



# ***TFT-LCD MONITOR***

## ***Specification***

**MODEL NO. : T170E1D1**

***Date : 2008.10.07 Revision 1.4***

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**This product specification is subject to change without any notice.**



## Records of Revision

Date	Rev. No.	Summary	Page
2006.10.3	1.1	Temporary Working Sample Release	
2006.10.12	1.2	Engineering Sample Release	
		Display aspect ratio corrected from 4:3 to 5:4	5
		Display Color Numbers corrected from 262K(6 bits+FRC) to 16.7M(True 8 bit)	5
		Symbol ( $V_{DD-in}$ ) revised to reflect the definition $V_{CC-in}$	7
		Backlight Module Absolute Rating revised to min 7V~Max. 20V	7
		Note (1) revised to $V_{DIM}=3.3V$	8
		Backlight parameters VBL, VDIM(for both Dimming & Enable/Disable) revised to engineering sample version	11
		Signal Connector Supplier & P/N information updated	12
		LED Driver Unit	13
		* Connector Supplier Info & P/N updated	13
* Add Mode 1 & Mode 2 pin assignments	13		
Gray Scale updated to RGB 8 bit/16.7M Colors	14		
2008.08.26	1.3	First MP Release	
		2.3.2 Weight revised from 2000g(Engineering) to 2250g(MP)	6
		4.0 Luminance : Min. 400 Typ. 500 (unit : $cd/m^2$ )	7
		4.0 White Uniformity Data Added	7
		5.2.2 LED Driver data deleted and contents changed to Backlight Unit only	11
		5.3.2 Contents removed to Spec. of LD170E1D1	13
		7.0 Drawing of PCBA Cover Updated	18
8.0 Serial number <b>Z5</b> digit definition revised	19		
2008.10.07	1.4	4.0 Luminance : Min. 500 $cd/m^2$ (change by request)	7



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## 1.0 Handling Precaution

- 1.) Handle with care. Pay attention not to press or scratch the surface of the monitor, especially the polarizer. Do not twist or bend the monitor. It may cause un-recoverable damage.
- 2.) Do not drop or bump the monitor since this monitor contains fragile glass components. Breakage of this monitor might cause leakage of the liquid crystal sealed inside the glasses. Do not touch the liquid crystal liquid in case of leakage. **Flush with massive water immediately in case of contact with your skin by liquid crystal fluid and call for doctor for immediate medical treatment.**
- 3.) Be sure to turn off power supply while plug or un-plug the power input connector.
- 4.) Clean up the polarizer only with soft solvent if necessary. The desirable cleaners are water, IPA(Isopropyl Alcohol) or Hexane. Do not use Ketone type materials (ex. Acetone), Ethyl alcohol, toluene, Ethyl acid or Methyl chloride. It will permanently damage the polarizer due to chemical reaction. 5.) Wipe off fluid drop immediately to prevent from possible discoloration or spots on the polarizer.
- 6.) Do not twist nor bend the monitor structure, even momentarily. Bending or twisting torque may likely damage the internal components of the monitor.
- 7.) The cold cathode fluorescent lamp in LCD contains small amount of mercury (Hg). Please refer to the design specification for application and the local regulations and environmental laws for disposal purpose.
- 8.) Protect the monitor from static environment to prevent from damage to the CMOS gate array IC.



## 2.0 General Description

T171E1D1 is a 17 inch (5:4 aspect ratio) color active matrix TFT LCD monitor with excellent display performance driven by a pure **DIGITAL** LVDS interface assembled in a compact and slim **LED backlight** unit. This LCD supports 1280(H) x RGB x 1024(V) stripe color pixel format and 16.7M colors (RGB 8 bits) with vivid color image. Its outstanding performances with high color saturation of 72%, good brightness, **500 nits(typ.)**, super wide viewing angle(150°/135°) and ultra high contrast ratio 700:1, make this LCD module very suitable for terminal and video applications.

### 2.1 General Applications

- Display terminal for applications of Video, Industrial, Medical, Gaming, Amusement, Advertisement or more.

### 2.2 Main Features

- 5:4 1280 x RGB x 1024 Display Aspect Ratio
- LED Backlight
- High Brightness of 500 nits(min.)
- Super Wide Viewing Angle
- High Contrast Ratio
- High Color Saturation of 72%
- Pure 2ch Digital LVDS (Low Voltage Differential Signaling) Interface
- DE (Data Enable) Mode
- RoHS Compliance

### 2.3 General Information

#### 2.3.1 Display Characteristics

Item	Specification	Unit	Note
Display Area (HxV)	337.90 x 270.3	mm	17" Diagonal
Driver Element	a-Si TFT Active Matrix	-	-
Number of Pixels (HxV)	1280 x RGB x 1024	pixel	Std. 5:4
Pixel Arrangement	R.G.B Vertical Stripe	-	-
Dot Pitch (HxV)	0.088 x 0.264	mm	Dot
Viewing Angle (H/V)	150/135	degree	6 o'clock
Signal Interface	Digital RGB 24 bits		16.7M colors
Display Mode	Normally White	-	-
Surface Treatment	3H Hard Coating, 25% Haze AG	-	-



### 2.3.2 Mechanical Dimensions

Item		Min.	Typ.	Max.	Unit	Note
Dimension	Horizontal	358.0	358.5	359.0	mm	±0.5 mm
	Vertical	296.0	296.5	297.0		±0.5 mm
	Depth	-	17	17.5		+0.5 mm
Weight		-		2250	g	±10 g

