POWERTIP TECH. CORP.

SPECIFICATIONS

CUSTOMER	:	**CCN026**
SAMPLE CODE	:	**SH240320T-040-L12Q**
MASS PRODUCTION CODE	:	**PH240320T-040-L12Q**
SAMPLE VERSION	:	**01**
SPECIFICATIONS EDITION	:	**002**
DRAWING NO. (Ver.)	:	**JLMD- PH240320T-040-L12Q (Ver.001)**
PACKAGING NO. (Ver.)	:	

Customer Approved

Date:

Approved	Checked	Designer
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■ Preliminary specification for design input

□ Specification for sample approval

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History of Version

Date	Ver.	Edi.	Description	Page	Design by
11/3/2008	**01**	**001**	**New Drawing**	**-**	**Yangheng**
11/6/2008	**01**	**002**	**Modify LED Number**	**6、8、11、12**	**yangheng**

Total: 26 Page

Contents

1. SPECIFICATIONS

1.1 Features

Main LCD Panel

Item	Standard Value
Display Type	240 * (R、G、B) * 320 Dots
LCD Type	a-Si TFT, Normally white TN mode, Transmissive
Screen size(inch)	2.4 (Diagonal)
Viewing Direction	12 O'clock
Color configuration	R.G.B. vertical stripe
Backlight	White LED
Interface	16-bit interface for i80system
Other(controller / driver IC)	ILI9325 (Support 65K colors)
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC Detail information please refer web side : http://www.powertip.com.tw/news/LatestNews.asp

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	42.72 (W) * 60.26 (L) * 4.2 (H)	mm

TFT LCD Panel & Touch Panel

Item	Standard Value	Unit
Viewing Area (T/P)	38.52 (W) * 54.06 (L)	mm
Active Area (T/P)	37.52 (W) * 53.06 (L)	mm
Active Area (LCD)	36.72 (W) * 48.96 (L)	mm

Note : For detailed information please refer to LCM drawing

1.3 Absolute Maximum Ratings

Module

Item	Symbol	Condition	Min.	Max.	Unit
System Power Supply Voltage	VCC1	-	-0.3	+4.6	V
	VCC2	-	-0.3	+4.6	V
	VCI	-	-0.3	+4.6	V
	VGH-GND	-	-0.3	+18.5	V
	GND-VGL	-	-0.3	+18.5	V
Input Voltage	VIN	-	-0.3	VCC1+0.3	V
Operating Temperature*1	TOP	-	-20	+70	°C
Storage Temperature*1	TST	-	-30	+80	°C
Storage Humidity*1	HD	Ta ≦ 40 °C	20	90	%RH

Note1: This value is not suitable for touch panel

1.4 DC Electrical Characteristics

Module GND = 0V, Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply Voltage1	VCC1	-	-	2.8	-	V
Power Supply Voltage2	VCC2	-	-	2.8	-	V
Power Supply Voltage3	VCI	-	-	2.8	-	V
Input High Voltage	VIH	-	0.8*VCC1	-	VCC1	V
Input Low Voltage	VIL	-	-0.3	-	0.2*VCC1	V
Output High Voltage	VOH	IOH=-0.1mA	0.8*VCC1	-	-	V
Output Low Voltage	VOL	IOL=0.1mA	-	-	0.2*VCC1	V
Supply Current	IDD	VCC1=VCC2=VCI =2.8V Pattern=Full display *1	-	TBD	TBD	mA

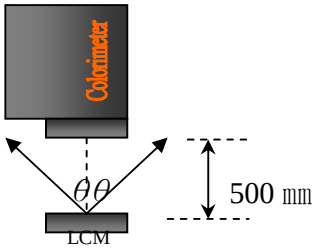
Note1 : Maximum current display

1.5 Optical Characteristics

TFT LCD Panel **VCC1 = 2.8V, Ta=25°C**

Item		Symbol	Condition	Min.	Typ.	Max.	unit	
Response time		Tr + Tf	Ta = 25°C θX, θY = 0°	-	31.36	-	ms	Note2
Viewing angle	Top	θY+	CR ≥ 10	-	40	-	Deg.	Note4
	Bottom	θY-		-	15	-		
	Left	θX-		-	40	-		
	Right	θX+		-	40	-		
Contrast ratio		CR	Ta = 25°C θX , θY = 0°	150	200	-	-	Note3
Color of CIE Coordinate (With B/L & T/P)	White	X		TBD	TBD	TBD	-	Note1
		Y		TBD	TBD	TBD		
	Red	X		TBD	TBD	TBD		
		Y		TBD	TBD	TBD		
	Green	X		TBD	TBD	TBD		
		Y		TBD	TBD	TBD		
	Blue	X		TBD	TBD	TBD		
		Y		TBD	TBD	TBD		
Average Brightness Pattern=white display (With B/L & T/P)		IV	IF= 60mA	TBD	TBD	-	cd/m2	Note1
Uniformity (With B/L & T/P)		△B	IF= 60mA	TBD	-	-	%	Note1

Note1:
1：△B=B(min) / B(max) × 100%
2：Measurement Condition for Optical Characteristics:
a：Environment: 25℃±5℃ / 60±20%R.H，no wind，dark room below 10 Lux at typical lamp current and typical operating frequency.
b：Measurement Distance: 500 ± 50 ㎜ ，(θ= 0°)
c：Equipment: TOPCON BM-7 fast，(field 1°)，after 10 minutes operation.
d：The uncertainty of the C.I.E coordinate measurement ±0.01，Average Brightness ± 4%

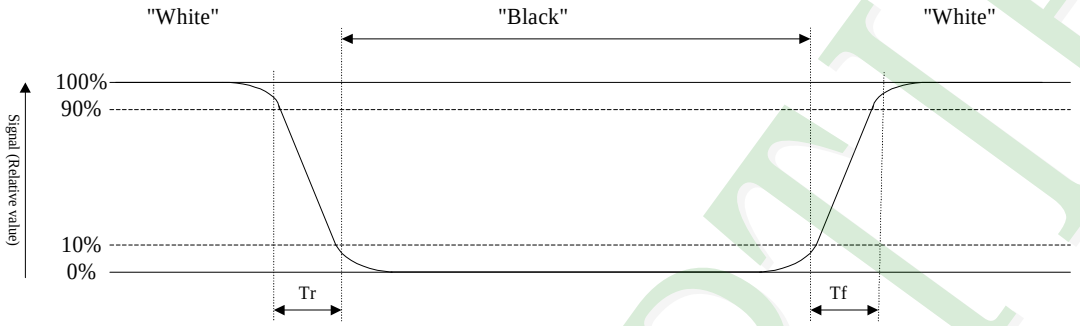


Colorimeter=BM-7 fast

Note2: Definition of response time:

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

Refer to figure as below:



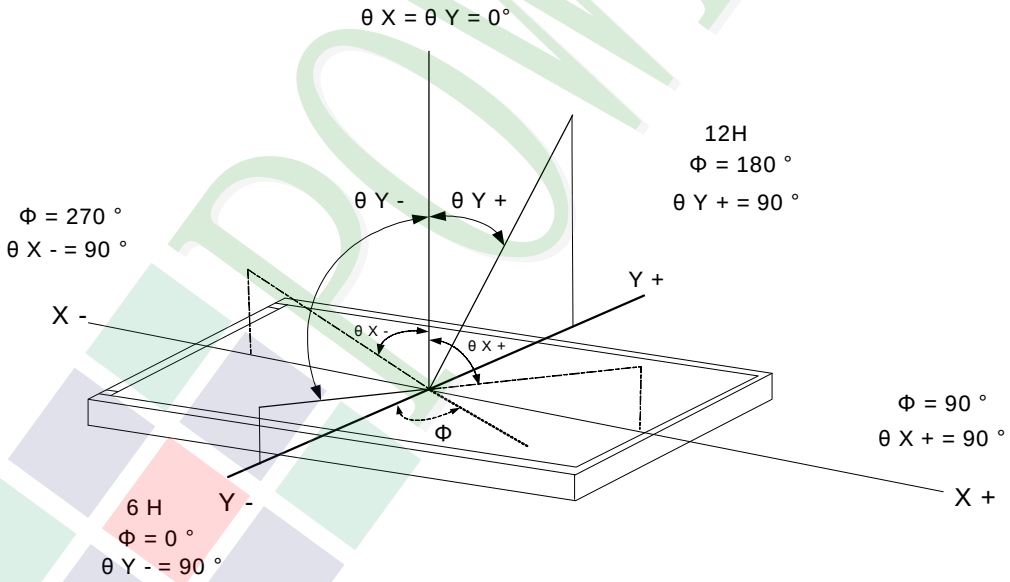
Note3: Definition of contrast ratio:

Contrast ratio is calculated with the following formula

$$\text{Contrast ratio (CR)} = \frac{\text{Photo detector output when LCD is at “White” state}}{\text{Photo detector output when LCD is at “Black” state}}$$

Note4: Definition of viewing angle:

Refer to figure as below:



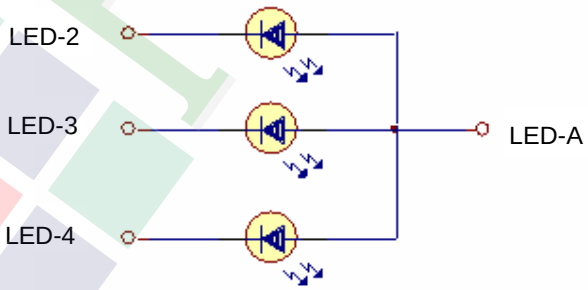
1.6 Backlight Characteristics

Maximum Ratings

Item	Symbol	Conditions	Min.	Max.	Unit
Forward Current	IF	Ta =25℃	-	120	mA
Forward Voltage	VF	Ta =25℃		4	V
Reverse Voltage	VR	Ta =25℃	-	5	V
Power Dissipation	PD	Ta =25℃	-	216	mW

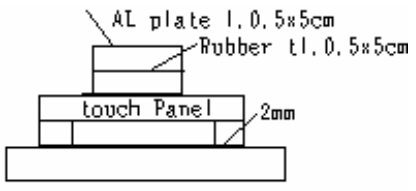
Electrical / Optical Characteristics

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF= 60mA	-	3.3	-	V
Average Brightness (without LCD & T/P)	IV	IF= 60mA	TBD	TBD	-	cd/m2
Color of CIE Coordinate (without LCD & T/P)	X		-	TBD	-	-
	Y		-	TBD	-	
Color	White					



1.7 Touch Panel Characteristics

1.7.1 General Standard Specification

Item	Specification
Input Method	Finger or Stylus pen.
ITO Glass	T=0.7mm,500Ω/□ ±150 Ω Glass.
ITO Film	T=0.18mm,270Ω/□ ±150 Ω Clear Type.
Operating Temperature Range	-20℃~60℃,20~90%RH. (Except for dew gathering)
Storage Temperature Range	-40℃~40℃,90%RH↓,41℃~70℃,60%RH↓. (Except for dew gathering)
Surface Hardness	3H- pressure 500gf , 45deg.
Hitting Durability	1,000,000 times min. (Tip R 8 mm & R0.8mm)
Pen Sliding Durability	100,000 times min. (Tip R0.8mm)
Insulation Impedance	DC25V 1min,20MΩ↑.
Light Transparency	82% min.
Linearity	±1.5%. (±1.5% After environmental and life test)
Linearity Force	80gf less input with stylus pen. (R0.8mm)
Activation Force	50gf(Typical 20gf) less individual point on with stylus pen. (R0.8mm)
Bouncing	< 10ms.
Impact Resistance	No damage when ψ9mm steel ball is dropped on the surface from 30 cm height at 1 time.
Flexible pattern Heat Seal Peeling Strength	500gf/cm. (peeling upward by 90deg)
Flexible pattern Bending Resistance	Bending 3 times by bending radius R1.0 mm The requirements in4-2shall be satisfied.
Flexible Pattern Insert / Pull Out Resistance	5times at least. The requirements in 4-2shall be satisfied.
Vibration Resistance	Not in operation :The requirements in 3 to 4 shall be satisfied after sweep vibration of 2G 15~55Hz(1min) is given for 30 min ,each in the directions of X,Y,Z.
Package Drop	No damage to the product. (1 corner edge,2 ridges,4 surfaces ,drop from 50 cm height)
Static load resistance	After 4.5Kg load for 1 min is Applied to the center area (25c ㎡)of the Touch panel ,the requirements in 3 and 4,shall be satisfied. 

1.7.2 Electrical Characteristics

Item	Specification
Operating Voltage	DC 5V. (Max : 7V DC)
Bouncing	<10ms. (Tip R 3.75mm, hardness 10°~20°, silicon rubber, 500gf operation : 40 mm/sec)
Insulation Resistance	20 MΩ or more. (DC 25V 1min)
Resistance Between Terminals	Direction X : 160Ω~ 640Ω. (Typical : 354Ω)
	Direction Y : 160Ω~ 640Ω. (Typical : 382Ω)
Linearity	± 1.5% Measuring method, Linearity(%)= $\frac{\Delta V}{EV - SV} x100$. ± 1.5%. (after environmental and life test) ΔV: The difference between the ideal voltage and measured voltage on the each measuring line. SV: Voltage of starting Points. EV: Voltage of Ending Points.

