unisystem

UST101HWLNNN00

10.1" IPS LCD-TFT MODULE SPECIFICATION

Passion for displays

Key Specifications

Parameter	Specification
LCD Type	IPS TFT / Transmissive / Normally Black
Size (Diagonal)	10.1"
Viewing Direction	Full Viewing (All)
Outside Dimensions (W x H x D)	229.52 x 153.86 x 5.99 mm
Active Area (W x H)	216.96 x 135.6 mm
Pixel Pitch (W x H)	0.1695 x 0.1695 mm
Resolution	1280 x 800 (RGB)
Brightness	2000 cd / m^2 (typ.)
Contrast Ratio	1000:1 (typ.)
Color Depth	16.7 M
Pixel Arrangement	RGB Stripe
Interface	LVDS
LCD Driver	EK79202DB
With / Without Touch	Without Touch Panel
Surface Treatment	Anti-Glare
Operating / Storage Temp.	-20°C ~ +70°C / -30°C ~ +80°C
Weight	273 g

Revision Table

Rev.	Date	Description
1.0	2026-10-13	First issue

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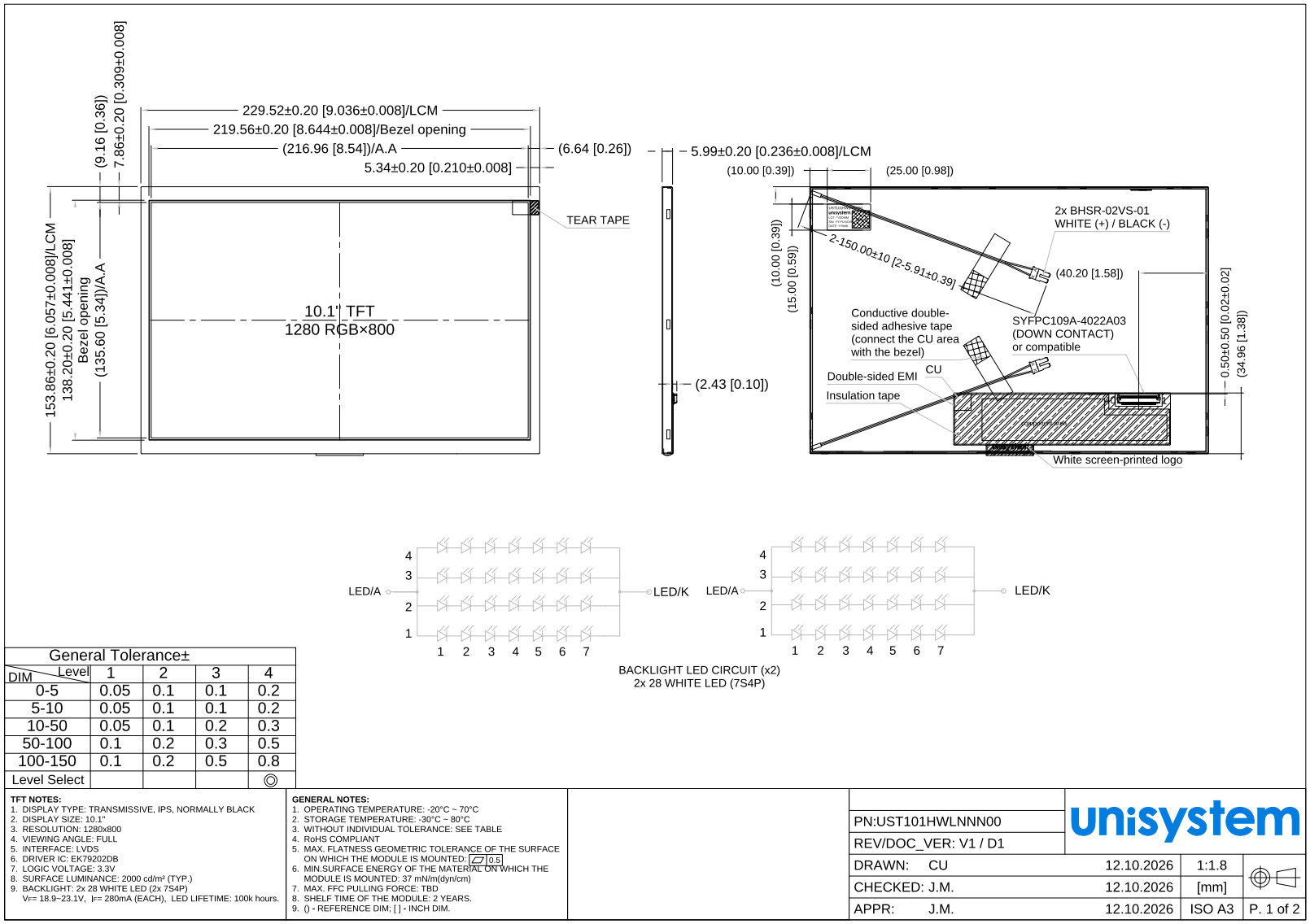
1. Coding System

1	2	3	4	5	6	7	8	9	10
US	**T**	**101**	**H**	**W**	**L**	**N**	**N**	**N**	**00**

No.	Parameter	Options
1	Manufacturer	Unisystem
2	Display Type	T – TFT
3	Display Size	070 – 7", 101 – 10.1", 121 – 12.1", 156 – 15.6"
4	Model Series	S – “Core” Standard Brightness IPS, H – “Pro” High Brightness IPS, L – “Lite” IPS
5	Resolution	M – 800x480, S – 1024x600 (WSVGA), W – 1280x800 (WXGA), X – 1024x768 (XGA), F – 1920x1080 (FHD)
6	Interface	L – LVDS, M – MIPI DSI, R – RGB, D – eDP, H – HDMI and USB-C
7	Frame	F – With Mounting Metal Frame, N – Without Mounting Metal Frame
8	Touch Panel	N – Without Touch Panel, C – With Projected Capacitive Touch Panel
9	Cover Glass Specification	N – Without Cover Glass, E – Rectangular Glass with Optical Bonding, U – Rounded Glass with Optical Bonding
10	Version	00 – base series, 10 – improved series

2. Mechanical Drawing



General Tolerance±				
DIM \ Level	1	2	3	4
0-5	0.05	0.1	0.1	0.2
5-10	0.05	0.1	0.1	0.2
10-50	0.05	0.1	0.2	0.3
50-100	0.1	0.2	0.3	0.5
100-150	0.1	0.2	0.5	0.8
Level Select				◎

TFT NOTES:
1. DISPLAY TYPE: TRANSMISSIVE, IPS, NORMALLY BLACK
2. DISPLAY SIZE: 10.1"
3. RESOLUTION: 1280x800
4. VIEWING ANGLE: FULL
5. INTERFACE: LVDS
6. DRIVER IC: EK79202DB
7. LOGIC VOLTAGE: 3.3V
8. SURFACE LUMINANCE: 2000 cd/m² (TYP.)
9. BACKLIGHT: 2x 28 WHITE LED (2x 7S4P)
   V_F= 18.9~23.1V, I_F= 280mA (EACH), LED LIFETIME: 100k hours.

GENERAL NOTES:
1. OPERATING TEMPERATURE: -20°C ~ 70°C
2. STORAGE TEMPERATURE: -30°C ~ 80°C
3. WITHOUT INDIVIDUAL TOLERANCE: SEE TABLE
4. RoHS COMPLIANT
5. MAX. FLATNESS GEOMETRIC TOLERANCE OF THE SURFACE ON WHICH THE MODULE IS MOUNTED: ⏥ 0.5
6. MIN.SURFACE ENERGY OF THE MATERIAL ON WHICH THE MODULE IS MOUNTED: 37 mN/m(dyn/cm)
7. MAX. FFC PULLING FORCE: TBD
8. SHELF TIME OF THE MODULE: 2 YEARS.
9. () - REFERENCE DIM; [ ] - INCH DIM.

