



Winstar Display Co., LTD

華凌光電股份有限公司



住址: 407 台中市清路 163 號
No.163 Chung Ching RD.,
Taichune, Taiwan, R.O.C

WEB: <http://www.winstar.com.tw>
E-mail: sales@winstar.com.tw
Tel:886-4-24262208 Fax : 886-4-24262207

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF57FTLAFD0#

<p align="center">APPROVED BY:</p> <p align="center">(FOR CUSTOMER USE ONLY)</p>	<p>PCB VERSION: _____</p> <p>DATA: _____</p>
---	--

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2009.03.02		First issue



RECORDS OF REVISION

VERSION	DATE	REVISED PAGE NO.	SUMMARY
0	2009.03.02		First issue

Contents

- 1. Module Classification Information**
- 2. Block Diagram**
- 3. Electrical Characteristics**
- 4. Absolute Maximum Ratings**
- 5. Interface Pin Function**
- 6. Optical Characteristics**
- 7. Contour Drawing**
- 8. Timing Characteristics**
- 9. LED driving conditions**
- 10. POWER SUPPLY**
- 11. Reliability**
- 12. Inspection specification**

1.Module Classification Information

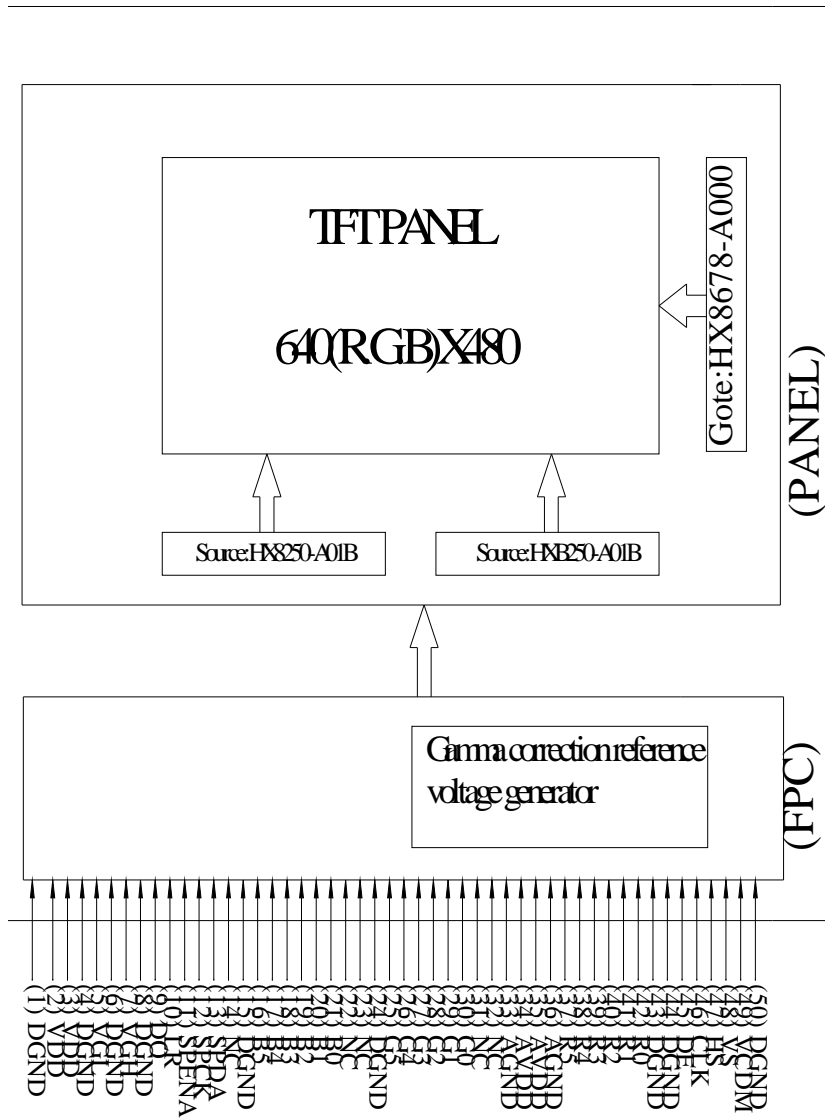
W F 57 F T L A F D 0 #
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨⑩ ⑪

- ① Brand : WINSTAR DISPLAY CORPORATION
- ② Display Type : H→Character Type, G→Graphic Type F→TFT Type
- ③ Display Size : 5.7” TFT
- ④ Model serials no.
- ⑤ Backlight Type : F→CCFL, White T→LED, White

- ⑥ LCD Polarize A→Reflective, N.T, 6:00 H→Transflective, W.T,6:00
Type/ Temperature D→Reflective, N.T, 12:00 K→Transflective, W.T,12:00
range/ View G→Reflective, W. T, 6:00 C→Transmissive, N.T,6:00
direction J→Reflective, W. T, 12:00 F→Transmissive, N.T,12:00
 B→Transflective, N.T,6:00 I→Transmissive, W. T, 6:00
 E→Transflective, N.T.12:00 L→Transmissive, W.T,12:00
- ⑦ A: TFT LCD
B: TFT+FR+CONTROL BOARD
C: TFT+FR+A/D BOARD
D:TFT+FR+A/D BOARD+CONTROL BOARD
- ⑧ Solution: A: 128160 B:320234 C:320240 D:480234 E : 480272 F :640480
- ⑨ D: Digital A: Analog
- ⑩ Version
- ⑪ Special Code #:Fit in with ROHS directive regulations

NO.	ITEM	CONTENTS	UNIT
1	Module Size	125.00(W) x 98.8(H) x Max.7.50(D) Without FPC	mm
2	Pixel Size	0.18(W) x 0.18 (H)	mm
3	Active Area	115.2(W) x 86.40 (H)	mm
4	Number of Dots	640 RGB (W) x 480 (H)	Dot
5	LCD Display Mode	TFT 5.7',Normally White / Positive Image	—
6	Rear Polarizer	Color Transmissive Type	—
7	Viewing Direction	12	O'clock
8	Backlight	LED	—
9	Driver IC	Source:HX8250-A01B(DOG);Gate:HX8678-A000(COG)	—
10	DC/DC Converter	Excluded	—
11	Touch Panel	Excluded	—
12	Weight	125 (Approx)	g

2. Block Diagram



3.Electrical Characteristics

3-1. ELECTRICAL CHARACTERISTICS OF LCM

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Power Supply for Logic	VDD	VDD-DGND	3.0	3.3	3.6	V
Power Supply for Analog	AVDD	AVDD-AGND	—	10.0	—	
Input Voltage	V _{IH}	H Level	0.7VDD	—	VDD	V
	V _{IL}	L Level	0	—	0.3VDD	
Recommended LC Driving Voltage for 25°C	V _{GH}	(Note)	—	15.0	—	V
	V _{GL}		—	-10.0	—	
	V _{COM}		—	3.7	—	
Recommended LC Driving Current for 25°C	I _{VDD}	VDD=3.3V,AVDD=10.0V VGH=15V,VGL=-10.0V Pattern : All on (White Color)	—	15.0	20.0	mA
Brightness	L	I _{AK} =60mA Pattern :All on (White Color)	250.0	300.0	—	cd/m ²

Note:

- (1) V_{GH} is TFT Gate on operating Voltage.
- (2) V_{GH} is TFT Gate off operating Voltage ,V_{GL} signal must be fluctuates with same phase as V_{COM} when Storage on Gate structure.
- (3) V_{COM} must be adjusted to optimize display quality_Crosstalk , Contrast Ratio and etc.