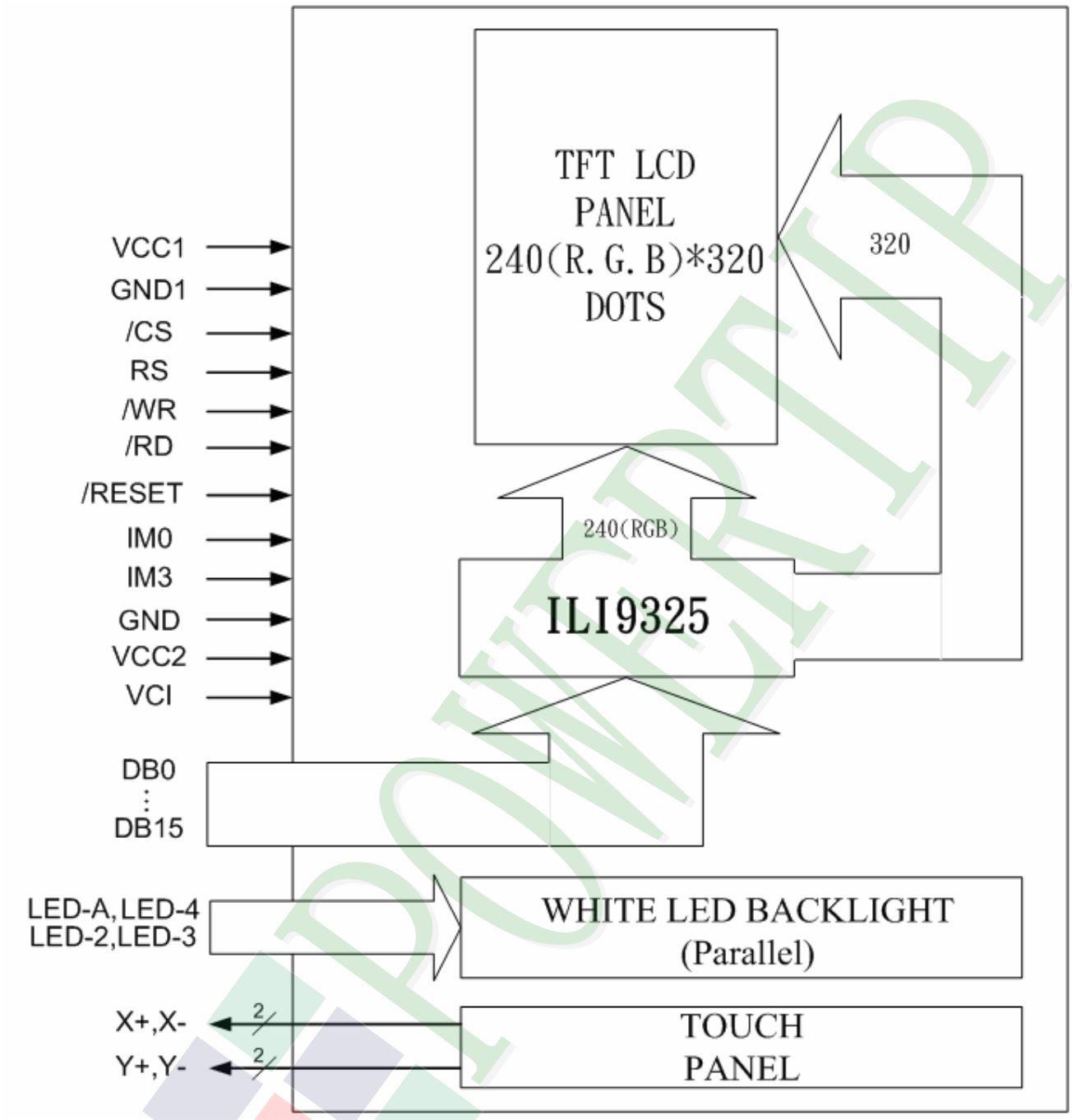
2. MODULE STRUCTURE

2.1 Counter Drawing

2.1.1 LCM Mechanical Diagram

*** See Appendix**

2.1.2 Block Diagram


TFT LCD
PANEL
240(R. G. B)*320
DOTS
320
240(RGB)
ILI9325
VCC1
GND1
/CS
RS
/WR
/RD
/RESET
IM0
IM3
GND
VCC2
VCI
DB0
DB15
LED-A,LED-4
LED-2,LED-3
WHITE LED BACKLIGHT
(Parallel)
X+,X-
Y+,Y-
2
2
TOUCH
PANEL

