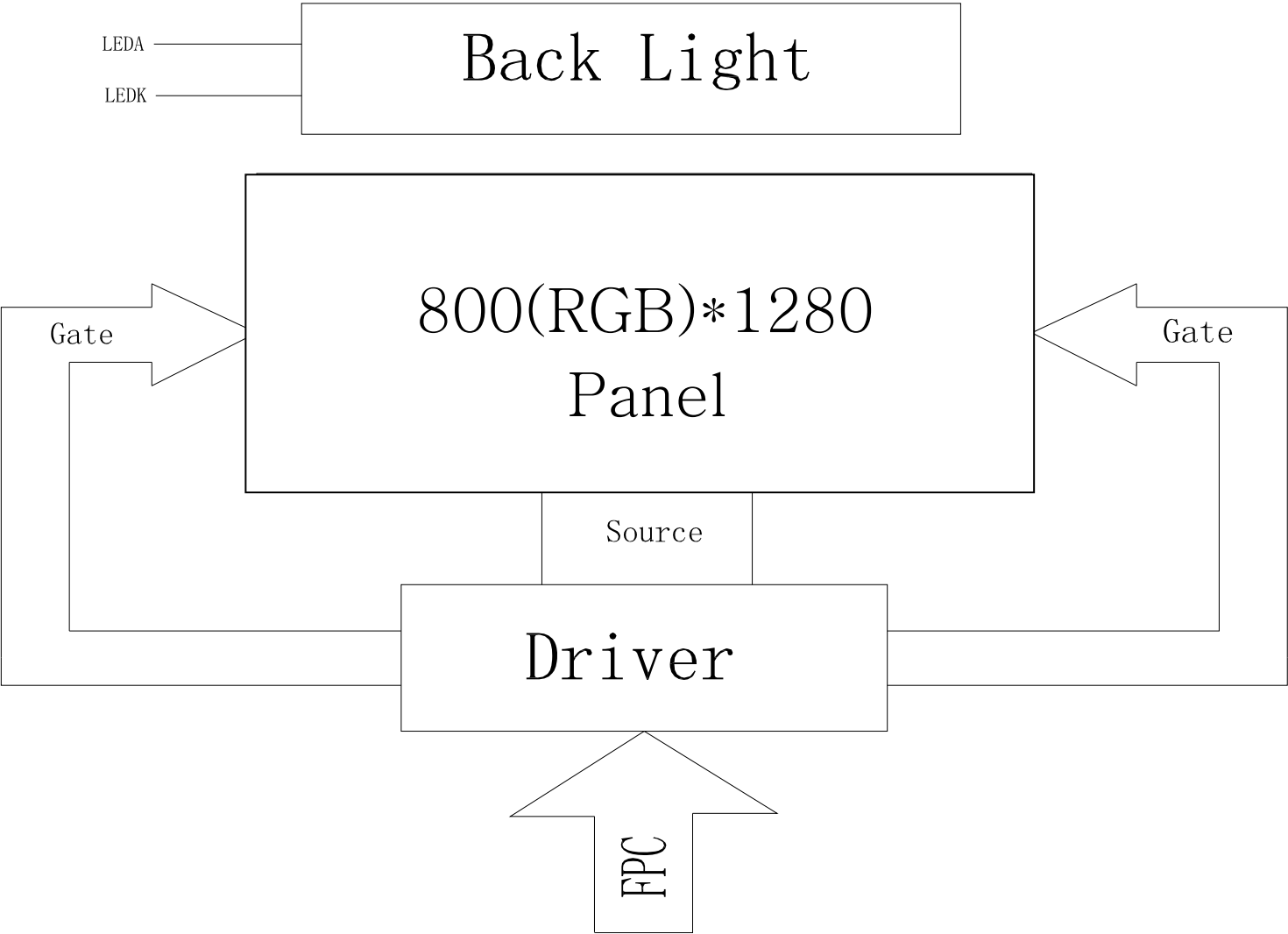
General Information Items	Specification	Unit	Note
	Main Panel		
Display area (AA)	107.64(H)*172.22V) (8.0 inch)	mm	
Driver element	TFT active matrix	-	
Display colors	16.7M	colors	
Number of pixels	800(RGB)*1280	dots	
Pixel arrangement	RGB vertical stripe	-	
Pixel pitch	0.13455(H)*0.13455(V)	mm	
Viewing angle	Free	o'clock	
Controller IC	TBD	-	
LCM Interface	4 Lane MIPI	-	
Display mode	Transmissive /Normally Black	-	
Operating temperature	-20~+60	℃	
Storage temperature	-25~+65	℃	

*** Mechanical Information**

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)	-	114.70	-	mm	
	Vertical(V)	-	184.10	-	mm	
	Depth(D)	-	2.6	-	mm	
Weight		-	113	-	g	



