DATA IMAGE CORPORATION

TFT Module Specification

ITEM NO.: FG080000DNCWA-T1

Table of Contents

Customer Companies	R&D Dept.	Q.C. Dept.	Eng. Dept.	Prod. Dept.
	Alex	Eric	Paul	helen
Approved by	Version:	Issued Date:	Sheet Code:	Total Pages:
	J	2005/11/14		22

2. RECORD OF REVISION

Rev	Date	Item	Page	Comment
1	30/OCT/03			Initial PRELIMINARY
A	12/DEC/03	6,8-1	3,8	1.Change Icc (TYP.) from 220 mA to 250 mA under Vcc =5.0V. 2.Change Vertical Viewing angle θ_Y+ MIN.: from 50 to 25 degree TYP.: from 55 to 30 degree 3.Modify Viewing angle test condition from CR≥10 to CR≥5
B	08/JAN/04	6,8-1,9-1, 12,16	3-4,8-9,12, 15-17,21	1.Change the T/P drawing (1.00mm pitch) on page21 2.Modify backlight electrical characteristics on page4. 3.Modify Vertical viewing angle on page 8. 4.Modify average luminance on page 8 5.Modify contrast ratio symbol on page 8 6.Modify chromaticity symbol on page 8 7.Modify note3 & note5 on page 9 8.Modify power OFF/ON timing specifications on page 12 9.Change Point defect criteria (Cancel A.B Area) on page 16-17 10.Change QA test item (Cancel Shock test) page 15
C	5/MAR /04	6,7.1, 11,12, 16-17	3,5,14-17, 21-83	1.Change Power Supply Current Icc (TYP.) from 320 to 360mA,(Vcc=3.3V) on page3. 2.Change PCB REV from C to D,C6 Change to 4.7uf/25v, R52 and R66 Change to 300 ohm,R67 Change to 71.5k. 3.Change PCB REV from D to E, Remove C5,Add R82= 0 ohm 4.Change Polarizer from wide view to super wide view 5.Change vertical viewing angle θ_Y+ min from 35 to 50 degree on page 8. θ_Y+ typ. from 40 to 55 degree on page 8. θ_Y- min from 50 to 60 degree on page 8. θ_Y- typ. from 55 to 65 degree on page 8 6.Add image sticking unit “sec” on page 8 7.Modify chromaticity on page 8 8.Add without touch-panel average luminance data on page 8 9.Recover QA test item (Shock test) on page 15 10.Amending the total point detects number from 5 points to 4 points on page 16-17 11.Add notes for touch-panel front surface is antiglare hard coat on page 21 12.Add 3M1245 foil on bezel, add UV GLUE & TAPE on touch-panel on page 21 13.Add Connector Molex 52559-3292 or equivalent CFPC-32SP on page 21. 14. Change Package Information on page 22 15.Add inverter spec & touch-panel spec on page23 to page81 16.Modify touch panel circuit open resistance and durability test on page 14 17.Change CCFL inverter components, please refer to page 24 18.Change touch panel 19.Change Pixel Clock frequency from 25(min) to 24(min)MHz. on page 5

2. RECORD OF REVISION

Rev	Date	Item	Page	Comment
D	19/MAR/04	2,12, 16.1, 18.1, 18.2	3,17-18, 23,25-26, 34,68,70	1.page number shift down 1 page from page 3 to page 21,for example: page3 shift to page 4, page 4 shift to page 5 2.Add record of revision page on page 3 3.Recover modify Point defect criteria (Cancel A.B Area) on page 17-18 4.page number shift down 2 page from page 22 to page 81,for example: page22 shift to page 24, page 23 shift to page 25 5.Add inverter cable outline drawing on page 23 6.inverter spec please refer to page 25~67 7.touch-panel spec please refer to page 68~83 8.Change inverter spec Rev from A1 to A1-1, please refer to page25,26,29~32 and page 34 9.Change touch-panel spec version to 2.0, and modify touch panel mechanical dimensions and construction, please refer to page 68,70. 10.Add without T/P weight on page 4.
D1	7/APR/04	18	25~83	Customer Remove attachment: 1. Remove inverter spec from page 25 to 67 2. Remove touch-panel spec from page 68 to 83
E	13/APR/04	16	22	1.Change outline drawing: eliminate 3M 1245 foil and modify top bezel. 2.Change CCFL inverter from Rev:A1-1 to A2.
F	23/JUL/04	7.1	6	1.Change Vertical period Tvp from 769(min.) 806(typ.) 1000(max.) to 481(min.) 518(typ.) 712(max.) 2.Change Vertical display active period Tvda from 768(min.) 768(typ.) 768(max.) to 480(min.) 480(typ.) 480(max.) 3.Change Horizontal period Thp from 575(min.) 672(typ.) 806(max.) to 703(min.) 800(typ.) 934(max.). 4.Change Horizontal display active period Thda from 512(min.) 512(typ.) 512(max.) to 640(min.) 640(typ.) 640(max.). 5. Unit Tnp change to Thp. 6.Symbol Tvpa change to Tvda,Hbp change to Hdp,Hfb change to Hfp.
G	06/OCT/04			1. Change R31from 10K ohm to 470K ohm. 2. Change C31from 0.1uf to 1uf. for improve the stable of power rest function on T-con IC.
H	04/NOV/04	12.2,12.3		Remove inspection Parameters without grade for general use on page 17-19.
I	14/DEC/04			INVERTER 121A004 change to A3: 1.R9 change to 249k ohm; C6,C7 change to 4.7uf. 2.modify document and UL data for the vender of material Q3, Q4 to TOSHIBA ; PCB to 龍偉(LWE) and 晟鈦(CT). 3.delete the venders about no used and the other venders are the same as original.
J	14/NOV/05	17	21~22	1.INVERTER 121A004 A3 change to: A3-1 a. change T1 b. R9 change to 160Kohm 2. Change 17.PACKAGE INFORMATION. 3. Add 17.1 INVERTER PACKAGE INFORMATION.

3. Application

This data sheet applies to a color TFT-LCD module,. FG080000D

DATA IMAGE assume no responsibility for any damage resulting from the use of the device which dose not comply with the instructions and the precautions in these specification sheet.

4. GENERAL Specifications

Parameter		Specifications	Unit
Screen Size		8 (diagonal)	inch
Display Format		640(H) x (R,G,B) x 480(V)	dot
Active Area		162.2(H) x 121.7 (V)	mm
Dot Pitch		0.2535 (H) x 0.2535 (V)	mm
Pixel Configuration		Stripe	
Outline Dimension		183.0(W) x 141.0(H) x 16.2 (D)	mm
Surface treatment		Anti-glare and hard coating	
Back-light		CCFL	
Display mode		Normally white	
Weight	Without T/P	385	g
	With T/P	505	g
View Angle direction		6 o'clock	

5. Absolute Maximum Ratings:

Parameter		Symbol	MIN.	MAX.	Unit	Remark
Power supply voltage		Vcc	0	+6.0	V	Ta=25℃
Logic input voltage		VI	-0.3	+6.0	V	
Operating temperature		Top	0	+55	℃	Module surface*
Storage temperature		Tst	-25	+70	℃	-
Humidity	Operation	20%~95% relative humidity				Ta<=40℃
	Non Operation	5%~95% relative humidity				Ta<=40℃

*Module at the active display area.

