

億力光電股份有限公司
EVERVISION ELECTRONICS CO., LTD.

Product Specification For LCD Module

(KVPF-7B-002-16)

Model NO. : VGG322425-6UFLWA(RoHS)

REVISION : 3

APPROVAL FOR SPECIFICATIONS ONLY


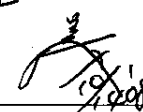


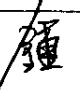
APPROVAL FOR SPECIFICATIONS AND SAMPLE

CUSTOMER :

STD.

APPROVED BY :

EVERVISION LCM R&D CENTER

APPROVED BY	CHECKED BY	PREPARED BY	
 正  19/10/08	 張 元 10/14/08	 張 正 17/14/08	 鍾 博 19/10/08
DIRECTOR	MANAGER	Mechanism Engineer	Electronic Engineer

億力光電股份有限公司總公司
EVERVISION ELECTRONICS LTD.
 台北縣中和市建一路 186 號 12 樓
 12F, NO. 186, JIAN 1st RD., CHUNG HO CITY,
 TAIPEI HSIEN, TAIWAN, R.O.C
 TEL : +886 2 8227-2788
 FAX : +886 2 8227-2789

億力光電股份有限公司台中分公司
EVERVISION ELECTRONICS(T.C) LTD.
 台中縣潭子鄉台中加工出口區建國路 19 號
 NO. 19, CHIEN KUO ROAD, T.E.P.Z TANTZE
 427 TAICHUNG HSIEN TAIWAN R.O.C
 TEL : +886 4 2532-8889
 FAX : +886 4 2532-6689

東莞莞城德寶電子廠
EVERVISION ELECTRONICS(B.V.I) LTD.
 廣東省東莞市城區東縱大道天寶路 9 號
 NO. 9, Tian Bao Rd., Dong Zong St., Dong Guan City
 Guang Dong, China.
 TEL : +86 769 2220 5258
 FAX : +86 769 2220 7258

勁佳光電(昆山)有限公司
EVERVISION ELECTRONICS(KUNSHAN) LTD.
 江蘇省昆山市玉山鎮高科技工業園城北路 8 號
 NO. 8, Chengbei Rd., Hi-Tech Industry Park,
 Yushan Town, Kunshan City, Jiangsu, China.
 TEL : +86 512 5778 7288
 FAX : +86 512 5777 0688

<http://www.evervisionlcd.com>

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	2

1. Table of Contents

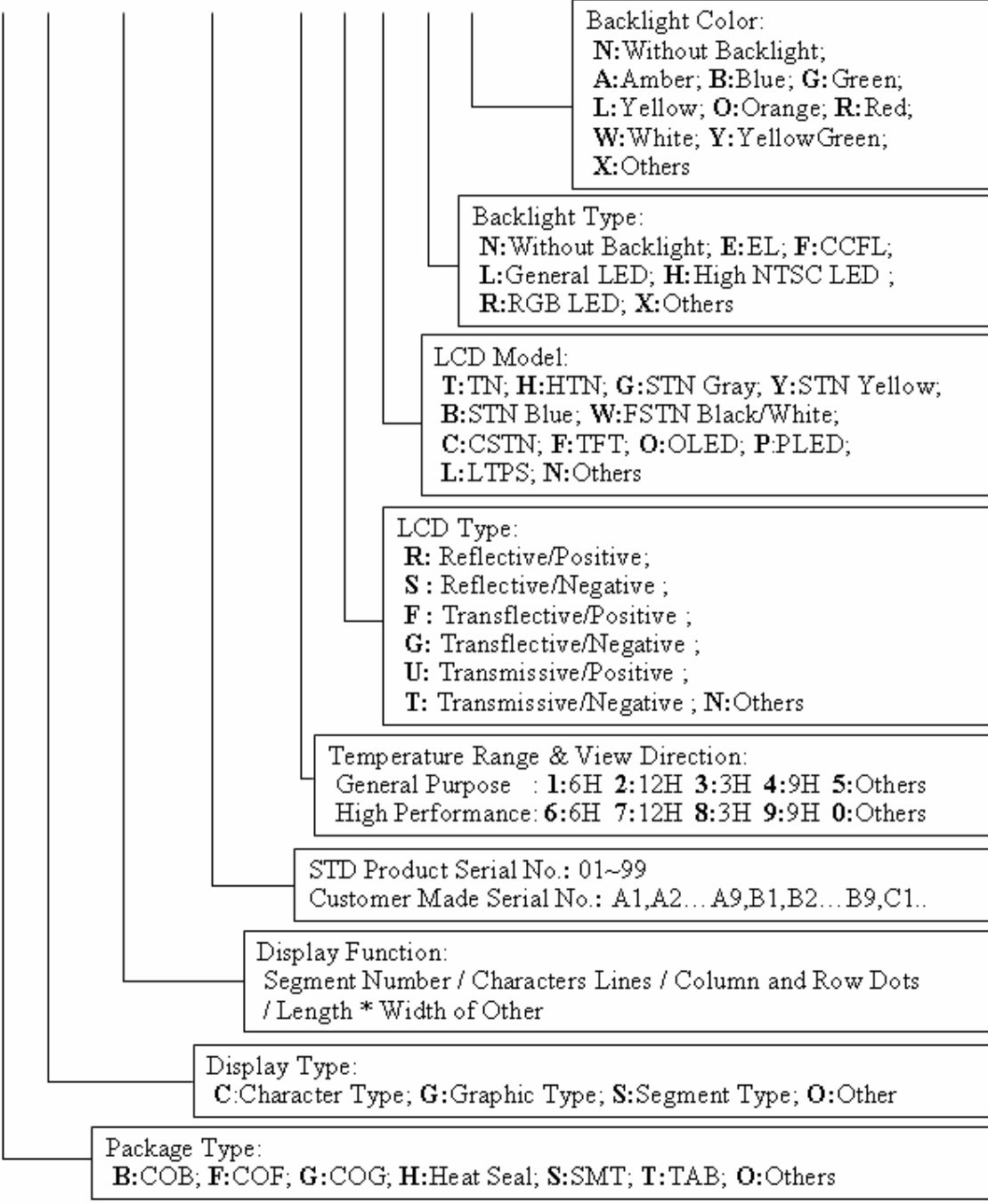
No.	Contents	Page
1	Table of Contents	2
2	Record of Revisions	3
3	Module Numbering System	4
4	Application	5
5	Features	5
6	General Specifications	5
7	Absolute Maximum Ratings	6
8	Electrical Characteristics	7
9	Block Diagram	9
10	Input / Output Terminals Pin Assignment	10
11	Interface Timing	13
12	Optical Characteristics	16
13	Reliability Test	19
14	Packaging	20
15	Precautions	21
16	Outline Drawing	22
17	Definition of Labels	23
18	Incoming Inspection Standards	25