4.Absolute Maximum Ratings

4-1.ELECTRICAL ABSOLUTE RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT	COMMENT
Power Supply for Logic	VDD-DGND	-0.3	7	V	
Power Supply for Analog	AVDD-AGND	-0.3	13.5	V	
Input Voltage	VI	-0.3	VDD+0.3	V	
Static Electricity	—	—	—	—	Note 1

Note 1 LCM should be grounded during handling LCM.

4-2.ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	WIDE TEMP			
	OPERSTING		STORAGE	
	MIN.	MAX.	MIN.	MAX.
Ambient Temperature(°C)	-20	70	-30	80
Humidity (Without Condensation)	Note 2,4		Note 3,4	

Note 2 $T_a \leq 70^\circ\text{C}$:75%RH MAX.

Note 3 Please refer to item of reliability test.

Note 4 Background color will change slightly depending on ambient temperature.

That phenomenon is reversible.

5.Interface Pin Function

LCD (CN1)

Pin No.	Symbol	Pin No.	Symbol	Pin No.	Symbol	Pin No.	Symbol
1	DGND	16	B5	31	NC	46	CLK
2	VDD	17	B4	32	NC	47	HS
3	VDD	18	B3	33	AGND	48	VS
4	DGND	19	B2	34	AVDD	49	VCOM
5	VGL	20	B1	35	AVDD	50	DGND
6	DGND	21	B0	36	AGND		
7	VGH	22	NC	37	R5		
8	DGND	23	NC	38	R4		
9	UD	24	DGND	39	R3		
10	LR	25	G5	40	R2		
11	SPENA	26	G4	41	R1		
12	SPCK	27	G3	42	R0		
13	SPDA	28	G2	43	DGND		
14	NC	29	G1	44	DGND		
15	DGND	30	G0	45	DE		

USED LCD CABLE :FPC, pitch 0.5mm , 50Pin , thickness 0.3mm.

CORRESPONDABLE LCD CONNECTOR : IRISO IMSA-9637S-50A-TB or COMPATIBLE

LED BACKLIGHT (CN2): JST BHSR-02VS-1

Pin No.	Symbol
1	A
2	K

CORRESPONDABLE BACKLIGHT CONNECTOR : SM 02B-BHSS-1

6. OPTICAL CHARACTERISTICS

6-1 Optical Char. of LCD Panel

Parameter	SYMBOL	Values			Unit	Note
		Min.	Typ.	Max.		
Response Time	$T_r + T_f$	—	50	80	ms	NOTE 2,3
Contrast Ratio	C/R	150	250	—	—	*a)
θ (Viewing Angle)	CR =10	12 O'Clock	—	60	—	NOTE3,5
		6 O'Clock	—	40	—	
ϕ (Viewing Angle)		9 O'Clock	—	60	—	
		3 O'Clock	—	60	—	
Degree of Saturation	NTSC	—	53	—	%	

*a) Contrast Ratio (CR) is define mathematically as:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

6-2. Coloe of CIE Coordinate

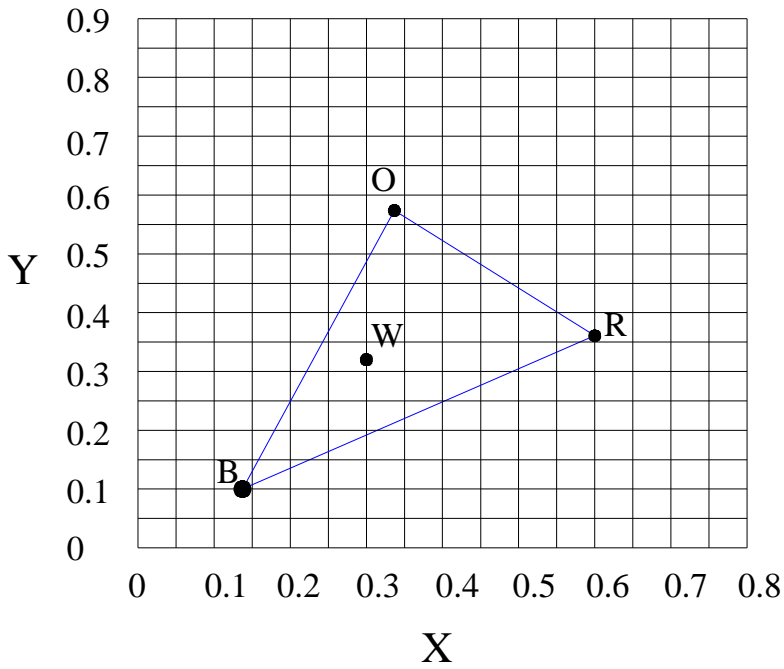
Ta=25°C

ITEM	SYMBOL	CONDITION	VALUE			NOTE	
			MIN.	TYP.	MAX.		
Color of CIE Coordinate	Red	x	$\phi = 0^\circ, \theta = 0^\circ$	0.55	0.6	0.65	Note※
		y		0.31	0.36	0.41	
	Green	x	$\phi = 0^\circ, \theta = 0^\circ$	0.29	0.34	0.39	
		y		0.53	0.58	0.63	
	Blue	x	$\phi = 0^\circ, \theta = 0^\circ$	0.09	0.14	0.19	
		y		0.05	0.1	0.15	
	White	x	$\phi = 0^\circ, \theta = 0^\circ$	0.25	0.3	0.35	
		y		0.27	0.32	0.37	

Note※ Measuring at position 3 on Fig.1 CIE chromaticity diagram.