6. Electrical Characteristics

A) Module Ta=25℃

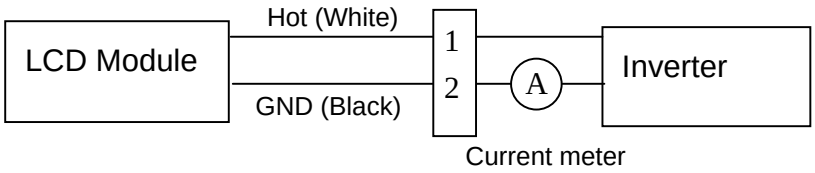
Parameter	Symbol	MIN.	Typ.	MAX.	Unit	Remark
Power Supply voltage	V_{CC}	3.0	3.3	3.6	V	
	V_{CC}	4.5	5.0	5.5	V	
Power Supply Current	I_{CC}	--	360	440	mA	V_{CC} =3.3V
	I_{CC}	--	250	300	mA	V_{CC}=5.0V
Ripple voltage	V_{RF}	-	-	100	mV_{P-P}	Vcc=+5V
"H" level logical input voltage	V_{IH}	2.3	-	5.5	V	
"L" level logical input voltage	V_{IL}	-0.3	-	0.8	V	

B).Backlight Ta=25 ±2°C

Parameter	Symbol	MIN.	Typ.	MAX.	Unit	Remark
Lamp Voltage	V_L	777	806	831	Vrms	IL=6.0mA
Lamp Current	I_L	5.0	6.0	7.0	mArms	Note 2
Lamp frequency		40	50	60	KHZ	
Startup Voltage	V_S			1210	Vrms	(25°C) Note 3
				1270	Vrms	(0°C) Note 3

Note 1:Operating Temp. range:0~55°C

Note 2:Lamp current is measured by utilizing a current meter for high frequency as shown below:



Current meter

Note 3:The voltage shown above should be applied to the lamp for more than 1 second after startup. Other wise the lamp may not be turned on.

Note 4:The lamp frequency may produce interference with horizontal synchronous frequency from the display, and this may cause line flow on the display. In order to avoid interference the lamp frequency should be detached from the horizontal synchronous frequency and its harmonics as far as possible.

Note 5:$P_L=I_L x V_L x 2$.

Note 6:The lifetime(Hr) of a lamp can be defined as the time in which it continues to operate under the condition Ta=25±2 and I_L=6.0 mArms until one of the following event occurs:

(1)When the brightness becomes 50% or lower than its original,

(2)When the effective ignition length becomes 80% or lower than its original value.(Effective ignition length is defined as an area that has less than 70% brightness compared to the brightness in the center point.)

Note 7:The waveform of the voltage output of inverter must be area-symmetric and the design of the inverter must have specifications for the modularized lamp. The performance of the backlight, such as lifetime or brightness, is greatly influenced by the characteristics of the DC-AC inverter for the lamp. All the parameters of an inverter should be designed with care so as not to produce too much current leakage from high-voltage output of the inverter. When designing or ordering the inverter, please make sure that a poor lighting caused by the mismatch of the backlight and the inverter (miss-lighting, flicker, etc.) never occurs. When the above situation is confirmed, the module should be operated in the same manners as it is installed in your instrument.

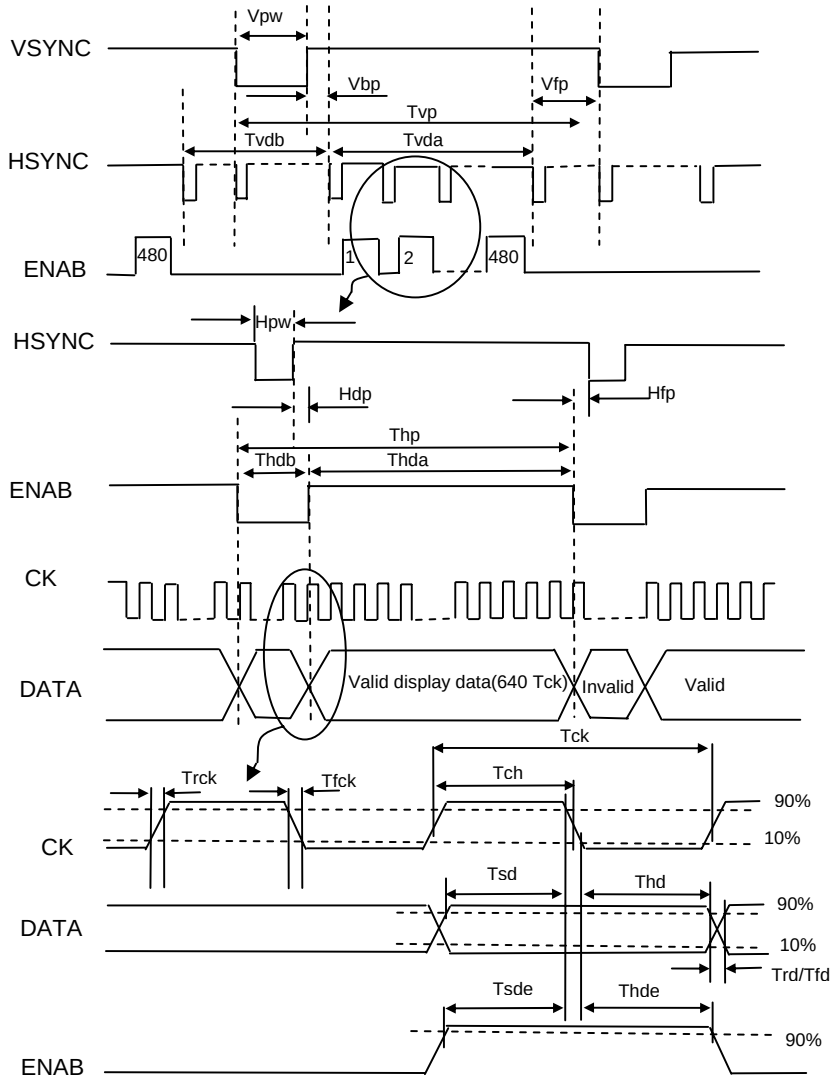
7. INTERFACE SPECIFICATIONS

7.1 INPUT SIGNAL TIMING SPECIFICATIONS

The specifications of input signal timing are as the following table and timing diagram.

Signal	Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Remarks
CK	Pixel clock Frequency	fck	24	32.5	40	MHz	
	Pixel clock period	Tck	40	30	25	ns	
	Duty ratio(%Tch)	-	40	50	60	%	Tch/Tck
	Rise time	Trck	-	5.2	-	ns	
	Fall time	Tfck	-	5.2	-	ns	
DATA R G B	Setup time	Tsd	-	7.0	-	ns	
	Hold time	Thd	-	7.0	-	ns	
	Rise time	Trd		(9.9)		ns	
	Fall time	Tfd		(11.3)		ns	
ENAB	Setup time	Tsde	4	5.8	-	ns	
	Hold time	Thde	4.5	6.2	-	ns	
VSYNC	Vertical Frequency	fv	50	60	75	Hz	
	Vertical period	Tvp	481	518	712	Thp	
	Vertical display blank period	Tvdb	1	38	232	Thp	
	Vertical display active period	Tvda	480	480	480	Thp	
	Vertical sync. back porch	Vbp	0	29	199	Thp	
	Vertical sync. front porch	Vfp	0	3	199	Thp	
	Vertical sync. pulse width	Vpw	1	6	200	Thp	
HSYNC	Horizontal period	Thp	703	800	934	Tck	
	Horizontal display blank period	Thdb	63	160	294	Tck	
	Horizontal display active period	Thda	640	640	640	Tck	
	Horizontal sync. back porch	Hdp	52	53	281	Tck	
	Horizontal sync. front porch	Hfp	0	35	281	Tck	
	Horizontal sync. pulse width	Hpw	52	73	243	Tck	

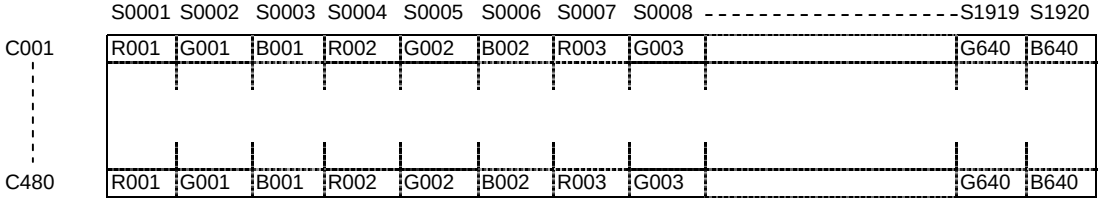
Note: 1.Data is latched at falling edge of CK in the spec. CK should appear during all blanking period.
2.VSYNC and HSYNC are negative polarity in the spec.
3.ENAB (Data Enable) should be positive polarity in the spec.
4.HSYNC should appear during blanking period of frame cycle.