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	4

3. Module Numbering System

V G G 3224 25 – 6 U F L W A

Serial No: A~Z



Backlight Color:
N: Without Backlight;
A: Amber; **B:** Blue; **G:** Green;
L: Yellow; **O:** Orange; **R:** Red;
W: White; **Y:** Yellow Green;
X: Others

Backlight Type:
N: Without Backlight; **E:** EL; **F:** CCFL;
L: General LED; **H:** High NTSC LED ;
R: RGB LED; **X:** Others

LCD Model:
T: TN; **H:** HTN; **G:** STN Gray; **Y:** STN Yellow;
B: STN Blue; **W:** FSTN Black/White;
C: CSTN; **F:** TFT; **O:** OLED; **P:** PLED;
L: LTPS; **N:** Others

LCD Type:
R: Reflective/Positive;
S: Reflective/Negative ;
F: Transflective/Positive ;
G: Transflective/Negative ;
U: Transmissive/Positive ;
T: Transmissive/Negative ; **N:** Others

Temperature Range & View Direction:
 General Purpose : **1:**6H **2:**12H **3:**3H **4:**9H **5:**Others
 High Performance: **6:**6H **7:**12H **8:**3H **9:**9H **0:**Others

STD Product Serial No.: 01~99
 Customer Made Serial No.: A1,A2...A9,B1,B2...B9,C1..

Display Function:
 Segment Number / Characters Lines / Column and Row Dots
 / Length * Width of Other

Display Type:
C: Character Type; **G:** Graphic Type; **S:** Segment Type; **O:** Other

Package Type:
B: COB; **F:** COF; **G:** COG; **H:** Heat Seal; **S:** SMT; **T:** TAB; **O:** Others

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	5

4. Application

This specification is applied to the 3.5 inch QVGA supported TFT-LCD module, and can display 262k colors. The module is designed for PMP, GPS application and other electronic products which require flat panel display of digital signal interface.

5. Features

- QVGA (320×240 pixels) resolution.
- Display in 262k colors
- Line inversion mode with stripe type.
- On-chip voltage generator
- SYNC mode is supported for digital RGB input data format.

6. General Specifications

Item	Specifications	Unit
Screen Size	3.5 (Diagonal)	inch
Display Format	320RGB(H)×240(V)	dot
Active Area	70.08(H)×52.56(V)	mm
Dot Pitch	0.073(H)×0.219(V)	mm
Pixel Configuration	RGB Vertical Stripe	-
Display Mode	TN Type Transmissive Mode Normally White	-
Surface Treatment	Anti-Glare and Hard Coating(3H)	-
Viewing Direction	6 O'clock (The Gray Inversion will appear at this direction)	-
Outline Dimension	76.9(W)×63.9(H)×3.3(D)	mm
DC to DC circuit	Build-in	-
Weight	(32.5)	g

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	6

7. Absolute Maximum Ratings

7.1 Absolute Ratings of Environment

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	T _{ST}	-30	+80	°C	(1)
Operating Ambient Temperature	T _{OP}	-20	+70	°C	(1)

Note (1) Temperature and relative humidity range are shown in the figure below.

(a) 90%RH Max. ($T_a \leq 40^\circ\text{C}$).

(b) Wet-bulb temperature should be 39°C Max. ($T_a > 40^\circ\text{C}$).

(c) No condensation.

7.2 Electrical Absolute Ratings

7.2.1 TFT-LCD Module

($T_a = 25 \pm 2^\circ\text{C}$, GND = $V_{SS} = 0\text{V}$)

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Digital Power Supply Voltage	V _{CC}	$V_{SS} - 0.3$	5.0	V	-

7.2.2 Backlight Unit

($T_a = 25 \pm 2^\circ\text{C}$)

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Forward current	I _f	-	(50)	mA	(1)
Reverse voltage	V _R	-	(25)	V	(1)

Note (1) Permanent damage to the device may occur if maximum values are exceeded or reverse voltage is loaded.

8. Electrical Characteristics

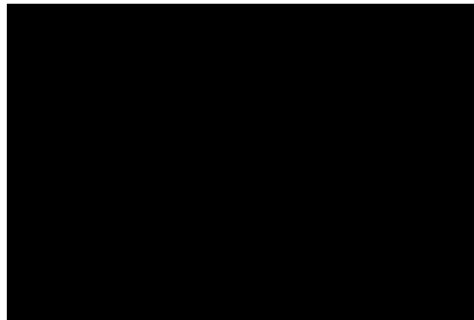
8.1 TFT-LCD Module

(Ta=25±2°C)

Item	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Power Supply Voltage	V _{CC}	2.5	3.3	3.6	V	-
Power Supply Current	I _{CC}	-	15.6	22.0	mA	(1)
Input High Threshold Voltage	V _{IH}	0.8V _{CC}	-	V _{CC}	V	-
Input Low Threshold Voltage	V _{IL}	0	-	0.2V _{CC}	V	-
Power Consumption	P _L	-	51.48	72.6	mW	(1)
VSYNC Frequency	F _V	-	60	90	Hz	-
HSYNC Frequency	F _H	-	15.72	22.35	KHz	-
DCLK Frequency	DCLK	-	6.5	10	MHz	-

Note (1) The specified power consumption is under the conditions at V_{CC}=3.3V, F_V=60Hz, whereas a power dissipation check pattern below is displayed.