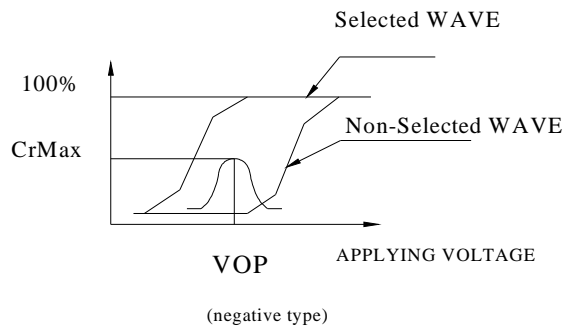
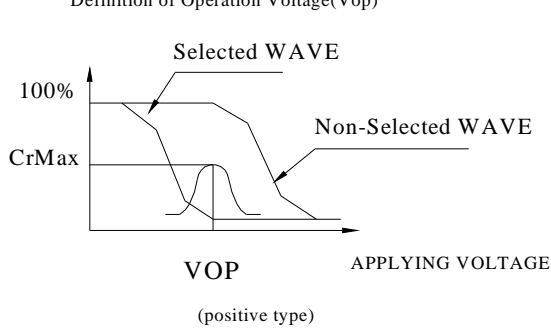
Base on Winstar Backlight (CIE X =0.30± 0.03, Y=0.30± 0.03)

Fig.1



(NOTE 1)

Definition of Operation Voltage(Vop)



*Conditions

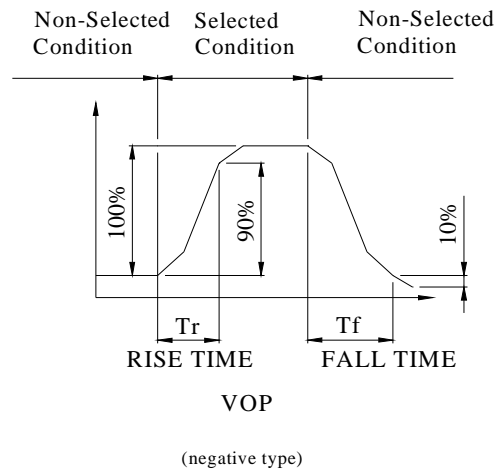
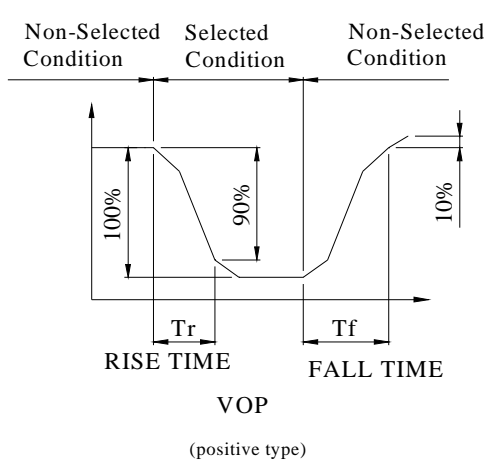
Viewing Angle: 0

Farme Frequency :70 Hz

Applying Waveform : 1/N duty , 1/a bias

(NOTE 2)

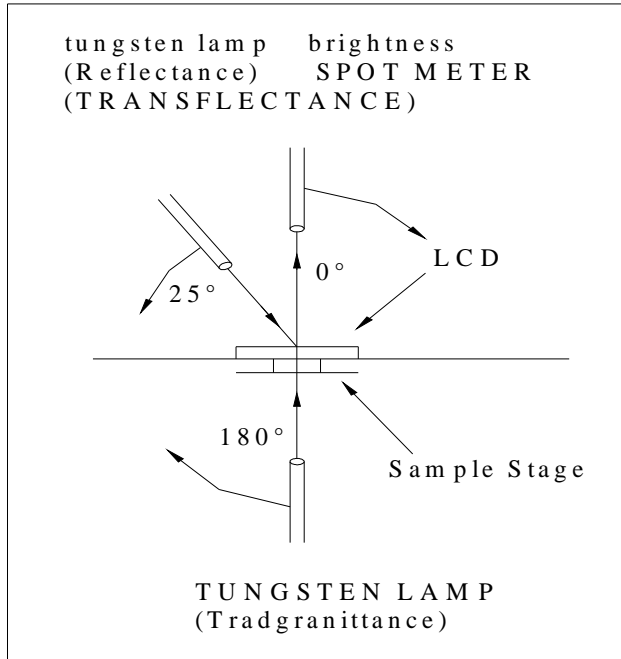
Definition of Response Time(Tr,Tf)



Operating Voltage: V_{op}
 Viewing Angle: (θ, φ) (0.0)
 Frame Frequency: 70Hz
 Applying Waveform: 1/N duty 1/a bias

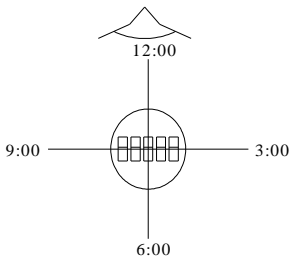
(NOTE 3)

Description of Measuring Equipment and Driving Waveforms

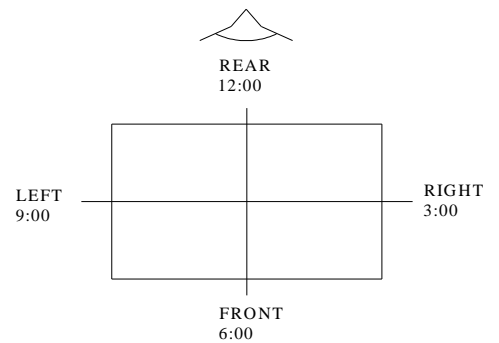
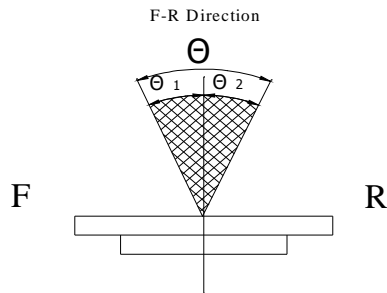
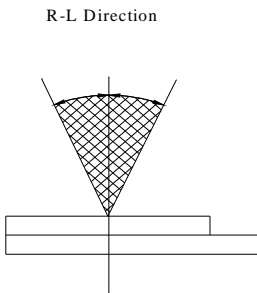


CONST.
 TEMP.
 CHAMEER.

