勁佳光電股份有限公司
VBEST ELECTRONICS LTD.

Product Specification For LCD Module

(KVPF-7B-002-16)

Model NO. : VGG243237-7UFLWA(L.F)

REVISION : 1

■ APPROVAL FOR SPECIFICATIONS ONLY

☐ APPROVAL FOR SPECIFICATIONS AND SAMPLE

CUSTOMER :	APPROVED BY :
STD.	

VBEST LCM R&D CENTER

APPROVED BY	CHECKED BY	PREPARED BY	
4/25	4/25	4/25	4/25
DIRECTOR	MANAGER	Mechanism Engineer	Electronic Engineer

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RECORD OF REVISION

REV	COMMENT	PAGE	DATE
1	**Initial Release**	**25**	**2007/04/25**

MODULE NUMBERING SYSTEM

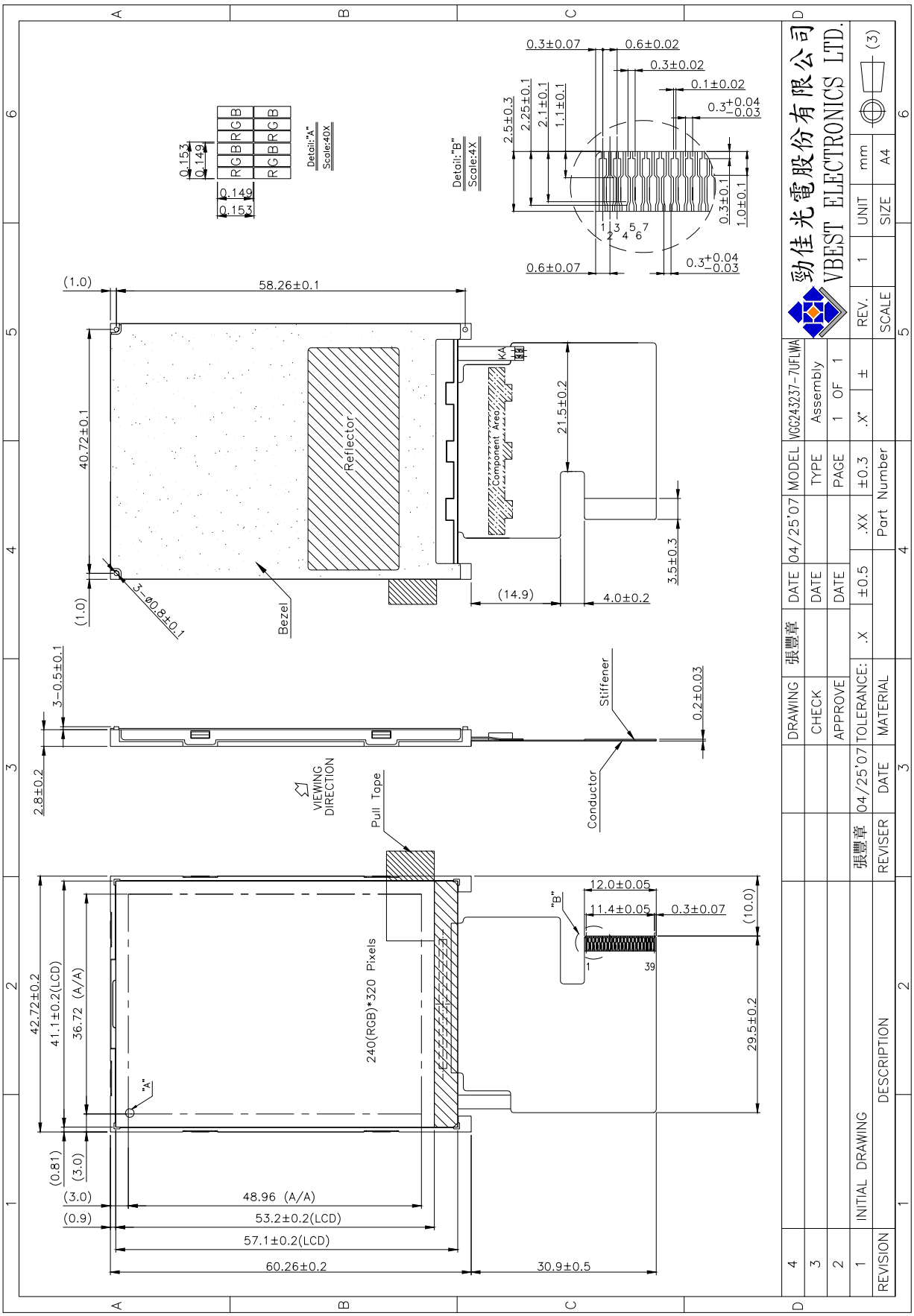
V B C 1216 01 – 1 R T N N A

- **A**: Serial No:A~Z
- **N**: Backlight Color:
  N:Without Backlight;
  A:Amber; **B:**Blue; **G:**Green;
  L:Yellow; **O:**Orange; **R:**Red;
  W:White; **Y:**YellowGreen;
  X:Others
- **N**: Backlight Type:
  N:Without Backlight; **E:**EL; **F:**CCFL;
  L:General LED; **H:**High NTSC LED ;
  R:RGB LED; **X:**Others
- **T**: 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
- **R**: LCD Type:
  R: Reflective/Positive;
  S : Reflective/Negative ;
  F : Transflective/Positive ;
  G: Transflective/Negative ;
  U: Transmissive/Positive ;
  T: Transmissive/Negative ; **N:**Others
- **1**: 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
- **01**: STD Product Serial No.: 01~99
  Customer Made Serial No.: A1,A2…A9,B1,B2…B9,C1..
- **1216**: Display Function:
  Segment Number / Characters Lines / Column and Row Dots / Length * Width of Other
- **C**: Display Type:
  C:Character Type; **G:**Graphic Type; **S:**Segment Type; **O:**Other
- **B**: Package Type:
  B:COB; **F:**COF; **G:**COG; **H:**Heat Seal; **S:**SMT; **T:**TAB; **O:**Others