Black Pattern / 0 Gray



Active Area

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	8

8.2 Backlight Unit

(Ta=25±2℃)

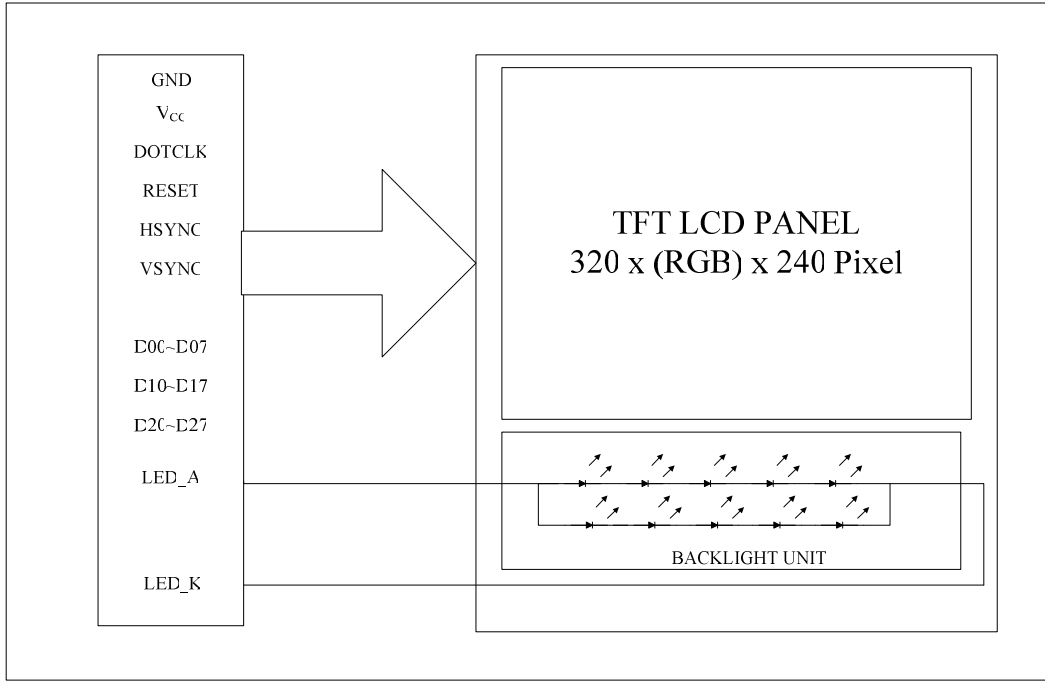
Item	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
LED Voltage	VL	-	(16.5)	-	V	(1)
LED Current	IL	-	(40)	-	mA	(1)
Power Consumption	P _{BL}	-	(660)	-	mW	(1)
LED Life Time(25℃)	-	10000	30000	-	hr	(2)

Note (1) The driving design of backlight unit is dependent on serial consideration of 5S2P LEDs.

Note (2) LED life time is defined as under 25±2℃, when the average brighten decrease to 50% of original brightness

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	9

9. Block Diagram
TFT-LCD Module with Backlight Unit



EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	10

10. Input / Output Terminals Pin Assignment

10.1 TFT-LCD Module (CVILUX CF25541D0R0-05)

Pin No.	Symbol	I/O	Description
1	LED_K	I	LED_cathode
2	LED_K	I	LED_cathode
3	LED_A	I	LED_anode
4	LED_A	I	LED_anode
5	NC	I	No connection
6	NC	I	No connection
7	NC	I	No connection
8	RESET	I	Reset
9	NC	I	No connection
10	NC	I	No connection
11	NC	I	No connection
12	D20	I	Blue data(LSB)
13	D21	I	Blue data
14	D22	I	Blue data
15	D23	I	Blue data
16	D24	I	Blue data
17	D25	I	Blue data
18	D26	I	Blue data
19	D27	I	Blue data(MSB)
20	D10	I	Green data(LSB)
21	D11	I	Green data
22	D12	I	Green data
23	D13	I	Green data
24	D14	I	Green data
25	D15	I	Green data
26	D16	I	Green data
27	D17	I	Green data(MSB)
28	D00	I	Red data(LSB)
29	D01	I	Red data
30	D02	I	Red data

Pin No.	Symbol	I/O	Description
31	D03	I	Red data
32	D04	I	Red data
33	D05	I	Red data
34	D06	I	Red data
35	D07	I	Red data(MSB)
36	HSYNC	I	Line synchronization signal.
37	VSYNC	I	Frame synchronization signal.
38	DOTCLK	I	Dot Colck signal
39	NC	I	No connection
40	NC	I	No connection
41	V _{CC}	I	For system power supply.
42	V _{CC}	I	For system power supply.
43	NC	I	No connection
44	NC	I	No connection
45	NC	I	No connection
46	NC	I	No connection
47	NC	I	No connection
48	NC	I	No connection
49	NC	I	No connection
50	NC	I	No connection
51	NC	I	No connection
52	NC	I	No connection
53	GND	I	Ground
54	GND	I	Ground

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	13

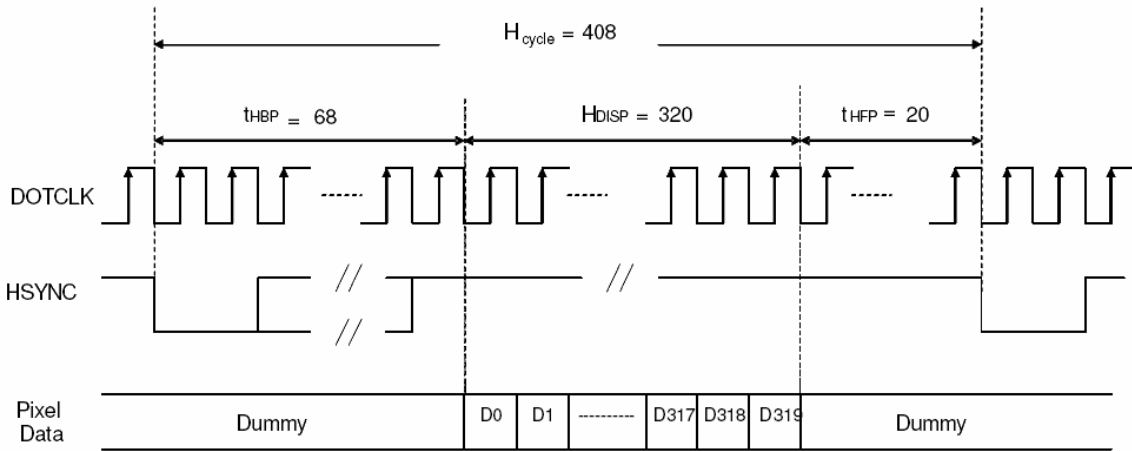
11. Interface Timing

11.1 Input Signal Characteristics

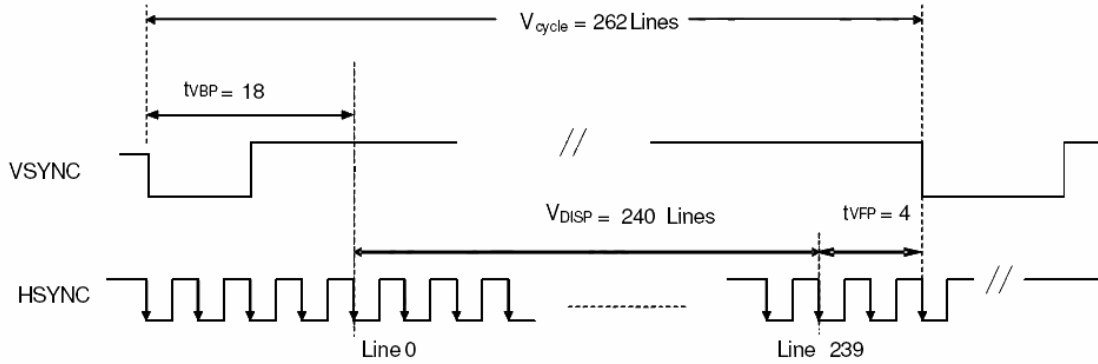
11.1.1 Digital Parallel RGB Interface (960×240 resolution)