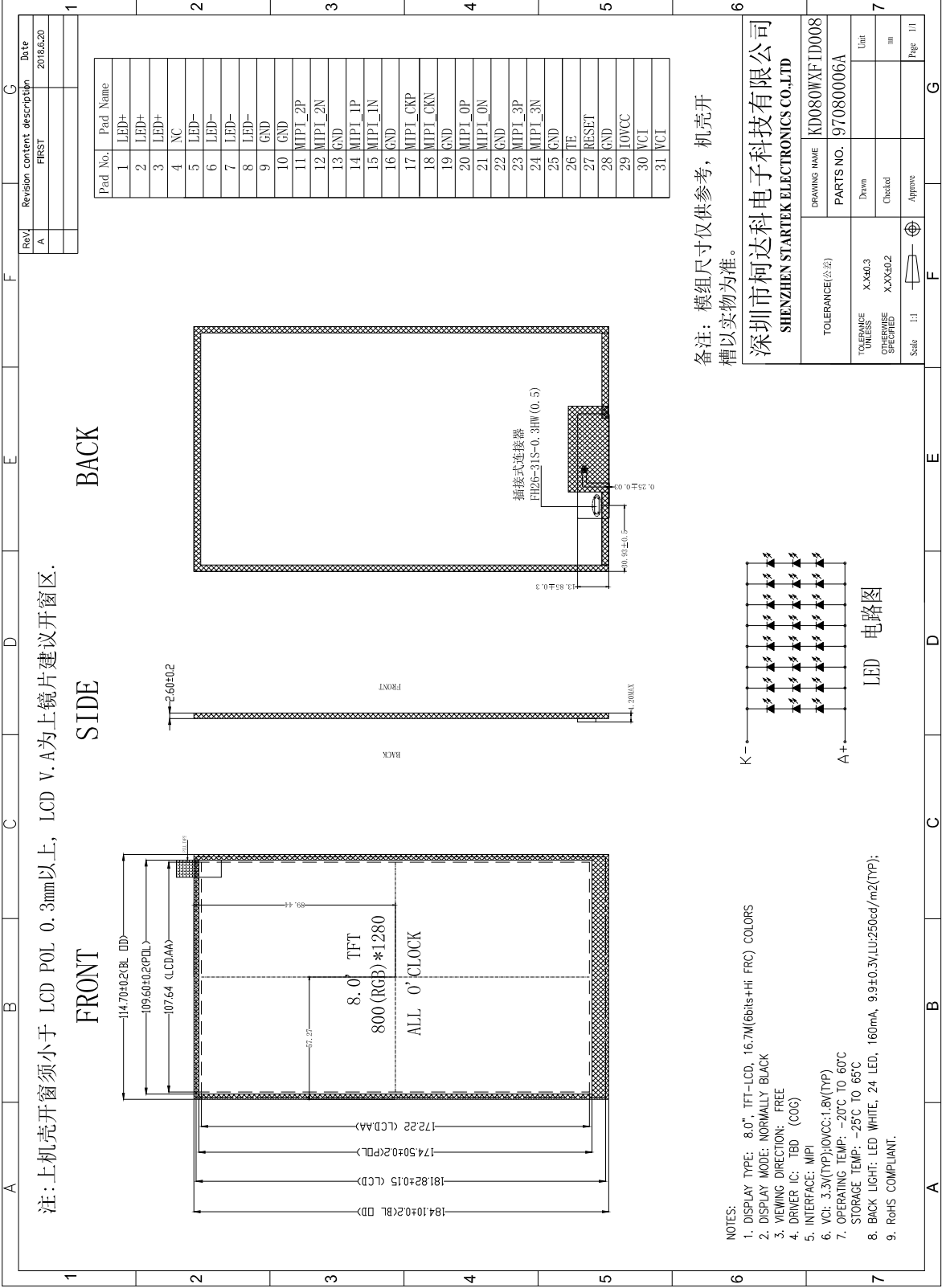
1. Block Diagram



Part. No	KD080WXFID008	REV	V1.0	Page 5 of 29
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	



2. Outline dimension



3. Input terminal Pin Assignment

NO.	SYMBOL	DISCRIPTION	I/O
1	LED+	Anode pin of backlight	P
2	LED+		
3	LED+		
4	NC	-	-
5	LED-	Cathode pin of backlight	P
6	LED-		
7	LED-		
8	LED-		
9	GND	Ground	P
10	GND		
11	MIPI_2P	Positive MIPI Differential Data Pair 2	I
12	MIPI_2N	Negative MIPI Differential Data Pair 2	I
13	GND	Ground	P
14	MIPI_1P	Positive MIPI Differential Data Pair 1	I
15	MIPI_1N	Negative MIPI Differential Data Pair 1	I
16	GND	Ground	P
17	MIPI_CKP	Positive MIPI Differential Clock input	I
18	MIPI_CKN	Negative MIPI Differential Clock input	I
19	GND	Ground	P
20	MIPI_0P	Positive MIPI Differential Data Pair 0	I
21	MIPI_0N	Negative MIPI Differential Data Pair 0	I
22	GND	Ground	P
23	MIPI_3P	Positive MIPI Differential Data Pair 3	I
24	MIPI_3N	Negative MIPI Differential Data Pair 3	I
25	GND	Ground	P
26	TE	Logic Power Supply Voltage(1.8V) or No connection	I
27	RESET	System reset control	
28	GND	Ground	P
29	IOVCC	Logic Power Supply Voltage(1.8V)	P
30	VCI	Analog Power Supply Voltage(3.3V)	P
31	VCI	Analog Power Supply Voltage(3.3V)	P

4. LCD Optical Characteristics

4.1 Optical specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit.	Note
Contrast Ratio		CR	$\Theta=0$ Normal viewing angle	640	800	--		
Response time	Rising	T _R		--	30	--	msec	
	Falling	T _F		--	--	--		
Uniformity		S(%)		75	80	--	%	
Color Filter Chromaticity	White	W _X		0.2411	0.2811	0.3211		
		W _Y		0.2524	0.2924	0.3324		
	Red	R _X		0.5404	0.5804	0.6204		
		R _Y		0.2894	0.3294	0.3694		
	Green	G _X		0.2948	0.3348	0.3748		
		G _Y		0.5608	0.6008	0.6408		
	Blue	B _X		0.1138	0.1538	0.1938		
		B _Y		0.0139	0.0539	0.0939		
Viewing angle	Hor.	Θ_L	CR>10	--	85	--		
		Θ_R		--	85	--		
	Ver.	Θ_U		--	85	--		
		Θ_D		--	85	--		
		Option View Direction		Free				

Note: The parameter is slightly changed by temperature, driving voltage and materiel

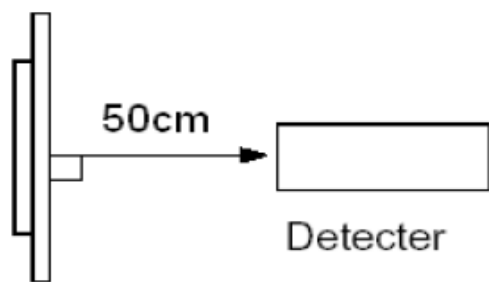
Note 1: The data are measured after LEDs are turned on for 5 minutes. LCM displays full white.

The brightness is the average value of 9 measured spots. Measurement equipment PR-705 (Φ8mm)

Measuring condition:

- ① Measuring surroundings: Dark room.
- ② Measuring temperature: Ta=25℃.
- ③ Adjust operating voltage to get optimum contrast at the center of the display.

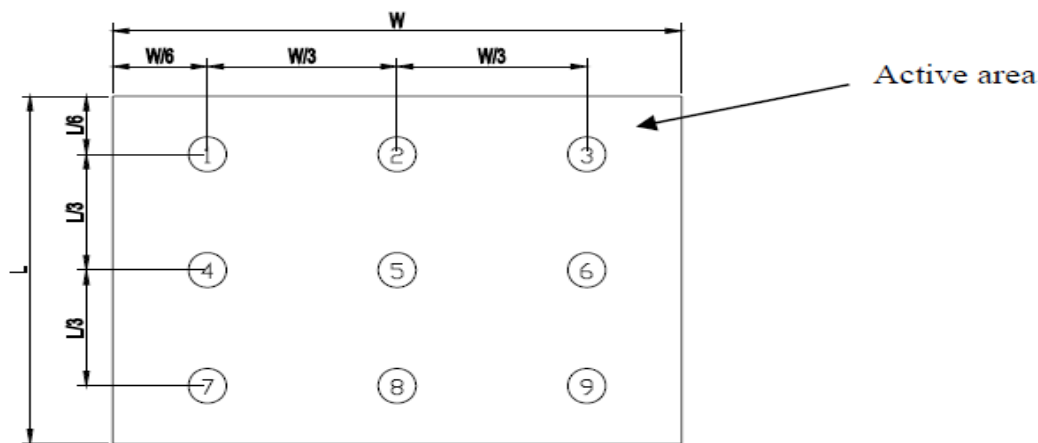
Measured value at the center point of LCD panel after more than 5 minutes while backlight turning on.



Note 2: The luminance uniformity is calculated by using following formula.