PN:UST101HWLNNN00				unisystem
REV/DOC_VER: V1 / D1				
DRAWN: CU	12.10.2026	1:1.8		
CHECKED: J.M.	12.10.2026	[mm]		
APPR: J.M.	12.10.2026	ISO A3	P. 1 of 2	

3. Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit
Supply Voltage	V_{DD}	-0.5	4.0	V
Storage temperature	T_{STG}	-30	80	°C
Operating temperature	T_{OP}	-20	70	°C

Note 1: If Ta is below 50°C, the maximum humidity is 90%RH; if Ta is over 50°C, the absolute humidity shall not exceed that of 60%RH at 50°C.

Note 2: The response time will be extremely slow when the operating temperature is around -10°C or below, and the background will become darker during high-temperature operation.

4. DC Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V_{DD}	3.0	3.3	3.6	V
Differential input high threshold voltage	R_{XVTH}	-	-	+0.1	V
Differential input low threshold voltage	R_{XVTL}	-0.1	-	-	V
Input voltage range (single-ended)	R_{XVIN}	0.7	-	1.7	V
Differential input common mode voltage	R_{XVCM}	1.0	1.2	1.4	V
Differential input voltage	$\|V_{ID}\|$	0.2	-	0.6	V
Current (all white)	I_{DD}	-	230	-	mA

5. Backlight Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	Ta = 25°C, I_F = 70mA / LED	18.9	21.0	23.1	V
Forward Current	I_F	Ta = 25°C, I_F = 70mA / LED*2	-	280x2	-	mA
Power Dissipation	P_D		-	11760	-	mW
Uniformity	Avg		-	80	-	%
LED working life (25°C)	-		-	100,000	-	Hrs
Drive method	Constant current					
LED Configuration	28 White LEDs (7 LEDs in one string and 4 groups in parallel)x2					

Note 1: LED lifetime is defined as the time until the brightness drops to 50% of its initial value.
The test is conducted under ambient air flow, at Ta = 25 ± 2°C, 60%RH ± 5%, I_F = 70mA

6. Optical Characteristics

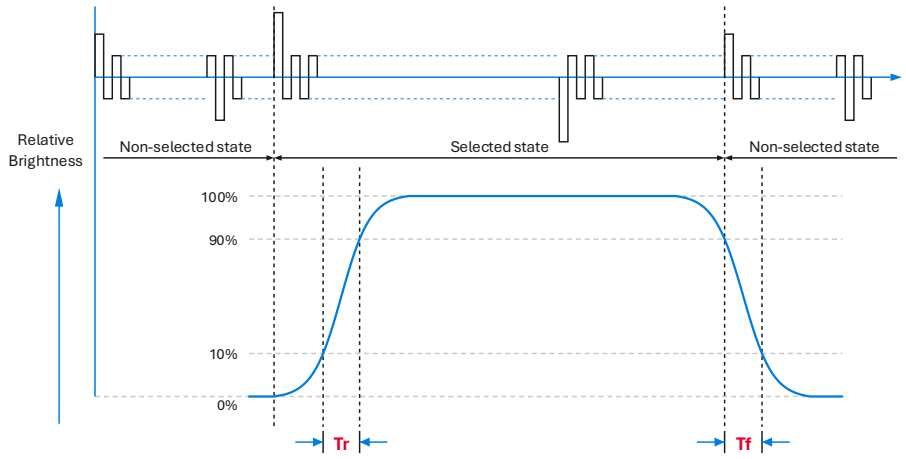
6.1 Optical Specifications

Ta = 25°C, V_{DD} = 3.3V

	Item		Symbol	Condition	Specification			Unit
					Min.	Typ.	Max.	
Backlight On (Transmissive Mode)	Luminance on TFT (I_F = 70mA / LED*2)		L_v	Normal viewing angle θX = ϕY = 0°	1600	2000	-	cd / m^2
	Contrast ratio (See 6.3)		CR		800	1000	-	
	Response time (See 6.2)		$T_R + T_F$		-	25	35	ms
	Chromaticity Transmissive (See 6.5)	Red	X_R		0.526	0.576	0.626	-
			Y_R		0.307	0.357	0.407	
		Green	X_G		0.283	0.326	0.376	
			Y_G		0.549	0.599	0.649	
		Blue	X_B		0.088	0.138	0.188	
			Y_B		0.100	0.150	0.200	
		White	X_W		0.235	0.285	0.335	
			Y_W		0.314	0.364	0.401	
	Viewing Angle (See 6.4)	Horizontal	θ_{X+}	Center CR ≥ 10	70	80	-	Deg.
			θ_{X-}		70	80	-	
		Vertical	ϕ_{Y+}		70	80	-	
			ϕ_{Y-}		70	80	-	
	NTSC Ratio (Gamut)				45	50	-	%

6.2 Definition of Response Time

6.2.1 Normally Black Type (Negative)

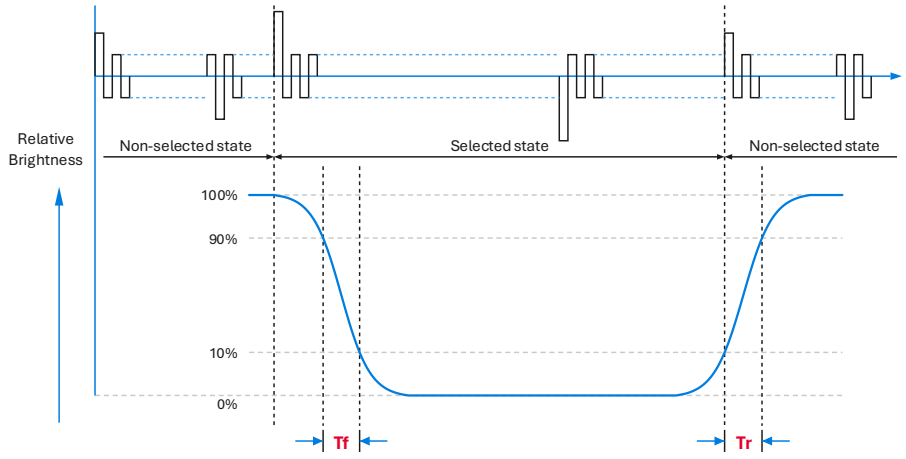


Tr is the time it takes to change from non-selected state with relative luminance 10% to selected state with relative luminance 90%;

Tf is the time it takes to change from selected state with relative luminance 90% to non-selected state with relative luminance 10%.

Note: Measuring machine: LCD-5100

6.2.2 Normally White Type (Positive)



Tr is the time it takes to change from non-selected state with relative luminance 90% to selected state with relative luminance 10%;

Tf is the time it takes to change from selected state with relative luminance 10% to non-selected state with relative luminance 90%.

Note: Measuring machine: LCD-5100 or equivalent

6.3 Definition of Contrast Ratio

Contrast is measured perpendicularly to the display surface in transmissive mode.