(Note 4)
 Definition of Viewing Direction



(Note 4)
 Definition of Viewing Angle

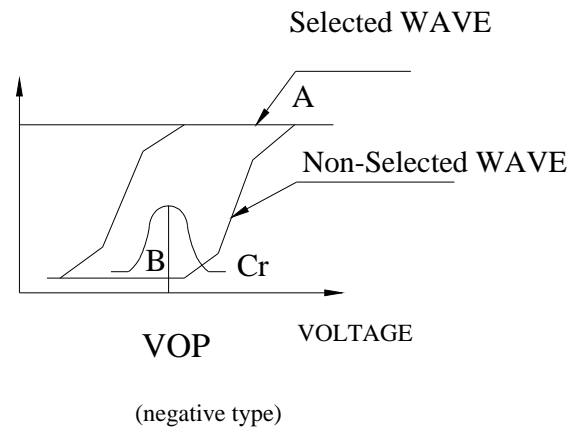
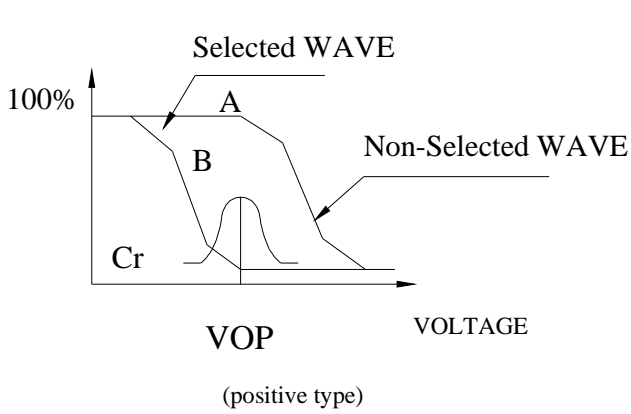


$$\theta = \theta_1 + \theta_2$$

***Condition**

Operating Voltage : V_{op}
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias
 Contrast Ratio : larger than 2

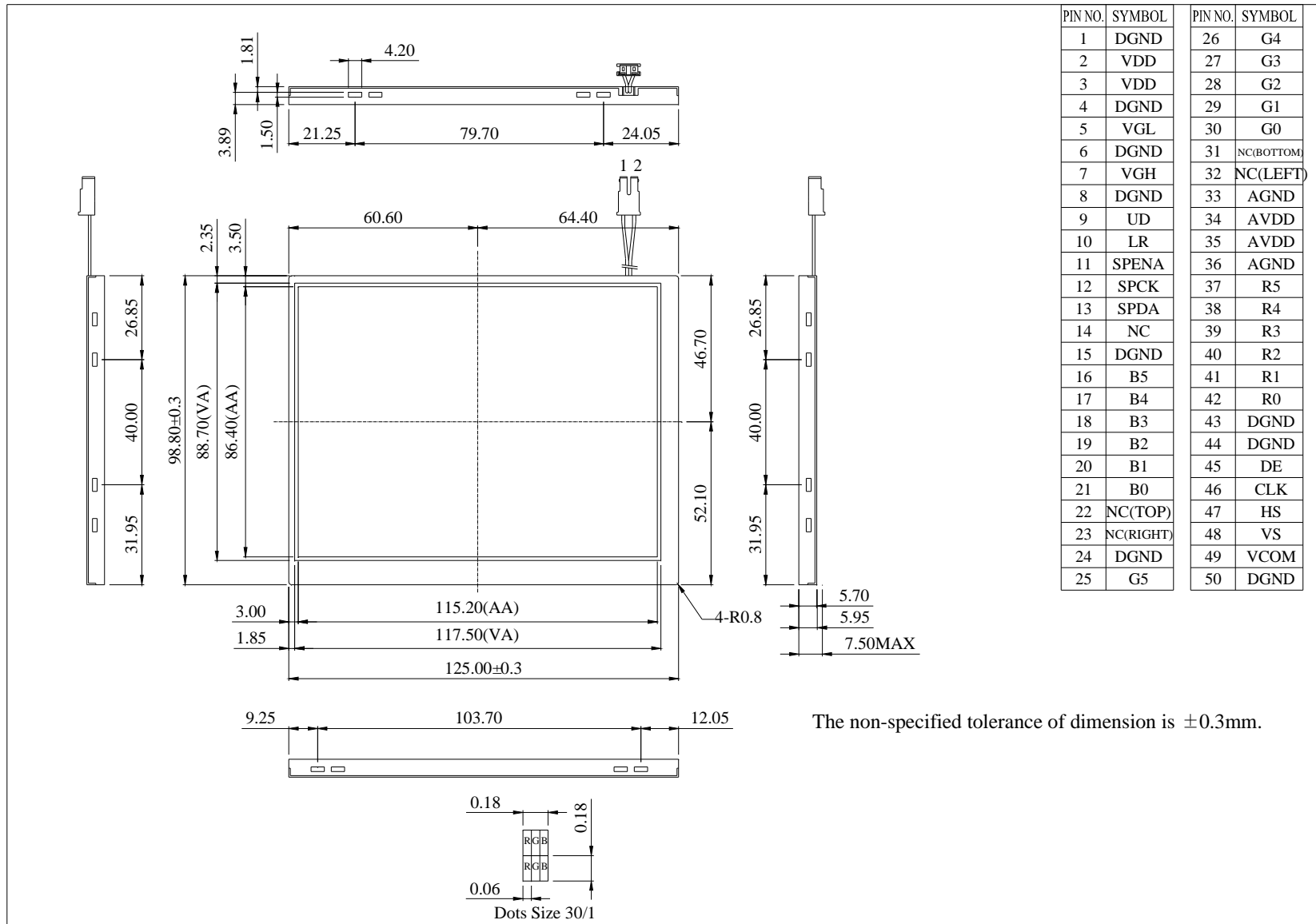
(NOTE 6)
Definition of Contrast Ratio (Cr)