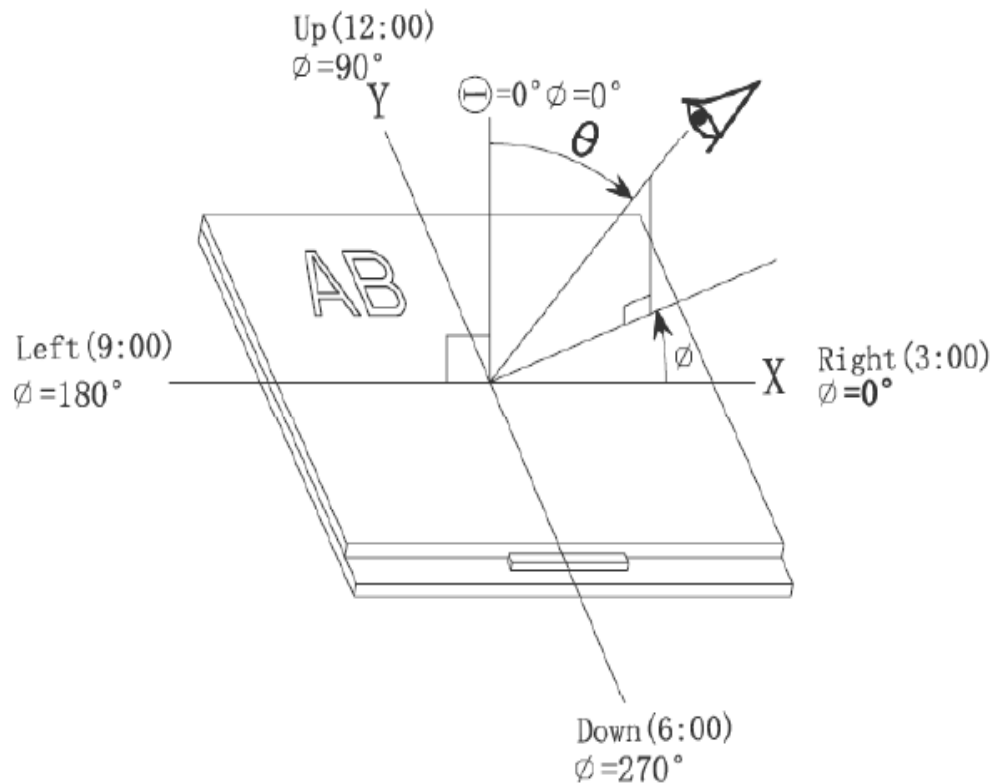
$$\Delta Bp = Bp \text{ (Min.)} / Bp \text{ (Max.)} \times 100 \text{ (\%)}$$

$Bp \text{ (Max.)}$ = Maximum brightness in 9 measured spots
 $Bp \text{ (Min.)}$ = Minimum brightness in 9 measured spots.

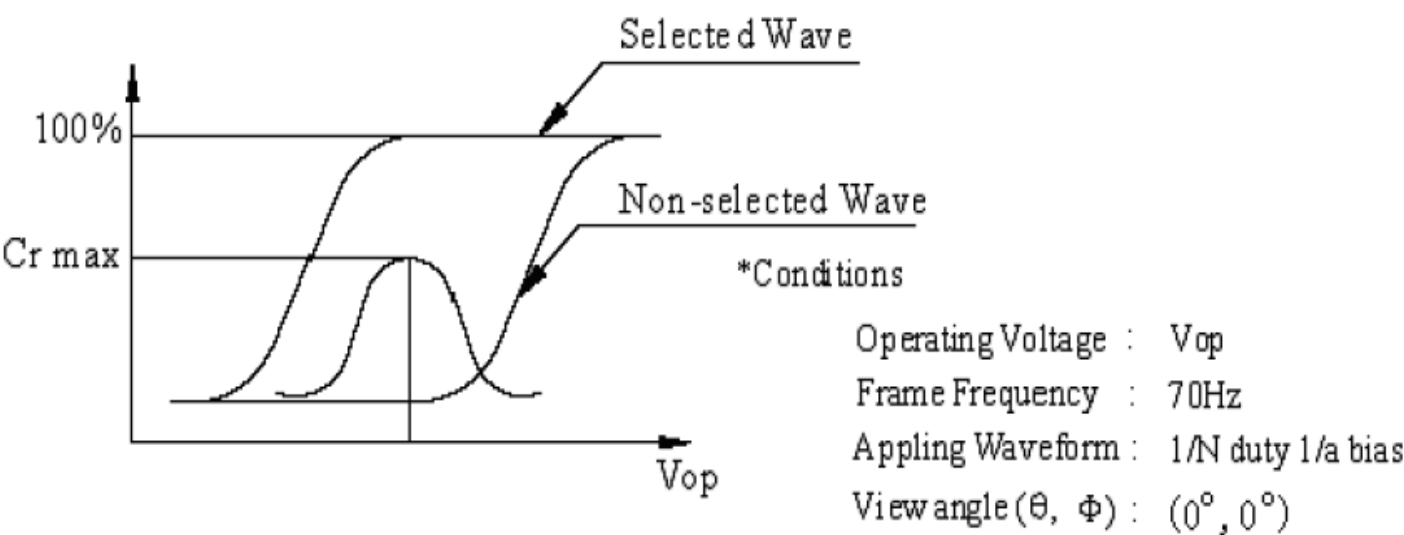


Note 3: The definition of viewing angle:
Refer to the graph below marked by θ and ϕ

Part. No	KD080WXFID008	REV	V1.0	Page 9 of 29
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	



Note 4: Definition of contrast ratio.(Test LCD using DMS501)

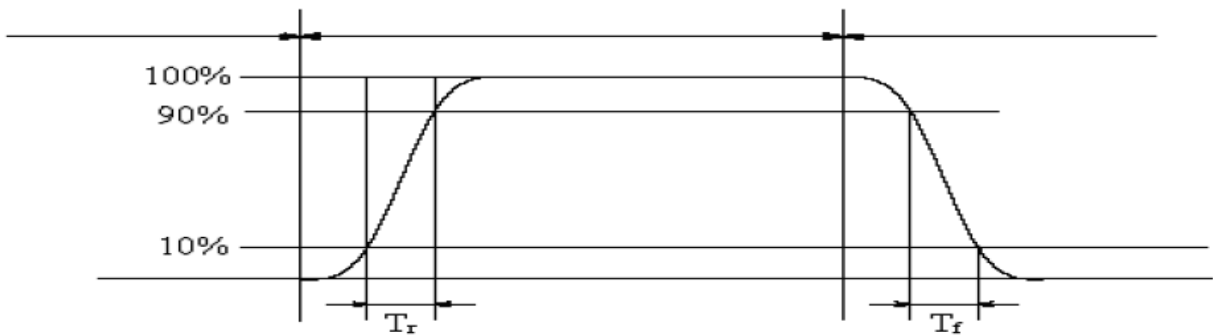


$$\text{Contrast ratio}(Cr)=\frac{\text{Brightness of selected dots}}{\text{Brightness of non-selected dots}}$$

Part. No	KD080WXFID008	REV	V1.0	Page 10 of 29
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	

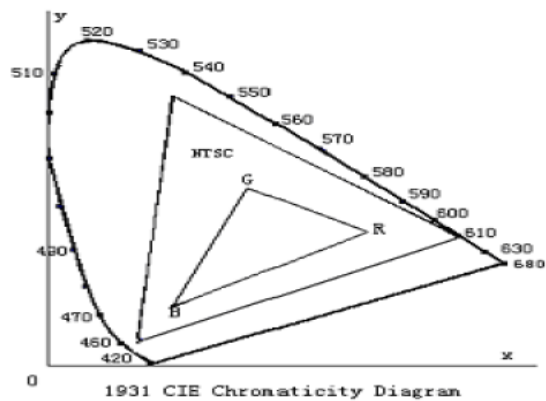
Note 5: Definition of Response time. (Test LCD using DMS501):

The output signals of photo detector are measured when the input signals are changed from “black” to “white”(falling time) and from “white” to “black”(rising time), respectively. The response time is defined as the time interval between the 10% and 90% of amplitudes.Refer to figure as below.