VSYNC
Vpw
Vbp
Vfp
Tvp
HSYNC
Tvdb
Tvda
ENAB
480
1
2
480
HSYNC
Hpw
Hdp
Hfp
Thp
Thdb
Thda
ENAB
CK
DATA
Valid display data(640 Tck)
Invalid
Valid
Tck
Trck
Tfck
Tch
90%
10%
CK
Tsd
Thd
90%
DATA
10%
Trd/Tfd
Tsde
Thde
90%
ENAB

7.2 Color DATA INPUT ASSIGNMENT

Color		Data Signal																	
		Red						Green						Blue					
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	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
Gray Scale of Red	Red(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(61)	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red(62)	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale of Green	Green(0)/ Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(61)	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	Green(62)	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	Green(63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Gray Scale of Blue	Blue(0)/ Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue (1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue (2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue (61)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
	Blue (62)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue (63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

Correspondence between Data and Display Position



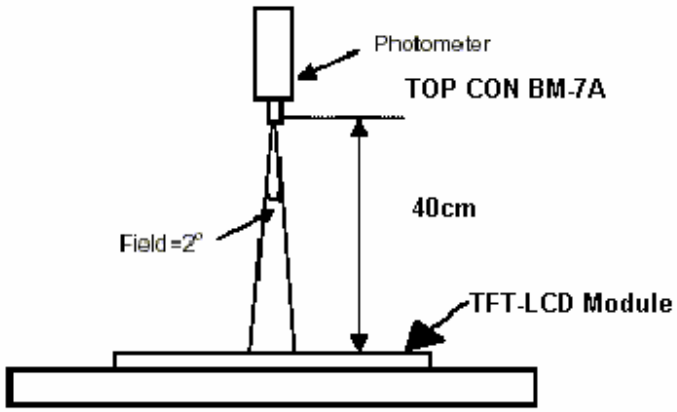
8. Optical Characteristics

8-1. Specification:

Parameter		Symbol	Condition	MIN.	TYP.	MAX.	Unit	Remarks
Viewing Angle	Horizontal	θ_x+	Center CR≥5	60	65	--	deg	Note 1,4
		θ_x-		60	65	--		
	Vertical	θ_Y+		50	55	--		
		θ_Y-		60	65	--		
Contrast Ratio		CR max.	Center	100	250			Note 1,3
Response time	Rise	Tr	Center θx=θy =0°	-	15	30	ms	Note 1,7
	Fall	Tf		-	35	50	ms	
Brightness Uniformity		B-uni	θx=θy =0°	70	80	--	%	Note1,6
Average Luminance	Without T/P	L	IL=6.0mA	320	400	--	cd/㎡	Note 1,2,4
	With T/P			250	320	--		
Lamp Life time		--		10,000	50000	--	hours	
Chromaticity		X_W	Center θx=θy =0°	0.273	0.293	0.313		Note 1,8
		Y_W		0.325	0.345	0.365		
		X_R		0.564	0.584	0.604		
		Y_R		0.322	0.342	0.362		
		X_G		0.284	0.304	0.324		
		Y_G		0.559	0.579	0.599		
		X_B		0.109	0.129	0.149		
		Y_B		0.125	0.145	0.165		
Image sticking		tis	2 hours			2	Sec	Note 9

The following optical specifications shall be measured in a darkroom or equivalent state(ambient luminance≤1 lux, and at room temperature). The measurement must be taken after backlight warming up for 20 minutes. The operation temperature is 25°C±2°C. The measurement method is shown in Note1.

Note1: The method of optical measurement:



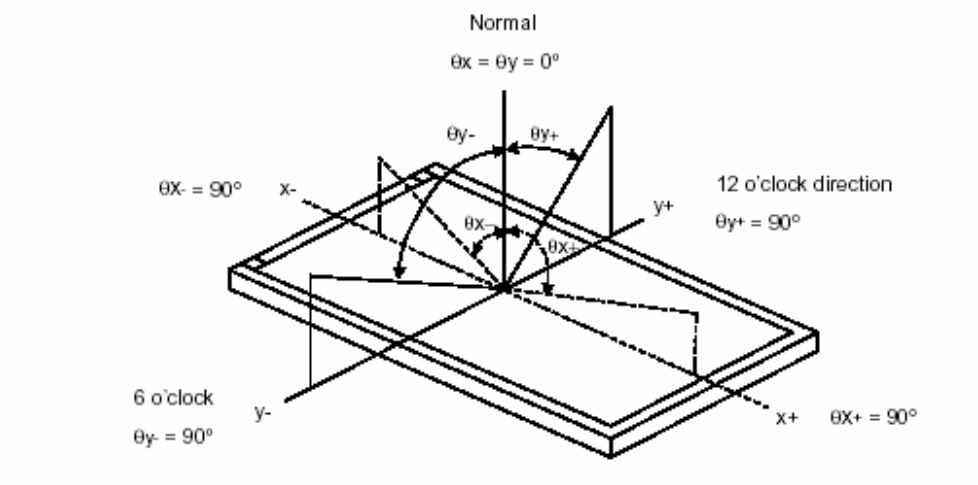
Note2: Definition of Central Luminance(L):

Central Luminance must be measured at the central point of the LCD module and at the viewing angle of the θx=θy=0°(Note 4).

Note3: Definition of Contrast Ratio (CR):

$$CR = \frac{\text{Luminance with all pixels in white state}}{\text{Luminance with all pixels in Black state}}$$

Note 4: Definition of Viewing Angle(CR≥5):

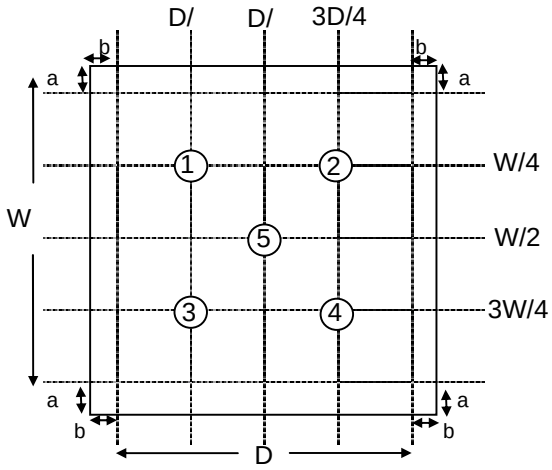


Note 5: Definition of Average Luminance:

The Average Luminance is defined as arithmetic mean value of five spots across the LCD surface at white state. The Luminance(Note 2) shall be measured with all pixels in the viewing field at white state. The measuring spots must be taken at the locations shown in the following figure, where a=b=15mm.

$$L\text{-}avg = \frac{L1+L2+L3+L4+L5}{5}$$

Luminance Measuring Points

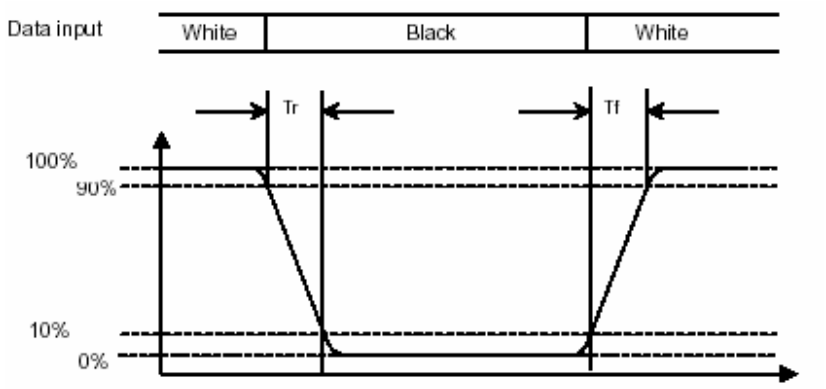


Note 6:Definition of Brightness Uniformity (Buni):

$$B\text{-}uni = \frac{\text{Minimum luminance of 5 points}}{\text{Maximum luminance of 5points}} \quad \text{(Note 5).}$$

Note 7: Definition of Response Time:

The Response Time is set initially by defining the “Rising Time (Tr)” and the “Falling Time (Tf)” respectively. Tr and Tf are defined as following figure.