## 3.0 Absolute Maximum Ratings

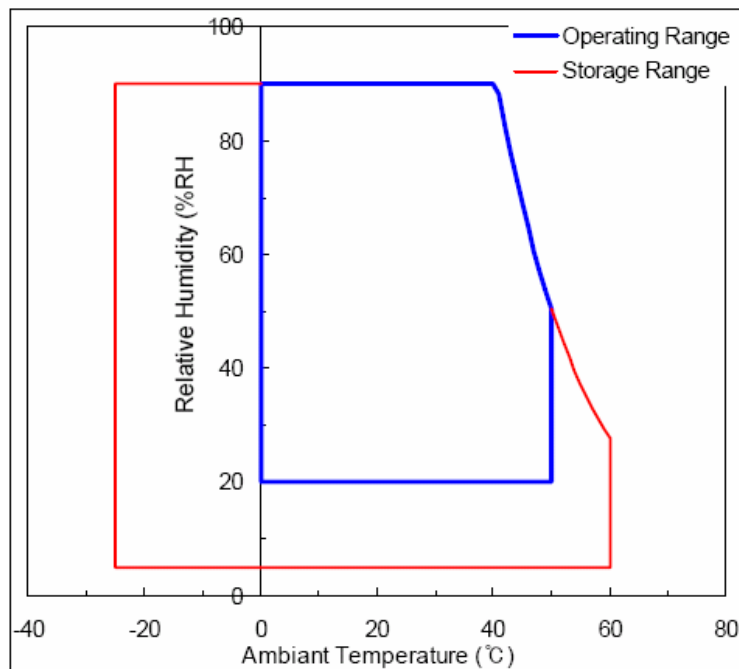
### 3.1 Absolute Ratings of Environment Requirement

Item	Symbol	Min.	Max.	Unit	Note
Storage Temperature	Tstg	-25	+ 60	°C	
Operation Temperature (Ambient Temperature)	Top	0	+ 50	°C	

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

95% RH Max. ( $40^{\circ}\text{C} > T_a$ )

Maximum wet – bulb temperature at  $39^{\circ}\text{C}$  or less. ( $T_a > 40^{\circ}\text{C}$ ) No condensation.





### 3.2 Electrical Absolute Ratings

#### 3.2.1 TFT-LCD Module

(Ta=25±2°C), GND=0V)

Item	SYMBOL	Min.	Max.	UNIT	NOTE
Power Supply Voltage	V <sub>cc-in</sub>	-0.3	7.0	V	(1),(2)
Logic Input Voltage	V <sub>in</sub>	-0.3	3.6	V	(1),(2)

#### 3.2.2 Backlight Module(LED)

Item	SYMBOL	MIN	MAX	UNIT	NOTE
Input DC Voltage	V <sub>BL</sub>		24	V	(1),(2)

**Note (1)** Within operating temperature

**Note (2)** Permanent damage to the device may occur if maximum values are exceeded.

Functional operation should be restricted to the conditions described under normal operating conditions.



## 4.0 Optical Characteristics

The following items are measured under stable conditions in a dark room or equivalent state.

\* Measuring Equipment: BM-5A, PR-650

( $V_{cc-in}=5V$ ,  $f_v=60Hz$ ,  $T_a=25\pm 2^\circ C$ )

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note	
Contrast Ratio	CR	At optimized Viewing Angle	500	700	-	-	(1)(2) (4)	
Response Time at 25°C	Rising	$\theta=0^\circ$	-	2	4	ms	(3)	
	Falling		-	6	12			
Luminance(center)	$Y_L$		500	-	-	cd/m <sup>2</sup>	(1)(2) (6)	
Color Chromaticity (CIE 1931)	White	$W_X$	$\theta=0^\circ$		0.3250	-	-	(2)(6)
		$W_Y$	$\theta=0^\circ$		0.3300	-	-	
Viewing Angle	Hor.	$\theta_L$	CR $\geq$ 10 at center point	65	75	-	Degree	(2)(5)
		$\theta_R$		65	75	-		
	Ver.	$\theta_H$		65	75	-		
		$\theta_V$		50	60	-		
White Uniformity	$\delta_w$		0.70	0.75			(2)(7)	

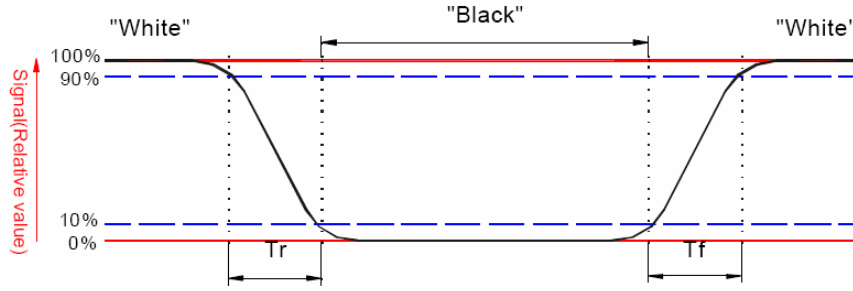
**Note (1)** : Ambient temperature =25°C , use the constant current driving on LED backlight I<sub>LED</sub>=330 mA for each LED light bar. To be measured in the dark room..

**Note (2)** : To be measured on the center area of panel with a viewing cone of 1° by Topcon Luminance Meter BM-5, after 10 minutes operation.