The definition of response time

Note 6: Definition of Color of CIE Coordinate and NTSC Ratio.

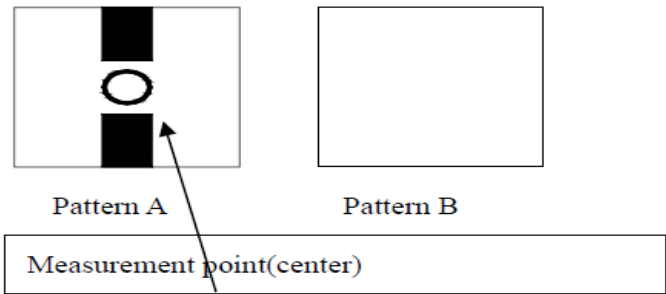


Color gamut:

$$S = \frac{\text{area of RGB triangle}}{\text{area of NTSC triangle}} \times 100\%$$

Note 7: Definition of cross talk.

Cross talk ratio(%)=| pattern A Brightness-pattern B Brightness | /pattern A Brightness*100



Electric volume value=3F+/-3Hex

Part. No	KD080WXFID008	REV	V1.0	Page 11 of 29
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. Electrical Characteristics

5.1 Absolute Maximum Rating

Characteristics	Symbol	Min.	Max.	Unit	Note
Digital Supply Voltage	VDD	-0.3	3.6	V	Note1
Digital interface supply Voltage	VDDIO	-0.3	3.6	V	
Operating temperature	T _{OP}	-20	+60	°C	
Storage temperature	T _{ST}	-25	+65	°C	

NOTE1: If the absolute maximum rating of even is one of the above parameters is exceeded even momentarily, the quality of the product may be degraded. Absolute maximum ratings, therefore, specify the values exceeding which the product may be physically damaged. Be sure to use the product within the range of the absolute maximum ratings.

5.2 DC Electrical Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Note
Digital Supply Voltage	VDD	2.7	3.3	3.6	V	
Digital interface supply Voltage	VDDIO	1.65	1.8	3.6		
Normal mode Current	IDD	--	47	--	mA	

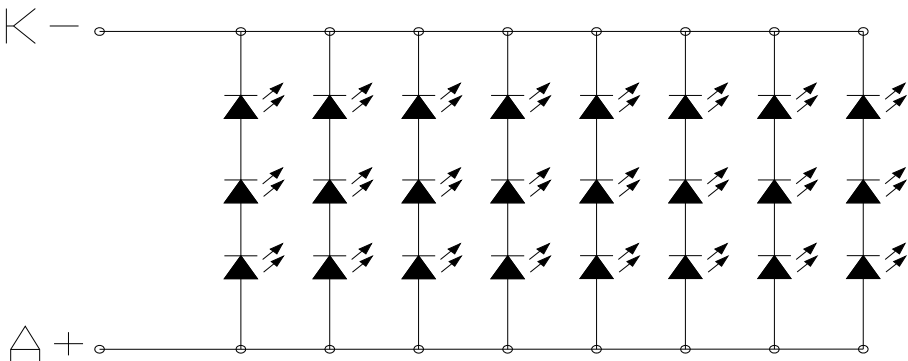
5.3 LED Backlight Characteristics

The back-light system is edge-lighting type with 24 chips LED

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Forward Current	I _F	120	160	--	mA	
Forward Voltage	V _F	--	9.9	--	V	
LCM Luminance	LV	180	230	--	cd/m2	Note3
LED life time	Hr	--	50000	--	Hour	Note1,2
Uniformity	Avg	80	--	--	%	Note3

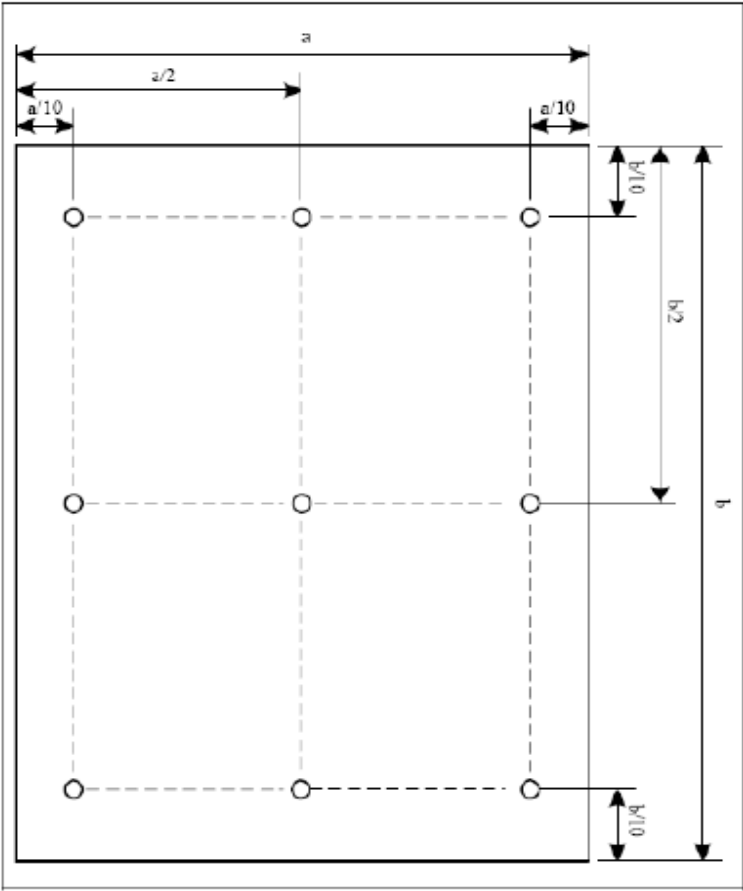
Note1: LED life time (Hr) can be defined as the time in which it continues to operate under the condition:
Ta=25±3 °C, typical IL value indicated in the above table until the brightness becomes less than 50%.

Note 2: The “LED life time” is defined as the module brightness decrease to 50% original brightness at
Ta=25℃ and IL=160mA. The LED lifetime could be decreased if operating IL is larger than 160mA. The constant current driving method is suggested.