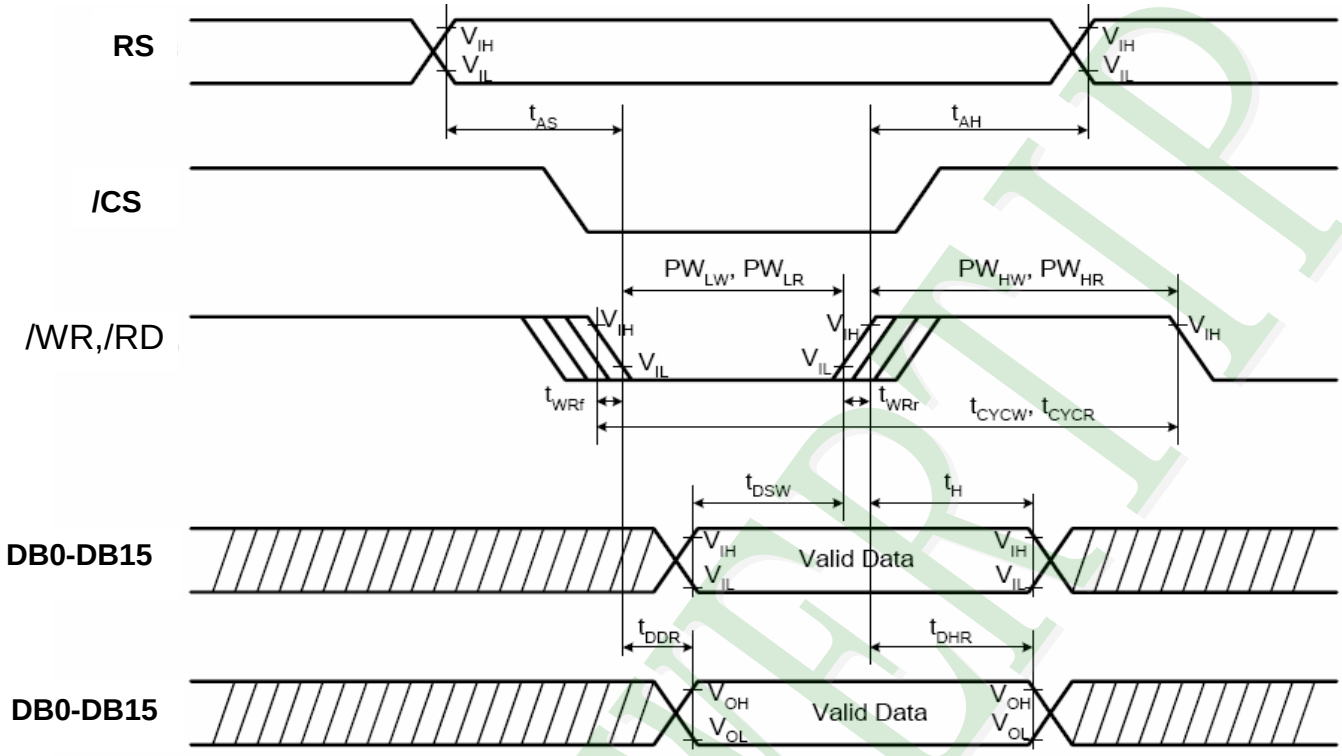
2.2 Interface Pin Description

Pin No.	Symbol	Function
1	DB0	Bi-directional data bus.
2	DB1	Bi-directional data bus.
3	DB2	Bi-directional data bus.
4	DB3	Bi-directional data bus.
5	GND1	System ground.(0V)
6	VCC1	A power supply for the internal logic.(+2.8V)
7	/CS	Chip select signal , Active “L”.
8	RS	Command / Display data selection. 0 : Command , 1 : Display data.
9	/WR	Write signal input , Active “L”.
10	/RD	Read signal input , Active “L”.
11	IM0	NC
12	X+	Touch Panel control pin.
13	Y+	Touch Panel control pin.
14	X-	Touch Panel control pin.
15	Y-	Touch Panel control pin.
16	LED-A	Power supply for LED Backlight Anode input.
17	LED-1	NC
18	LED-2	Power supply for LED Backlight Cathode input.
19	LED-3	Power supply for LED Backlight Cathode input.
20	LED-4	Power supply for LED Backlight Cathode input.
21	IM3	NC
22	DB4	Bi-directional data bus.
23	DB8	Bi-directional data bus.
24	DB9	Bi-directional data bus.
25	DB10	Bi-directional data bus.

Pin No.	Symbol	Function
26	DB11	Bi-directional data bus.
27	DB12	Bi-directional data bus.
28	DB13	Bi-directional data bus.
29	DB14	Bi-directional data bus.
30	DB15	Bi-directional data bus.
31	/RESET	Reset input pin. When /LCD-RESET is “L”, initialization is executed.
32	VCI	A supply voltage to the analog circuit.(+2.8V)
33	VCC2	A supply voltage to the interface pin.(+2.8V)
34	GND	System ground.(0V)
35	DB5	Bi-directional data bus.
36	DB6	Bi-directional data bus.
37	DB7	Bi-directional data bus.

2.3 Timing Characteristics

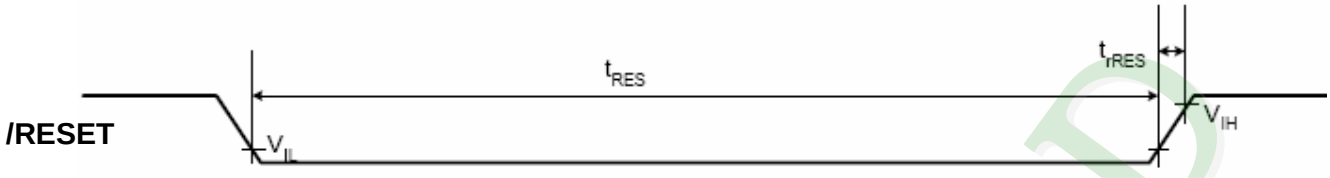
80-System Bus Interface



VCC1= 2.8V, Ta=25℃

Characteristic		Symbol	Unit	MIN.	Typ.	Max.
Bus cycle time	Write	tCYCW	ns	100	-	-
	Read	tCYCR	ns	300	-	-
Write low-level pulse width		PWLW	ns	50	-	500
Read low-level pulse width		PWLR	ns	150	-	-
Write high-level pulse width		PWHW	ns	50	-	-
Read high-level pulse width		PWHR	ns	150	-	-
Write/Read rise/fall time		tWRr，tWRf	ns	-	-	25
Setup time	Write (RS to /CS, /WR)	tAS	ns	10	-	-
	Read (RS to /CS, /WR)			5	-	-
Address hold time		tAH	ns	5	-	-
Write data setup time		tDSW	ns	10	-	-
Write data hold time		tH	ns	15	-	-
Read data delay time		tDDR	ns	-	-	100
Read data hold time		tDHR	ns	5	-	-