**Note (3)** : 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.

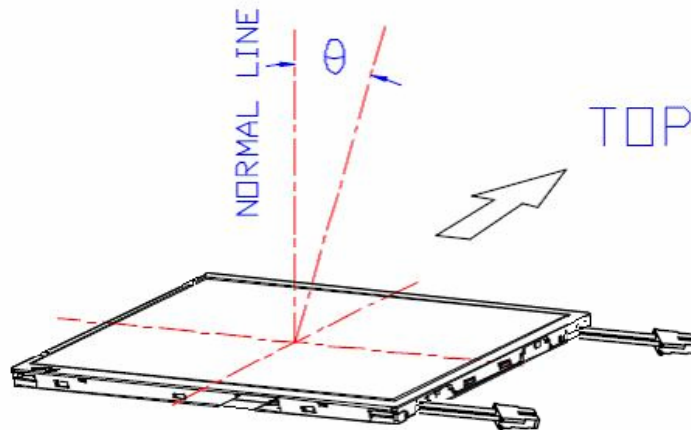


**Note (4) :** Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

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

**Note (5) :** Definition of viewing angle, Refer to figure as below.

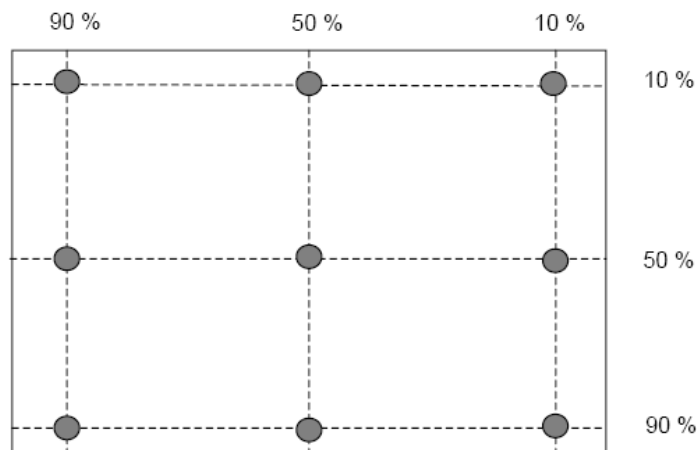


**Note (6) :** Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.

**Note (7) :** Definition of White Uniformity :

Luminance is measured at the following 9 points.

$$\delta_w = \frac{\text{Minimum Brightness of 9 points}}{\text{Maximum Brightness of 9 points}}$$





## 5.0 Electrical Characteristics

### 5.1 AC Timing Characteristics

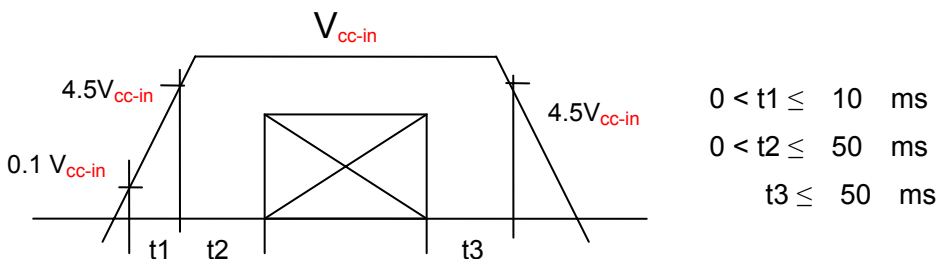
Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
LVDS Clock	Frequency	Fc	45	54	68	MHz	-
	Period	Tc	14.71	18.52	22.22	ns	
Vertical Active Display Term	Frame Rate	Fr	56	60	75	Hz	Tv=Tvd+Tvb
	Total	Tv	1044	1066	1300	Th	-
	Display	Tvd	1024	1024	1024	Th	-
	Blank	Tvb	20	42	Tv-Tvd	Th	-
Horizontal Active Display Term	Total	Th	710	844	980	Tc	Th=Thd+Thb
	Display	Thd	640	640	640	Tc	-
	Blank	Thb	70	204	Th-Thd	Tc	-

### 5.2 DC Characteristics

#### 5.2.1 TFT-LCD Module

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Power Supply	V <sub>cc-in</sub>	4.5	5.0	5.5	V	(1)
	I <sub>cc-in</sub>	-	650	850	mA	V <sub>cc-in</sub> =+5V
Permissive Input Ripple Voltage	V <sub>RF</sub>	100	-	-	mV <sub>P-P</sub>	V <sub>cc-in</sub> =+5V
Differential Impedance	Z <sub>m</sub>	90	100	110	ohm	
LVDS Differential Input Voltage	V <sub>id</sub>	250	350	450	mV	
LVDS Common Input Voltage	V <sub>ic</sub>	1.125	1.25	1.375	V	

**Note (1)** V<sub>cc-in</sub> Power-On Condition :



#### 5.2.2 Backlight Unit

Item	Symbol	Min.	Typ.	Max.	Unit	Note
LED stripes	V <sub>LED</sub>		22.8	23.5	V	
	I <sub>LED</sub>		330		mA	(1) (2)

Note 1 : To ensure stable brightness, please use the constant current mode to drive the LED backlight unit.

Note 2 : The current consumption here is for one single LED connector only.



### 5.3 Input Terminal Pin Assignment

#### 5.3.1 Signal Input Interface

JAE Connector: 30 pin/1 mm pitch JAE-FI-X30SSL-HF

Mating Connector : JAE FI-X30C2L or equivalent

Pin No	Symbol	Description	Remark
1	RxO0-	LVDS receiver signal channel 0	
2	RxO0+		
3	RxO1-	LVDS receiver signal channel 1	
4	RxO1+		
5	RxO2-	LVDS receiver signal channel 2	
6	RxO2+		
7	GND	Ground	
8	RxOC-	LVDS receiver signal clock	
9	RxOC+		
10	RxO3-	LVDS receiver signal channel 3	
11	RxO3+		
12	RxE0-	LVDS receiver signal channel 0	
13	RxE0+		
14	GND	Ground	
15	RxE1-	LVDS receiver signal channel 1	
16	RxE1+		
17	GND	Ground	
18	RxE2-	LVDS receiver signal channel 2	
19	RxE2+		
20	RxEC-	LVDS receiver signal clock	
21	RxEC+		
22	RxE3-	LVDS receiver signal channel 3	
23	RxE3+		
24	GND	Ground	
25	GND	Ground	
26	GND	Ground or Open	
27	GND	Ground	
28	V <sub>cc_IN</sub>	Power supply (+5V)	
29	V <sub>cc_IN</sub>	Power Supply (+5V)	
30	V <sub>cc_IN</sub>	Power Supply (+5V)	