GENERAL SPECIFICATION

ITEM	CONTENTS
Module Size	42.72 (W) * 91.16 (H) * 2.8 (T) mm
Display Size	2.4 inch
Display Format	240(RGB)* 320 Pixels
Active Area	36.72 (W) * 48.96 (H) mm
Pixel Pitch	0.153 * 0.153 mm
LCD Type	TFT (262K)/ Transmissive / Positive
View Angle	12 O'clock
Controller IC	ILI9320
Backlight Driver type	External Power
DC to DC circuit	Build-In
Approx. Weight	(13.0g)

LCM DRAWING


勁佳光電股份有限公司
VBEST ELECTRONICS LTD.
VGG243237-7UFLWA
Assembly
58.26±0.1
40.72±0.1
Reflector
Component Area
Bezel
21.5±0.2
3.5±0.3
4.0±0.2
(14.9)
3-ø0.8±0.1
3-0.5±0.1
2.8±0.2
Stiffener
0.2±0.03
Conductor
VIEWING DIRECTION
Pull Tape
240(RGB)*320 Pixels
42.72±0.2
41.1±0.2(LCD)
36.72 (A/A)
48.96 (A/A)
53.2±0.2(LCD)
57.1±0.2(LCD)
60.26±0.2
30.9±0.5
29.5±0.2
12.0±0.05
11.4±0.05
0.3±0.07
(10.0)
Detail:"A" Scale:40X
Detail:"B" Scale:4X
INITIAL DRAWING
DESCRIPTION
REVISION

ABSOLUTE MAXIMUM RATING(Ta=25℃ VSS=0V)

Item	Symbol	Min.	Type	Max.	Unit	Humidity
Supply Voltage	V_{CC}-V_{SS}	-0.3	-	+4.0	Volt	-
Operating Temperature	Top	-20	-	+70	℃	Note1
Storage Temperature	Tst	-30	-	+80	℃	Note2

Note1: Background color changes slightly depending on ambient temperature. This phenomenon is reversible.

Ta≦70℃: 75%RH max

Ta>70℃: absolute humidity must be lower than the humidity of 75%RH at 70℃

Note2: Ta at -30℃ will be <48hrs, at 80 ℃ will be <120hrs

ELECTRO-OPTICAL CHARACTERISTICS (Ta＝25℃)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply for Logic	IOVCC	-	-	2.8	-	Volt
Power Supply Current for LCM	I_{DD}	IOVCC=2.8V	-	4.6	6.5	mA

OPTICAL CHARACTERISTICS

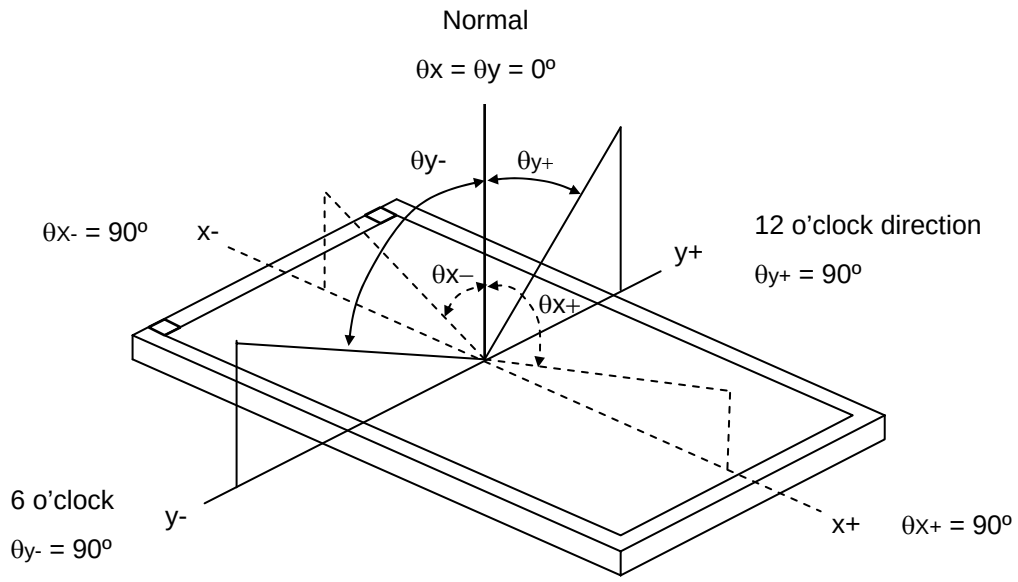
The optical characteristics should be measured in a dark environment (≦ 1 lux) or equivalent state with the methods shown in Note (4).