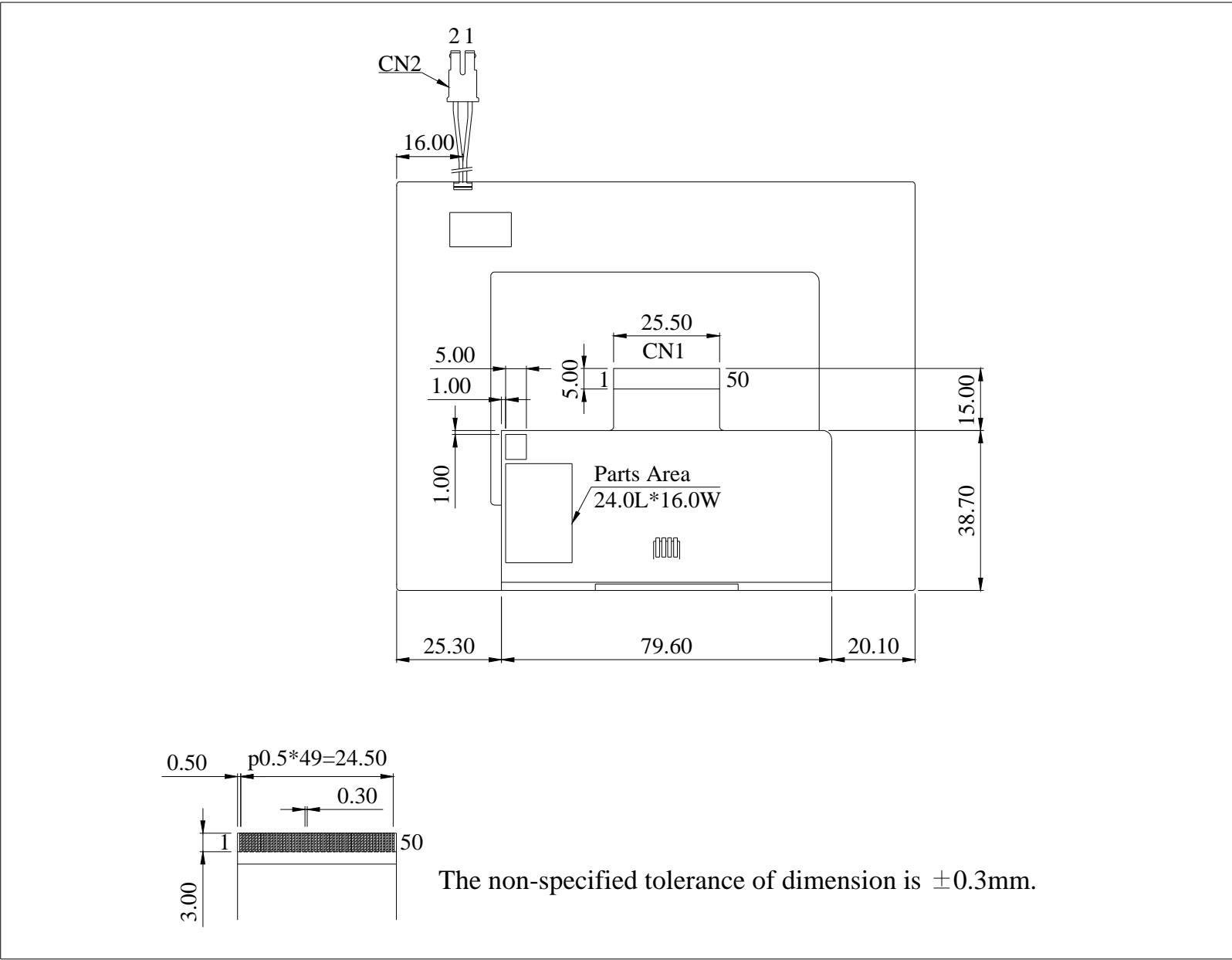


Contrast Ratio : $Cr=A/B$

- *Conditions
 Viewing Angle : 0
 Frame Frequency : 70Hz
 Applying Waveform : 1/N duty 1/a bias

7. Contour Drawing





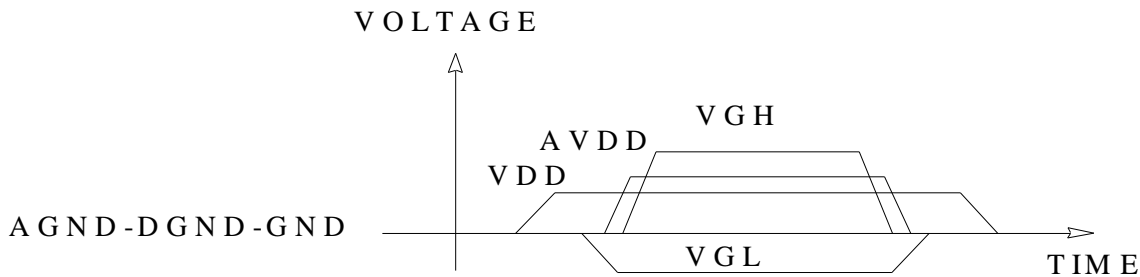
8. TIMING CHARACTERISTICS

8-1 · AC TIMING CHARACTERISTICS

Please refer to the IC SPEC :(Himax) HX8250-A01B
 (Himax) HX8678-A000
 (Himax Technologies, Inc)

8-2 POWER ON/OFF SEQUENCE

To prevent the devlce damage from latch up, the power ON/OFF sequence shown below must be followed.



(NOET) DISPAY DIRECTION OF THE PANEL

The UD and LR control the Display direction of the panel .
 The settings of UD and LR are or following:



(1) UD=VDD and LR=DGND



(2) UD=VDD and LR=VDD



(3) UD= DGND and LR=DGND

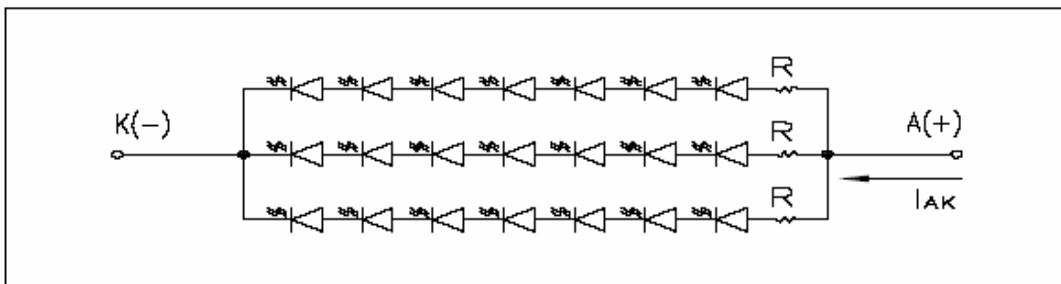


(4) UD= DGND and LR= VDD

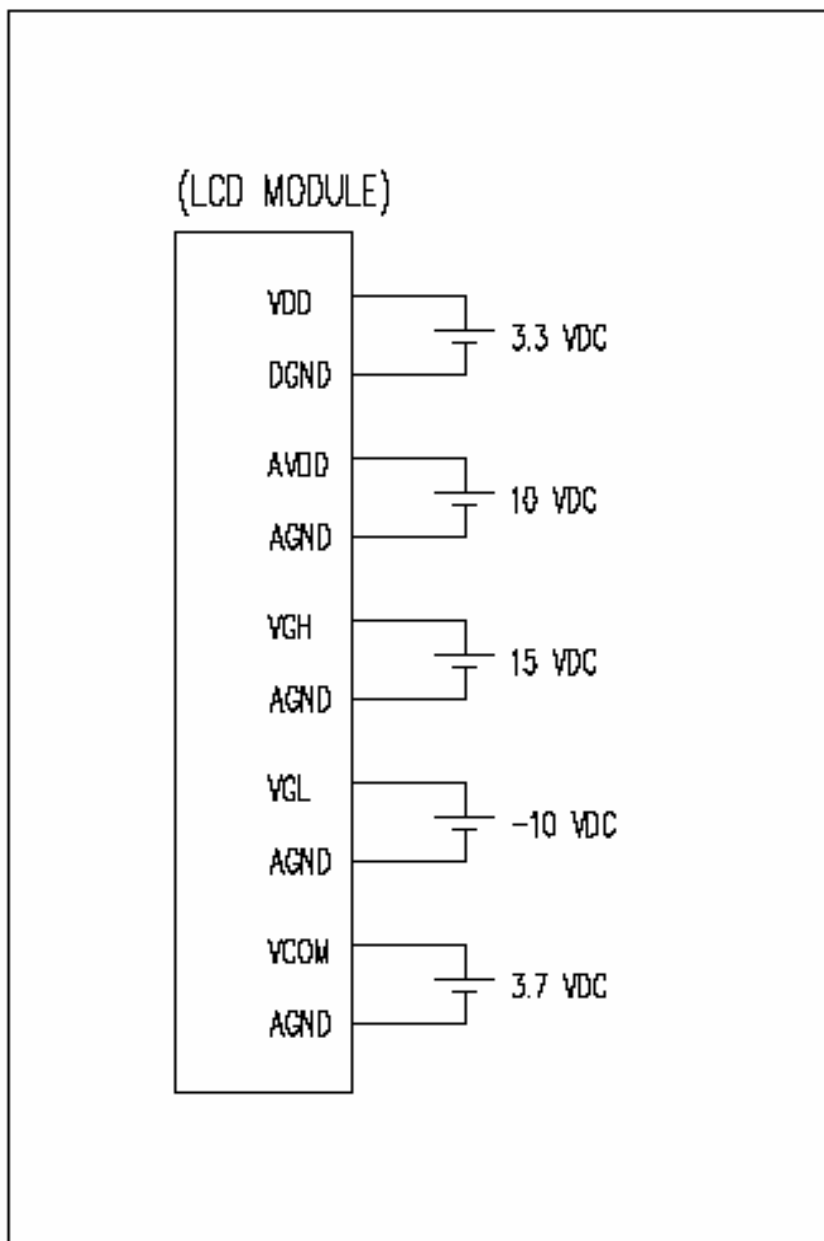
9. LED driving conditions

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	REMARK
Peak forward current	I_P	—	—	210	mA	—
Maximum reverse voltage	V_R	—	—	15	V	—
Applied forward voltage	V_{AK}	—	23.1	24.5	V	—
Applied forward current	I_{AK}	—	60	—	mA	—
LED power consumption	PF	—	1.4	—	W	—
LED life time	LL	—	25000	—	Hrs	at $I_{AK}=60\text{mA}$ (*1)

(*1) LED life time is defined as follow: The final brightness is at 50% of original brightness.

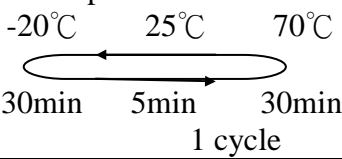


10. POWER SUPPLY



11. Reliability

Content of Reliability Test (wide temperature, -20°C~70°C)

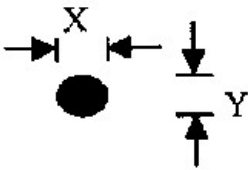
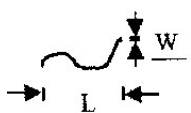
Environmental Test			
Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80°C 200hrs	2
Low Temperature storage	Endurance test applying the high storage temperature for a long time.	-30°C 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°C 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60°C, 90%RH max For 96hrs under no-load condition excluding the polarizer, Then taking it out and drying it at normal temperature.	60°C, 90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation 	-20°C/70°C 10 cycles	—
Vibration test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude : 15mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes	3
Static electricity test	Endurance test applying the electric stress to the terminal.	VS=800V, RS=1.5kΩ CS=100pF 1 time	—

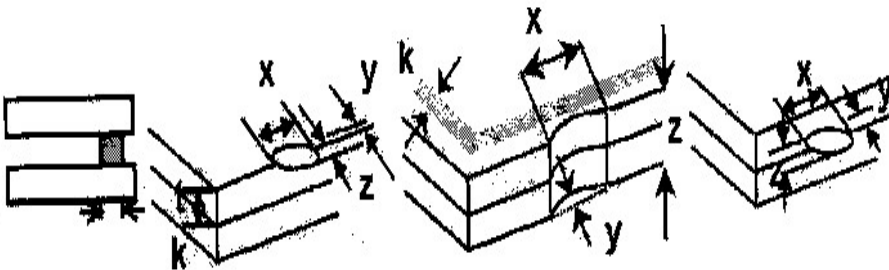
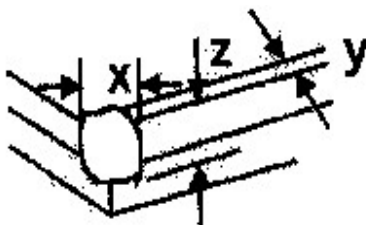
Note1: No dew condensation to be observed.

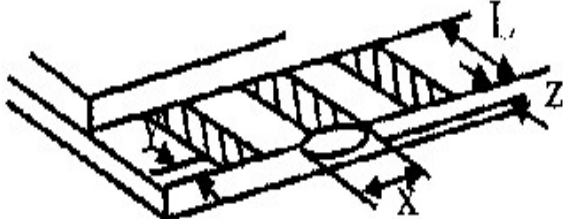
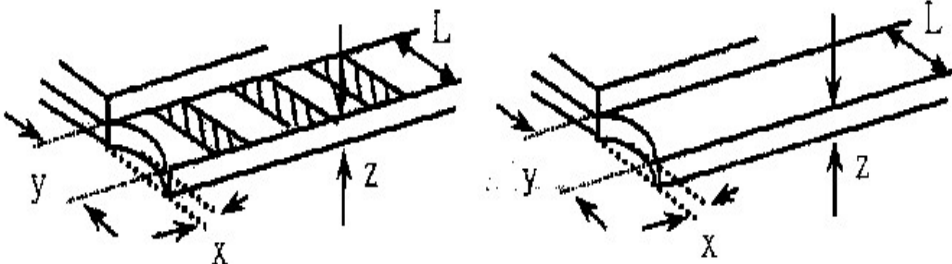
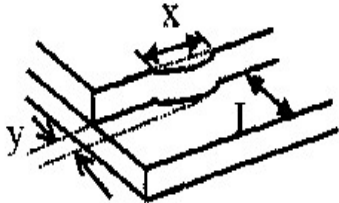
Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: Vibration test will be conducted to the product itself without putting it in a container.