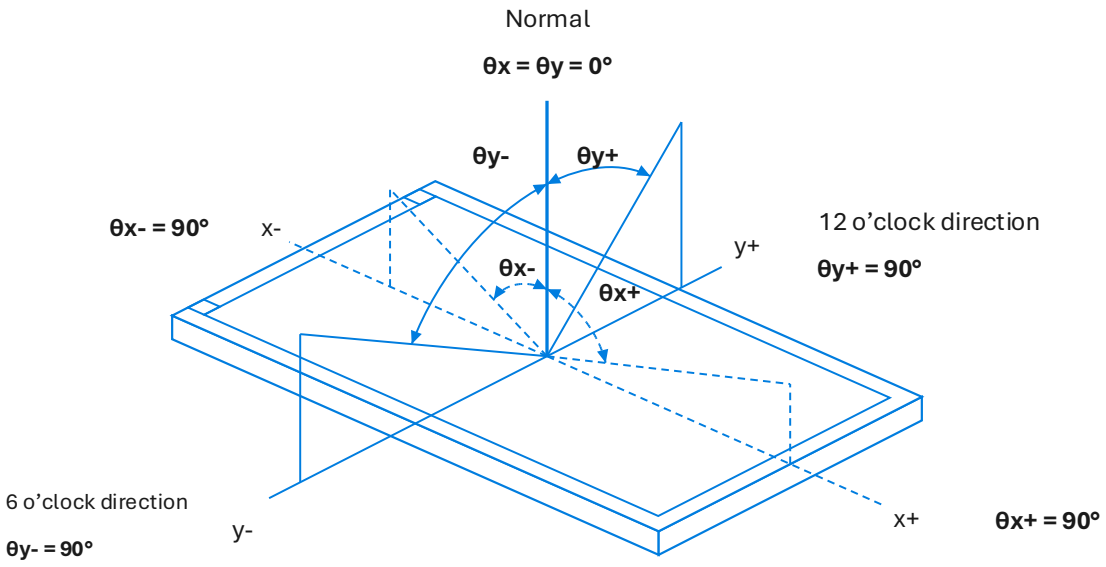
The measurement condition is:

Measuring Equipment	Eldim or equivalent
Measuring Point Diameter	3mm / 1mm
Measuring Point Location	Active Area center point
Test pattern	A: All pixels white
	B: All pixels black
Contrast setting	Maximum

Definition: CR (Contrast) = Luminance of White Pixel / Luminance of Black Pixel

6.4 Definition of Viewing Angles

Measuring machine: LCD-5100 or equivalent

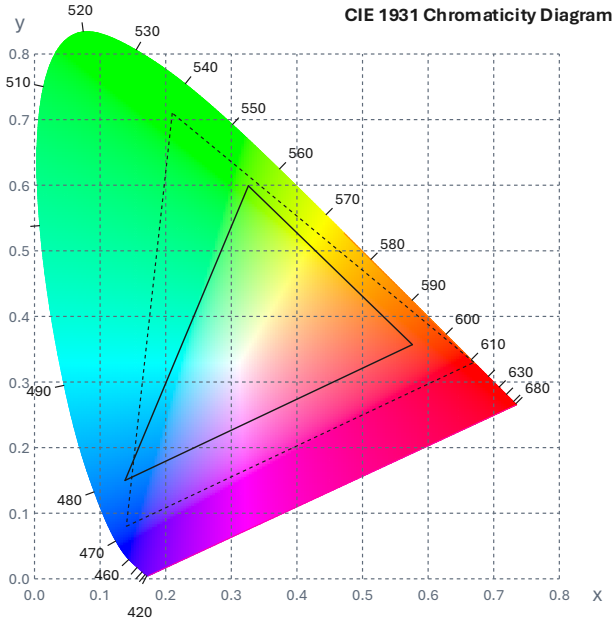


6.5 Definition of Color Appearance

R, G, B and W are defined by (x, y) coordinates on the CIE chromaticity diagram.

NTSC = area of RGB triangle / area of NTSC triangle x 100%

Measuring picture: Red, Green, Blue and White (Measuring machine: BM-7)



6.6 Definition of Surface Luminance, Uniformity and Transmittance

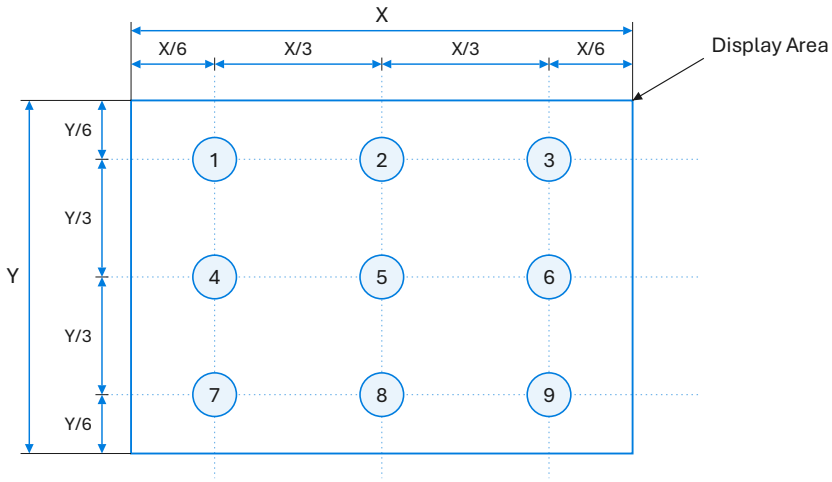
Using the transmissive mode measurement approach, measure the white screen luminance of the display panel and backlight.

6.6.1 Surface Luminance: L_V = average (L_{P1}:L_{P9})

6.6.2 Uniformity = Minimum (L_{P1}:L_{P9}) / Maximum (L_{P1}:L_{P9}) * 100%

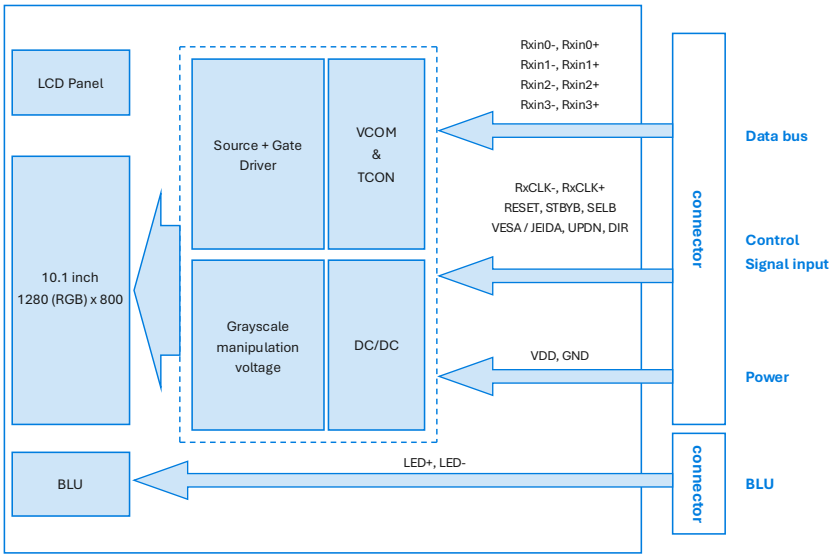
6.6.3 Transmittance = L_V on LCD / L_V on Backlight * 100%

Note: Measuring machine: BM-7



Note: Test 3 brightness points for displays below 3.5 inches (points 2 / 5 / 8), 5 points for 3.5–7 inches (points 1 / 3 / 5 / 7 / 9) and 9 points above 7 inches (points 1 to 9).

7. Block Diagram and Power Supply



8. Interface Pins Definition

No.	Symbol	Function
1	NC	No Connection
2-3	V_{DD}	Power voltage for digital circuit
4	NC	No Connection
5	RESET	Global reset pin. Normally pull high. [1)]
6	STBYB	Standby mode. Normally pull high. STBYB = L, timing controller, source driver will turn off, all output are High-Z. STBYB = H, normal operation. (Default)
7	GND	Ground
8	Rxin0-	-LVDS differential data input
9	Rxin0+	+LVDS differential data input
10	GND	Ground
11	Rxin1-	-LVDS differential data input
12	Rxin1+	+LVDS differential data input
13	GND	Ground
14	Rxin2-	-LVDS differential data input
15	Rxin2+	+LVDS differential data input
16	GND	Ground
17	RxCLK-	-LVDS differential clock input
18	RxCLK+	+LVDS differential clock input
19	GND	Ground
20	Rxin3-	-LVDS differential data input
21	Rxin3+	+LVDS differential data input
22	GND	Ground
23-24	NC	No Connection
25	GND	Ground
26-27	NC	No Connection
28	SELB	6-bit / 8-bit input select for LVDS mode. Normally pull high. [2)]
29	VESA / JEIDA	8-bit input format select for LVDS mode. Normally pull high. [3)]
30	GND	Ground
31-32	NC	No Connection

No.	Symbol	Function
33	UPDN	Setting flexible GOA scan function. Normally pull low. If “UPDN” = “H”, support backward scan If “UPDN” = “L”, support forward scan
34	DIR	The shift direction of device internal shift register is controlled by this as shown below. Normally pull high [4)]
35-40	NC	No Connection

Note

1) Global reset pin. Normally pull high.