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit	Note
Contrast Ratio		CR	θ_x=0°, θ_Y =0° Viewing Normal Angle	-	300	-	-	(2)
Response Time		$T_{R+}T_F$		-	30	40	ms	(3)
Viewing angle	Horizontal	θ_X+	CR≥10	-	45	-	Degree	(1),(4)
		θ_X-		-	45	-		
	Vertical	θ_Y+		-	35	-		
		θ_Y-		-	15	-		

Color of CIE coordinate:

Item		Symbol	Condition	Min.	Typ.	Max.	Brightness
Chromaticity Coordinates (Transmissive)	**Red**	**x**	**θ = ϕ = 0° LED Backlight Color Degree X=0.30 Y=0.30 Brightness =2300cd/m²**	0.58	0.63	0.68	**30 cd/m²**
		y		0.29	0.34	0.39	
	Green	**x**		0.29	0.34	0.39	**115cd/m²**
		y		0.56	0.61	0.66	
	Blue	**x**		0.09	0.14	0.19	**23 cd/m²**
		y		0.04	0.09	0.14	
	White	**x**		0.24	0.29	0.34	**135 cd/m²**
		y		0.29	0.34	0.39	

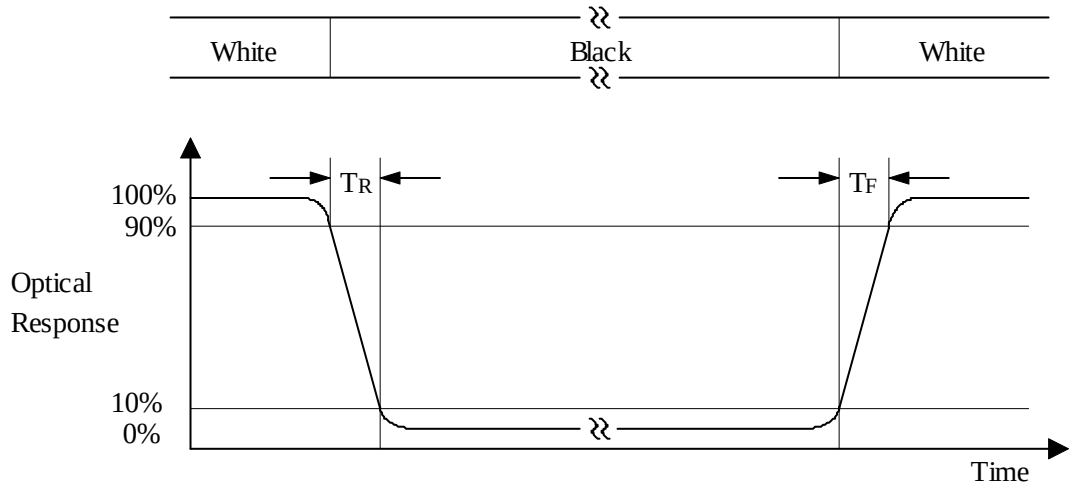
Note (1). Definition of Viewing Angle (θx, θy):



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

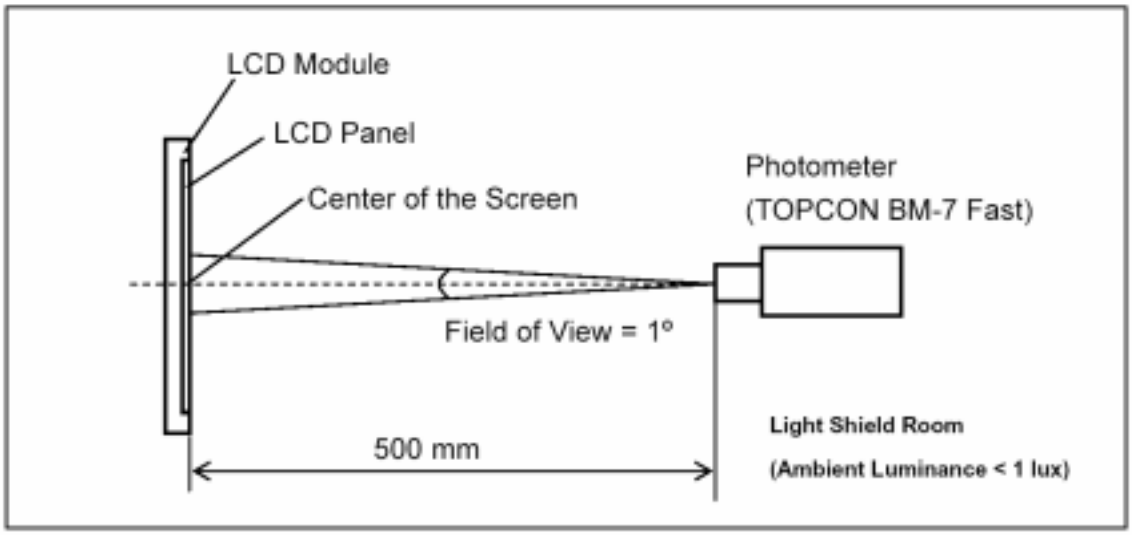
$$CR = \frac{\text{Luminance (brightness) all pixels "White"}}{\text{Luminance (brightness) all pixels "dark"}}$$

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



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.