Characteristics	Symbol	Min.	Typ.	Max.	Unit	
		24 bit	24 bit	24 bit		
DOTCLK Frequency	fDOTCLK	-	6.5	10	MHz	
DOTCLK Period	tDOTCLK	100	154	-	ns	
Horizontal Frequency (Line)	fH	-	14.9	22.35	KHz	
Vertical Frequency (Refresh)	fV	-	60	90	Hz	
Horizontal Back Porch	tHBP	-	68	-	tDOTCLK	
Horizontal Front Porch	tHFP	-	20	-	tDOTCLK	
Horizontal Data Start Point	tHBP	-	68	-	tDOTCLK	
Horizontal Blanking Period	tHBP + tHFP	-	88	-	tDOTCLK	
Horizontal Display Area	HDISP	-	320	-	tDOTCLK	
Horizontal Cycle	Hcycle	-	408	450	tDOTCLK	
Vertical Back Porch	tVBP	-	18	-	Lines	
Vertical Front Porch	tVFP	-	4	-	Lines	
Vertical Data Start Point	tVBP	-	18	-	Lines	
Vertical Blanking Period	tVBP + tVFP	-	22	-	Lines	
Vertical Display Area	NTSC	VDISP	-	240	-	Lines
	PAL		280(PALM=0)			
			288(PALM=1)			
Vertical Cycle	NTSC	Vcycle	-	262	350	Lines
	PAL		313			

11.2 Waveform



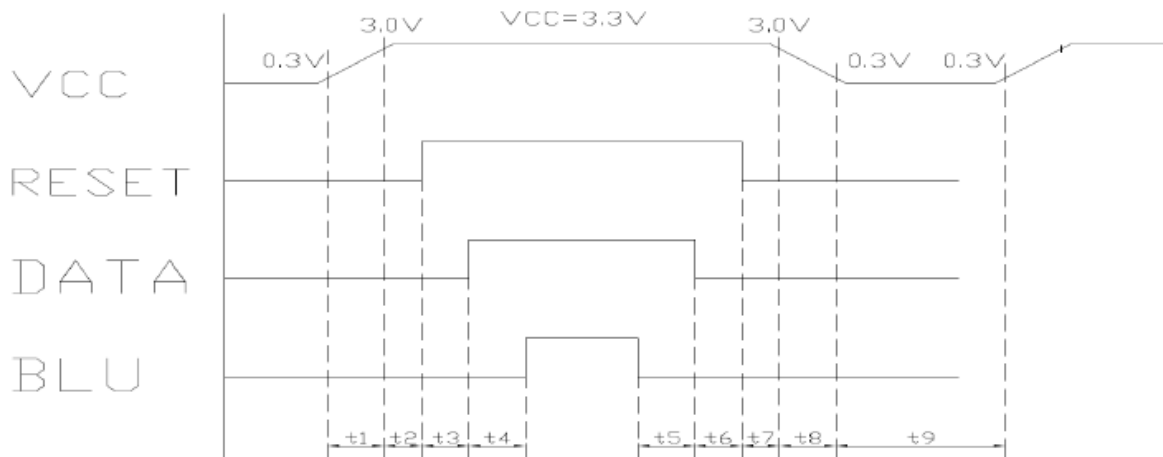
Horizontal Data Transaction Timing



Vertical Data Transaction Timing

Data Transaction Timing in Parallel RGB (24 bit) Interface (SYNC Mode)

11.3 Power On / Off Sequence



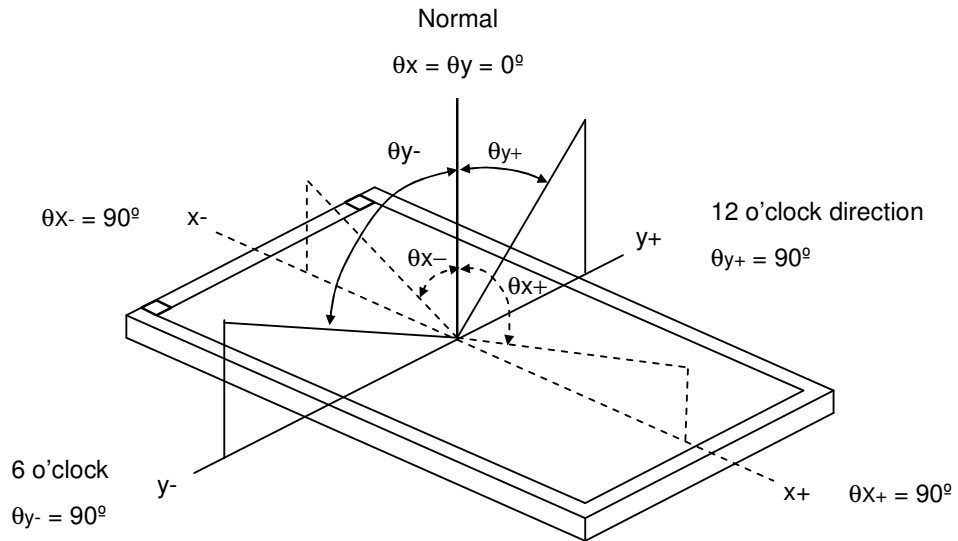
- | | | |
|-------------------|-------------------|-------------------------|
| $T1 \leq 10ms$ | $200ms \leq T5$ | $1 \text{ sec} \leq T9$ |
| $10\mu s \leq T2$ | $50ms \leq T6$ | |
| $50ms \leq T3$ | $10\mu s \leq T7$ | |
| $200ms \leq T4$ | $T8 \leq 10ms$ | |

12. Optical Characteristics

The optical characteristics should be measured in a dark environment (≤ 1 lux) or equivalent state with the methods shown in Note (4).