RESET	Function
H	Normal operation (default)
L	The controller is in reset state

2) 6-bit / 8-bit input select for LVDS mode. Normally pull high.

SELB	Function
H	8-bit (default)
L	6-bit

3) 8-bit input format select for LVDS mode. Normally pull high.

VESA / JEIDA	Function
H	VESA format (default)
L	JEIDA format

4) The shift direction of device internal shift register is controlled by this as shown below. Normally pull high

DIR	Function
H	Forward scan
L	Backward scan

BLU:

No.	Symbol	Function
1	LED+ (WHITE)	Backlight anode
2	LED- (BLACK)	Backlight cathode

9. Timing Characteristics

9.1 LVDS Input Timing Table

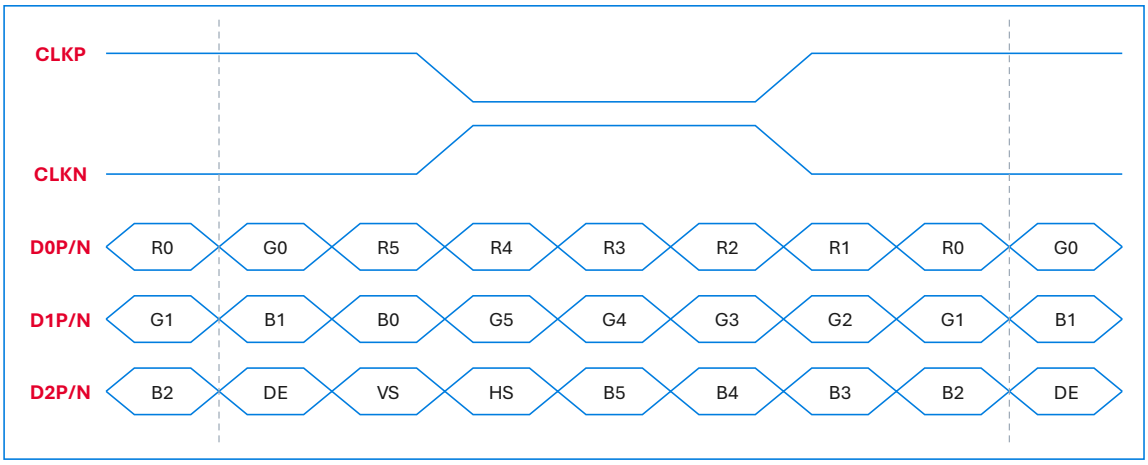
For 1280RGBx800 HV mode

Parameter		Symbol	Value			Unit
			Min.	Typ.	Max.	
DCLK frequency @ Frame rate = 60Hz (LVDS)		F_{DCLK}	68.2	72.4	78.5	MHz
HSYNC period time		T_H	1380	1440	1500	DCLK
Horizontal display area		T_{HD}	1280			DCLK
HSYNC pulse width	Min.	T_{HPW}	2			
	Typ.		-			
	Max.		40			
HSYNC back porch (with pulse width)		T_{HBP}	88	88	88	DCLK
HSYNC front porch		T_{HFP}	12	72	132	DCLK
VSYNC period time		T_V	824	838	872	H
Vertical display area		T_{VD}	800			H
VSYNC pulse width	Min.	T_{VPW}	2			H
	Typ.		-			
	Max.		20			
VSYNC back porch (with pulse width)		T_{VBP}	23	23	23	H
VSYNC front porch		T_{VFP}	1	15	49	H

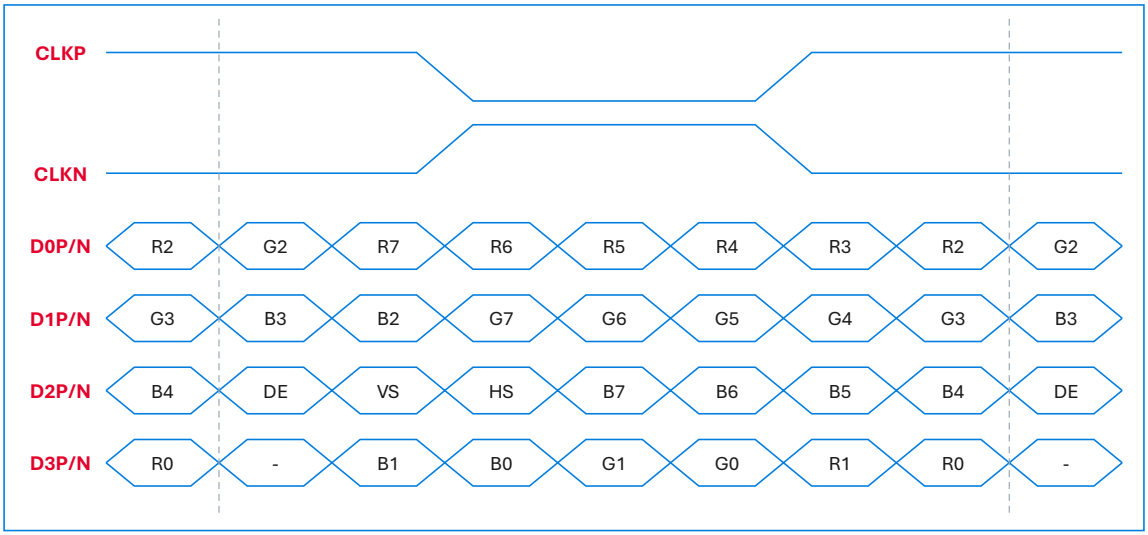
For 1280RGBx800 DE mode

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK frequency @ Frame rate = 60Hz (LVDS)	F_{DCLK}	68.2	72.4	78.5	MHz
Horizontal display area	T_{HD}	1280			DCLK
HSYNC period time	T_H	1380	1440	1500	DCLK
HSYNC blanking	$T_{HBP} + T_{HFP}$	100	160	220	DCLK
Vertical display area	T_{VD}	800			H
VSYNC period time	T_V	824	838	872	H
VSYNC blanking	$T_{VBP} + T_{VFP}$	24	38	72	H

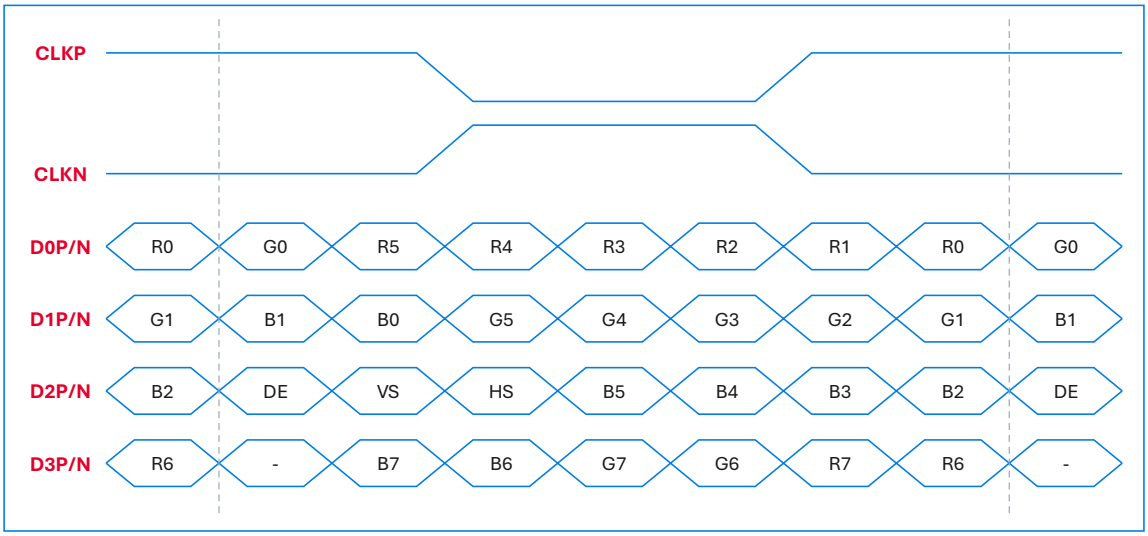
9.2 LVDS Data Input Format



6-bit LVDS input (SELB = L, VESA / JEIDA = Don't care)