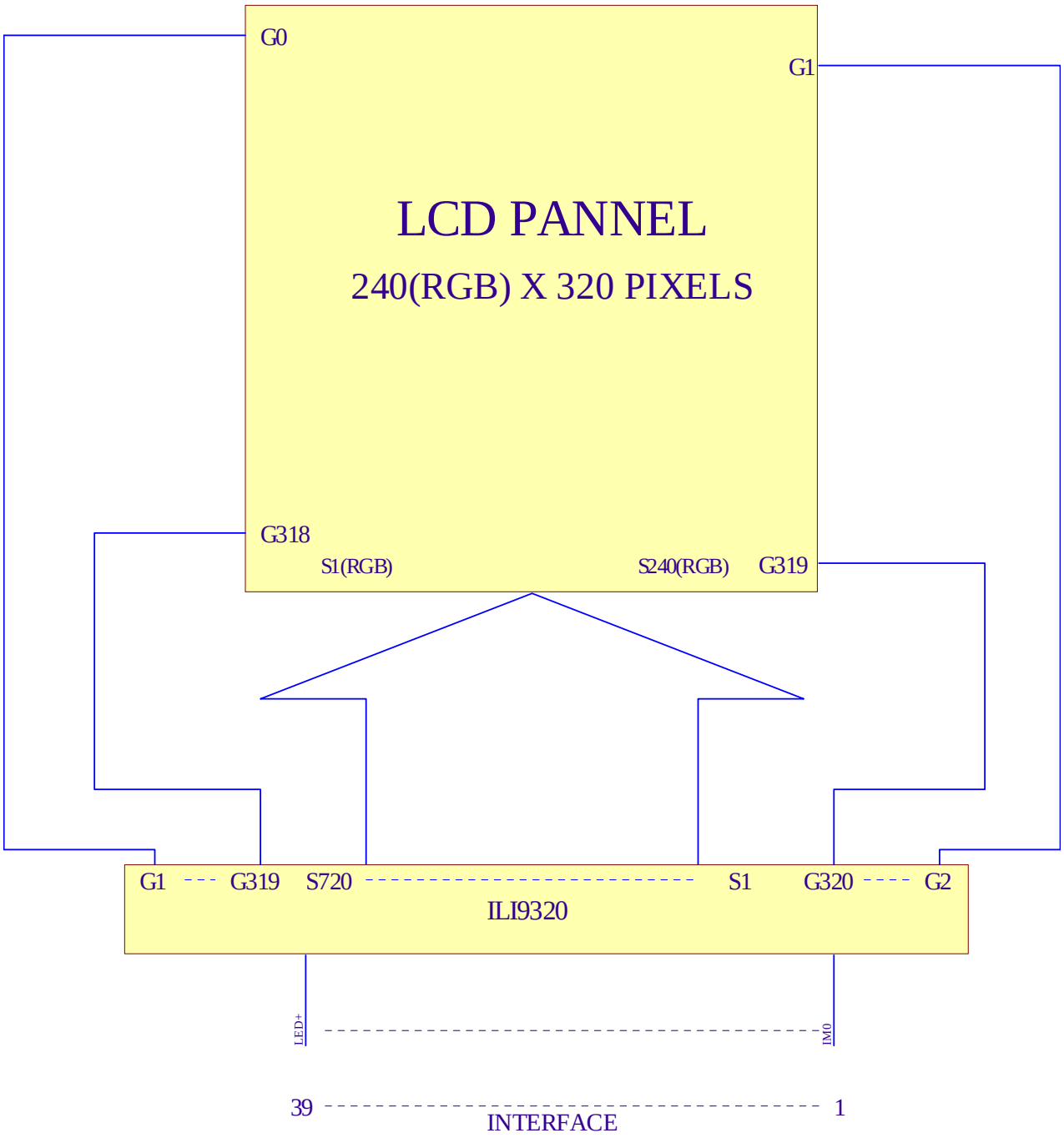


INTERFACE PIN ASSIGNMENT

<table>
<tr><th>No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>IM0</td><td rowspan="3">Select the MPU system interface mode.
<table>
<tr><th>IM3</th><th>IM2</th><th>IM1</th><th>IM0</th><th>MPU-Interface</th><th>DB Pin in use</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>Setting invalid</td><td>-</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>Setting invalid</td><td>-</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>I80-system 16-bit interface</td><td>DB[17:10],DB[8:1]</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>I80-system 8-bit interface</td><td>DB[17:10]</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>ID</td><td>Serial Peripheral interface(SPI)</td><td>SDI,SDO</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>*</td><td>Setting invalid</td><td>-</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>Setting invalid</td><td>-</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td>Setting invalid</td><td>-</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td>I80-system 18-bit interface</td><td>DB[17:0]</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1</td><td>I80-system 9-bit interface</td><td>DB[17:9]</td></tr>
<tr><td>1</td><td>1</td><td>*</td><td>*</td><td>Setting invalid</td><td>-</td></tr>
</table></td></tr>
<tr><td>2</td><td>IM1</td></tr>
<tr><td>3</td><td>IM2</td></tr>
<tr><td>4</td><td>IM3</td><td>When the serial peripheral interface is selected,IM0 pin is used for the device code ID setting.</td></tr>
<tr><td>5</td><td>nRESET</td><td>A reset pin.
Initializes the IC with a low input. Be sure to execute a power-on reset after supplying power.</td></tr>
<tr><td>6</td><td>VSYNC</td><td>Frame synchronizing signal for RGB interface operation.
VSPL=’’0’’:Active low
VSPL=’’1’’Active high
Fix to DGND level when not in use.</td></tr>
<tr><td>7</td><td>HSYNC</td><td>Line synchronizing signal for RGB interface operation.
HSPL=”0”=Active low
HSPL=”1”:Active high
Fix to DGND level when not in use.</td></tr>
<tr><td>8</td><td>DOTCLK</td><td>Dot clock signal for RGB interface operation.
DPL = “0”: Input data on the rising edge of DOTCLK
DPL = “1”: Input data on the falling edge of DOTCLK
Fix to DGND level when not in use.</td></tr>
<tr><td>9</td><td>ENABLE</td><td>Data ENEABLE signal for RGB interface operation.
Low: Select(access enabled)
High: Not select(access inhibited)
The EPL bit inverts the polarity of the ENABLE signal.
Fix to DGND level when not in use.</td></tr>
</table>