LED 电路图

Note (3) Luminance Uniformity of these 9 points is defined as below:



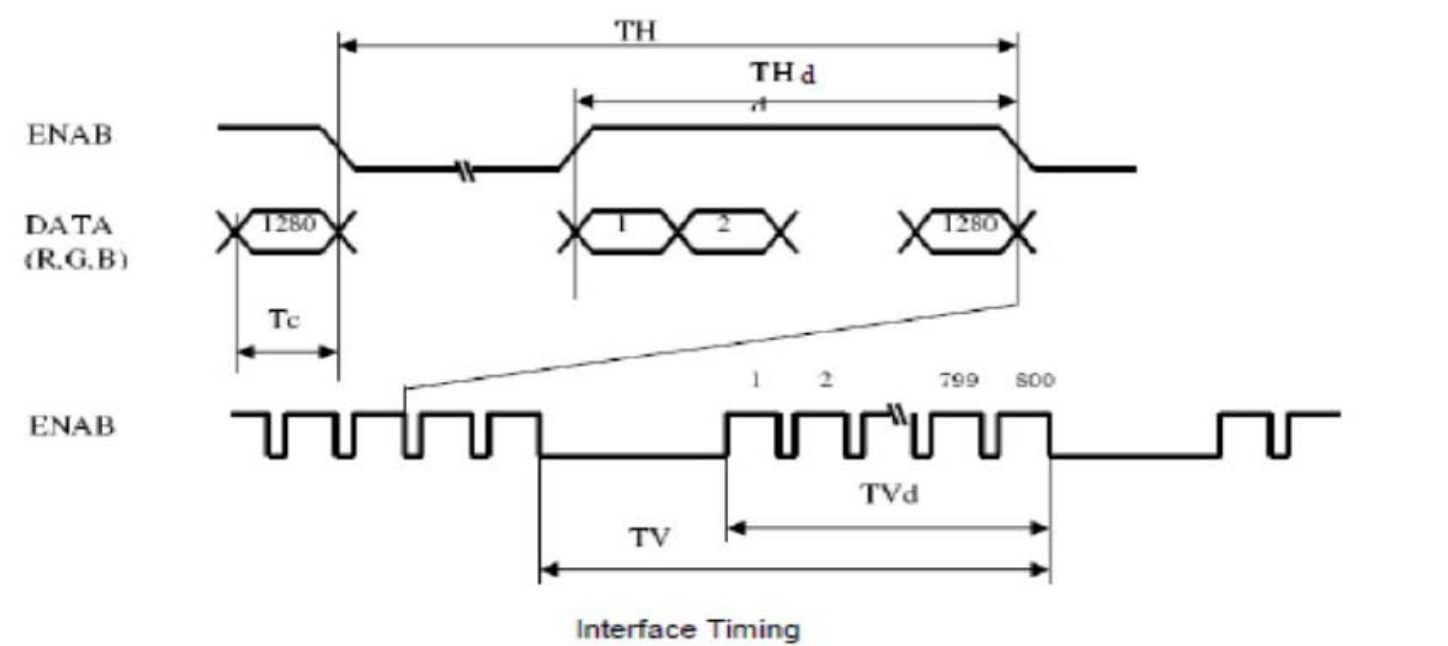
$$\text{Uniformity} = \frac{\text{minimum luminance in 9 points (1-9)}}{\text{maximum luminance in 9 points (1-9)}}$$

$$\text{Luminance} = \frac{\text{Total Luminance of 9 points}}{9}$$

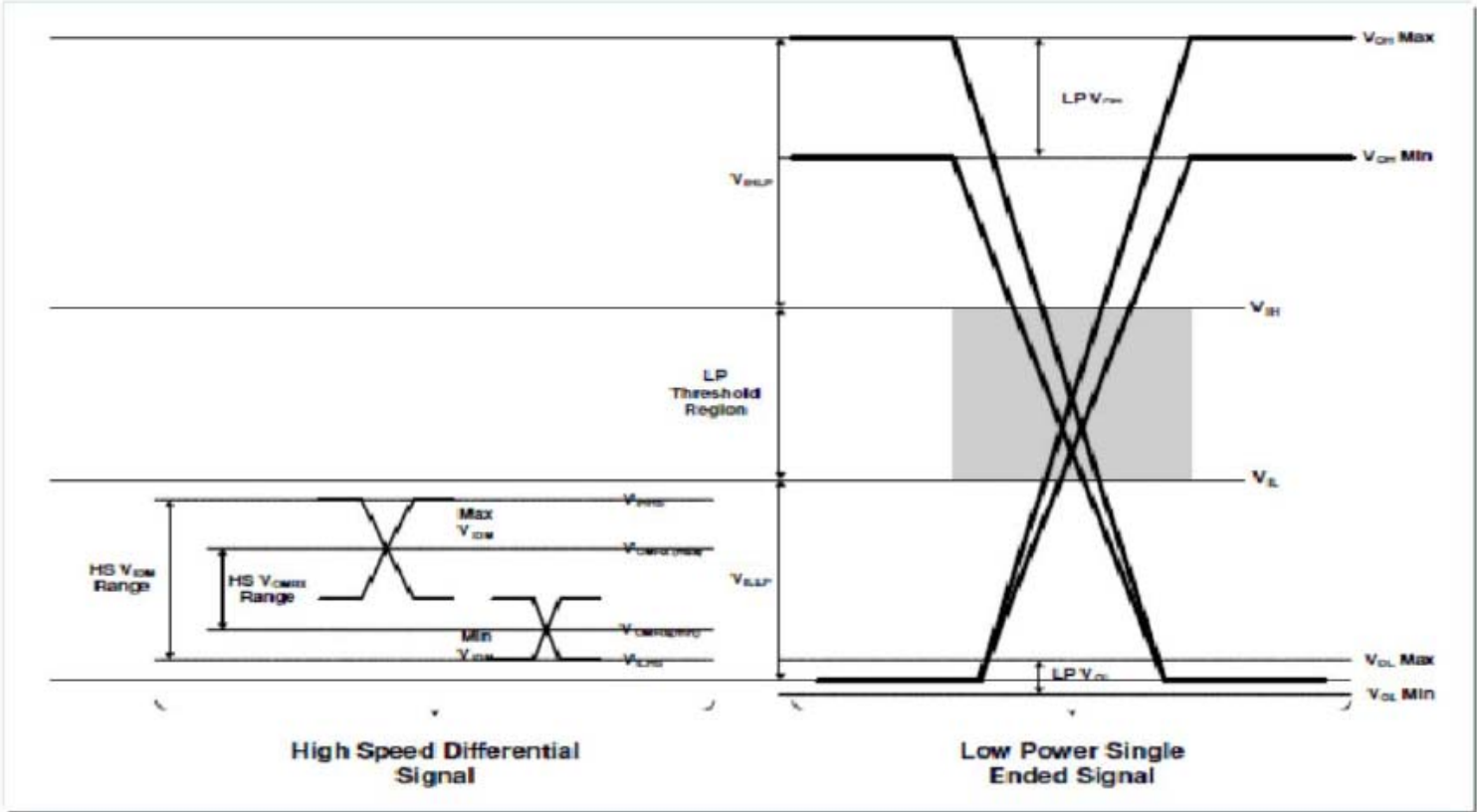
6. TFT AC Characteristics

6.1 Signal timing

Item	Symbol	Min	Typ	Max	Unit
CLK	Period		4		ns
	Frequency		225		MHz
Hsync	Period		16		t _{pCLK}
	Frequency		77.76		KHz
Vsync	Period		4		Line
	Frequency	-	60	-	Hz
Horizontal Active Display Term rgb vporch 8 4 4 rgb hporch 16 48 16	HAdr	-	800	-	t _{pCLK}
	HBP		48		t _{pCLK}
	HFP		16		t _{pCLK}
	Total		880		t _{pCLK}
Vertical Active Display Term	Vadr	-	1280	-	Line
	VBP		4		Line
	VFP		8		Line
	Total		1296		Line