LCD Reset

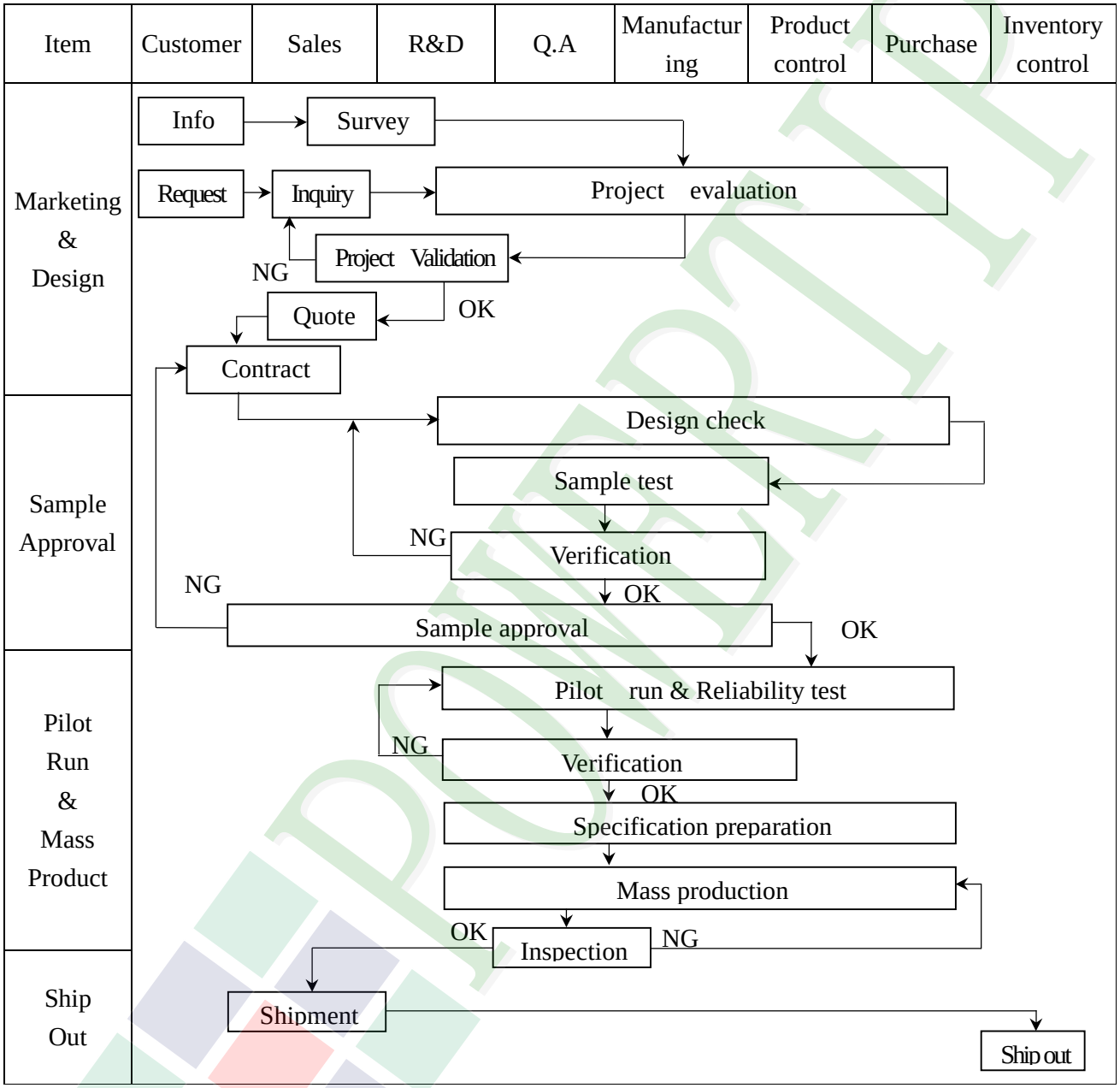


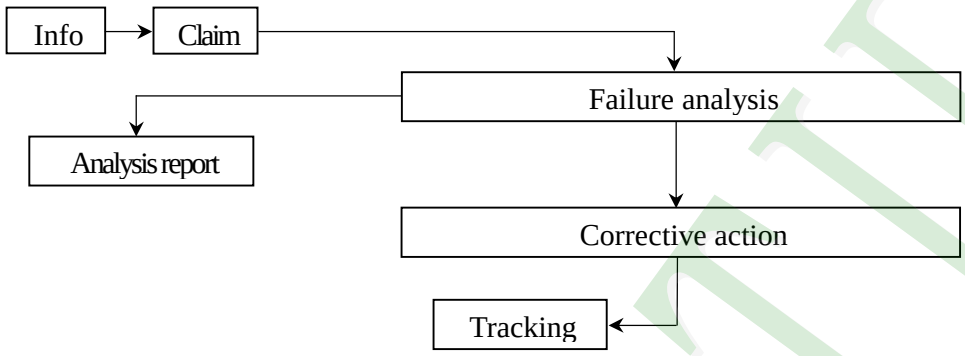
VCC1= 2.8V, Ta=25℃

Item	Symbol	Condition	Min.	Typ	Max.	Unit
Reset low-level width	tRES	-	1	-	-	ms
Reset rise time	trRES		-	-	10	us

3. QUALITY ASSURANCE SYSTEM

3.1 Quality Assurance Flow Chart



Item	Customer	Sales	R&D	Q.A	Manufacturing	Product control	Purchase	Inventory control
Sales Service								
Q.A Activity	1. ISO 9001 Maintenance Activities 2. Process improvement proposal 3. Equipment calibration 4. Education And Training Activities 5. Standardization Management							

3.2 Inspection Specification

◆Scope ：The document shall be applied to TFT-LCD Module for less than 3.5" (Ver.03).

◆Inspection Standard：MIL-STD-105E Table Normal Inspection Single Sampling Level Ⅱ.

◆Equipment：Gauge、MIL-STD、Powertip Tester、Sample

◆Defect Level：Major Defect AQL： 0.4 ； Minor Defect AQL： 1.5

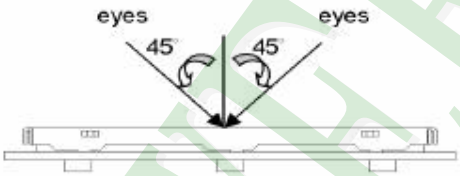
◆OUT Going Defect Level：Sampling.

◆Standard of the product appearance test：

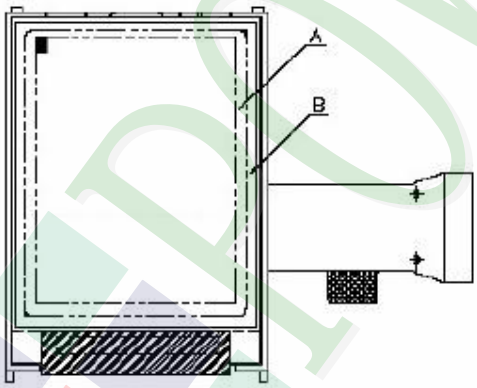
a. Manner of appearance test：

(1). The test best be under 20W×2 fluorescent light，and distance of view must be at 30 cm.

(2). The test direction is base on about around 45° of vertical line.



(3). Definition of area.



A area：viewing area

B area：Outside of viewing area

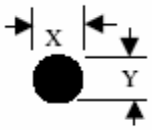
(4). Standard of inspection： (Unit：mm)

◆Specification For TFT-LCD Module Less Than 3.5" : (Ver. 03)