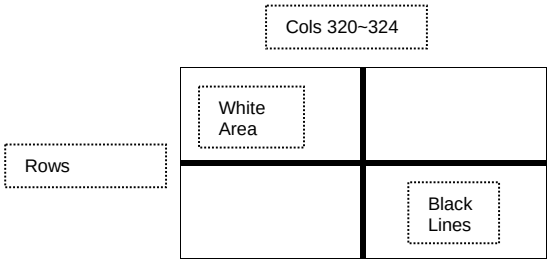
Note 8: Definition of Chromaticity:

The color coordinates (X_W,Y_W),(X_R,Y_R),(X_G,Y_G),and (X_B,Y_B) are obtained with all pixels in the viewing field at white, red, green, and blue states, respectively.

Note 9: Definition of Image sticking (tis):

Continuously display the test pattern shown in the figure below for 2 hours. Then display a completely white screen. The previous image shall not persist more than 2 sec at 25 °C

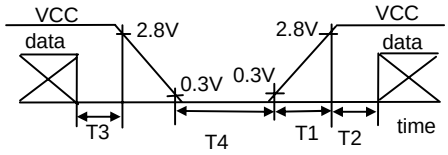
Image sticking pattern



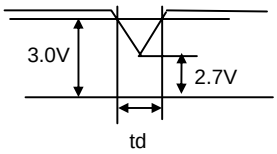
9. PIN CONNECTIONS

Pin No	Symbol	Function	Remark
1	GND	Ground for logic circuit	
2	CK	Data sampling clock	
3	HSYNC	Horizontal synchronous signal	
4	VSYNC	Vertical synchronous signal	
5	GND	Ground for logic circuit	
6	R0	Red pixel data(LSB)	
7	R1	Red pixel data	
8	R2	Red pixel data	
9	R3	Red pixel data	
10	R4	Red pixel data	
11	R5	Red pixel data(MSB)	
12	GND	Ground for logic circuit	
13	G0	Green pixel data(LSB)	
14	G1	Green pixel data	
15	G2	Green pixel data	
16	G3	Green pixel data	
17	G4	Green pixel data	
18	G5	Green pixel data(MSB)	
19	GND	Ground for logic circuit	
20	B0	Blue pixel data(LSB)	
21	B1	Blue pixel data	
22	B2	Blue pixel data	
23	B3	Blue pixel data	
24	B4	Blue pixel data	
25	B5	Blue pixel data(MSB)	
26	GND	Ground for logic circuit	
27	ENAB	Data enable signal	
28	Vcc	Power Supply : +3.3V/+5V	
29	Vcc	Power Supply : +3.3V/+5V	
30	R/L	Right/Left scan control input	
31	U/D	Up/Down scan control input	
32	GND	Ground for logic circuit	

9.1 POWER OFF/ON SEQUENCE



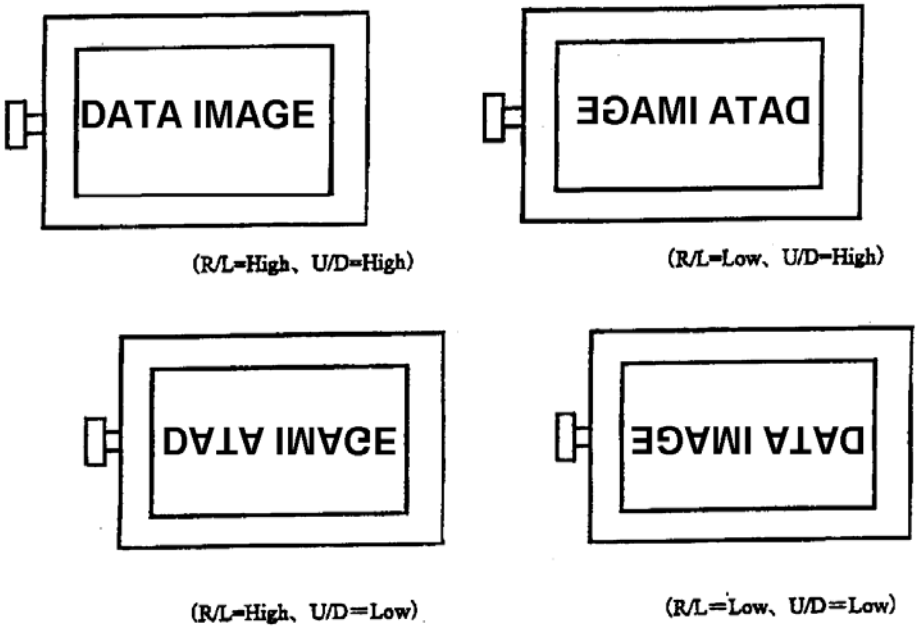
Timing Specifications:
0<T1≤15ms
0<T2≤20ms
0<T3≤1s
1s <T4



1)2.7V≤VCC<3.0V td≤10ms
2)VCC<2.7V

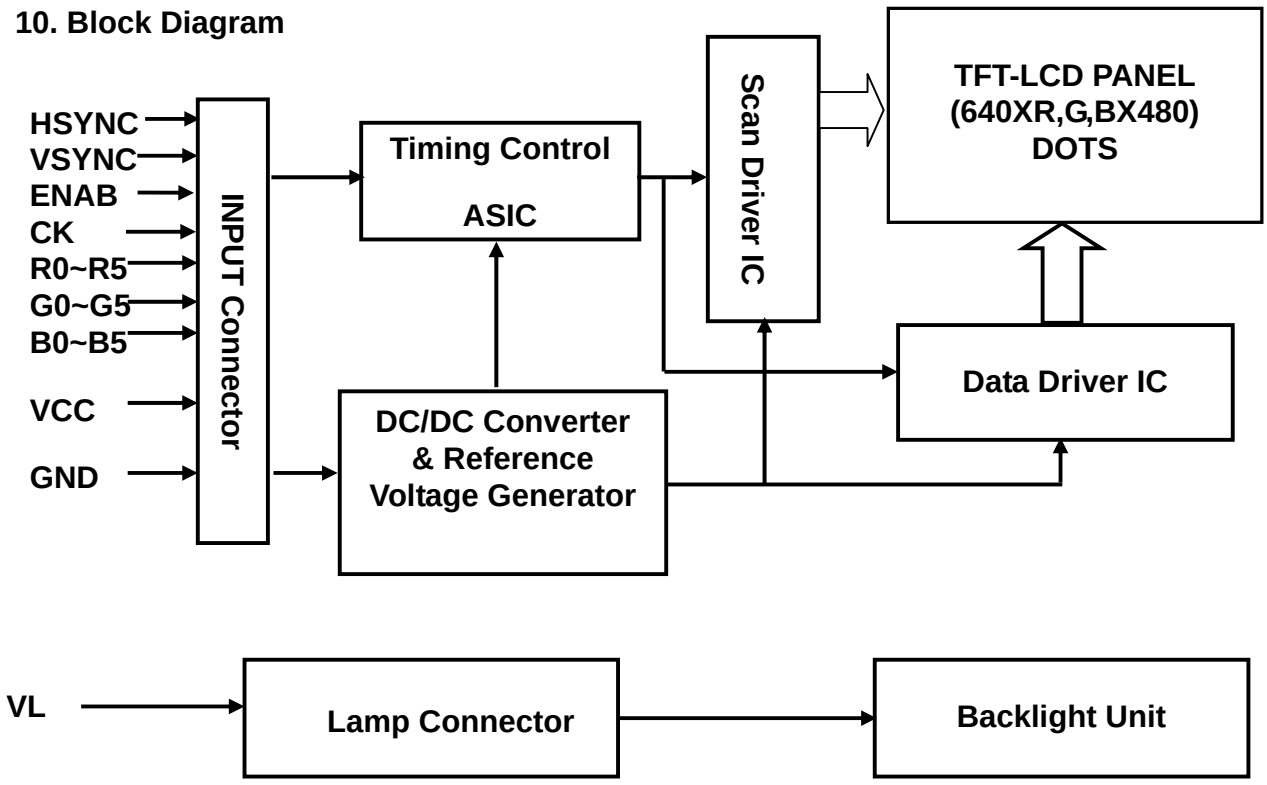
Notes:1.Please avoid floating state of interface signal at invalid period.
2.When the interface signal is invalid, be sure to pull down the power supply for LCD V_{CC} to 0V.