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit	Note
Contrast Ratio		CR	$\theta_x=0^\circ, \theta_y=0^\circ$ Viewing Normal Angle	300	(450)	-	-	(2)
Response Time		T_{R+T_F}		-	50	-	ms	(3)
Luminance(Center)		Y		700	(800)	-	cd/m ²	(4)
Brightness uniformity		BUNI		75	(80)	-	%	(5)
Color Chromaticity	Red	Rx		0.562	0.612	0.662	-	(1),(4)
		Ry	0.303	0.353	0.403	-		
	Green	Gx	0.268	0.318	0.368	-		
		Gy	0.525	0.575	0.625	-		
	Blue	Bx	0.088	0.138	0.188	-		
		By	0.050	0.100	0.150	-		
	White	Wx	0.265	0.315	0.365	-		
		Wy	0.311	0.361	0.411	-		
Viewing Angle	Horizontal	θ_{x+}	CR \geq 10	55	(70)	-	deg.	
		θ_{x-}		55	(70)	-		
	Vertical	θ_{y+}		40	(55)	-		
		θ_{y-}		50	(70)	-		

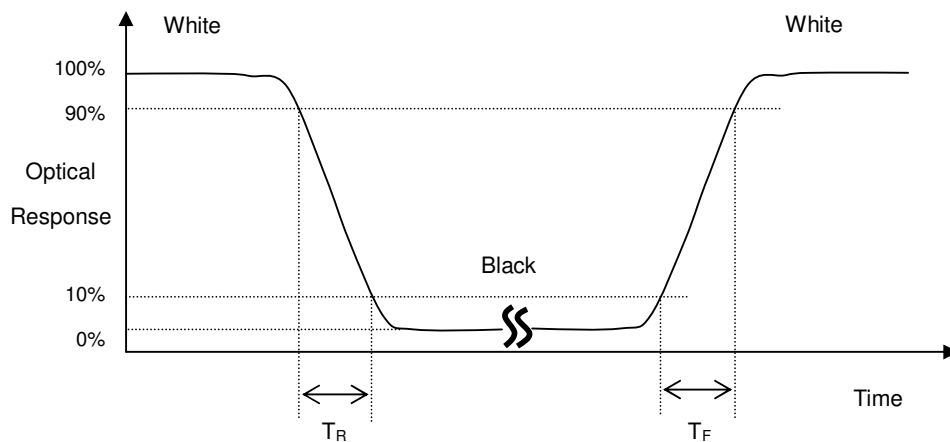
Note (1) Definition of Viewing Angle (θ_x , θ_y):



Note (2) Definition of Contrast Ratio (CR):

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

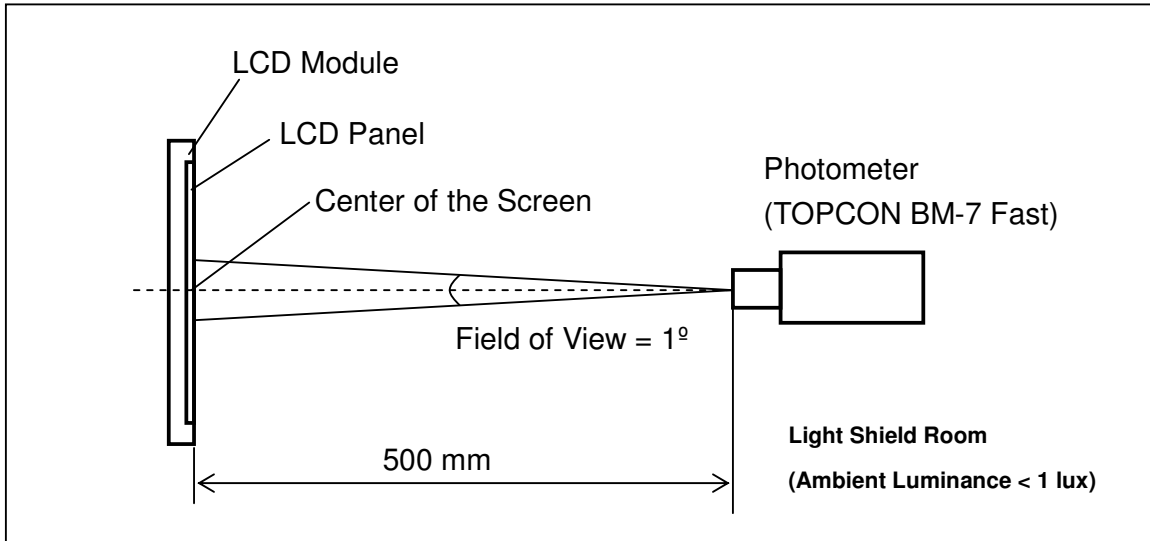
Note (3) Definition of Response Time (T_R , T_F):



EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	18

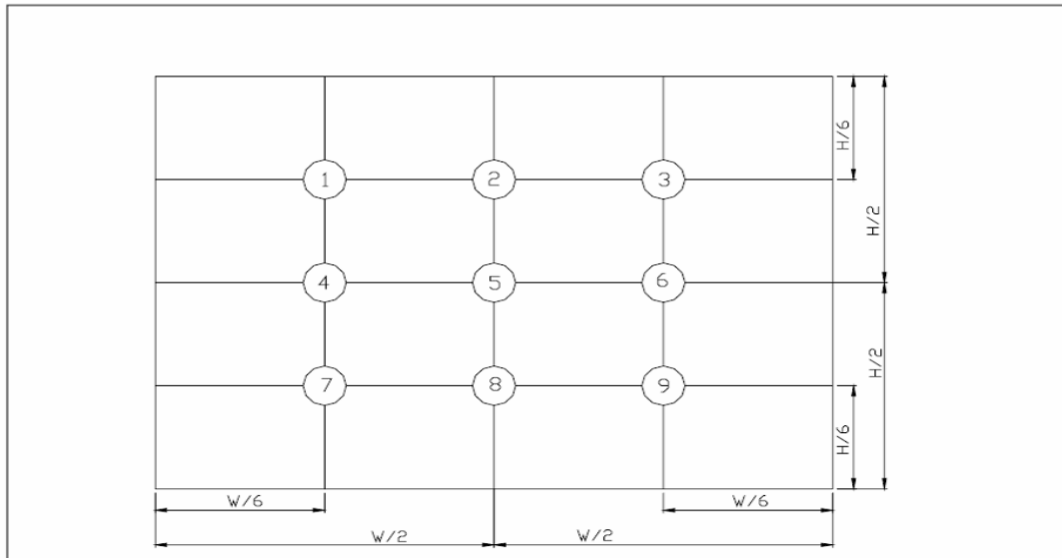
Note (4) Measurement Set-Up:

The LCD module should be stabilized at a given temperature for 30 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 30 minutes in a windless room.