10 ~ 27	DB17~DB0	An 18-bit parallel bi-directional data bus for MPU system interface mode. 8-bit I/F: DB [17:10] is used. 9-bit I/F: DB [17:9] is used. 16-bit I/F: DB [17:10] and DB [8:1] is used. 18-bit I/F: DB [17:0] is used. 18-bit parallel bi-directional data bus for RGB interface operation. 6-bit RGB I/F: DB [17:12] are used. 16-bit RGB I/F: DB[17:13] and DB[11:1] are used. 18-bit RGB I/F: DB[17:0] are used. Unused pins must be fixed DGND level.
28	SDO	SPI interface output pin. The data is outputted on the falling edge of the SCL signal. Let SDO as open when not in use.
29	SDI	SPI interface input pin. The data is latched on the rising edge of the SCL signal. Fix to DGND level when not in use.
30	nRD	A read strobe signal and enables an operation to read out data when the signal is low. Fix to DGND level when not in use.
31	nWR/SCL	A write strobe signal and enables an operation to write data when the signal is low. Fix to DGND level when not in use. SPI Mode: Synchronizing clock signal in SPI mode.
32	RS	A register select signal. Low: select an index or status register High: select a control register Fix to DGND level when not in use.
33	nCS	A chip select signal. Low: the IC is selected and accessible High: the IC is not selected and not accessible Fix to the DGND level when not in use.
34	GND	Ground
35	IOVCC	Power supply voltage.
36~37	GND	Ground
38	LED-	LED Cathode
39	LED+	LED Anode

BLOCK DIAGRAM



Set VcomH voltage: internal volume adjustment

BACKLIGHT

1. Standard Lamp Styles (Edge Lighting Type):
The LED chips are distributed over the edge light area of the illumination unit, which gives the less power consumption:

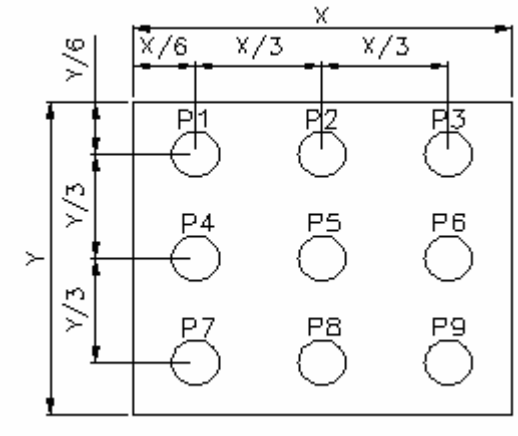
2. The Main Advantages of the LED Backlight are as Following:
2.1 The brightness of the backlight can simply be adjusted.
By a resistor or a potentiometer.

3. Data About LED Backlight:

PARAMETER	Sym.	Min.	Typ.	Max.	Unit	Test Condition	Note
Supply Current	I	-	20	-	mA	V=13.2V	
Supply Voltage	V	-	13.2	-	V	If=20mA	
Reverse Voltage	V_R	-	-	5	V	If=20mA	
Luminous Intensity for LCM	I_V	-	135	-	Cd/m^2	If=20mA	2
Uniformity for LCM	-	-	80	-	%	If=20mA	3
Life Time	-	50000	-	-	Hr.	V≦13.2V	4
Color	White						

NOTE:
1. Backlight Only
2. Average Luminous Intensity of P1-P9
3. Uniformity = Min/Max * 100%
4.LED life time defined as follows: The final brightness is at 50% of original brightness

Measured Method: (X*Y: Light Area)



Internal Circuit Diagram

(Effective spatial Distribution)
Hole Diameterø3mm ; 1 to 9 per Position Measured Luminous

RELIABILITY

Environmental Test

NO.	Test Item	Test Condition	Test Time	Note
1	Low temperature storage	-30±2°C	240H	—
2	High temperature storage	80±2°C	240H	—
3	Low temperature operation	-20±2°C	240H	—
4	High temperature operation	70±2°C	240H	—
5	High temperature/ Humidity storage	60±2°C 90%±5%RH	240H	Without dewing
6	Thermal shock storage	-30°C(30mim)→25°C(5min)→ +80°C(30min)	10 cycles	—

Mechanical Test

NO.	Test Item	Test Condition	Note
1	Vibration test	Sweep for 1 min at 10Hz, 55Hz, 10Hz, amplitude 1.5mm 15 minutes each in the X, Y and Z directions(Total 45 minutes)	Non operation state
2	Drop test	One angle, three edges and six sides. 75cm above the ground(no weight difference)	Non operation state

LIFE TIME

Item	Description
1.	Functions, Performance, appearance, etc. shall be free from remarkable deterioration within 50,000 hours under ordinary operating and storage conditions room temperature (25±10ºC) , normal humidity(45±20%RH),and in area not exposed to direct sun light.

SPECIFICATION OF QUALITY ASSURANCE

1.1 Purpose

This standard for quality assurance should affirm the quality of LCD module products to supply to _ _ _ _ （Purchaser） by VBEST ELECTRONIC LTD.（Supplier）

1.2 Standard for Quality Test

1.2.1Test method: According to MIL-STD-105E, General Inspection Level II take a single time.

1.2.2Electronic Assemblies Standard is according to IPC-AA610 REV. C . CLASS 2

1.2.3The defects classify of AQL as following list.