6.2 MIPI Rx Interface Timing Parameter The specification of the LVDS Rx interface timing parameter

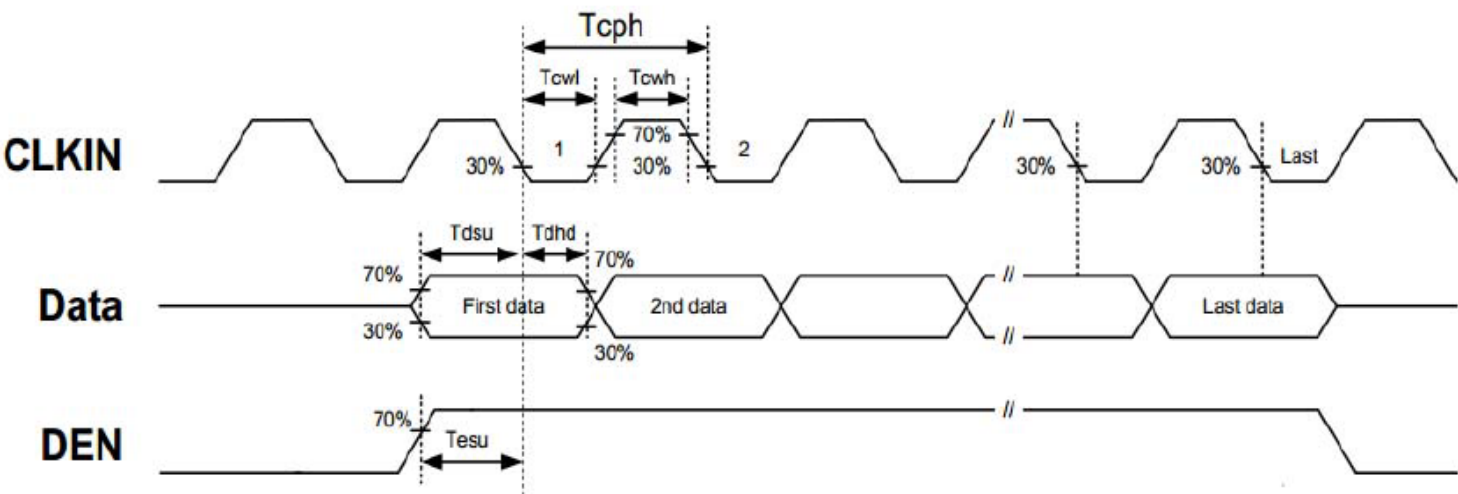


MIPI Receiver Differential Input (DC Characteristics)						
Symbol	Description	Min.	Typ.	Max.	Unit	Condition
BR_{MIPI}	Input data bit rate	200	-	1000	Mbps	
V_{CMRX}	Common-mode voltage(HS Rx mode)	70	-	330	mV	
V_{IDTH}	Differential input high threshold (HS Rx mode)	-	-	70	mV	
V_{IDTL}	Differential input low threshold (HS Rx mode)	-70	-	-	mV	
$ V_{IDM} $	Differential input voltage range (HS Rx mode)	70	-	500	mV	
V_{IHHS}	Single-end input high voltage (HS Rx mode)	-	-	460	mV	
V_{ILHS}	Single-end input low voltage (HS Rx mode)	-40	-	-	mV	
Z_{ID}	Differential input impedance	80	100	125	ohm	
$V_{IHL P}$	Logic 1 input voltage (LP Rx mode)	880	-	-	mV	
$V_{ILL P}$	Logic 0 input voltage (LP Rx mode)	-	-	550	mV	
V_{OH}	Output high level (LP Tx mode)	1.08	1.2	1.32	V	
V_{OL}	Output low level (LP Tx mode)	-50	-	50	mV	

MIPI Receiver Differential Input (DC Characteristics)						
Symbol	Description	Min.	Typ.	Max.	Unit	Condition
T_{MIN-RX}	Minimum pulse width response (LP Rx mode)	50	-	-	ns	
$T_{LP-PULSE-TX}$	Pulse width of the LP exclusive-OR clock	50	55	58	ns	1st clock pulse after STOP state or last clock pulse before STOP state /all other pulse
T_{RLP} / T_{FLP}	15%~85% rise time and fall time (LP Tx mode)	-	-	25	ns	
T_{REOT}	30%~85% rise time and fall time of EOT (LP Tx mode)	-	-	35	ns	
$T_{LP-PER-TX}$	Period of the LP exclusive-OR clock	90	-	-	ns	
T_{SETUP}	Data to clock setup time	0.15	-	-	UI	
T_{HOLD}	Data to clock hold time	0.15	-	-	UI	



6.3 Input Clock and Data Timing Diagram



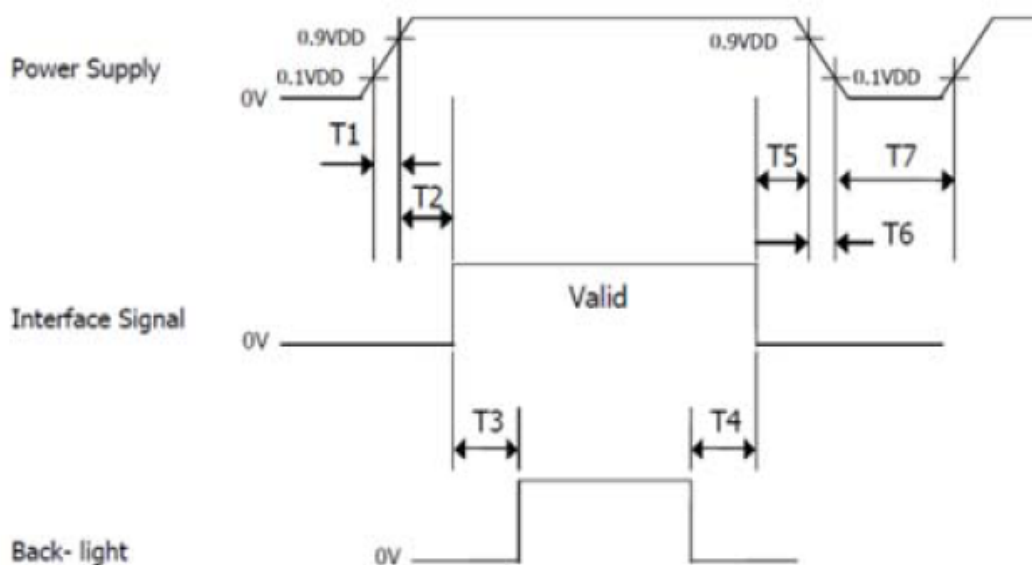


6.4 POWER SEQUENCE

Power-On/Off

Timing

Sequence:



Parameter	Values			Units
	Min	Typ	Max	
T1	0	-	10	ms
T2	0	-	50	ms
T3	200	-	-	ms
T4	200	-	-	ms
T5	0.5	-	50	ms
T6	0	-	10	ms
T7	500	-	-	ms

Notes:

1. When the power supply VDD is 0V, keep the level of input signals on the low or keep high impedance.
2. Do not keep the interface signal high impedance when power is on. Back Light must be turn on after power for logic and interface signal are valid.