Note (5) Definition of brightness uniformity

$$\text{Brightness uniformity} = (\text{Min Luminance of 9 points}) / (\text{Max Luminance of 9 points}) \times 100\%$$



(單位 : mm)

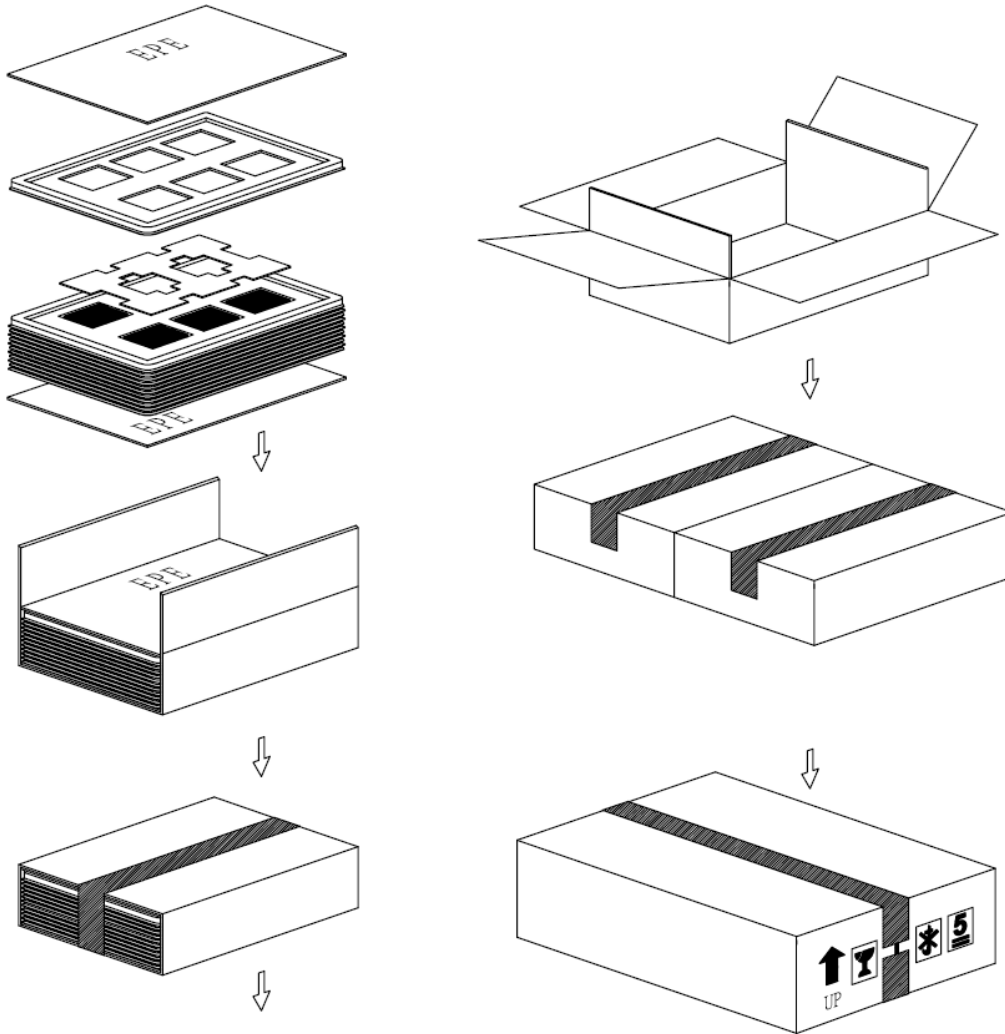
EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	19

13. Reliability Test

No.	Test Items	Test Condition	Remark
1	High Temperature Storage Test	T _a = 80°C 240 hours	-
2	Low Temperature Storage Test	T _a = -30°C 240 hours	-
3	High Temperature Operation Test	T _a = 70°C 240 hours	-
4	Low Temperature Operation Test	T _a = -20°C 240 hours	-
5	High Temperature and High Humidity Operation Test	T _a =60°C 90%RH 240 hours	-
6	Electro Static Discharge Test (non-operating)	-Panel Surface/Top Case : 150pF, 330Ω Air: ±15kV, Contact: ±8kV	-
7	Mechanical Shock Test (non-operating)	Half sine wave, 80G, 11ms 3 times shock of each six surfaces	-
8	Vibration Test (non-operating)	Sine wave, 10 ~ 55 ~ 10Hz, 3 axis, 2 hours/axis	-
9	Thermal Shock Test (non-operating)	-20°C (30min) ~ 70°C (30min), 100 cycles	-
10	Drop Test(with Carton)	Height: 80cm 1 corner, 3 edges, 6 surfaces	-

14. Packaging

Packing Method



PARTS LIST					
	ITEM	SIZE(LxWxH) unit:mm	MATERIAL	Q.T.Y	NOTE
1	TRAY	372.0x262.0x16.0	PET	28	
2	CARD BOARD(P01)	816.0x375.0x3.5	CARTON	2	
3	CARD BOARD(P02)	945.0x275.0x3.5	CARTON	2	
4	CARD BOARD(P03)	375.0x265.0x3.5	CARTON	4	
5	INTERNAL BOX(S01)	400.0x290.0x150.0	CARTON	2	
6	EXTERNAL BOX(L02)	600.0x420.0x170.0	CARTON	1	
7	EPE Form	285.0x197.0x2.0	EPE	26	
8	PRODUCT	76.9x63.9x3.3		156	