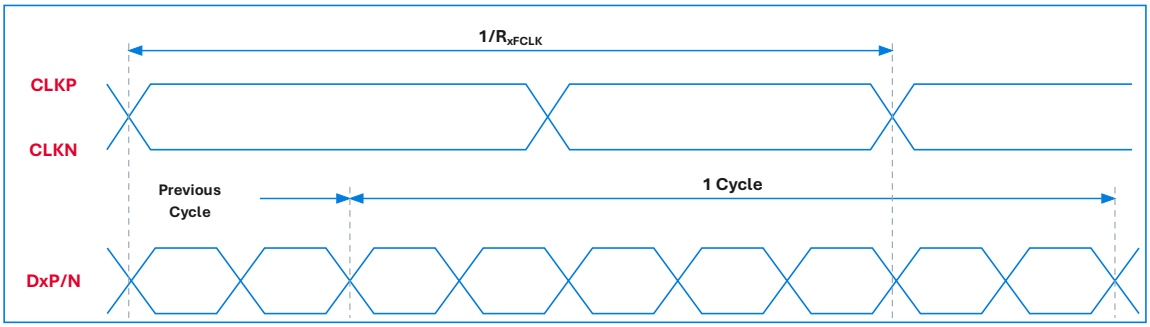
8-bit LVDS input, JEIDA format (SELB = H, VESA / JEIDA = L)

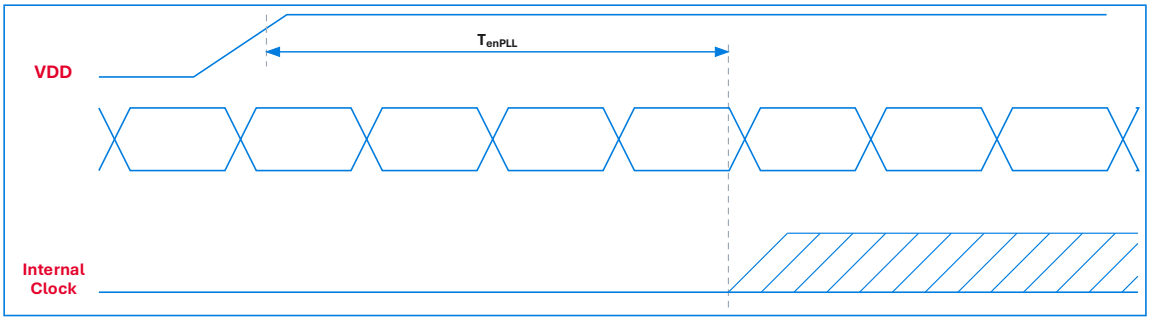


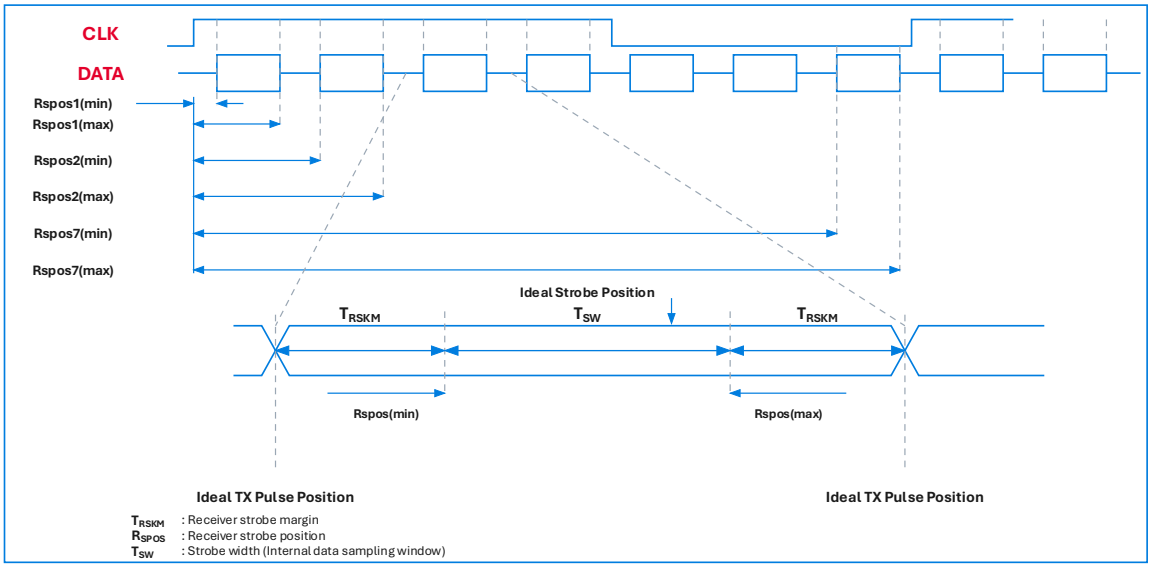
8-bit LVDS input, VESA format (SELB = H, VESA / JEIDA = H)

9.3 LVDS AC Characteristics

Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
Clock frequency	R_{xFCLK}	30	-	78.5	MHz	Refer to the input timing table for each display resolution
Input data skew margin	T_{RSKM}	500	-	-	ps	$\|V_{ID}\|$ = 200mV RxVCM = 1.2V R_{xFCLK} = 81MHz
Clock high time	T_{LVCH}	-	4 / (7 x R_{xFCLK})	-	ns	
Clock low time	T_{LVCL}	-	3 / (7 x R_{xFCLK})	-	ns	
PLL wake-up time	T_{enPLL}	-	-	150	µs	