Part. No	KD080WXFID008	REV	V1.0	Page 19 of 29
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	

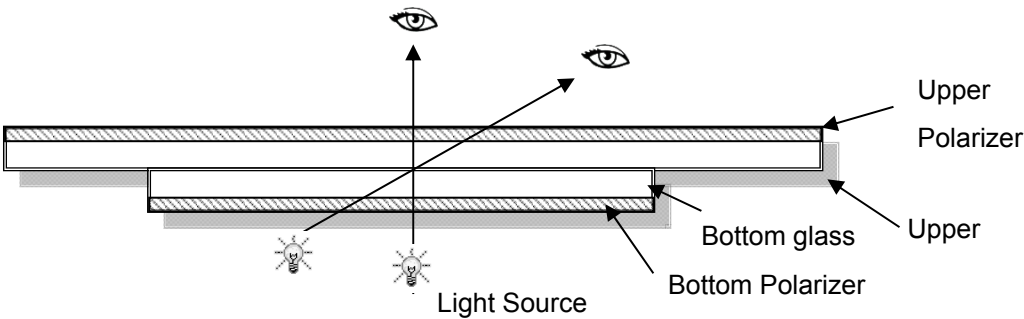
7. LCD Module Out-Going Quality Level

7.1 VISUAL & FUNCTION INSPECTION STANDARD

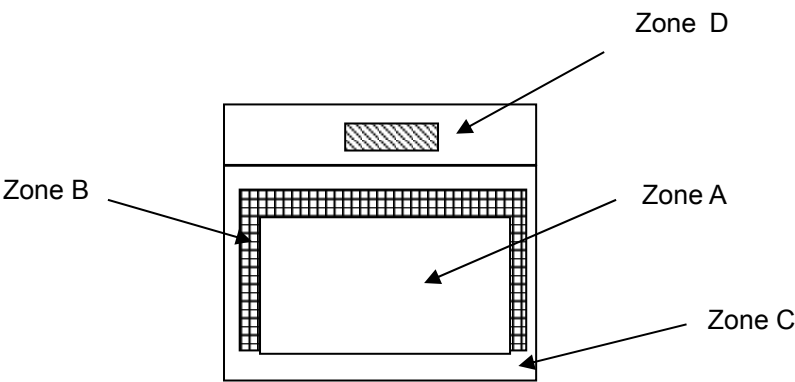
7.1.1 Inspection conditions

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



7.1.2 Definition



- Zone A : Effective Viewing Area(Character or Digit can be seen)
 - Zone B : Viewing Area except Zone A
 - Zone C : Outside (Zone A+Zone B) which can not be seen after assembly by customer .)
 - Zone D : IC Bonding Area
- Note:As a general rule ,visual defects in Zone C can be ignored when it doesn't effect product function or appearance after assembly by customer

Part. No	KD080WXFID008	REV	V1.0	Page 20 of 29
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	

7.1.3 Sampling Plan

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

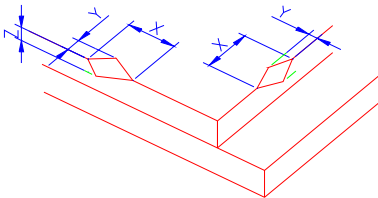
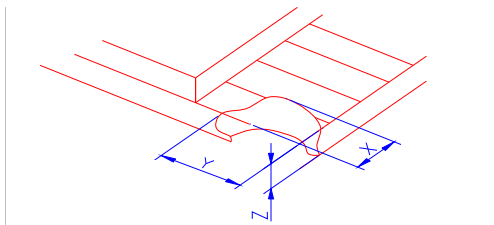
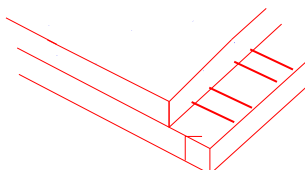
AQL:

Major defect	Minor defect
0.65	1.5

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

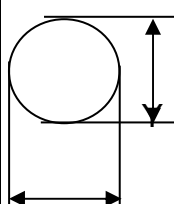
No	Items to be inspected	Criteria	Classification of defects
1	Functional defects	1) No display, Open or miss line 2) Display abnormally, Short 3) Backlight no lighting, abnormal lighting. 4) TP no function	Major
2	Missing	Missing component	
3	Outline dimension	Overall outline dimension beyond the drawing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

7.1.4 Criteria (Visual)

Number	Items	Criteria(mm)						
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>≤3.0mm</td><td>≤L</td><td>≤T</td></tr></table>	X	Y	Z	≤3.0mm	≤L	≤T	
X	Y	Z						
≤3.0mm	≤L	≤T						
(3) LCD crack	 Crack Not allowed							

2.0

Spot defect



X

Y

$\Phi=(X+Y)/2$

① light dot (LCD/TP/Polarizer black/white spot , light dot, pinhole, dent, stain)

Zone Size (mm)	Acceptable Qty		
	A	B	C
$\Phi\leq0.10$	Ignore		
$0.10<\Phi\leq0.25$	4(distance $\geq 10\text{mm}$)		
$0.25<\Phi\leq0.35$	3		
$\Phi>0.4$	0		

②Dim spot (LCD/TP/Polarizer dim dot, light leakage、dark spot)

Zone Size (mm)	Acceptable Qty		
	A	B	C
$\Phi\leq0.1$	Ignore		
$0.10<\Phi\leq0.25$	4(distance $\geq 10\text{mm}$)		
$0.25<\Phi\leq0.35$	3		
$\Phi>0.4$	0		

③ Polarizer accidented spot

Zone Size (mm)	Acceptable Qty		
	A	B	C
$\Phi\leq0.2$	Ignore		
$0.3<\Phi\leq0.5$	3(distance $\geq 10\text{mm}$)		
$\Phi>0.5$	1		

④Pixel bad points (light dot, Dim dot, color dot)

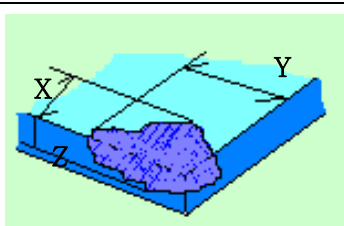
Zone Size (mm)	Acceptable Qty		
	A	B	C
$\Phi\leq0.15$	Ignore		
$0.2<\Phi\leq0.3$	2(distance $\geq 10\text{mm}$)		
$\Phi>0.4$	1		

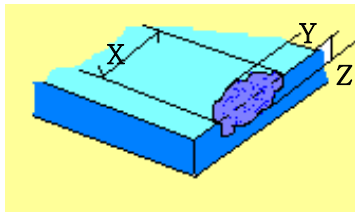
⑤ Polarizer Bubble

Zone Size (mm)	Acceptable Qty		
	A	B	C
$\Phi\leq0.2$	Ignore		
$0.3<\Phi\leq0.4$	4(distance $\geq 10\text{mm}$)		
$0.4<\Phi\leq0.5$	3		
$\Phi>0.5$	1		