### 5.3.2 Backlight Input Interface

#### CN1 (Upper)

Connector: JST BHSR-02VS-1

Pin No	Symbol	Description	Remark
1	V <sub>ANO1</sub>	Anode Terminal of LED Stripe	Pink (HV)
2	V <sub>CAT1</sub>	Cathode Terminal of LED Stripe	White (LV)

#### CN2 (Lower)

Connector: JST BHSR-02VS-1

Pin No	Symbol	Description	Remark
1	V <sub>ANO2</sub>	Anode Terminal of LED Stripe	Pink (HV)
2	V <sub>CAT2</sub>	Cathode Terminal of LED Stripe	White (LV)

### 5.3.3 Color Data Reference

The below table is about nput signal, Basic display colors and gray scale of each color.

0 : Low Level Voltage      1 : High Level Voltage

Each basic color can be displayed in 256 gray scales from 8 bit data signals. With the combination of total 24 bit data signals, the 16,777,216 color display can be achieved on the screen.

- Please refer to the next page



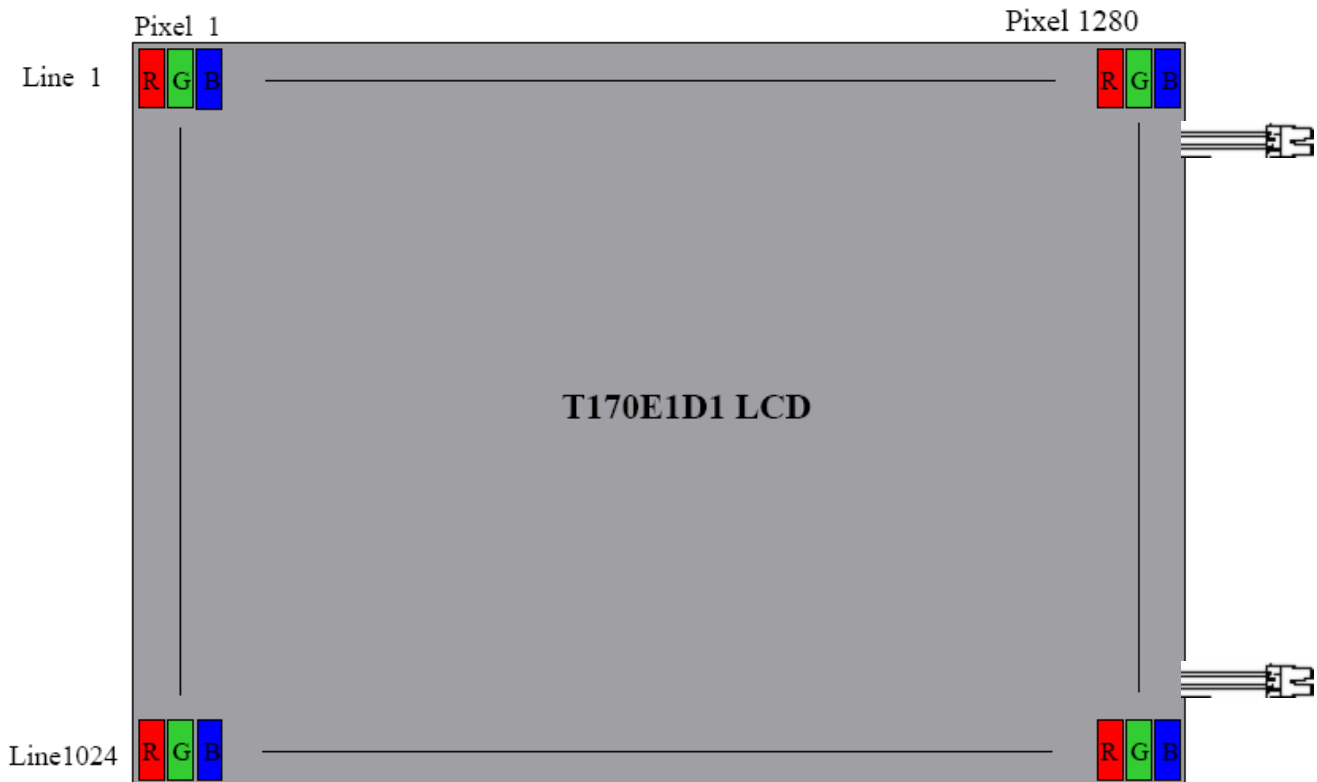
	Colors & Gray Scale	Data Signal																								
		Gray Scale	R0	R1	R2	R3	R4	R5	R6	R7	G0	G1	G2	G3	G4	G5	G6	G7	B0	B1	B2	B3	B4	B5	B6	B7
Basic Color	Black	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Green	-	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Cyan	-	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Red	-	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Magenta	-	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	White	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale of Red	Black	GS0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↑	GS1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	GS2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↑	↓																								
	↓	↓																								
	Brighter	GS253	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↓	GS254	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	GS255	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale of Green	Black	GS0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↑	GS1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	GS2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↑	↓																								
	↓	↓																								
	Brighter	GS253	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	↓	GS254	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Green	GS255	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Gray Scale of Blue	Black	GS0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↑	GS1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Darker	GS2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	↑	↓																								
	↓	↓																								
	Brighter	GS253	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1
	↓	GS254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1
	Blue	GS255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