Signals



No.	Symbol	I/O	Description	Remark
1	HI	I	Power supply for backlight unit (High voltage)	
2	GND	-	Ground for backlight unit	

10. Block Diagram



11. TOUCH PANEL CHARACTERISTICS

1.Input Method and Activation Force

Input Method	Average Activation Force
1.6mm dia. Delrin stylus	0.10~0.70N
1.6mm dia .Silicon “finger”	0.10~0.80N

2.Typical Optical Characteristics

ITEM	Parameter
Visible Light Transmission	>80%
Haze	<10%

3. Electrical Specification

ITEM		Parameter
Operating Voltage		5.5V or less
Contact current		20 mA
Circuit close resistance	X	350~900Ω
	Y	250~750Ω
Circuit open resistance		>10MΩ at 25V DC
Contact bounce		<10ms
Linear Test		<1.5%
Capacitance		100nF

4.Linearity

ITEM		Parameter
Linear Test Specification Direction	X	<1.5%
	Y	<1.5%

5.Specification

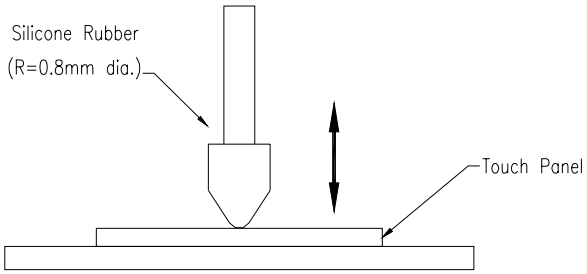
ITEM	Parameter
Operating Temperature	-10°C~+60°C
Storage Temperature	-40°C~+80°C

6.Durability test:

6.1 Finger touches

Touch panel is hit 10 millions times with a silicone rubber of R8 finger, hitting rate is by 250g at 2 times per second. The measurement must satisfy the following:

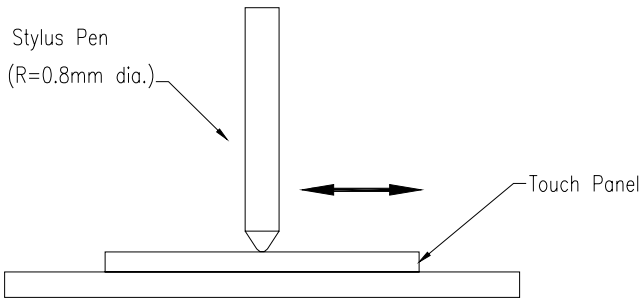
- Circuit close resistance: x 350~900Ω ; y 250~750Ω
- Circuit open resistance: >10MΩ at 25V DC
- Contact bounce: <10ms
- Linearity test: <1.5%



6.2 Stylus writing

Touch panel is drawn by R0.8 Derlin stylus pen, at 250g forces, repeat one inch by 100k times. The measurement must satisfy the following:

- Circuit close resistance: x 350~900Ω ; y 250~750Ω
- Circuit open resistance: >10MΩ at 25V DC
- Contact bounce: <10ms
- Linearity test: <1.5%



12. QUALITY ASSURANCE

12.1 Test Condition

12.1.1 Temperature and Humidity(Ambient Temperature)

Temperature : 25 ± 5°C
Humidity : 65 ± 5%

12.1.2 Operation

Unless specified otherwise, test will be conducted under function state.

12.1.3 Container

Unless specified otherwise, vibration test will be conducted to the product itself without putting it in a container.

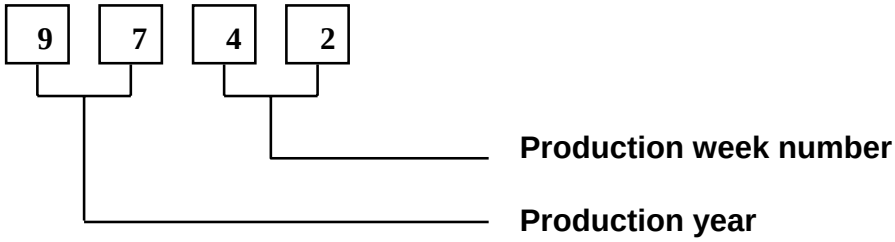
12.1.4 Test Frequency

In case of related to deterioration such as shock test. It will be conducted only once.