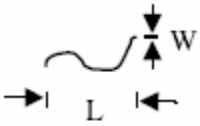
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td rowspan="3">01</td><td rowspan="3">Product condition</td><td>1.1 The part number is inconsistent with work order of production.</td><td>Major</td></tr>
<tr><td>1.2 Mixed product types.</td><td>Major</td></tr>
<tr><td>1.3 Assembled in inverse direction.</td><td>Major</td></tr>
<tr><td>02</td><td>Quantity</td><td>2.1 The quantity is inconsistent with work order of production.</td><td>Major</td></tr>
<tr><td>03</td><td>Outline dimension</td><td>3.1 Product dimension and structure must conform to structure diagram.</td><td>Major</td></tr>
<tr><td rowspan="5">04</td><td rowspan="5">Electrical Testing</td><td>4.1 Missing line character and icon.</td><td>Major</td></tr>
<tr><td>4.2 No function or no display.</td><td>Major</td></tr>
<tr><td>4.3 Display malfunction.</td><td>Major</td></tr>
<tr><td>4.4 LCD viewing angle defect.</td><td>Major</td></tr>
<tr><td>4.5 Current consumption exceeds product specifications.</td><td>Major</td></tr>
<tr><td>05</td><td>Dot defect
(Bright dot、Dark dot)
On -display</td><td>
<table>
<tr><th colspan="2">Item</th><th>Acceptance (Q'ty)</th></tr>
<tr><td rowspan="4">Dot Defect</td><td>Bright Dot</td><td>≦ 2</td></tr>
<tr><td>Dark Dot</td><td>≦ 3</td></tr>
<tr><td>Joint Dot</td><td>≦ 2</td></tr>
<tr><td>Total</td><td>≦ 3</td></tr>
</table>
5.1 Inspection pattern：full white , full black , Red , Green and blue screens.
5.2 It is defined as dot defect if defect area ＞1/2 dot.
5.3 The distance between two dot defect ≧5 mm.
</td><td>Minor</td></tr>
</table>

◆Specification For TFT-LCD Module Less Than 3.5" : (Ver. 03)

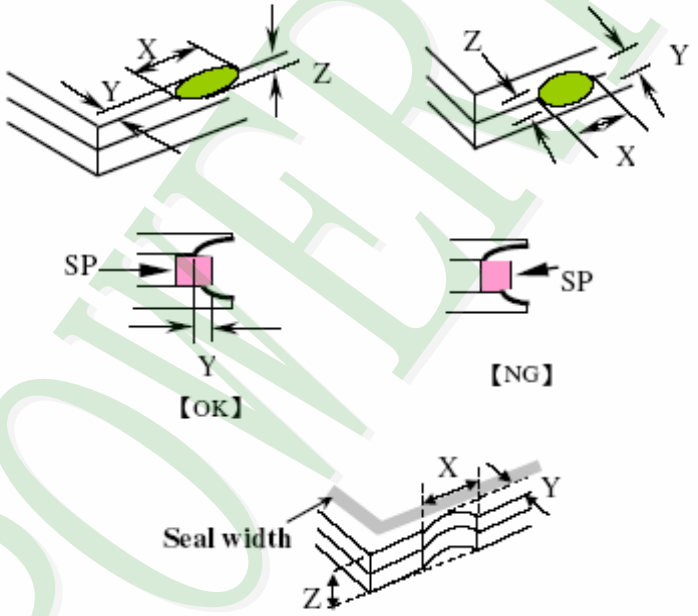
<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>06</td><td>Black or white dot、scratch、contamination

Round type
 

Φ＝(x＋y) / 2

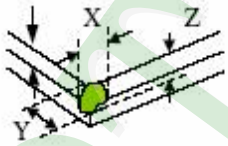
Line type
 
</td><td>6.1 Round type (Non-display or display) :
<table><tr><th rowspan="2">Dimension (diameter : Φ)</th><th colspan="2">Acceptance (Q'ty)</th></tr><tr><th>A area</th><th>B area</th></tr><tr><td>Φ ≦ 0.15</td><td>Ignore</td><td rowspan="5">Ignore</td></tr><tr><td>0.15 < Φ ≦ 0.20</td><td>2</td></tr><tr><td>0.20 < Φ ≦ 0.30</td><td>2</td></tr><tr><td>Φ > 0.30</td><td>0</td></tr><tr><td>Total</td><td>3</td></tr></table>
6.2 Line type(Non-display or display) :
<table><tr><th colspan="2">Dimension</th><th colspan="2">Acceptance (Q'ty)</th></tr><tr><th>Length (L)</th><th>Width (W)</th><th>A area</th><th>B area</th></tr><tr><td>---</td><td>W ≦ 0.03</td><td>Ignore</td><td rowspan="4">Ignore</td></tr><tr><td>L ≦5.0</td><td>0.03 <W ≦ 0.05</td><td>3</td></tr><tr><td>---</td><td>W >0.05</td><td>As round type</td></tr><tr><td colspan="2">Total</td><td>3</td></tr></table></td><td>Minor</td></tr>
<tr><td>07</td><td>Polarizer Bubble</td><td><table><tr><th rowspan="2">Dimension (diameter : Φ)</th><th colspan="2">Acceptance (Q'ty)</th></tr><tr><th>A area</th><th>B area</th></tr><tr><td>Φ ≦ 0.20</td><td>Ignore</td><td rowspan="4">Ignore</td></tr><tr><td>0.20 < Φ ≦ 0.50</td><td>3</td></tr><tr><td>Φ > 0.50</td><td>0</td></tr><tr><td>Total</td><td>3</td></tr></table></td><td>Minor</td></tr>
</table>

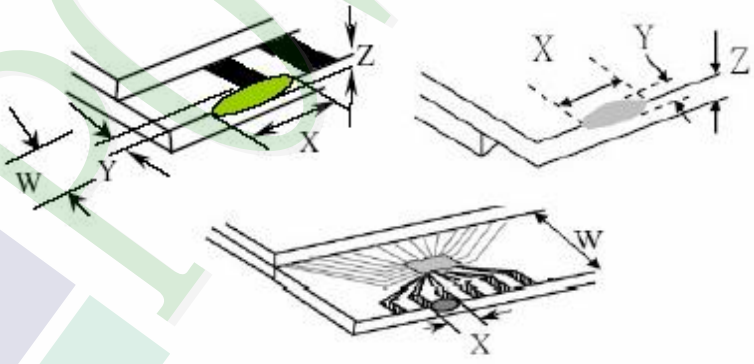
◆Specification For TFT-LCD Module Less Than 3.5" : (Ver. 03)

NO	Item	Criterion	Level
08	The crack of glass	Symbols : X : The length of crack Y : The width of crack. Z : The thickness of crack W : terminal length t : The thickness of glass a : LCD side length 8.1 General glass chip : 8.1.1 Chip on panel surface and crack between panels:  X: ≦ a; Y: Crack can't enter viewing area; Z: ≦1/2 t X: ≦ a; Y: Crack can't exceed the half of SP width.; Z: 1/2 t < Z ≦2 t	Minor

◆Specification For TFT-LCD Module Less Than 3.5" : (Ver. 03)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>08</td><td>The crack of glass</td><td>
Symbols :
X : The length of crack Y : The width of crack.
Z : The thickness of crack W : terminal length
t : The thickness of glass a : LCD side length