Classify	Inspect item	Nonconforming status	AQL	Remark
Critical defect	1.Display damage	（1） Non-Display	AQL=0.65	Product no function
		（2） Occur high current		
		（3） Segment missing		
		（4） LCD with wrong viewing direction		
		（5） Back light unlighted		
	2.Dimension not correct	（1） PCB and bezel out of specification	AQL=0.65	Can not assembly
Major defect	1.Display	（1） Display scanned Disorder	AQL=1.0	
		（2） display defect		
	2.Back-light	（1） Flash, duct		
		（2） Wong color		
Minor defect	1.LCD	（1）Dust（Black spot, white spot）	AQL=2.50	Appearance defect
		（2） Polarizer scratch		
		（3） Reflective polarizer with bubble		
		（4） Display segment transfigure		
		（5） Color out of the range of sample color		
Total			AQL=2.50	

1.3 NONCONFORMING ANALYSIS＆DEAL WITH MANNERS

1.3.1 Nonconforming analysis:

· Purchaser should supply the detail data of non-conforming sample and the improper state.

· After accepting the detail data from purchaser, the analysis of Nonconforming should be finished in two weeks.

· If supplier cannot finish analysis on time, must announce purchaser.

1.3.2 Disposition of nonconforming:

· If the customer will find any defected product during assembly time, supplier will replace the good product for every defect after.

· Both supplier and customer should analysis the reason and discuss the disposition of nonconforming when the reason of nonconforming is not sure.

1.4 Agreement items

Both sides should discuss together when the following problems happen.

1.4.1 There is any problem of standard of quality assurance, and both sides Think that must be modified.

1.4.2 There is any argument item which does not recorded in the standard of quality assurance.

1.4.3 Any other special problem.

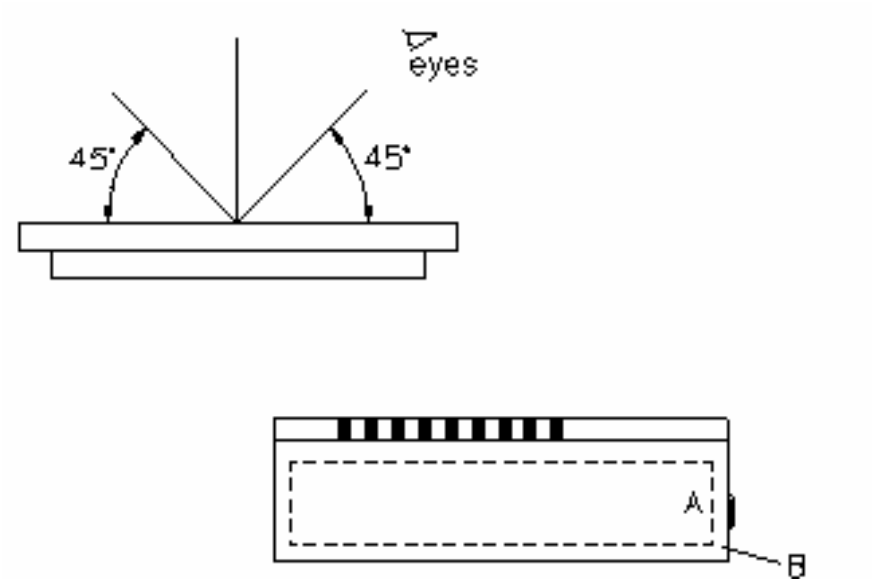
1.5 Standard of the product appearance test

1.5.1 Manner of appearance test

· The test must be under 20W×2 or 40W fluorescent light, and the distance of view must be at 30cm.

· When test the model of transmissive product must add the reflective plate.

· The test direction is base on about 45º of vertical line.



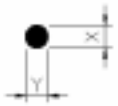
· Definition of area :

A area: viewing area

B area: out of viewing area(outside viewing area)

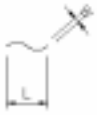
1.5.2 Standard of appearance inspection :（Unit: mm）

Name:LCM	Inspection Specification
Scope	LCM
Item	Criterion
1.Electronic	(1)Display scanned must be complete. (2)Can not non-display (3)The consumer current can not over the specification (4)Test result as the following must be reject: 1.Display incomplete 2.Occur high current 3.Display defect
2.Black spot , white spot , dust in LCD	(1)Round type : As following drawing Ψ=(X+Y) / 2



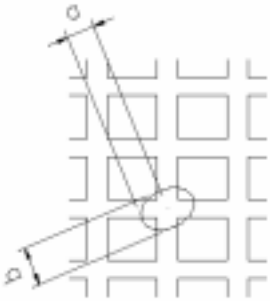
Size	Acceptable Q'TY	
Area	A	B
Ψ<0.1	Accep no dense	Accept
0.1<Ψ<0.2	2	No
0.2<Ψ<0.25	1	Dense
0.25<Ψ	0	

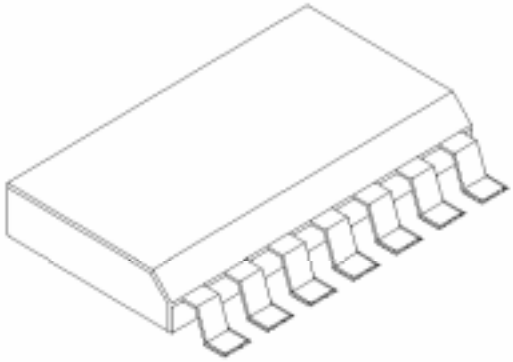
(2)Line type : (As following drawing)



Length	Width	Acceptable	
Area		A	B
Accept	0.02≧L	Accept no dense	Accept
3.0≧L	0.03≧L	2	No
2.5≧L	0.05≧L		Dense
---	0.05≧L	As round type	

