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	MOBILE LIQUID CRYSTAL DISPLAY GROUP SHARP CORPORATION	PAGE : 22 pages
	SPECIFICATION	APPLICABLE GROUP MOBILE LIQUID CRYSTAL DISPLAY GROUP

DEVICE SPECIFICATION FOR

TFT-LCD Module

MODEL No.

LQ070Y3LG4A

☐ CUSTOMER'S APPROVAL

DATE

BY

PRESENTED

BY

T. NAKA
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SHARP CORPORATION

RECORDS OF REVISION

LQ070Y3LG4A

SPEC No.	DATE	REVISED No.	PAGE	SUMMARY	NOTE
LD-21705A	Jul.10.2009	-	-		1st Issue

In case of using the device for applications such as control and safety equipment for transportation(aircraft, trains, automobiles, etc.), rescue and security equipment and various safety related equipment which require higher reliability and safety, take into consideration that appropriate measures such as fail-safe functions and redundant system design should be taken.

Do not use the device for equipment that requires an extreme level of reliability, such as aerospace applications, telecommunication equipment(trunk lines), nuclear power control equipment and medical or other equipment for life support.

SHARP assumes no responsibility for any damage resulting from the use of the device, which does not comply with the instructions, and the precautions specified in these specification sheets.

Contact and consult with a SHARP sales representative for any questions about this device.

Table of contents

1. Application

This specification applies to a color TFT-LCD module, LQ070Y3LG4A.

2. Overview

This module is a color active matrix LCD module incorporating amorphous silicon TFT (Thin Film Transistor). It is composed of a color TFT-LCD panel, driver ICs, power supply circuit, and a backlight unit. Graphics and texts can be displayed on a 800×3×480 dots panel with 16,194,277 colors by using LVDS (Low Voltage Differential Signaling) interface and supplying +3.3V DC supply voltage for TFT-LCD panel driving and supply voltage for backlight.

In this TFT-LCD panel , low reflection / color filters of excellent color performance and backlights of high brightness are incorporated to realize brighter and clearer pictures, making this model optimum for use in multi-media applications.

Optimum viewing direction is 6 o'clock.

White-LED Backlight-driving DC/DC converter is not built in this module.

3. Mechanical Specifications

Parameter	Specifications	Unit
Display size	17.8 (7.0") Diagonal	cm
Active area	152.4(H)×91.4 (V)	mm
Pixel format	800 (H)×480 (V)	pixel
	(1 pixel = R+G+B dots)	
Aspect ratio	15 : 9	
Pixel pitch	0.1905 (H)×0.1905 (V)	mm
Pixel configuration	R,G,B Horizontal stripe	
Display mode	Normally white	
Surface treatment	Anti-Glare and hard-coating 2H	

Parameter		Min.	Typ.	Max.	Unit	Remark
Unit outline dimensions [Note 1]	Width	162.9	163.2	163.5	mm	[Note 1]
	Height	103.7	104.0	104.3	mm	
	Depth	—	3.9	4.2	mm	
		—	—	6.25	mm	[Note 2]
Mass		—	135	150	g	

[Note 1] Excluding the FPC and parts mounting area.

Outline dimensions is shown in Fig.2

[Note 2] Including the FPC and parts mounting area.

4. Input Terminals

4-1. TFT-LCD panel driving and LED Backlight driving
CN1 (LVDS signals, +3.3V DC power supply and LED power supply)

Pin No.	Symbol	Function	Remark
1	GND		[Note 2]
2	Vcc	+3.3V power supply	
3	Vcc	+3.3V power supply	
4	NC		[Note 3]
5	NC		[Note 3]
6	NC		[Note 3]
7	NC		[Note 3]
8	RxIN0-	Receiver signal of LVDS CH0 (-)	[Note 1]
9	RxIN0+	Receiver signal of LVDS CH0 (+)	[Note 1]
10	GND		[Note 2]
11	RxIN1-	Receiver signal of LVDS CH1 (-)	[Note 1]
12	RxIN1+	Receiver signal of LVDS CH1 (+)	[Note 1]
13	GND		[Note 2]
14	RxIN2-	Receiver signal of LVDS CH2 (-)	[Note 1]
15	RxIN2+	Receiver signal of LVDS CH2 (+)	[Note 1]
16	GND		[Note 2]
17	CK IN-	Receiver signal of LVDS CLK (-)	[Note 1]
18	CK IN+	Receiver signal of LVDS CLK (+)	[Note 1]
19	GND		[Note 2]
20	RxIN3-	Receiver signal of LVDS CH3 (-)	[Note 1]
21	RxIN3+	Receiver signal of LVDS CH3 (-)	[Note 1]
22	GND		[Note 2]
23	NC		[Note 3]
24	LED A	Power Supply for LED (Anode)	[Note 4]
25	LED A	Power Supply for LED (Anode)	[Note 4]
26	LED A	Power Supply for LED (Anode)	[Note 4]
27	LED K1	Power Supply for LED (Cathode)	
28	NC		[Note 3]
29	LED K2	Power Supply for LED (Cathode)	
30	LED K3	Power Supply for LED (Cathode)	