8.1.2 Corner crack :


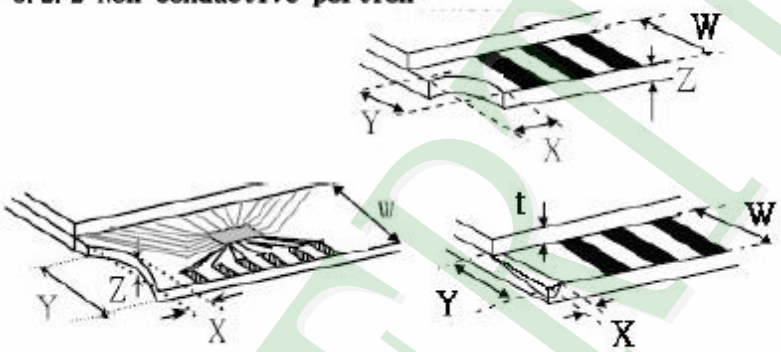
<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦1/5 a</td><td>Crack can't enter viewing area</td><td>Z ≦ 1/2 t</td></tr>
<tr><td>≦1/5 a</td><td>Crack can't exceed the half of SP width.</td><td>1/2 t < Z ≦ 2 t</td></tr>
</table>
8.2 Protrusion over terminal :
8.2.1 Chip on electrode pad :


<table>
<tr><th></th><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>Front</td><td>≦ a</td><td>≦ 1/2 W</td><td>≦ t</td></tr>
<tr><td>Back</td><td>≦ a</td><td>≦ W</td><td>≦ 1/2 t</td></tr>
</table>
</td><td>Minor</td></tr>
</table>

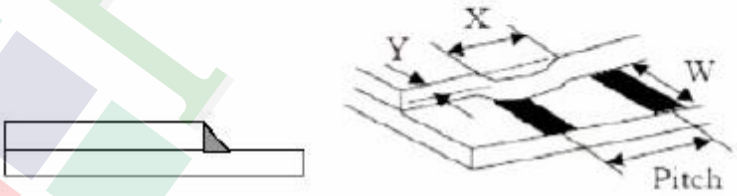
◆Specification For TFT-LCD Module Less Than 3.5" : (Ver. 03)

<table>
<tr><th>NO</th><th>Item</th><th>Criterion</th><th>Level</th></tr>
<tr><td>08</td><td>The crack of glass</td><td>
Symbols :

X : The length of crack
Z : The thickness of crack
t : The thickness of glass
Y : The width of crack.
W : terminal length
a : LCD side length

8.2.2 Non-conductive portion :


<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦ 1/3 a</td><td>≦W</td><td>≦t</td></tr>
</table>
⊙ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications.

8.2.3 Glass remain :


<table>
<tr><th>X</th><th>Y</th><th>Z</th></tr>
<tr><td>≦ a</td><td>≦ 1/3 W</td><td>≦t</td></tr>
</table>
</td><td>Minor</td></tr>
</table>

◆Specification For TFT-LCD Module Less Than 3.5" : (Ver. 03)

NO	Item	Criterion	Level
09	Backlight elements	9.1 Backlight can't work normally.	Major
		9.2 Backlight doesn't light or color is wrong.	Major
		9.3 Illumination source flickers when lit.	Major
10	General appearance	10.1 Pin type、quantity、dimension must match type in structure diagram.	Major
		10.2 No short circuits in components on PCB or FPC .	Major
		10.3 Parts on PCB or FPC must be the same as on the production characteristic chart .There should be no wrong parts , missing parts or excess parts.	Major
		10.4 Product packaging must the same as specified on packaging specification sheet.	Minor
		10.5 The folding and peeled off in polarizer are not acceptable.	Minor
		10.6 The PCB or FPC between B/L assembled distance(PCB or FPC) is ≦1.5 mm.	Minor

4. RELIABILITY TEST

4.1 Reliability Test Condition

Ver.03

NO.	TEST ITEM	TEST CONDITION
1	High Temperature Storage Test	Keep in +80 ±2℃ 96 hrs Surrounding temperature, then storage at normal condition 4hrs.
2	Low Temperature Storage Test	Keep in -30 ±2℃ 96 hrs Surrounding temperature, then storage at normal condition 4hrs.
3	High Temperature / High Humidity Storage Test	Keep in +60℃ / 90% R.H duration for 96 hrs Surrounding temperature, then storage at normal condition 4hrs. (Excluding the polarizer)
4	ESD Test	Air Discharge: Apply 2 KV with 5 times Discharge for each polarity +/- Contact Discharge: Apply 250 V with 5 times discharge for each polarity +/- 1. Temperature ambiance : 15℃～35℃ 2. Humidity relative : 30%～60% 3. Energy Storage Capacitance(Cs+Cd) : 150pF±10% 4. Discharge Resistance(Rd) : 330Ω±10% 5. Discharge, mode of operation : Single Discharge (time between successive discharges at least 1 sec) (Tolerance if the output voltage indication : ±5%)
5	Temperature Cycling Storage Test	-20℃ → +25℃ → +70℃ → +25℃ (30mins) (5mins) (30mins) (5mins) 10 Cycle Surrounding temperature, then storage at normal condition 4hrs.
6	Vibration Test (Packaged)	1. Sine wave 10～55 Hz frequency (1 min) 2. The amplitude of vibration :1.5 mm 3. Each direction (X、Y、Z) duration for 2 Hrs
7	Drop Test (Packaged)	Packing Weight (Kg) / Drop Height (cm): 0 ~ 45.4 — 122 45.4 ~ 90.8 — 76 90.8 ~ 454 — 61 Over 454 — 46 Drop direction :※1 corner / 3 edges / 6 sides each 1times

5. PRECAUTION RELATING PRODUCT HANDLING

5.1 SAFETY

5.1.1 If the LCD panel breaks , be careful not to get the liquid crystal to touch your skin.

5.1.2 If the liquid crystal touches your skin or clothes , please wash it off immediately by using soap and water.

5.2 HANDLING

5.2.1 Avoid any strong mechanical shock which can break the glass.

5.2.2 Avoid static electricity which can damage the CMOS LSI—When working with the module , be sure to ground your body and any electrical equipment you may be using.

5.2.3 Do not remove the panel or frame from the module.

5.2.4 The polarizing plate of the display is very fragile. So , please handle it very carefully, do not touch , push or rub the exposed polarizing with anything harder than an HB pencil lead (glass , tweezers , etc.)