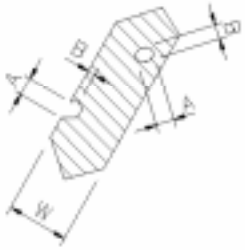
Total acceptable Q'TY (1) + (2) ≦ 3

<table>
<tr><td>Name:LCM</td><td>Inspection Specification</td></tr>
<tr><td>Scope</td><td>LCM</td></tr>
<tr><td>Item</td><td>Criterion</td></tr>
<tr><td>3.Segmenter transfigure(Digit, word , sign)</td><td>c.Alignment layer defect :
Ψ=(a+b) / 2
 
<table><tr><td>Size Ψ</td><td>Acceptable Q'TY</td></tr><tr><td>Ψ ≦0.4</td><td>Accept no dense</td></tr><tr><td>0.4 < Ψ ≦ 1.0</td><td>5</td></tr><tr><td>1.0 < Ψ ≦ 1.5</td><td>3</td></tr><tr><td>1.5 < Ψ ≦ 2.0</td><td>2</td></tr><tr><td>Total acceptable Q'TY</td><td>7</td></tr></table></td></tr>
<tr><td>4.Color</td><td>Sample of the lowest acceptable quality level.</td></tr>
<tr><td>5.Back-light</td><td>(1)The color of backlight should correspond its specification.
(2)Not allow flash and unlighten on backlight.
(3)Not allow larger than 0.25mm dust on backlight.</td></tr>
<tr><td>6.COB</td><td>(1)Not allow the PAD of wire bond exposed.
(2)Not allow the line type of wire bond on resin.
(3)Not allow bubble and dust on resin.</td></tr>
</table>

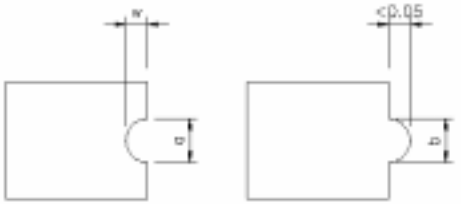
Name:LCM	Inspection Specification
Scope	LCM
Item	Criterion
7.PCB	(1)Not allow dirty and reminded solder on PCB.  (2)Not allow scratch on pin PAD.

<table>
<tr><td>Name:LCM</td><td>Inspection Specification</td></tr>
<tr><td>Scope</td><td>LCM</td></tr>
<tr><td>Item</td><td>Criterion</td></tr>
<tr><td>1.Polarizer scratch</td><td>Following the dust specification of time type.</td></tr>
<tr><td>2.Polarizer ripple</td><td>Not allow get in side Viewing Area .</td></tr>
<tr><td>3.Polarizer bubble</td><td>(1)Bubble could be seen by eyes exigently to be judged
According to black spot specification.
(2)Not allow polarize jutting glass outside.

<table>
<tr><td>Size</td><td colspan="2">Acceptable Q'TY</td></tr>
<tr><td>Area</td><td>A</td><td>B</td></tr>
<tr><td>Ψ<0.2</td><td>Accept no dense</td><td rowspan="5">Accept
No
Dense</td></tr>
<tr><td>0.2<Ψ<0.5</td><td>3</td></tr>
<tr><td>0.5<Ψ<1.0</td><td>2</td></tr>
<tr><td>1.0<Ψ</td><td>0</td></tr>
<tr><td>Total acceptable Q'TY</td><td>3</td></tr>
</table></td></tr>
<tr><td>4.Segmenter transfigure(Digit, word , sign)</td><td>(1)PIN hole , transfigure : (See below)
a. Segment display:

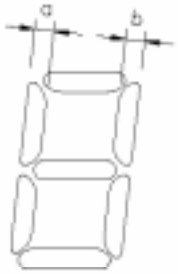
 

<table>
<tr><td>Width</td><td>Acceptable</td></tr>
<tr><td>W≦0.4</td><td>Ψ≦0.2 and Ψ≦1/2w</td></tr>
<tr><td>W≧0.4</td><td>Ψ≦0.25 and Ψ≦1/3v</td></tr>
</table>
Note:
W : Segment width
Ψ : (AB)/2
Only allow one defect in one segment.
Ψ under 0.10mm is acceptable.</td></tr>
</table>

Name:LCM	Inspection Specification
Scope	LCM
Item	Criterion
5.Segmenter transfigure(Digit, word , sign)	b.dot Matrix display: 

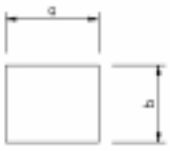
Size	Acceptable Q'TY
a , b ≦ 0.1	Accept no dense
(a + b) / 2 ≦ 0.1	Accept no dense
0.5 < Ψ < 1.0	3
Total acceptable Q'TY	7

(2)a.Segment are not same width



a ≧ b	a / b ≦ 4 / 3
a < b	a / b > 4 / 3

b.Segment are not equal no length and size within ±15% of production specification.



HANDLING PRECAUTION

1.Mounting Method

The panel of the LCD Module consists of two thin glass plates with polarizes which easily get damaged since the Module is fixed by utilizing fitting holes in the printed circuit board. Extreme care should be taken when handling the LCD Modules.

2.Caution of LCD handling & cleaning

When cleaning the display surface, use soft cloth with solvent (recommended below) and Wipe lightly.

-Isopropyl alcohol
-Ethyl alcohol
-Trichlorotriflorothane

Do not wipe the display surface with dry or hard materials that will damage the polarize surface.

Do not use the following solvent：

-Water
-Aromatics

3.Caution against static charge

The LCD Module use C-MOSLSI drivers, so we recommend end that you connect any unused input terminal to VDD or VSS, do not input any signals before power is turned on.