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## 6.0 Pixel Format Image

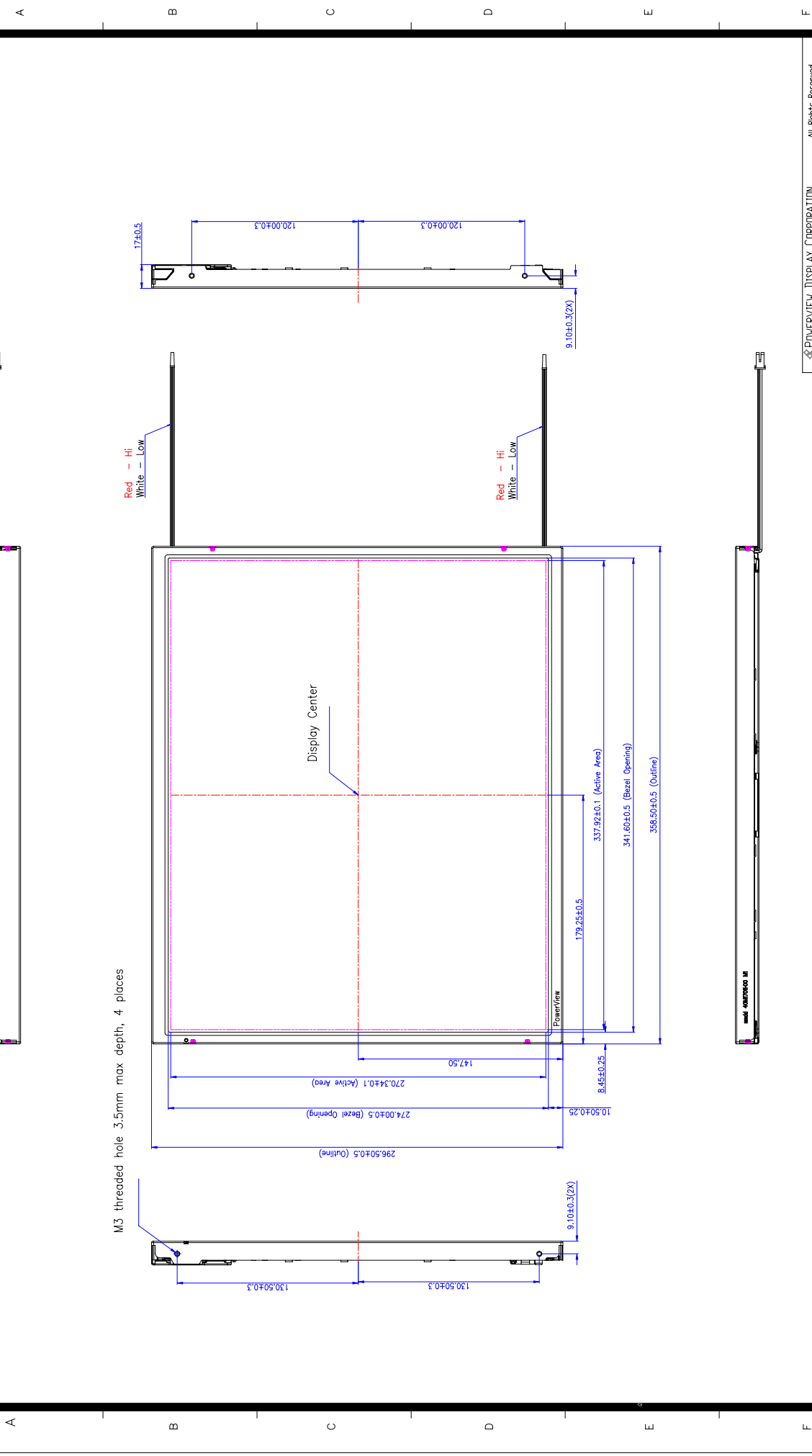


## 7.0 Display Outline Dimensions

### 7.1 Display Outline Dimensions

- Please refer to the next page

1 2 3 4 5 6 7 8 9 10 11 12



M3 threaded hole 3.5mm max depth, 4 places

Red - Hi  
White - Low

Red - Hi  
White - Low

REV	EC NUMBER	DESCRIPTION	DATE
1	XXXXXX	XXXXXX	

MATERIAL	FINISH	APPROVED	CHECKED	DESIGNED
See notes	finish			

LEVEL	ORIGINAL	ISSUANCE	REVISION
0 - 4	0.1	0.2	0.1
5 - 9	0.1	0.2	0.1
10 - 14	0.1	0.2	0.1
15 - 19	0.3	0.4	0.6
20 - 24	0.3	0.4	0.6
25 - 29	0.3	0.4	0.6
30 - 34	0.3	0.4	0.6
35 - 39	0.3	0.4	0.6
40 - 44	0.3	0.4	0.6
45 - 49	0.3	0.4	0.6
50 - 54	0.3	0.4	0.6
55 - 59	0.3	0.4	0.6
60 - 64	0.3	0.4	0.6
65 - 69	0.3	0.4	0.6
70 - 74	0.3	0.4	0.6
75 - 79	0.3	0.4	0.6
80 - 84	0.3	0.4	0.6
85 - 89	0.3	0.4	0.6
90 - 94	0.3	0.4	0.6
95 - 99	0.3	0.4	0.6
100 - 104	0.3	0.4	0.6
105 - 109	0.3	0.4	0.6
110 - 114	0.3	0.4	0.6
115 - 119	0.3	0.4	0.6
120 - 124	0.3	0.4	0.6
125 - 129	0.3	0.4	0.6
130 - 134	0.3	0.4	0.6
135 - 139	0.3	0.4	0.6
140 - 144	0.3	0.4	0.6
145 - 149	0.3	0.4	0.6
150 - 154	0.3	0.4	0.6
155 - 159	0.3	0.4	0.6
160 - 164	0.3	0.4	0.6
165 - 169	0.3	0.4	0.6
170 - 174	0.3	0.4	0.6
175 - 179	0.3	0.4	0.6
180 - 184	0.3	0.4	0.6
185 - 189	0.3	0.4	0.6
190 - 194	0.3	0.4	0.6
195 - 199	0.3	0.4	0.6
200 - 204	0.3	0.4	0.6
205 - 209	0.3	0.4	0.6
210 - 214	0.3	0.4	0.6
215 - 219	0.3	0.4	0.6
220 - 224	0.3	0.4	0.6
225 - 229	0.3	0.4	0.6
230 - 234	0.3	0.4	0.6
235 - 239	0.3	0.4	0.6
240 - 244	0.3	0.4	0.6
245 - 249	0.3	0.4	0.6
250 - 254	0.3	0.4	0.6
255 - 259	0.3	0.4	0.6
260 - 264	0.3	0.4	0.6
265 - 269	0.3	0.4	0.6
270 - 274	0.3	0.4	0.6
275 - 279	0.3	0.4	0.6
280 - 284	0.3	0.4	0.6
285 - 289	0.3	0.4	0.6
290 - 294	0.3	0.4	0.6
295 - 299	0.3	0.4	0.6
300 - 304	0.3	0.4	0.6
305 - 309	0.3	0.4	0.6
310 - 314	0.3	0.4	0.6
315 - 319	0.3	0.4	0.6
320 - 324	0.3	0.4	0.6
325 - 329	0.3	0.4	0.6
330 - 334	0.3	0.4	0.6
335 - 339	0.3	0.4	0.6
340 - 344	0.3	0.4	0.6
345 - 349	0.3	0.4	0.6
350 - 354	0.3	0.4	0.6
355 - 359	0.3	0.4	0.6
360 - 364	0.3	0.4	0.6
365 - 369	0.3	0.4	0.6
370 - 374	0.3	0.4	0.6
375 - 379	0.3	0.4	0.6
380 - 384	0.3	0.4	0.6
385 - 389	0.3	0.4	0.6
390 - 394	0.3	0.4	0.6
395 - 399	0.3	0.4	0.6
400 - 404	0.3	0.4	0.6
405 - 409	0.3	0.4	0.6
410 - 414	0.3	0.4	0.6
415 - 419	0.3	0.4	0.6
420 - 424	0.3	0.4	0.6
425 - 429	0.3	0.4	0.6
430 - 434	0.3	0.4	0.6
435 - 439	0.3	0.4	0.6
440 - 444	0.3	0.4	0.6
445 - 449	0.3	0.4	0.6