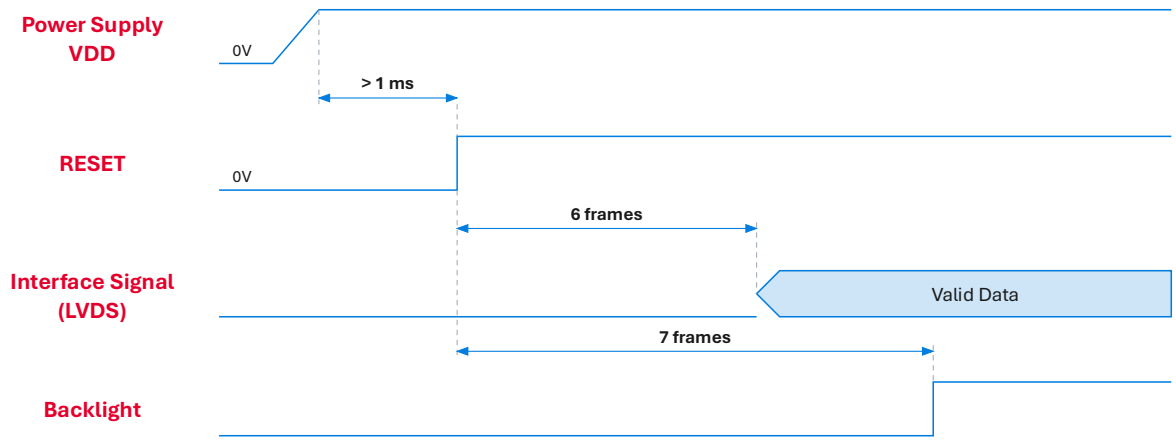






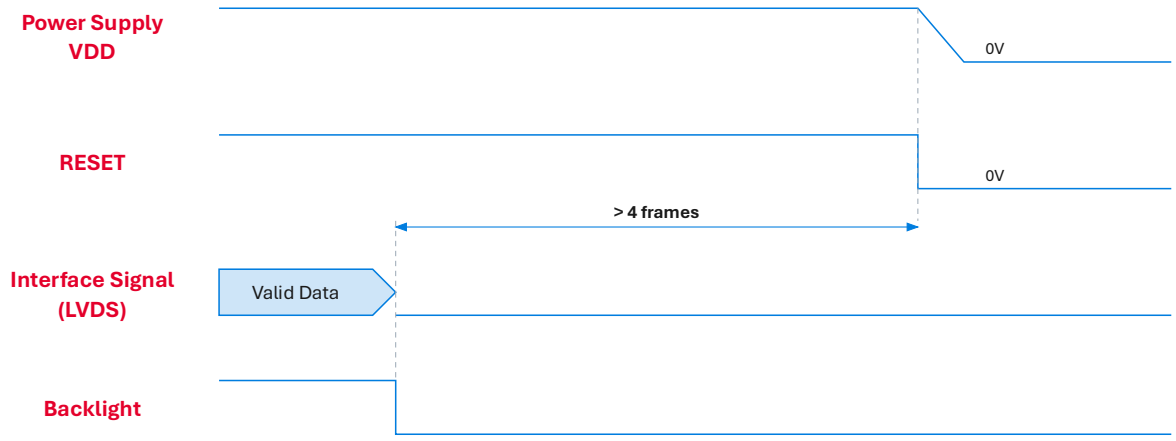
10. Power ON / OFF Sequence

10.1 Power ON Sequence



Note: Before the power-on process, check that all external power inputs are at GND.

10.2 Power OFF Sequence



11. Quality Assurance

11.1 Purpose

This Quality Assurance standard ensures the quality of LCD module products supplied to the customer.

11.2 Standard for Quality Test

11.2.1 Sampling Plan:

GB/T2828.1-2012

Single sampling, general inspection level II

11.2.2 Sampling Criteria:

Visual inspection: AQL 1.5

Electrical functional: AQL 0.65.

11.2.3 Reliability Test:

For detailed requirements refer to Section 12 Reliability Specification.

11.3 Agreement Items

The following situations shall be negotiated with the customer:

11.3.1 Any discrepancy in the standard of quality assurance.

11.3.2 Additional requirements to be added to the product specification.

11.3.3 Any other special problem.

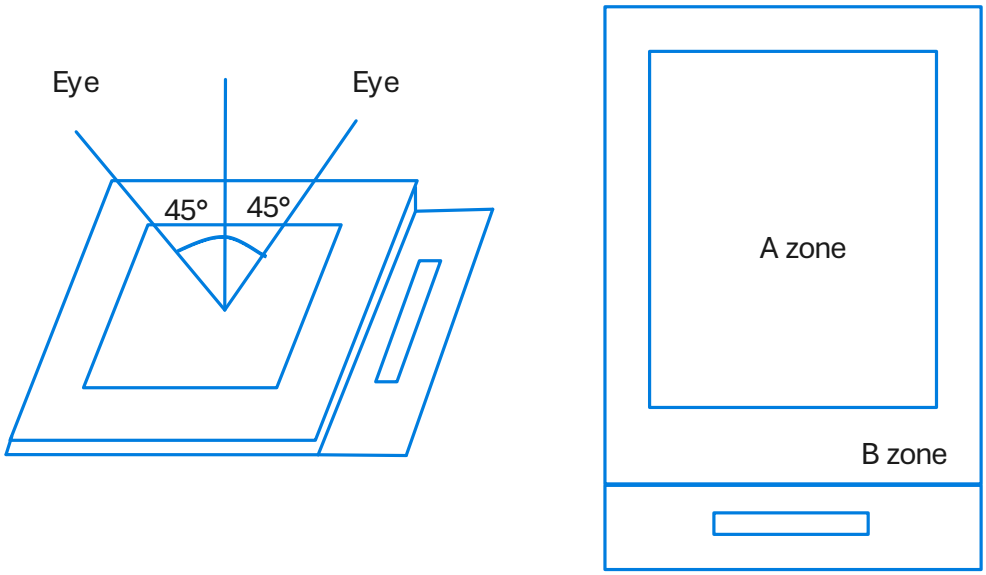
11.4 Standard of the Product Visual Inspection

11.4.1 Appearance inspection:

11.4.1.1 The inspection must be carried out under an illumination of about 1000 – 1500 lux, and the viewing distance must be 30 cm ± 2 cm.

11.4.1.2 The viewing angle should be 45° from the vertical line without reflected light, or follow the customer's viewing angle specifications.

11.4.1.3 Definition of area: A Zone: Active Area, B Zone: Viewing Area.

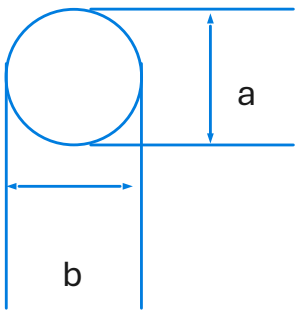


11.4.2 Basic principle:

11.4.2.1 A set of samples to indicate the limit of acceptable quality level must be discussed by both us and the customer when a dispute occurs.

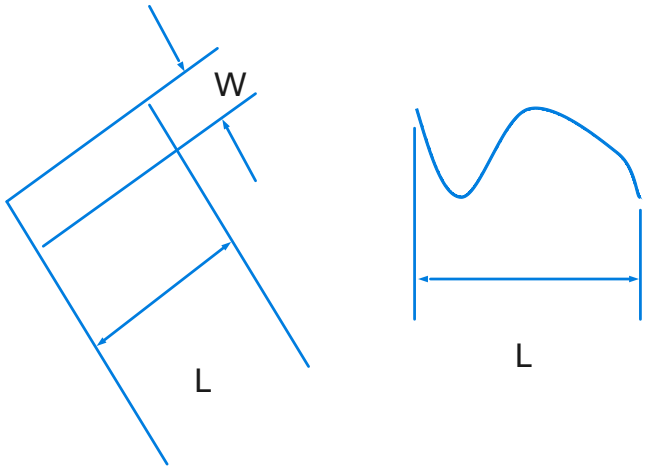
11.4.2.2 New items must be added when necessary.

11.5 Inspection Specification

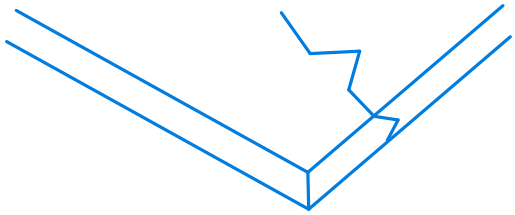
<table>
<tr><th>No.</th><th>Item</th><th>Criteria (Unit: mm)</th></tr>
<tr><td>01</td><td>Black / White spot
Foreign material (Round type)
Pinholes Stain
Particles inside cell.
(Minor defect)</td><td>


<table>
<tr><th>Size \ Area</th><th>Acc. Qty</th></tr>
<tr><td>ϕ ≤ 0.20</td><td>Ignore</td></tr>
<tr><td>0.20 < ϕ ≤ 0.50</td><td>N ≤ 3</td></tr>
<tr><td>0.50 < ϕ</td><td>0</td></tr>
</table>
ϕ = (a + b) / 2
The distance between 2 defects should be more than 5 mm.
</td></tr>
</table>