12. Inspection specification

NO	Item	Criterion	AQL												
01	Electrical Testing	1.1 Missing vertical, horizontal segment, segment contrast defect. 1.2 Missing character , dot or icon. 1.3 Display malfunction. 1.4 No function or no display. 1.5 Current consumption exceeds product specifications. 1.6 LCD viewing angle defect. 1.7 Mixed product types. 1.8 Contrast defect.	0.65												
02	Black or white spots on LCD (display only)	2.1 White and black spots on display $\leq 0.25\text{mm}$, no more than three white or black spots present. 2.2 Densely spaced: No more than two spots or lines within 3mm	2.5												
03	LCD black spots, white spots, contamination (non-display)	3.1 Round type : As following drawing $\Phi = (x + y) / 2$  <table border="1" data-bbox="874 929 1353 1146"> <thead> <tr> <th>SIZE</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.10$</td> <td>Accept no dense</td> </tr> <tr> <td>$0.10 < \Phi \leq 0.20$</td> <td>2</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.25$</td> <td>1</td> </tr> <tr> <td>$0.25 < \Phi$</td> <td>0</td> </tr> </tbody> </table>	SIZE	Acceptable Q TY	$\Phi \leq 0.10$	Accept no dense	$0.10 < \Phi \leq 0.20$	2	$0.20 < \Phi \leq 0.25$	1	$0.25 < \Phi$	0	2.5		
		SIZE	Acceptable Q TY												
$\Phi \leq 0.10$	Accept no dense														
$0.10 < \Phi \leq 0.20$	2														
$0.20 < \Phi \leq 0.25$	1														
$0.25 < \Phi$	0														
3.2 Line type : (As following drawing)  <table border="1" data-bbox="710 1220 1353 1433"> <thead> <tr> <th>Length</th> <th>Width</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>---</td> <td>$W \leq 0.02$</td> <td>Accept no dense</td> </tr> <tr> <td>$L \leq 3.0$</td> <td>$0.02 < W \leq 0.03$</td> <td rowspan="2">2</td> </tr> <tr> <td>$L \leq 2.5$</td> <td>$0.03 < W \leq 0.05$</td> </tr> <tr> <td>---</td> <td>$0.05 < W$</td> <td>As round type</td> </tr> </tbody> </table>	Length	Width	Acceptable Q TY	---	$W \leq 0.02$	Accept no dense	$L \leq 3.0$	$0.02 < W \leq 0.03$	2	$L \leq 2.5$	$0.03 < W \leq 0.05$	---	$0.05 < W$	As round type	2.5
Length	Width	Acceptable Q TY													
---	$W \leq 0.02$	Accept no dense													
$L \leq 3.0$	$0.02 < W \leq 0.03$	2													
$L \leq 2.5$	$0.03 < W \leq 0.05$														
---	$0.05 < W$	As round type													
04	Polarizer bubbles	If bubbles are visible, judge using black spot specifications, not easy to find, must check in specify direction. <table border="1" data-bbox="842 1482 1353 1736"> <thead> <tr> <th>Size Φ</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.20$</td> <td>Accept no dense</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.50$</td> <td>3</td> </tr> <tr> <td>$0.50 < \Phi \leq 1.00$</td> <td>2</td> </tr> <tr> <td>$1.00 < \Phi$</td> <td>0</td> </tr> <tr> <td>Total Q TY</td> <td>3</td> </tr> </tbody> </table>	Size Φ	Acceptable Q TY	$\Phi \leq 0.20$	Accept no dense	$0.20 < \Phi \leq 0.50$	3	$0.50 < \Phi \leq 1.00$	2	$1.00 < \Phi$	0	Total Q TY	3	2.5
Size Φ	Acceptable Q TY														
$\Phi \leq 0.20$	Accept no dense														
$0.20 < \Phi \leq 0.50$	3														
$0.50 < \Phi \leq 1.00$	2														
$1.00 < \Phi$	0														
Total Q TY	3														

NO	Item	Criterion	AQL																		
05	Scratches	Follow NO.3 LCD black spots, white spots, contamination																			
06	Chipped glass	<p>Symbols Define: x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length:</p> <p>6.1 General glass chip : 6.1.1 Chip on panel surface and crack between panels:</p>  <table border="1" data-bbox="443 757 1353 887"> <thead> <tr> <th>z: Chip thickness</th> <th>y: Chip width</th> <th>x: Chip length</th> </tr> </thead> <tbody> <tr> <td>$Z \leq 1/2t$</td> <td>Not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> <tr> <td>$1/2t < z \leq 2t$</td> <td>Not exceed 1/3k</td> <td>$x \leq 1/8a$</td> </tr> </tbody> </table> <p>⊙If there are 2 or more chips, x is total length of each chip.</p> <p>6.1.2 Corner crack:</p>  <table border="1" data-bbox="443 1281 1353 1411"> <thead> <tr> <th>z: Chip thickness</th> <th>y: Chip width</th> <th>x: Chip length</th> </tr> </thead> <tbody> <tr> <td>$Z \leq 1/2t$</td> <td>Not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> <tr> <td>$1/2t < z \leq 2t$</td> <td>Not exceed 1/3k</td> <td>$x \leq 1/8a$</td> </tr> </tbody> </table> <p>⊙If there are 2 or more chips, x is the total length of each chip.</p>	z: Chip thickness	y: Chip width	x: Chip length	$Z \leq 1/2t$	Not over viewing area	$x \leq 1/8a$	$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$	z: Chip thickness	y: Chip width	x: Chip length	$Z \leq 1/2t$	Not over viewing area	$x \leq 1/8a$	$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$	2.5
z: Chip thickness	y: Chip width	x: Chip length																			
$Z \leq 1/2t$	Not over viewing area	$x \leq 1/8a$																			
$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$																			
z: Chip thickness	y: Chip width	x: Chip length																			
$Z \leq 1/2t$	Not over viewing area	$x \leq 1/8a$																			
$1/2t < z \leq 2t$	Not exceed 1/3k	$x \leq 1/8a$																			