450 - 454	0.3	0.4	0.6
455 - 459	0.3	0.4	0.6
460 - 464	0.3	0.4	0.6
465 - 469	0.3	0.4	0.6
470 - 474	0.3	0.4	0.6
475 - 479	0.3	0.4	0.6
480 - 484	0.3	0.4	0.6
485 - 489	0.3	0.4	0.6
490 - 494	0.3	0.4	0.6
495 - 499	0.3	0.4	0.6
500 - 504	0.3	0.4	0.6
505 - 509	0.3	0.4	0.6
510 - 514	0.3	0.4	0.6
515 - 519	0.3	0.4	0.6
520 - 524	0.3	0.4	0.6
525 - 529	0.3	0.4	0.6
530 - 534	0.3	0.4	0.6
535 - 539	0.3	0.4	0.6
540 - 544	0.3	0.4	0.6
545 - 549	0.3	0.4	0.6
550 - 554	0.3	0.4	0.6
555 - 559	0.3	0.4	0.6
560 - 564	0.3	0.4	0.6
565 - 569	0.3	0.4	0.6
570 - 574	0.3	0.4	0.6
575 - 579	0.3	0.4	0.6
580 - 584	0.3	0.4	0.6
585 - 589	0.3	0.4	0.6
590 - 594	0.3	0.4	0.6
595 - 599	0.3	0.4	0.6
600 - 604	0.3	0.4	0.6
605 - 609	0.3	0.4	0.6
610 - 614	0.3	0.4	0.6
615 - 619	0.3	0.4	0.6
620 - 624	0.3	0.4	0.6
625 - 629	0.3	0.4	0.6
630 - 634	0.3	0.4	0.6
635 - 639	0.3	0.4	0.6
640 - 644	0.3	0.4	0.6
645 - 649	0.3	0.4	0.6
650 - 654	0.3	0.4	0.6
655 - 659	0.3	0.4	0.6
660 - 664	0.3	0.4	0.6
665 - 669	0.3	0.4	0.6
670 - 674	0.3	0.4	0.6
675 - 679	0.3	0.4	0.6
680 - 684	0.3	0.4	0.6
685 - 689	0.3	0.4	0.6
690 - 694	0.3	0.4	0.6
695 - 699	0.3	0.4	0.6
700 - 704	0.3	0.4	0.6
705 - 709	0.3	0.4	0.6
710 - 714	0.3	0.4	0.6
715 - 719	0.3	0.4	0.6
720 - 724	0.3	0.4	0.6
725 - 729	0.3	0.4	0.6
730 - 734	0.3	0.4	0.6
735 - 739	0.3	0.4	0.6
740 - 744	0.3	0.4	0.6
745 - 749	0.3	0.4	0.6
750 - 754	0.3	0.4	0.6
755 - 759	0.3	0.4	0.6
760 - 764	0.3	0.4	0.6
765 - 769	0.3	0.4	0.6
770 - 774	0.3	0.4	0.6
775 - 779	0.3	0.4	0.6
780 - 784	0.3	0.4	0.6
785 - 789	0.3	0.4	0.6
790 - 794	0.3	0.4	0.6
795 - 799	0.3	0.4	0.6
800 - 804	0.3	0.4	0.6
805 - 809	0.3	0.4	0.6
810 - 814	0.3	0.4	0.6
815 - 819	0.3	0.4	0.6
820 - 824	0.3	0.4	0.6
825 - 829	0.3	0.4	0.6
830 - 834	0.3	0.4	0.6
835 - 839	0.3	0.4	0.6
840 - 844	0.3	0.4	0.6
845 - 849	0.3	0.4	0.6
850 - 854	0.3	0.4	0.6
855 - 859	0.3	0.4	0.6
860 - 864	0.3	0.4	0.6
865 - 869	0.3	0.4	0.6
870 - 874	0.3	0.4	0.6
875 - 879	0.3	0.4	0.6
880 - 884	0.3	0.4	0.6
885 - 889	0.3	0.4	0.6
890 - 894	0.3	0.4	0.6
895 - 899	0.3	0.4	0.6
900 - 904	0.3	0.4	0.6
905 - 909	0.3	0.4	0.6
910 - 914	0.3	0.4	0.6
915 - 919	0.3	0.4	0.6
920 - 924	0.3	0.4	0.6
925 - 929	0.3	0.4	0.6
930 - 934	0.3	0.4	0.6
935 - 939	0.3	0.4	0.6
940 - 944	0.3	0.4	0.6
945 - 949	0.3	0.4	0.6
950 - 954	0.3	0.4	0.6
955 - 959	0.3	0.4	0.6
960 - 964	0.3	0.4	0.6
965 - 969	0.3	0.4	0.6
970 - 974	0.3	0.4	0.6
975 - 979	0.3	0.4	0.6
980 - 984	0.3	0.4	0.6
985 - 989	0.3	0.4	0.6
990 - 994	0.3	0.4	0.6
995 - 999	0.3	0.4	0.6