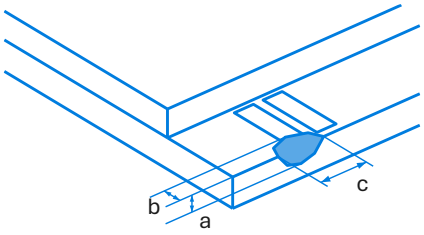
<table>
<tr><th>No.</th><th>Item</th><th>Criteria (Unit: mm)</th></tr>
<tr><td>02</td><td>Electrical Defect
(Major defect)</td><td>
<table>
<tr><td rowspan="2">Bright dot</td><td>Display Area</td><td>Total</td><td rowspan="3">Note 1</td></tr>
<tr><td>N ≤ 2</td><td>N ≤ 2</td></tr>
<tr><td>Dark dot</td><td>N ≤ 4</td><td>N ≤ 4</td></tr>
<tr><td>Total dot</td><td>N ≤ 4</td><td>N ≤ 4</td></tr>
<tr><td>Mura</td><td colspan="2">Not visible through 5% ND filters.</td><td>Note 2</td></tr>
</table>

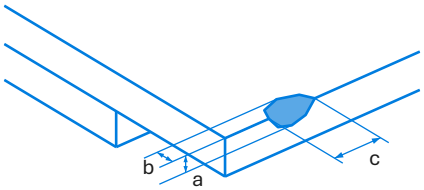
Remark:
1. A bright dot caused by a scratch or a foreign object is judged according to item 01.
</td></tr>
<tr><td>03</td><td>Black and White line
Scratch
Foreign material (Line type)
(Minor defect)</td><td>


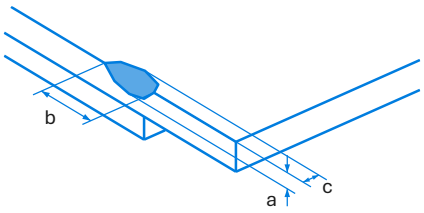
<table>
<tr><th>Length</th><th>Width</th><th>Acc. Qty</th></tr>
<tr><td>/</td><td>W ≤ 0.1</td><td>Ignore</td></tr>
<tr><td>L ≤ 2.5</td><td>0.1 < W ≤ 0.2</td><td>3</td></tr>
<tr><td>L > 2.5</td><td>0.2 < W</td><td>0</td></tr>
<tr><td colspan="2">Total</td><td>3</td></tr>
</table>

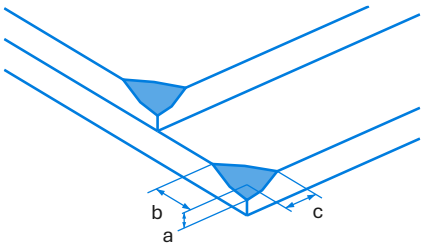
The distance between 2 defects should be more than 3 mm. Scratches not viewable through the back of the display are acceptable.
</td></tr>
<tr><td>04</td><td>Glass Crack
(Major defect)</td><td>


Cracks of any type are not allowed, as a crack may enlarge.
</td></tr>
</table>

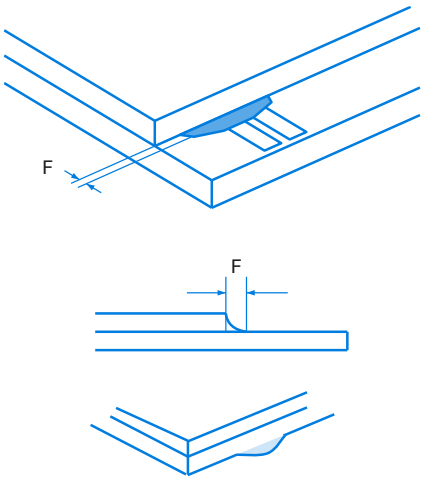
<table>
<tr><th>No.</th><th>Item</th><th>Criteria (Unit: mm)</th></tr>
<tr><td>05</td><td>Glass Chipping Pad Area:
(Minor defect)</td><td>

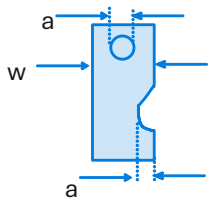
<table>
<tr><th>Length and Width</th><th>Acc. Qty</th></tr>
<tr><td>c > 3.0, b < 1.0</td><td>1</td></tr>
<tr><td>c < 3.0, b < 1.0</td><td>3</td></tr>
<tr><td colspan="2">a < Glass Thickness</td></tr>
</table></td></tr>
<tr><td>06</td><td>Glass Chipping Rear of Pad Area:
(Minor defect)</td><td>

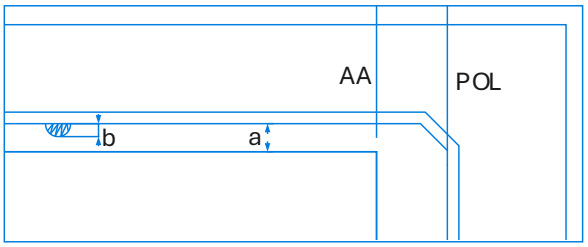
<table>
<tr><th>Length and Width</th><th>Acc. Qty</th></tr>
<tr><td>c > 3.0, b < 1.0</td><td>1</td></tr>
<tr><td>c < 3.0, b < 1.0</td><td>2</td></tr>
<tr><td>c < 3.0, b < 0.5</td><td>4</td></tr>
<tr><td colspan="2">a < Glass Thickness</td></tr>
</table></td></tr>
<tr><td>07</td><td>Glass Chipping Except Pad Area:
(Minor defect)</td><td>

<table>
<tr><th>Length and Width</th><th>Acc. Qty</th></tr>
<tr><td>c > 3.0, b < 1.0</td><td>1</td></tr>
<tr><td>c < 3.0, b < 1.0</td><td>2</td></tr>
<tr><td>c < 3.0, b < 0.5</td><td>4</td></tr>
<tr><td colspan="2">a < Glass Thickness</td></tr>
</table></td></tr>
<tr><td>08</td><td>Glass Corner Chipping:
(Minor defect)</td><td>

<table>
<tr><th>Length and Width</th><th>Acc. Qty</th></tr>
<tr><td>c < 3.0, b < 3.0</td><td>Ignore</td></tr>
<tr><td colspan="2">a < Glass Thickness</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Criteria (Unit: mm)</th></tr>
<tr><td>09</td><td>Glass Burr:
(Minor defect)</td><td>

<table>
<tr><th>Length</th><th>Acc. Qty</th></tr>
<tr><td>F < 1.0</td><td>Ignore</td></tr>
</table>
Glass burr must not affect assembly and module dimensions.</td></tr>
<tr><td>10</td><td>FPC Defect:
(Minor defect)</td><td>

10.1 Dent, pinhole width a < w / 3. (w: circuitry width.)
10.2 Open circuit is unacceptable.
10.3 No oxidation, contamination and distortion.</td></tr>
<tr><td>11</td><td>Bubble on Polarizer
(Minor defect)</td><td><table>
<tr><th>Diameter</th><th>Acc. Qty</th></tr>
<tr><td>ϕ ≤ 0.30</td><td>Ignore</td></tr>
<tr><td>0.30 < ϕ ≤ 0.50</td><td>N ≤ 2</td></tr>
<tr><td>0.50 < ϕ</td><td>N = 0</td></tr>
</table>


b < 1 / 2a
Note: In high-temperature and high-humidity experiments, bubbles do not disperse.</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Criteria (Unit: mm)</th></tr>
<tr><td>12</td><td>Dent on Polarizer
(Minor defect)</td><td>
<table>
<tr><th>Diameter</th><th>Acc. Qty</th></tr>
<tr><td>ϕ ≤ 0.25</td><td>Ignore</td></tr>
<tr><td>0.25 < ϕ ≤ 0.50</td><td>N ≤ 4</td></tr>
<tr><td>0.50 < ϕ</td><td>None</td></tr>
</table>
</td></tr>
<tr><td>13</td><td>Bezel</td><td>13.1 No rust or distortion on the bezel.
13.2 No visible fingerprints, stains or other contamination.</td></tr>
<tr><td>14</td><td>PCB</td><td>14.1 No distortion or contamination on PCB terminals.
14.2 All components on the PCB must be the same as documented on the BOM / component layout.
14.3 Follow IPC-A-600F.</td></tr>
<tr><td>15</td><td>Soldering</td><td>Follow the IPC-A-610C standard.</td></tr>
<tr><td>16</td><td>Electrical Defect
(Major defect)</td><td>The following defects must be rejected:
16.1 Missing vertical / horizontal line.
16.2 Abnormal Display.
16.3 No function or no display.
16.4 Current exceeds product specifications.
16.5 LCD viewing angle defect.
16.6 No Backlight.
16.7 Dark Backlight.</td></tr>
</table>

Remark: A broken LCD panel shall be rejected. Defects outside the LCD viewing area are acceptable.