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	21

15. Precautions

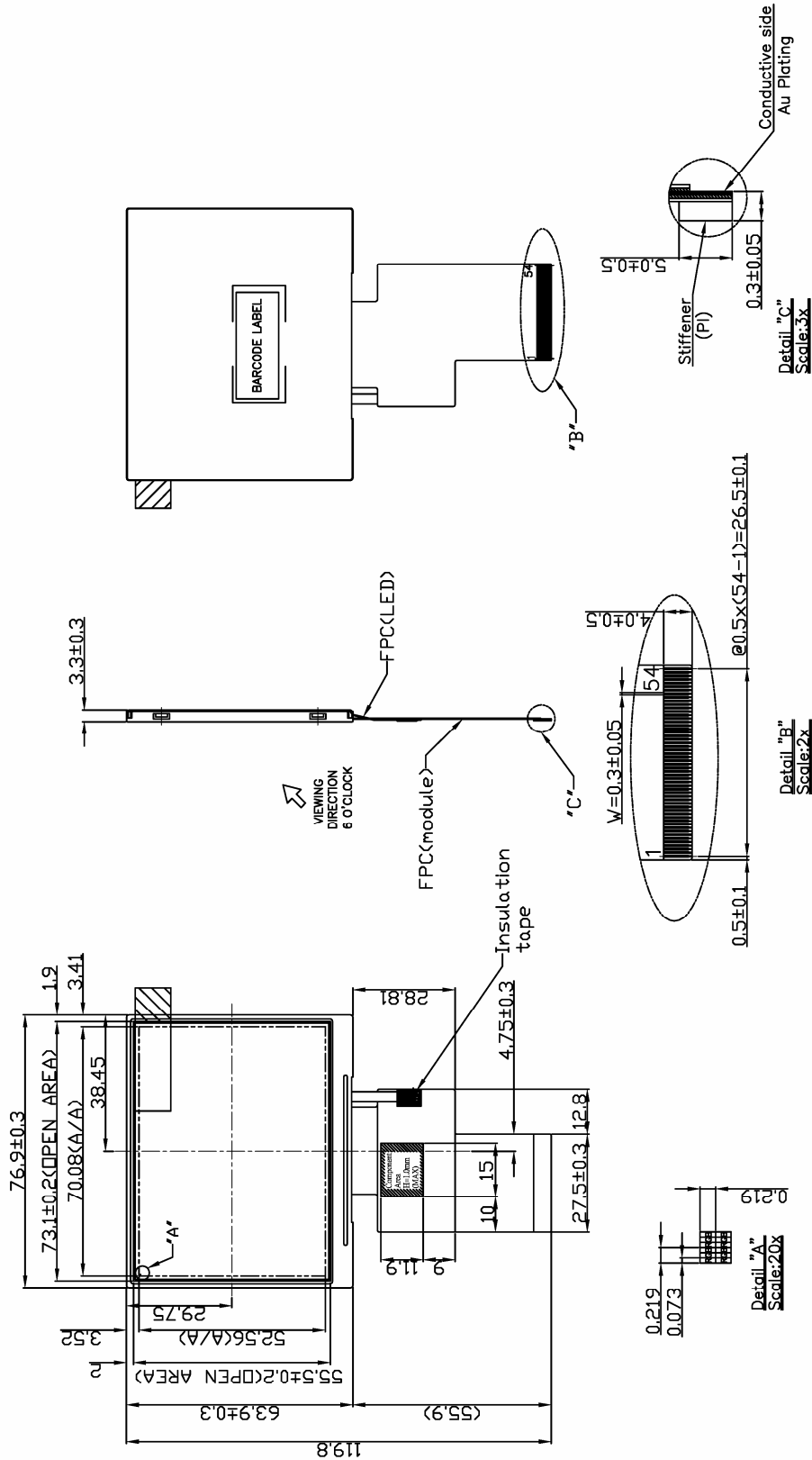
15.1 Assembly and Handling Precautions

- (1) Do not apply rough force such as bending or twisting to the module during assembly.
- (2) It's recommended to assemble or to install a module into the user's system in clean working areas. The dust and oil may cause electrical short or worsen the polarizer.
- (3) Don't apply pressure or impulse to the module to prevent the damage of LCD panel and Backlight.
- (4) Always follow the correct power-on sequence when the LCD module is turned on. This can prevent the damage and latch-up of the CMOS LSI chips.
- (5) Do not plug in or pull out the I/F connector while the module is in operation.
- (6) Do not disassemble the module.
- (7) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.
- (8) Moisture can easily penetrate into LCD module and may cause the damage during operation.
- (9) High temperature or humidity may deteriorate the performance of LCD module. Please store LCD module in the specified storage conditions.
- (10) When ambient temperature is lower than 10°C, the display quality might be reduced. For example, the response time will become slow.

15.2 Safety Precautions

- (1) 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, skin or clothes, it has to be washed away thoroughly with soap.
- (2) After the module's end of life, it is not harmful in case of normal operation and storage.

16.Outline Drawing



EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	23

17. Definition of Labels

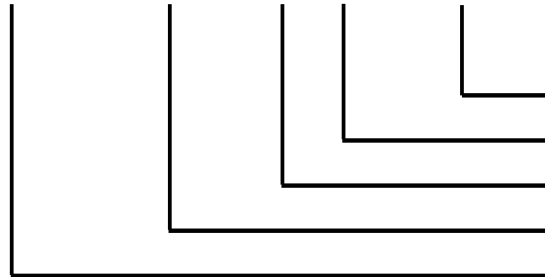
The bar code nameplate is pasted on each module as illustration, and its definitions are as following explanation.



(a) Module Name: VGG322425-6UFLWA

(b) Serial ID:

A B C D E F G H I J K L M



Serial No.
Revision Code
Factory Code
Manufactured Date
Screen Size

Serial ID includes the information as below:

(a) Screen size (Diagonal): Inch Code (ABCD)

3.5" → 0350

10.4" → 1040

(b) Manufactured Date: Year, Month, Day (EFG)

Year (E)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mark	0	1	2	3	4	5	6	7	8	9

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	24

Month (F)

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Mark	1	2	3	4	5	6	7	8	9	A	B	C

Day (G)

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mark	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
Day	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Mark	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	

- (c) Factory Code (H):
For EVERVISION internal use.

- (d) Revision Code (I):
Cover all the change, for example: 1: Rev.1, 2: Rev.2, 3: Rev.3...etc.

- (e) Serial No. (JKLM):
Manufacturing sequence of product, for example: 0001~9999.

18. Incoming Inspection Standards

18.1 The environmental condition of inspection

The environmental condition and visual inspection shall be conducted as below.