NO	Item	Criterion	AQL																
06	Glass crack	<p>Symbols :</p> <p>x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length</p> <p>6.2 Protrusion over terminal :</p> <p>6.2.1 Chip on electrode pad :</p>  <table border="1" data-bbox="354 656 1265 741"> <tr> <td>y: Chip width</td> <td>x: Chip length</td> <td>z: Chip thickness</td> </tr> <tr> <td>$y \leq 0.5\text{mm}$</td> <td>$x \leq 1/8a$</td> <td>$0 < z \leq t$</td> </tr> </table> <p>6.2.2 Non-conductive portion:</p>  <table border="1" data-bbox="426 1075 1265 1160"> <tr> <td>y: Chip width</td> <td>x: Chip length</td> <td>z: Chip thickness</td> </tr> <tr> <td>$y \leq L$</td> <td>$x \leq 1/8a$</td> <td>$0 < z \leq t$</td> </tr> </table> <p>⊙ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications. ⊙ If the product will be heat sealed by the customer, the alignment mark not be damaged.</p> <p>6.2.3 Substrate protuberance and internal crack.</p>  <table border="1" data-bbox="762 1384 1270 1469"> <tr> <td>y: width</td> <td>x: length</td> </tr> <tr> <td>$y \leq 1/3L$</td> <td>$x \leq a$</td> </tr> </table>	y: Chip width	x: Chip length	z: Chip thickness	$y \leq 0.5\text{mm}$	$x \leq 1/8a$	$0 < z \leq t$	y: Chip width	x: Chip length	z: Chip thickness	$y \leq L$	$x \leq 1/8a$	$0 < z \leq t$	y: width	x: length	$y \leq 1/3L$	$x \leq a$	2.5
y: Chip width	x: Chip length	z: Chip thickness																	
$y \leq 0.5\text{mm}$	$x \leq 1/8a$	$0 < z \leq t$																	
y: Chip width	x: Chip length	z: Chip thickness																	
$y \leq L$	$x \leq 1/8a$	$0 < z \leq t$																	
y: width	x: length																		
$y \leq 1/3L$	$x \leq a$																		

NO	Item	Criterion	AQL
07	Cracked glass	The LCD with extensive crack is not acceptable.	2.5
08	Backlight elements	8.1 Illumination source flickers when lit. 8.2 Spots or scratched that appear when lit must be judged. Using LCD spot, lines and contamination standards. 8.3 Backlight doesn't light or color wrong.	0.65 2.5 0.65
09	Bezel	9.1 Bezel may not have rust, be deformed or have fingerprints, stains or other contamination. 9.2 Bezel must comply with job specifications.	2.5 0.65
10	PCB、COB	10.1 COB seal may not have pinholes larger than 0.2mm or contamination. 10.2 COB seal surface may not have pinholes through to the IC. 10.3 The height of the COB should not exceed the height indicated in the assembly diagram. 10.4 There may not be more than 2mm of sealant outside the seal area on the PCB. And there should be no more than three places. 10.5 No oxidation or contamination PCB terminals. 10.6 Parts on PCB must be the same as on the production characteristic chart. There should be no wrong parts, missing parts or excess parts. 10.7 The jumper on the PCB should conform to the product characteristic chart. 10.8 If solder gets on bezel tab pads, LED pad, zebra pad or screw hold pad, make sure it is smoothed down.	2.5 2.5 0.65 2.5 2.5 0.65 0.65 2.5
11	Soldering	11.1 No un-melted solder paste may be present on the PCB. 11.2 No cold solder joints, missing solder connections, oxidation or icicle. 11.3 No residue or solder balls on PCB. 11.4 No short circuits in components on PCB.	2.5 2.5 2.5 0.65

NO	Item	Criterion	AQL
12	General appearance	12.1 No oxidation, contamination, curves or, bends on interface Pin (OLB) of TCP.	2.5
		12.2 No cracks on interface pin (OLB) of TCP.	0.65
		12.3 No contamination, solder residue or solder balls on product.	2.5
		12.4 The IC on the TCP may not be damaged, circuits.	2.5
		12.5 The uppermost edge of the protective strip on the interface pin must be present or look as if it cause the interface pin to sever.	2.5
		12.6 The residual rosin or tin oil of soldering (component or chip component) is not burned into brown or black color.	2.5
		12.7 Sealant on top of the ITO circuit has not hardened.	0.65
		12.8 Pin type must match type in specification sheet.	0.65
		12.9 LCD pin loose or missing pins.	0.65
		12.10 Product packaging must the same as specified on packaging specification sheet.	0.65
		12.11 Product dimension and structure must conform to product specification sheet.	



Module Number : _____

1、Panel Specification :

- 1. Panel Type : Pass NG , _____
- 2. View Direction : Pass NG , _____
- 3. Numbers of Dots : Pass NG , _____
- 4. View Area : Pass NG , _____
- 5. Active Area : Pass NG , _____
- 6. Operating Temperature : Pass NG , _____
- 7. Storage Temperature : Pass NG , _____
- 8. Others : _____

2、Mechanical Specification :

- 1. PCB Size : Pass NG , _____
- 2. Frame Size : Pass NG , _____
- 3. Material of Frame : Pass NG , _____
- 4. Connector Position : Pass NG , _____
- 5. Fix Hole Position : Pass NG , _____
- 6. Backlight Position : Pass NG , _____
- 7. Thickness of PCB : Pass NG , _____
- 8. Height of Frame to PCB : Pass NG , _____
- 9. Height of Module : Pass NG , _____
- 10. Others : Pass NG , _____

3、Relative Hole Size :

- 1. Pitch of Connector : Pass NG , _____
- 2. Hole size of Connector : Pass NG , _____
- 3. Mounting Hole size : Pass NG , _____
- 4. Mounting Hole Type : Pass NG , _____
- 5. Others : Pass NG , _____

4、Backlight Specification :

- 1. B/L Type : Pass NG , _____
- 2. B/L Color : Pass NG , _____
- 3. B/L Driving Voltage (Reference for LED Type) : Pass NG , _____
- 4. B/L Driving Current : Pass NG , _____
- 5. Brightness of B/L : Pass NG , _____
- 6. B/L Solder Method : Pass NG , _____
- 7. Others : Pass NG , _____

>> Go to page 2 <<

Module Number : _____

Page: 2

5、Electronic Characteristics of Module :

- | | | |
|------------------------------|-------------------------------|-------------------------------------|
| 1. Input Voltage : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 2. Supply Current : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 3. Driving Voltage for LCD : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 4. Contrast for LCD : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 5. B/L Driving Method : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 6. Negative Voltage Output : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 7. Interface Function : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 8. LCD Uniformity : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 9. ESD test : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |
| 10. Others : | <input type="checkbox"/> Pass | <input type="checkbox"/> NG , _____ |

6、Summary :

Sales signature : _____

Customer Signature : _____

Date : _____ / _____ / _____