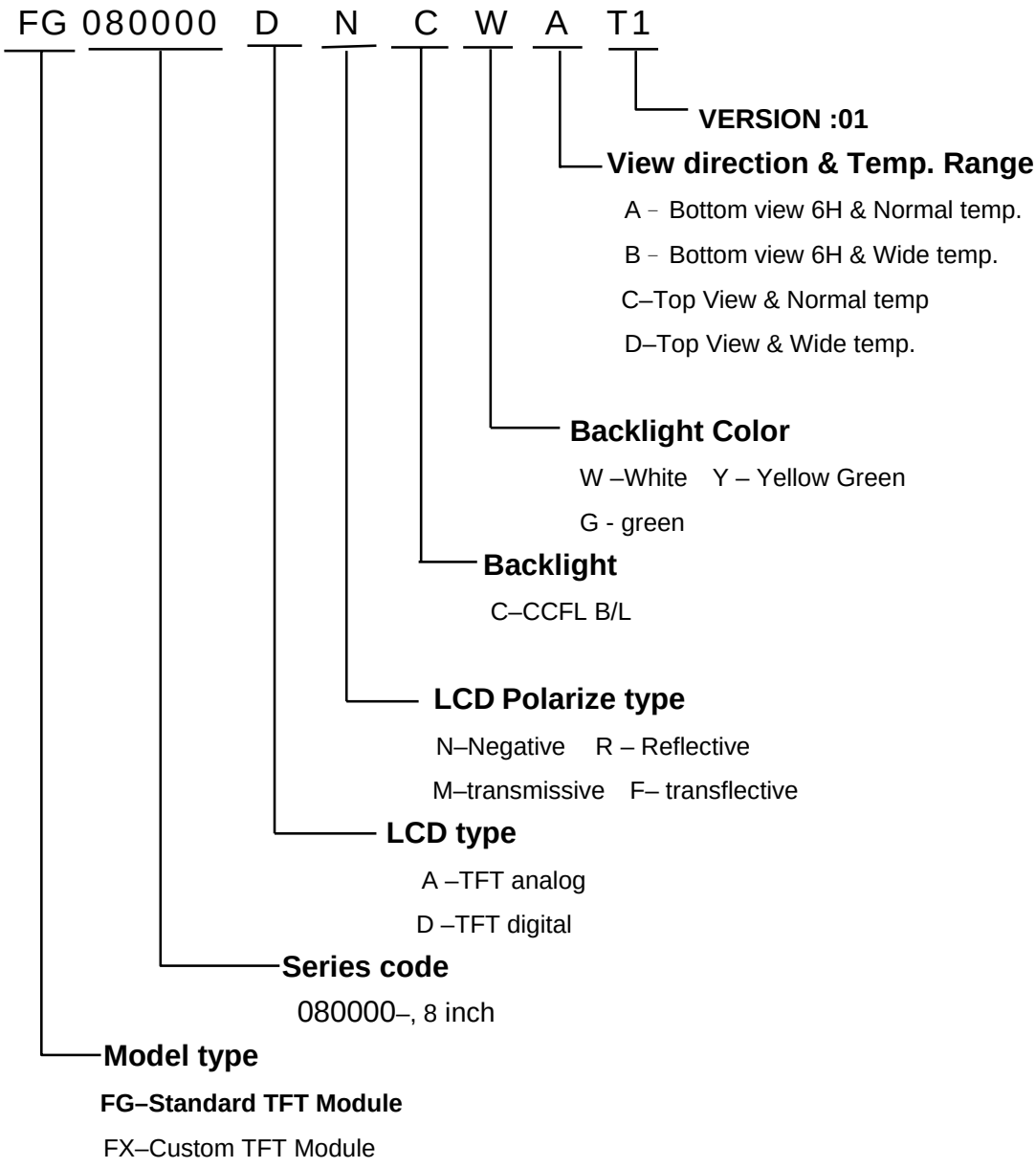
12.1.5 Test Method

Reliability Test Item & Level		Test Level
No.	Test Item	
1	High Temperature Storage Test	T=60℃,240hrs
2	Low Temperature Storage Test	T=-20℃,240hrs
3	High Temperature Operation Test	--
4	Low Temperature Operation Test	T=0℃,240hrs
5	High Temperature and High Humidity Operation Test	T=50℃,80RH,240hrs
6	Thermal Cycling Test (No operation)	0℃ → +25℃ → +60℃,50 Cycles 60 min 30 min 60 min
7	Vibration Test (No operation)	Frequency：10 ~ 57 Hz Amplitude：1.0 mm 58 ~ 500 Hz, 1G Sweep Time：11min Test Period：3hrs (1hrs for each Direction of X,Y,Z)
8	Shock Test (No operation)	80G, 6ms Direction：± X,± Y,± Z Cycle：1 times

13. LOT NUMBERING SYSTEM



14. LCM NUMBERING SYSTEM



15. PRECAUTION FOR USING LCM

1. LIQUID CRYSTAL DISPLAY (LCD)

LCD is made up of glass, organic sealant, organic fluid, and polymer based polarizers. The following precautions should be taken when handing,

(1). Keep the temperature within range of use and storage. Excessive temperature and humidity could cause polarization degredation, polarizer peel off or bubble.

(2). Do not contact the exposed polarizers with anything harder than an HB pencil lead. To clean dust off the display surface, wipe gently with cotton, chamois or other soft material soaked in petroleum benzin.

(3). Wipe off saliva or water drops immediately. Contact with water over a long period of time may cause polarizer deformation or color fading, while an active LCD with water condensation on its surface will cause corrosion of ITO electrodes.

(4). Glass can be easily chipped or cracked from rough handling, especially at corners and edges.

(5). Do not drive LCD with DC voltage.

2. Liquid Crystal Display Modules

2.1 Mechanical Considerations

LCM are assembled and adjusted with a high degree of precision. Avoid excessive shocks and do not make any alterations or modifications. The following should be noted.

(1). Do not tamper in any way with the tabs on the metal frame.

(2). Do not modify the PCB by drilling extra holes, changing its outline, moving its components or modifying its pattern.

(3). Do not touch the elastomer connector, especially insert an backlight panel (for example, EL).

(4). When mounting a LCM make sure that the PCB is not under any stress such as bending or twisting . Elastomer contacts are very delicate and missing pixels could result from slight dislocation of any of the elements.

(5). Avoid pressing on the metal bezel, otherwise the elastomer connector could be deformed and lose contact, resulting in missing pixels.

2.2. Static Electricity

LCM contains CMOS LSI's and the same precaution for such devices should apply, namely

(1). The operator should be grounded whenever he/she comes into contact with the module. Never touch any of the conductive parts such as the LSI pads, the copper leads on the PCB and the interface terminals with any parts of the human body.

(2). The modules should be kept in antistatic bags or other containers resistant to static for storage.

(3). Only properly grounded soldering irons should be used.

(4). If an electric screwdriver is used, it should be well grounded and shielded from commutator sparks.

(5) The normal static prevention measures should be observed for work clothes and working benches; for the latter conductive (rubber) mat is recommended.

(6). Since dry air is inductive to statics, a relative humidity of 50-60% is recommended.

2.3 Soldering

(1). Solder only to the I/O terminals.

(2). Use only soldering irons with proper grounding and no leakage.

(3). Soldering temperature : 280°C ± 10°C

(4). Soldering time: 3 to 4 sec.

(5). Use eutectic solder with resin flux fill.

(6). If flux is used, the LCD surface should be covered to avoid flux spatters. Flux residue should be removed after wards.

2.4 Operation

(1). The viewing angle can be adjusted by varying the LCD driving voltage V0.

(2). Driving voltage should be kept within specified range; excess voltage shortens display life.

(3). Response time increases with decrease in temperature.

(4). Display may turn black or dark blue at temperatures above its operational range; this is (however not pressing on the viewing area) may cause the segments to appear "fractured".

(5). Mechanical disturbance during operation (such as pressing on the viewing area) may cause the segments to appear "fractured".