- (1) Ambient temperature $25 \pm 5^{\circ}\text{C}$
- (2) Humidity: $60 \pm 5\%$ RH
- (3) Viewing distance is approximately 35 ~ 40 cm
- (4) Viewing angle is normal to the LCD panel as Fig _1(10°)
- (5) Ambient Illumination: 300 ~ 500 Lux for external appearance inspection

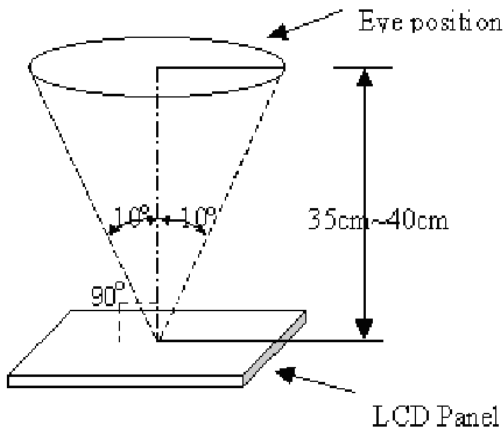


Fig _1

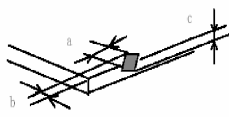
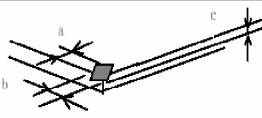
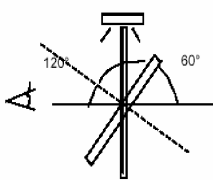
18.2 The defects classify of AQL as following:

Class of defects	AQL	Definition
Major	0.65%	It is defect that is likely to result in failure or to reduce materially the usability of the intended function.
Minor	1.5%	It is a defect that will not result in functioning problem with deviation classified.

EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	26

18.3 Inspection Parameters

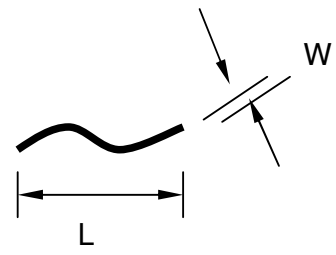
Item		Specification/Description			Note	
Display	Function	No Display			-	
		Malfunction			-	
Operating	Contrast ratio	Out of Spec			-	
	Line defect	No obvious Vertical and Horizontal line defect in bright , dark and colored.			-	
	Point Defect (red,green,blue,dark , white)	Item	Acceptable number			Note: 1、4、 5、6
			A	B	Total	
		BRIGHT DOT	$N \leq 0$	$N \leq 2$	$N \leq 6$	
		DARK DOT	$N \leq 2$	$N \leq 4$		
		TOTAL DOT	$N \leq 2$	$N \leq 4$		
TWO ADJACENT DOT		NOT ALLOWED				
THREE OR MORE ADJACENT DOT	NOT ALLOWED					
External Inspection (non-operating)	Scratch on the polarizer	L(mm)	W(mm)	Acceptable number	Note:2	
		$L \leq 2.5$	$W \leq 0.1$	3		
		$L > 2.5$	$W > 0.1$	0		
	Dent or bubble on the polarizer	Dimension(mm)		Acceptable number	Note:3	
		$D \leq 0.3$		3		
		$D \leq 0.1$		Disregard		
	Foreign material on the polarizer	Dimension(mm)		Acceptable number	Note:3	
		$D \leq 0.5$		2		
		$D \leq 0.1$		Disregard		

Item		Specification/Description			Note
Touch Panel	Scratch	L(mm)	W(mm)	Acceptable number	Note:2
		$L \leq 10$	$W < 0.05$	Disregard	
			$0.05 \leq W < 0.1$	$N \leq 4$	
			$W \geq 0.1$	0	
	Foreign Materials (Linear shape)	$L \leq 10$	$W < 0.05$	Disregard	Note:2
			$0.05 \leq W < 0.1$	$N \leq 3$	
			$W \geq 0.1$	0	
	Foreign Materials (Circular shape)	Dimension(mm)		Acceptable number	Note:3
		$D \leq 0.25$		Disregard	
		$0.25 < D \leq 0.5$		$N \leq 6$	
$D > 0.5$		0			
Glass chipping				$a \leq 5.0\text{mm}$ $b \leq 3.0\text{mm}$ $c \leq t$ (t : Glass think)	Note:7
				$a \leq 3.0\text{mm}$ $b \leq 3.0\text{mm}$ $c \leq t$ (t : Glass think)	Note:7
Newton-ring	(In case of doubtful situations) Observe on 60° from the product surface under a while Fluorescent lamp (3-wavelength lamp).			Average diameter $\leq 1/3$ Touch Panel area Disregard.	Note:7

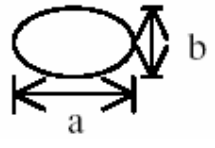
EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	28

Note1. Distance between point defect distance should be large than 5 mm.

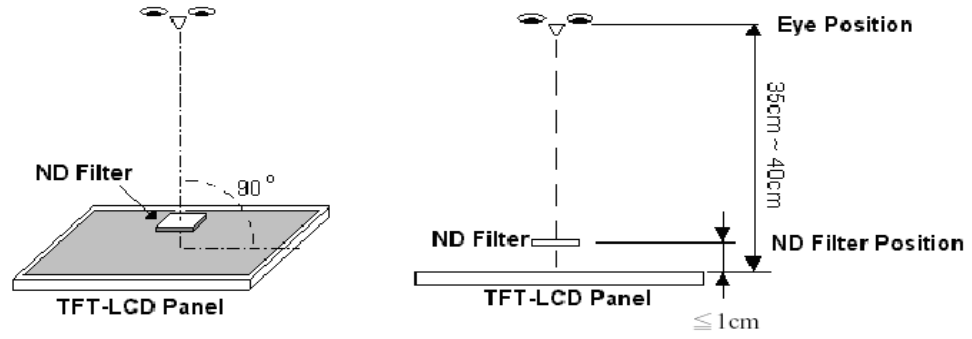
Note2.



Note3. D : Diameter $D=(a+b)/2$



Note4. Bright dot is defined through 6% transmission ND Filter as following.

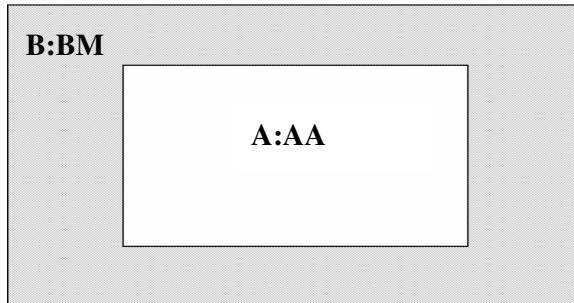


Note5. ADJACENT DOT



EVERVISION	MODEL NO.		PAGE
	VGG322425-6UFLWA	SPEC & SAMPLE	29

Note6.



18.4. Handling of LCM

- (1) Don't give external shock.
- (2) Don't apply excessive force on the surface.
- (3) Liquid in LCD is hazardous substance. Must not lick and swallow. when the liquid is attach to your hand, skin, cloth etc. Wash it out thoroughly and immediately.
- (4) Don't operate it above the absolute maximum rating.
- (5) Don't disassemble the LCM.