5.2.5 Do not wipe the polarizing plate with a dry cloth , as it may easily scratch the surface of plate.

5.2.6 Do not touch the display area with bare hands , this will stain the display area.

5.2.7 Do not use ketonics solvent & aromatic solvent. Use with a soft cloth soaked with a cleaning naphtha solvent.

5.2.8 To control temperature and time of soldering is 320 ± 10°C and 3-5 sec.

5.2.9 To avoid liquid (include organic solvent) stained on LCM

5.3 STORAGE

5.3.1 Store the panel or module in a dark place where the temperature is 25°C ± 5°C and the humidity is below 65% RH.

5.3.2 Do not place the module near organics solvents or corrosive gases.

5.3.3 Do not crush , shake , or jolt the module.

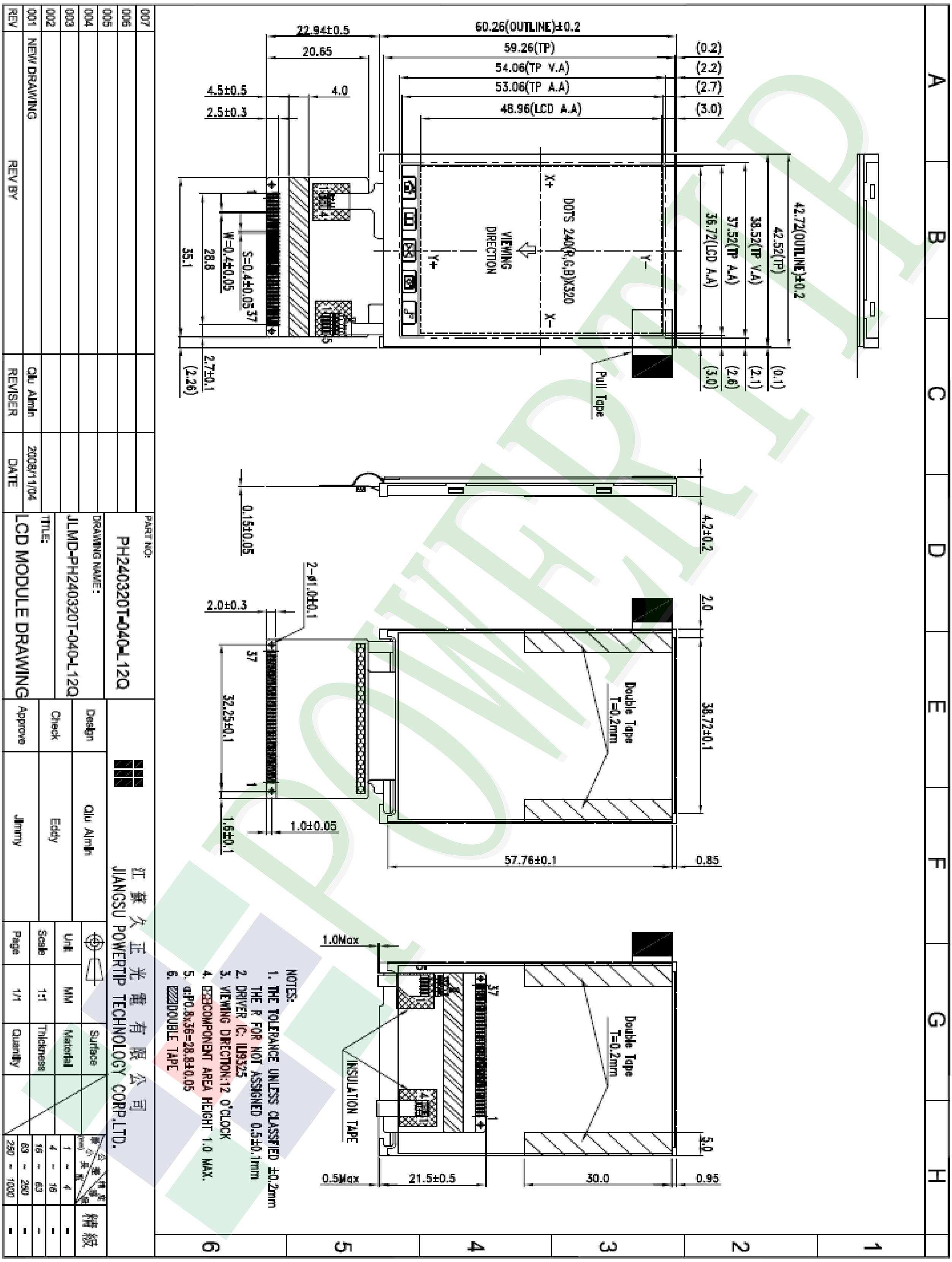
5.4 TERMS OF WARRANTY

5.4.1 Applicable warrant period

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

5.4.2 Unaccepted responsibility

This product has been manufactured to your company's specification as a part for use in your company's general electronic products. It is guaranteed to perform according to delivery specifications. For any other use apart from general electronic equipment, we cannot take responsibility if the product is used in nuclear power control equipment, aerospace equipment , fire and security systems or any other applications in which there is a direct risk to human life and where extremely high levels of reliability are required.



60.26(OUTLINE)±0.2
59.26(TP)
54.06(TP V.A)
53.06(TP A.A)
48.96(LCD A.A)
22.94±0.5
20.65
4.5±0.5
4.0
2.5±0.3
42.72(OUTLINE)±0.2
42.52(TP)
38.52(TP V.A)
37.52(TP A.A)
36.72(LCD A.A)
DOTS 240(R,G,B)X320
VIEWING DIRECTION
X+
X-
Y+
Y-
Pull Tape
S=0.4±0.05
W=0.4±0.05
28.8
35.1
2.7±0.1
(2.26)
0.15±0.05
4.2±0.2
2-φ1.0±0.1
2.0±0.3
2.0
37
32.25±0.1
1.6±0.1
1.0±0.05
Double Tape T=0.2mm
38.72±0.1
57.76±0.1
0.85
1.0Max
INSULATION TAPE
0.5Max
21.5±0.5
30.0
0.95
5.0
NOTES:
1. THE TOLERANCE UNLESS CLASSIFIED ±0.2mm
THE R FOR NOT ASSIGNED 0.5±0.1mm
2. DRIVER IC: ILI9325
3. VIEWING DIRECTION:12 O'CLOCK
4. COMPONENT AREA HEIGHT 1.0 MAX.
5. P0.8x36=28.8±0.05
6. DOUBLE TAPE
REV
001
NEW DRAWING
REV BY
REVISER
Qiu Aimin
DATE
2008/11/04
PART NO:
PH240320T-040-L12Q
DRAWING NAME:
JLMD-PH240320T-040-L12Q
TITLE:
LCD MODULE DRAWING
Design
Qiu Aimin
Check
Eddy
Approve
Jimmy
江蘇久正光電有限公司
JIANGSU POWERTIP TECHNOLOGY CORP.LTD.
Unit
MM
Scale
1:1
Page
1/1
Surface
Material
Thickness
Quantity
JP-R-254-02