11.6 Classification of Defects

11.6.1 Visual defects (except missing / wrong label) are treated as minor defects, and electrical defects as major defects.

11.6.2 Two minor defects are equal to one major defect in lot sampling inspection.

11.7 Identification / Marking Criteria

Any unit with illegible, wrong, double or missing marking / label shall be rejected.

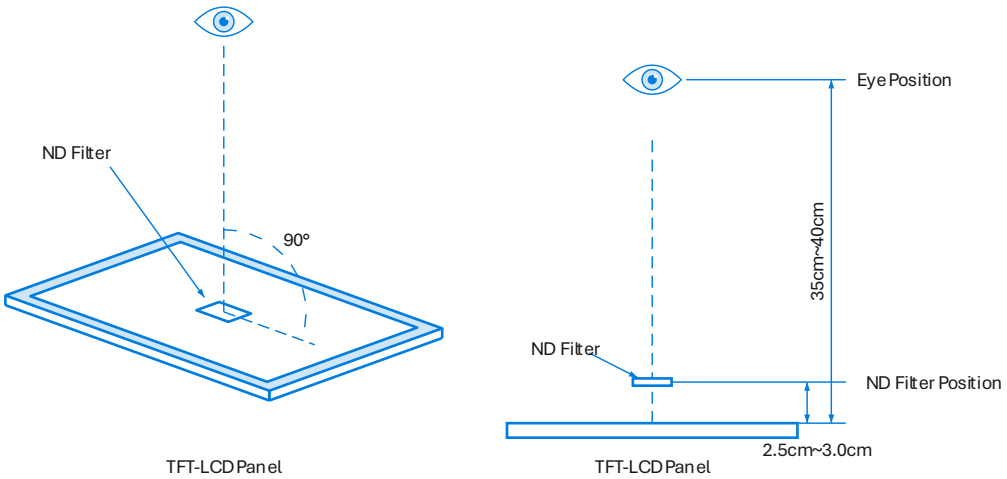
11.8 Packing

11.8.1 There should be no damage to the outer carton box; each packaging box should have one identical label.

11.8.2 Modules inside the package box should have a compliance mark.

11.8.3 All direct package materials shall offer ESD protection.

Note 1: Bright dot is defined as a dot whose defective area is larger than 50% of one sub-pixel area.



Bright dot: a dot-size bright defect on a black display pattern. It can be recognized through a 2% transmittance filter at an eye-to-panel distance of 350 mm ± 50 mm.

Dark dot: a cyan, magenta or yellow dot-size defect on a white display pattern. It can be recognized through a 5% transmittance filter at an eye-to-panel distance of 350 mm ± 50 mm.

Note 2: Mura — areas of the display that appear darker / brighter than the surrounding background.

12. Reliability Specification

No.	Item	Condition	Quantity	Criteria
1	High Temperature Operating	70°C, 96Hrs	2	GB/T2423.2 -2008
2	Low Temperature Operating	-20°C, 96Hrs	2	GB/T2423.1 -2008
3	High Humidity Storage	50°C, 90%RH, 96Hrs	2	GB/T2423.3 -2016
4	High Temperature Storage	80°C, 96Hrs	2	GB/T2423.2 -2008
5	Low Temperature Storage	-30°C, 96Hrs	2	GB/T2423.1 -2008
6	Thermal Cycling Test Storage	-20°C, 60 min ~ 70°C, 60 min, 20 cycles.	2	GB/T2423.22 -2012
7	Packing vibration	Frequency range: 10Hz ~ 50Hz Acceleration of gravity: 5G X, Y, Z: 30 min for each direction.	-	GB/T5170.14 -2009
8	Electrostatic Discharge	Air: ±4kV, 150pF / 330Ω, 5 times	2	GB/T17626.2 -2018
		Contact: ±2kV, 150pF / 330Ω, 5 times		
9	Drop Test (Packaged)	Height: 80 cm, 1 corner, 3 edges, 6 surfaces.	-	GB/T2423.7 -2018

Note 1: No cosmetic defects and no loss of operational function are allowed.

Note 2: The total current consumption should be below twice the initial value.

13. Precautions

13.1 Safety

13.1.1 The liquid crystal in the LCD is poisonous. Do not put it in your mouth. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water.

13.1.2 Since the liquid crystal cells are made of glass, do not subject them to strong impacts. Handle with care.

13.2 Handling

13.2.1 Store and use within ratings in order to keep performance and prevent damage.

13.2.2 Do not wipe the polarizer with a dry cloth, as it might cause scratches. If the surface of the LCD needs to be cleaned, wipe it swiftly with cotton or another soft cloth soaked with IPA or petroleum benzine; do not use other chemicals.

13.3 Storage

13.3.1 Do not store the LCD module beyond the specified temperature ranges.

13.3.2 Strong light exposure causes degradation of the polarizer and color filter.

13.4 Operation

13.4.1 Response time will increase at lower temperatures.

13.4.2 The display may change color at different temperatures.

13.4.3 Mechanical disturbance during operation, such as pressing on the display area, may cause temporary display non-uniformity.

13.4.4 Do not connect or disconnect the LCM to or from the system when power is on.

13.4.5 Never use the LCM under abnormal conditions of high temperature and high humidity.

13.4.6 The module has high-frequency circuits. Sufficient suppression of electromagnetic interference shall be provided by the system manufacturer. Grounding and shielding methods may be important to minimize the interference.

13.4.7 Do not display a fixed pattern for a long time (we recommend no longer than one hour), as it may cause image sticking due to the TFT structure.

13.5 Static Electricity

13.5.1 This unit contains CMOS LSIs, so care must be taken to avoid electrostatic charge, e.g. by grounding the human body.

13.5.2 The normal static prevention measures should be observed for work clothes and benches.

13.5.3 The module should be kept in anti-static bags or other containers resistant to static for storage.

14. Legal Information

CE Marking

CE marking is obligatory only for complete end products. Unisystem display modules are semifinished goods designed to be integrated into finished devices and, therefore, are not CE marked.

Warranty

Unisystem grants a warranty for the proper operation of the goods for a period of 24 months from the date of delivery. If, as a result of a warranty claim, the customer receives a defect-free item as a replacement, the warranty period shall start anew from the moment the replacement is received.

Right to Change Specifications

Unisystem reserves the right to make changes to the product specifications, dimensions, and materials without prior notice in order to improve reliability, function, or design. It is the buyer's responsibility to verify that the datasheet is current before placing an order.

Intellectual Property

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Limitation of Liability

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High-Risk Applications Disclaimer

Unisystem products are not designed, intended, or authorized for use in safety-critical or high-risk applications where failure could directly result in personal injury, death, or severe environmental damage (e.g., life support machines, aerospace navigation, nuclear facilities). Using Unisystem products in such high-risk activities is entirely at the buyer's risk, and the buyer agrees to fully indemnify and hold Unisystem harmless from any damages or claims resulting from such unauthorized use.

15. Contact Information

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