3.0	Line defect (LCD/TP /Polarizer backlight black/white line, scratch, stain)	<table><tr><td rowspan="2">Width(mm)</td><td rowspan="2">Length(m m)</td><td colspan="3">Acceptable Qty</td></tr><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>$\Phi\leq0.05$</td><td>Ignore</td><td colspan="2">Ignore</td><td rowspan="3">Ignore</td></tr><tr><td>$0.05<W\leq0.06$</td><td>$L\leq5.0$</td><td colspan="2">$N\leq3$</td></tr><tr><td>$0.07<W\leq0.08$</td><td>$L\leq4.0$</td><td colspan="2">$N\leq2$</td></tr><tr><td>$0.08<W$</td><td colspan="4">Define as spot defect</td></tr></table>	Width(mm)	Length(m m)	Acceptable Qty			A	B	C	$\Phi\leq0.05$	Ignore	Ignore		Ignore	$0.05<W\leq0.06$	$L\leq5.0$	$N\leq3$		$0.07<W\leq0.08$	$L\leq4.0$	$N\leq2$		$0.08<W$	Define as spot defect			
		Width(mm)			Length(m m)	Acceptable Qty																						
			A	B		C																						
		$\Phi\leq0.05$	Ignore	Ignore		Ignore																						
		$0.05<W\leq0.06$	$L\leq5.0$	$N\leq3$																								
$0.07<W\leq0.08$	$L\leq4.0$	$N\leq2$																										
$0.08<W$	Define as spot defect																											
4.0	Electronic Components SMT	Not allow missing parts, solderless connection, cold solder joint, mis match, The positive and negative polarity opposite																										
5.0	Display color& Brightness	1. Color : Measuring the color coordinates, The measurement standard according to the datasheet or samples. 2. Brightness : Measuring the brightness of White screen, The measurement standard according to the datasheet or Samples.																										
6.0	LCD Mura	By 5% ND filter invisible.																										

7.0	RTP Related	TP film bubble/ accident spot	<table><tr><td rowspan="2">Size Φ(mm)</td><td colspan="3">Acceptable Qty</td></tr><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>$\Phi \leq 0.1$</td><td colspan="2">Ignore</td><td rowspan="4">Ignore</td></tr><tr><td>$0.1 < \Phi \leq 0.25$</td><td colspan="2">4 (distance ≥ 10mm)</td></tr><tr><td>$0.25 < \Phi \leq 0.35$</td><td colspan="2">3</td></tr><tr><td>$\Phi > 0.4$</td><td colspan="2">1</td></tr></table>				Size Φ (mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.1$	Ignore		Ignore	$0.1 < \Phi \leq 0.25$	4 (distance ≥ 10 mm)		$0.25 < \Phi \leq 0.35$	3		$\Phi > 0.4$	1							
			Size Φ (mm)	Acceptable Qty																												
				A	B	C																										
			$\Phi \leq 0.1$	Ignore		Ignore																										
			$0.1 < \Phi \leq 0.25$	4 (distance ≥ 10 mm)																												
			$0.25 < \Phi \leq 0.35$	3																												
		$\Phi > 0.4$	1																													
		TP film scratch	<table><tr><td rowspan="2">Width(mm)</td><td rowspan="2">Length(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 rowspan="3">Ignore</td></tr><tr><td>$0.05 < W \leq 0.06$</td><td>$L \leq 5.0$</td><td colspan="2">$N \leq 3$</td></tr><tr><td>$0.07 < W \leq 0.08$</td><td>$L \leq 4.0$</td><td colspan="2">$N \leq 2$</td></tr><tr><td>$0.08 < W$</td><td colspan="3">Define as spot defect</td></tr></table>				Width(mm)	Length(mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.05$	Ignore	Ignore		Ignore	$0.05 < W \leq 0.06$	$L \leq 5.0$	$N \leq 3$		$0.07 < W \leq 0.08$	$L \leq 4.0$	$N \leq 2$		$0.08 < W$	Define as spot defect			
			Width(mm)	Length(mm)	Acceptable Qty																											
					A	B	C																									
			$\Phi \leq 0.05$	Ignore	Ignore		Ignore																									
			$0.05 < W \leq 0.06$	$L \leq 5.0$	$N \leq 3$																											
$0.07 < W \leq 0.08$	$L \leq 4.0$		$N \leq 2$																													
$0.08 < W$	Define as spot defect																															

		Assembly deflection	beyond the edge of backlight $\leq 0.2\text{mm}$							
		Bulge (undulation included)	The ITO film plumped below 0.40mm, it's ok. 							
		Newton Ring	Newton Ring area $>1/3$ TP area NG Newton Ring area $\leq 1/3$ TP area OK							
		TP corner broken X : length Y : width Z : height	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>X$\leq 3\text{mm}$</td><td>Y$\leq 3\text{mm}$</td><td>Z$<$COVER thickness S</td></tr></table> *Circuitry broken is not allowed.	X	Y	Z	X $\leq 3\text{mm}$	Y $\leq 3\text{mm}$	Z $<$ COVER thickness S	
X	Y	Z								
X $\leq 3\text{mm}$	Y $\leq 3\text{mm}$	Z $<$ COVER thickness S								

		TP edge broken X : length Y : width Z : height	X	Y	Z	
			X≤4mm	Y≤2mm	Z<COVER thickness	
			* Circuitry broken is not allowed.			

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

8. Reliability Test Result

Item	Condition	Inspection after test
High Temperature Operating	60°C,96H	Inspection after 2~4hours storage at room temperature, the sample shall be free from defects: 1.Air bubble in the LCD; 2.Non-display; 3.Missing segments/line; 4.Glass crack; 5.Current IDD is twice higher than initial value.
Low Temperature Operating	-20°C, 96HR	
High Temperature Storage	65°C, 96HR	
Low Temperature Storage	-25°C, 96HR	
High Temperature & High Humidity Operating	+60°C, 90% RH ,96 hours.	
Thermal Shock (Non-operation)	-25°C,30 min ↔ 65°C,30 min, Change time:5min 20CYC.	
ESD test	C=150pF, R=330,5points/panel Air:±8KV, 5times; Contact:±6KV, 5 times; (Environment: 15°C~35°C, 30%~60%).	
Vibration (Non-operation)	Frequency range:10~55Hz, Stroke:1.5mm Sweep:10Hz~55Hz~10Hz 2 hours for each direction of X.Y.Z. (6 hours for total) (Package condition).	
Box Drop Test	1 Corner 3 Edges 6 faces,80cm(MEDIUM BOX)	

Remark:

- 1.The test samples should be applied to only one test item.
- 2.Sample size for each test item is 5~10pcs.
- 3.For Damp Proof Test, Pure water(Resistance > 10MΩ) should be used.
- 4.In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judged as a good part.
- 5.Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.

Part. No	KD080WXFID008	REV	V1.0	Page 27 of 29
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	

9. Cautions and Handling Precautions

9.1 Handling and Operating the Module

- (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 in order 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

9.2 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.

Part. No	KD080WXFID008	REV	V1.0	Page 28 of 29
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. Packing

----TBD-----

Part. No	KD080WXFID008	REV	V1.0	Page 29 of 29
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	