DATE	DESCRIPTION	BY	CHKD	APPD
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DATE	DESCRIPTION	BY	CHKD	APPD
2009/09/26				

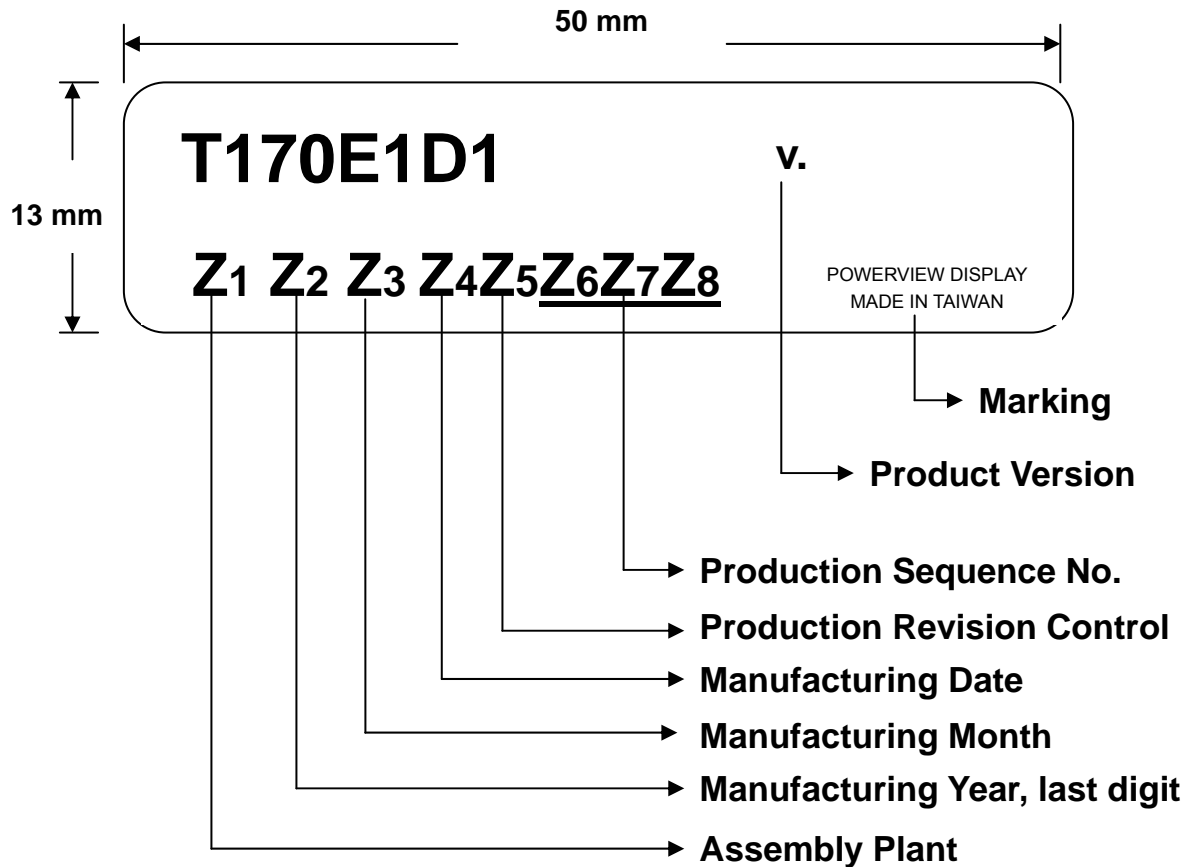
DATE	DESCRIPTION	BY	CHK
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## 8.0 Labeling, Packaging & Others