And ground your body, Work/assembly table. And assembly equipment to protect against static electricity.

4.Packaging

-Modules use LCD elements, and must be treated as such. Avoid in tense shock and falls from a height.

-To prevent modules from degradation. Do not operate or store them exposed directly to sunshine or high temperature/humidity.

5.Caution for operation

-It is indispensable to drive LCD’s with in the specified voltage limit since the higher voltage than the limit shorten LCD life.

An electrochemical reaction due to direct current causes LCD deterioration, Avoid the use of

-Response time will be extremely delayed at lower temperature than the operating temperature range and on the other hand at higher temperature LCD's show dark color in them.

However those phenomena do not mean malfunction or out of order with LCD's. Which will come back in the specified operating temperature range.

- If the display area is pushed hard during operation, some font will be abnormally displayed but it resumes normal condition after turning off once.

- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit.

Usage under the relative condition of 40 ℃, 50%RH or less is required.

6. Storage

In the case of storing for a long period of time (for instance. For years) for the purpose or replacement use, The following ways are recommended.

- Storage in a polyethylene bag with sealed so as not to enter fresh air outside in it, And with no desiccant.
- Placing in a dark place where neither exposure to direct sunlight nor light is. Keeping temperature in
- the specified storage temperature range.
- Storing with no touch on polarizer surface by the anything else. (It is recommended to store them as they have been contained in the inner container at the time of delivery)

7. Safety

It is recommendable to crash damaged or unnecessary LCD into pieces and wash off liquid crystal by using solvents such as acetone and ethanol. Which should be burned up later.

When any liquid crystal leaked out of a damaged glass cell comes in contact with your hands, please wash it off well with soap and water.

8.TERMS OF WARRANT

1.Acceptance inspection period

The period is within one month after the arrival of contracted commodity at the buyer’s factory site.

2.Applicable warrant period

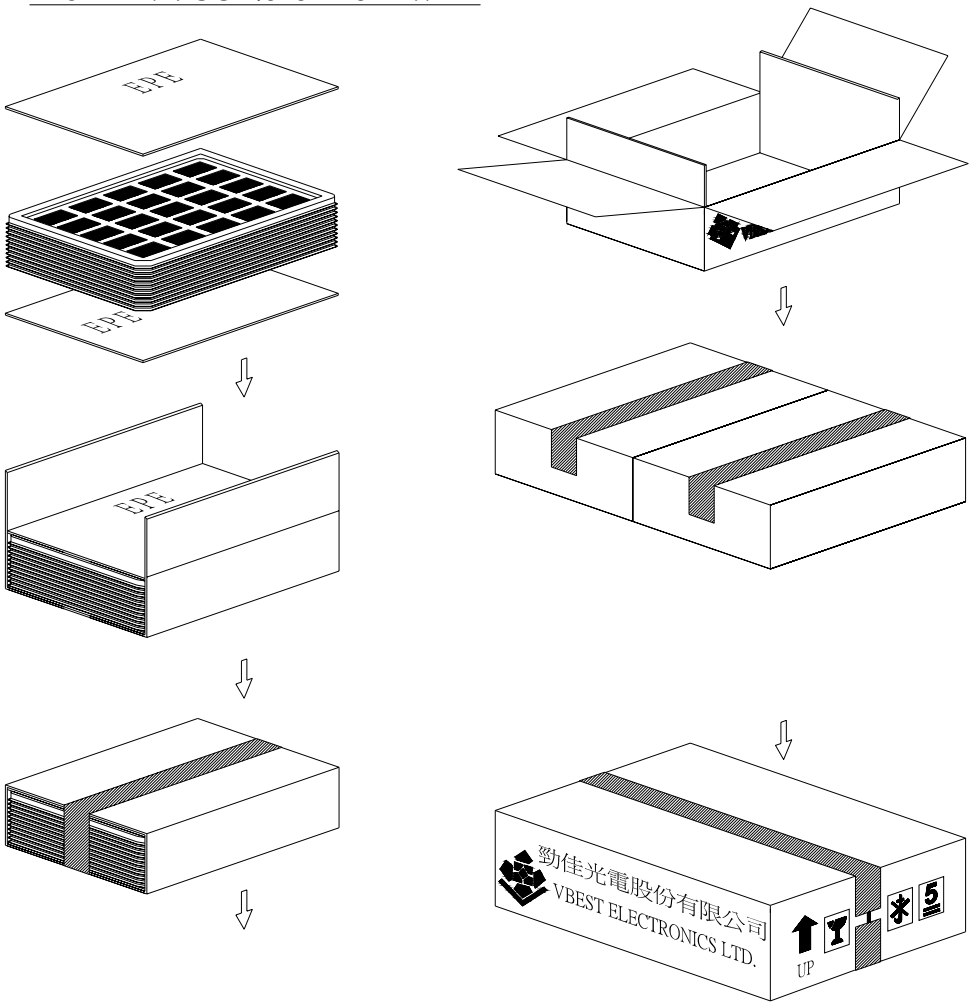
The period is within twelve months since the date of shipping out under normal using and storage conditions.

PACKING METHOD

Packing Method

CUSTOMER : STD.

MODEL : VGG243237-7UFLWA



	PARTS LIST				
	ITEM	SIZE(LxWxH) unit:mm	MATERIAL	Q.T.Y	NOTE
1	TRAY	372.0x262.0x11.9	PS	30	
2	CARD BOARD(P02)	945.0x275.0x3.5	CARTON	2	
3	CARD BOARD(P01)	816.0x375.0x3.5	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	PRODUCT	42.72x91.16x2.8		336	