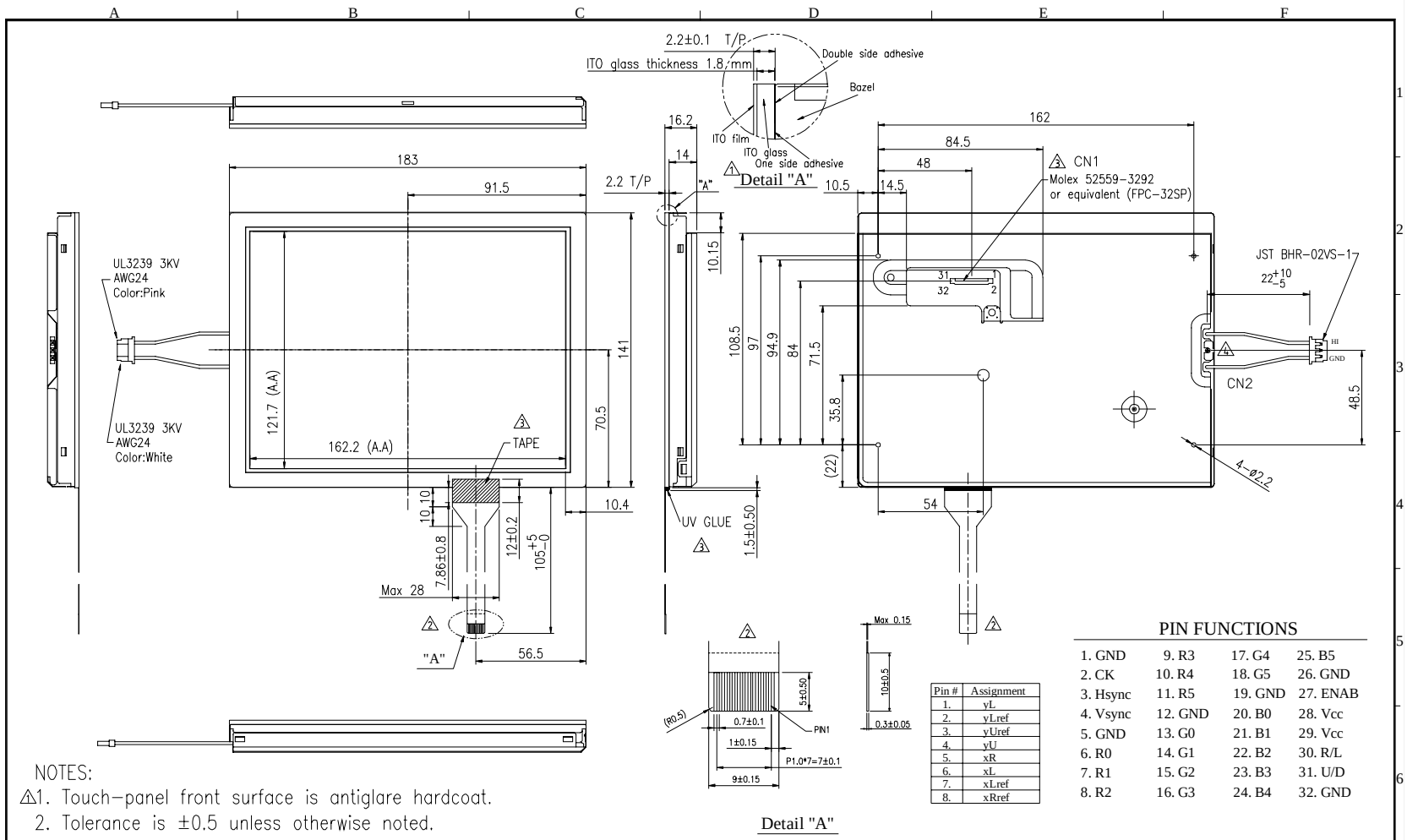
2.5 Storage

If any fluid leaks out of a damaged glass cell, wash off any human part that comes into contact with soap and water. Never swallow the fluid. The toxicity is extremely low but caution should be exercised at all the time.

2.6 Limited Warranty

Unless otherwise agreed between DATA IMAGE and customer, DATA IMAGE will replace or repair any of its LCD and LCM which is found to be defective electrically and visually when inspected in accordance with DATA IMAGE acceptance standards, for a period on one year from date of shipment. Confirmation of such date shall be based on freight documents. The warranty liability of DATA IMAGE is limited to repair and/or replacement on the terms set forth above. DATA IMAGE will not responsible for any subsequent or consequential events.

16. OUTLINE DRAWING



Pin #	Assignment
1.	yL
2.	yLref
3.	yUref
4.	yU
5.	xR
6.	xL
7.	xLref
8.	xRref

PIN FUNCTIONS

1. GND	9. R3	17. G4	25. B5
2. CK	10. R4	18. G5	26. GND
3. Hsync	11. R5	19. GND	27. ENAB
4. Vsync	12. GND	20. B0	28. Vcc
5. GND	13. G0	21. B1	29. Vcc
6. R0	14. G1	22. B2	30. R/L
7. R1	15. G2	23. B3	31. U/D
8. R2	16. G3	24. B4	32. GND

NOTES:

⚠1. Touch-panel front surface is antiglare hardcoat.

2. Tolerance is ±0.5 unless otherwise noted.

Detail "A"

	DESCRIPTION	DATE	APPROVED
⚠4	Change outline drawing Elimination 3M 1245 foil and modify top bezel		
⚠3	Add TAPE & UV GLUE		
⚠3	Add 3M 1245 foil on bezel , Molex 52559-3292 or equivalent(FPC-32SP)		
⚠2	Change FPC Pitch from 1.25 mm to 1.0 mm		
⚠1	Add notes for touch-panel front surface is antiglare hardcoat.		
AUTH	REVISIONS		

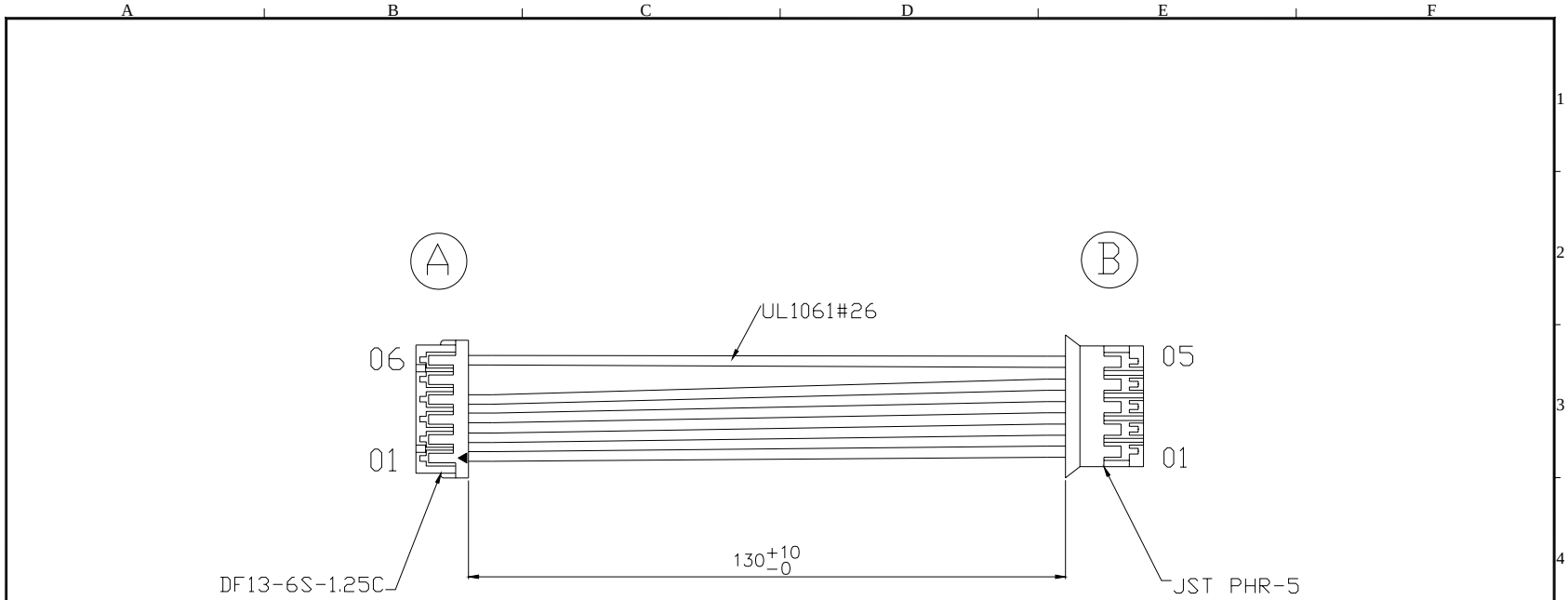
DATE:	09/18/03'
DRAWN:	
CHECK:	
APPROVE:	