### \* Labeling

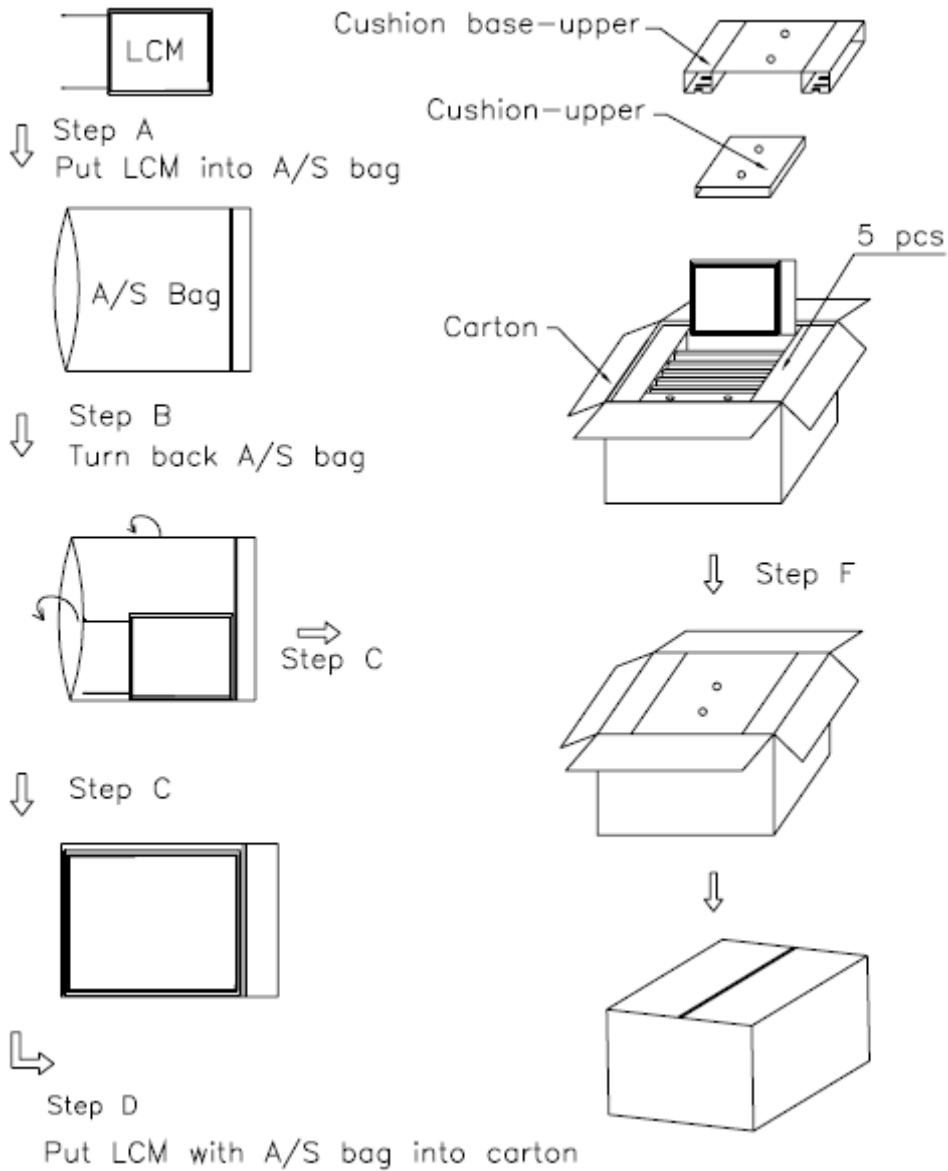


### \* Packaging

- see next page



### T170E1D1 Packaging





## 9.0 General Notice

### 9.1 Reliability Test Items (Note 2)

No.	Test Items	Conditions	Remark
1	High Temperature Storage	Ta= + 60°C                      240 Hrs	
2	Low Temperature Storage	Ta= - 25°C                      240 Hrs	
3	High Temperature Operation	Ta= + 50°C                      240 Hrs	
4	Low Temperature Operation	Ta= 0°C                      240 Hrs	
5	High Temperature and High Humidity	Tp= 40°C, 90%RH              240 Hrs	operation
6	Heat Shock	-25~60°C/200 cycles 1Hr/cycle	Non-operation
7	Electrostatic discharge	10KV, 150pF(330Ω), 1 second, 9 positions on the panel, 10 times each place.	Non-operation
8	Vibration	Frequency range : 10~500~10Hz Stoke : 1.3mm Sweep : 1G Cycle : 30 minutes 1 hours for each direction of X,Y,Z	
9	Mechanical Shock	50G, 11ms, ±X±Y±Z once for each direction	
10	Vibration (with carton)	Random vibration : 0.015G <sup>2</sup> /Hz from 5~200Hz -6dB/octave from 200~500Hz	IEC 68-34
11	Drop (with carton)	Height : 60 cm 1 corner, 3 edges, 6 surfaces	JIS Z0202

Note1: Ta: Ambient temperature.

Note 2: In the standard conditions, there is not display function NG issue occurred. All the cosmetic specification is judged before the reliability stress.



## 9.2 Storage, Operation & Others

- (a) Do not leave the panel in high temperature, and high humidity for a long time.  
It is highly recommended to store the module with temperature from 0 to 35°C and relative humidity of less than 70%.
- (b) Do not store the TFT-LCD module in direct sunlight.
- (c) The module shall be stored in a dark place. It is prohibited to apply sunlight or fluorescent light during the store.
- (d) Do not connect, disconnect the module in the "Power On" condition.
- (e) Power supply should always be turned on/off by the item 3.2 "Electrical Absolute Ratings"
- (f) The liquid-crystal is deteriorated by ultraviolet rays. Do not leave it in direct sunlight and strong ultraviolet rays for many hours.
- (g) Avoid condensation of water. It may result in improper operation or disconnection of electrode.
- (h) Do not exceed the absolute maximum rating value. (the supply voltage variation, input voltage variation, variation in part contents and environmental temperature, and so on) Otherwise the panel may be damaged.
- (i) If the panel displays the same pattern continuously for a long period of time, it can be the situation when the image "Sticks" to the screen.
- (j) This panel has its circuitry FPC on the bottom side and should be handled carefully in order not to be stressed.