TITLE: LCM OUTLINE DIMENSION

DWG. NO.	FG080000C-T1		
UNITS M M		REV.	6
SCALE 1 / 1	SHEET 1 OF 1		

DATA IMAGE

16.1 CABLE OUTLINE DRAWING



線位對照表				
橙	黑	白	黃	紅
A1	A2	A3	A4	A6
B1	B2	B3	B4	B5

AUTH	DESCRIPTION	DATE	APPROVED

REVISIONS

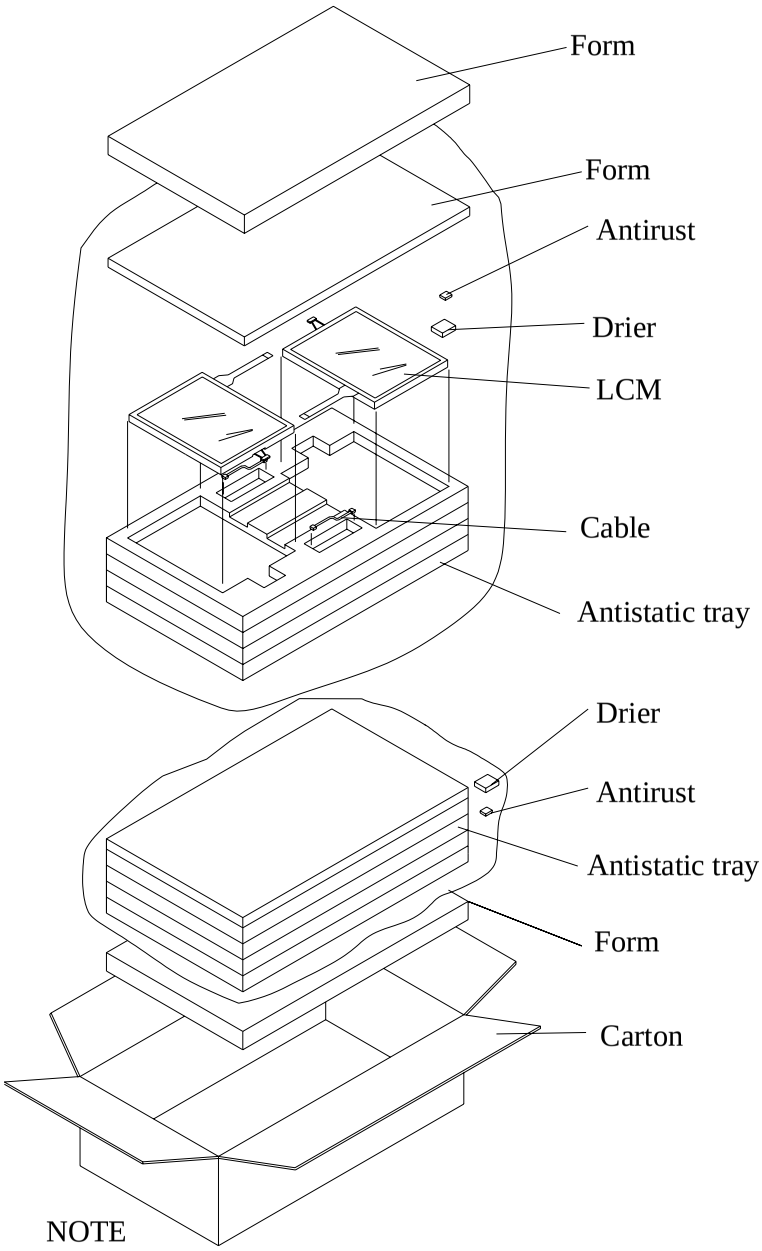
DATE:	01/30/04'
DRAWN:	
CHECK:	
APPROVE:	

TITLE: CABLE OUTLINE DIMENSION

DWG. NO.	EE080000-1		
UNITS MM		REV.	1
SCALE 1/1	SHEET 1 OF 1		

DATA IMAGE

17.PACKAGE INFORMATION



NOTE
Remove protection film before use it.

1 Antistatic tray = 2 pcs

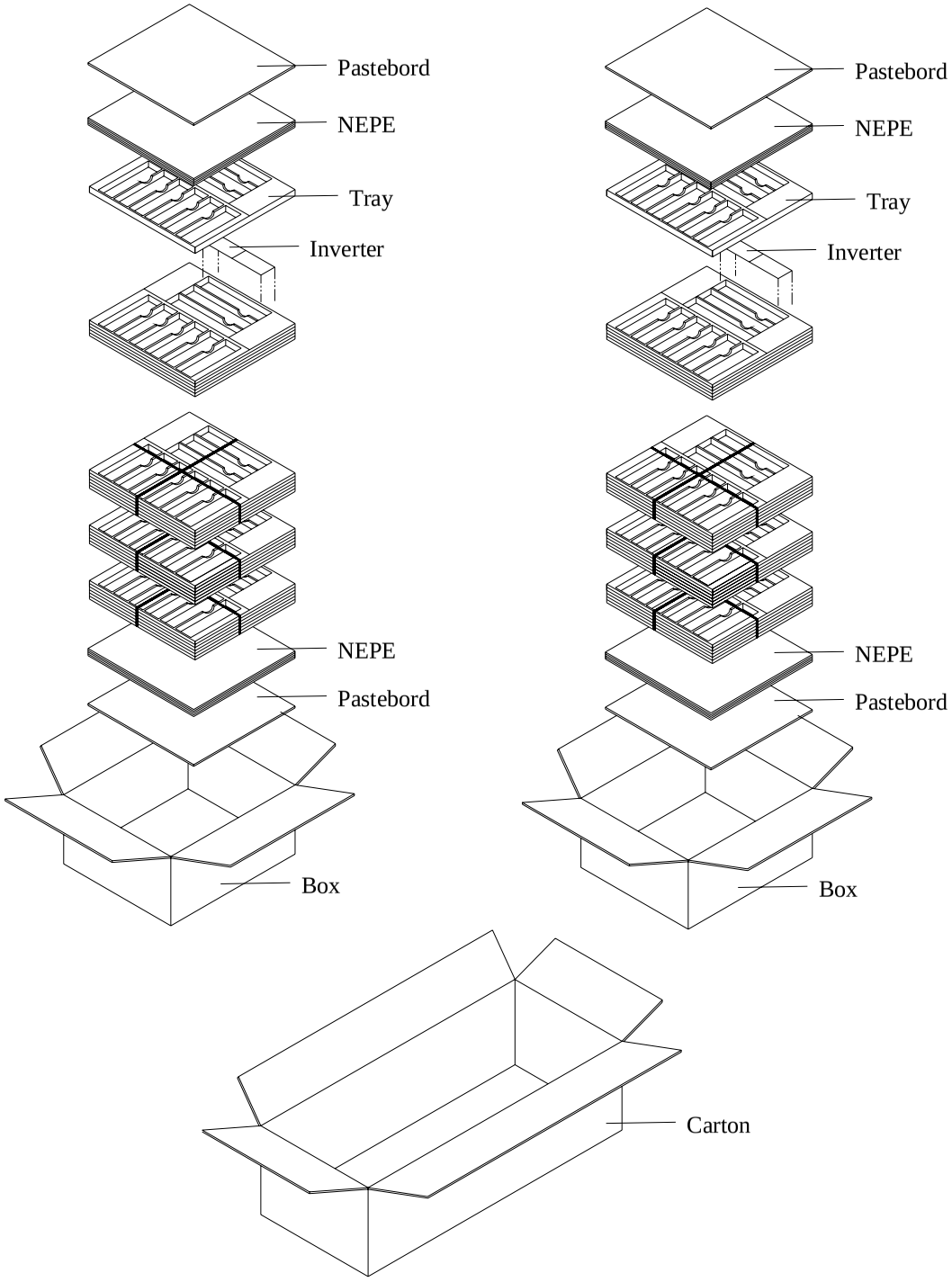
1 Carton = 2 x 4 x 2 = 16 pcs

Carton size : 485L x 285W x 280H (mm)

Total Weight ≒ 10.3 kgw

8.0" TFT LCM PACKING

17.1 INVERTER PACKAGE INFORMATIO



1 Antistatic tray = 18 pcs

1 Box = 18 x 20 = 360 pcs

1 Carton = 360 x 2 = 720 pcs

Carton size : 505L x 305W x 282H (mm)

Total Weight = 11.6 kgw

Inverter Packing