[Note 1] Relation between RxINi(i=0,1,2,3) and actual data is shown in following section (4-2)(7-2).

[Note 2] The shielding case is connected with signal GND.

[Note 3] Please use NC by OPEN or GND. NC terminal is not connected with the internal circuit.
[Note 4] “LED A”(Pin No.24-26) are tied together on LCD PCB.

Using connector : FI-XB30SRL-HF11 (JAE) or MDF76LBRW-30S-1H(Hirose)

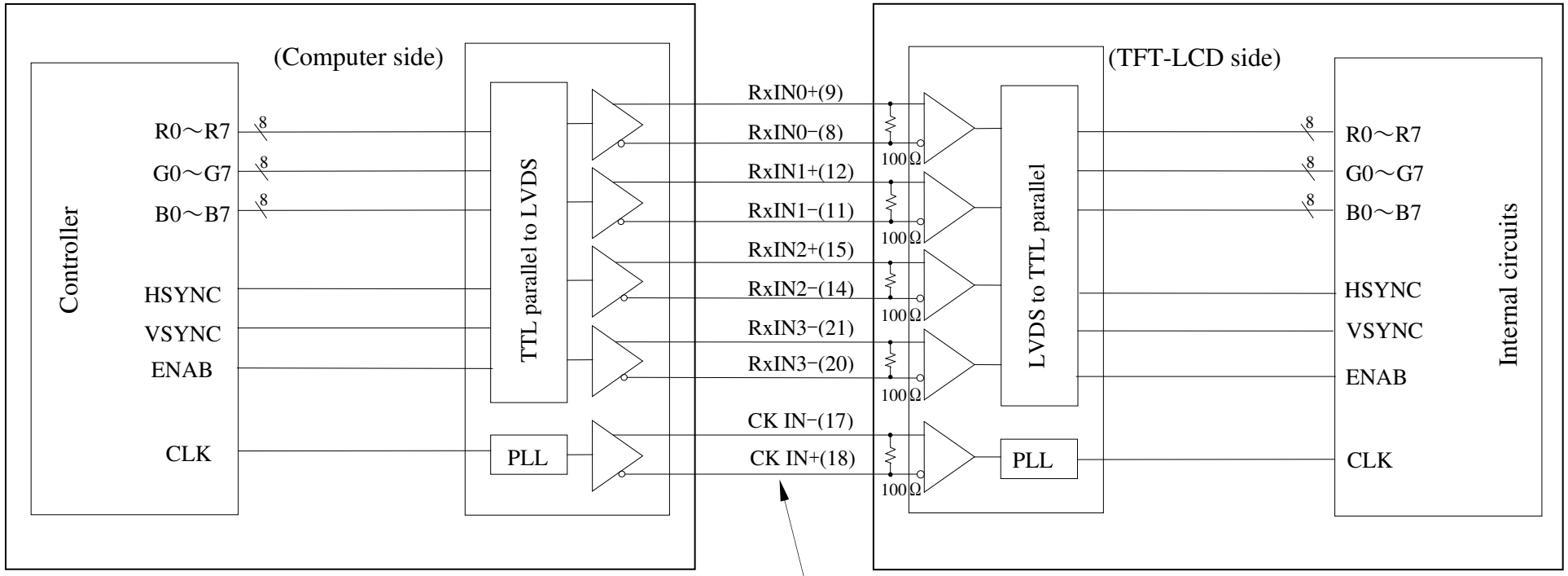
Corresponding connector : FI-X30H,FI-X30HL or FI-X30M (JAE)

(Sharp is not responsible to its product quality, if the user applies a connector not corresponding to the above model.)

[Note]Connector metalic shell is not connected with signal GND.

4-2 LVDS interface block diagram

Using receiver : Single LVDS interface contained in a control IC



[Note] Refer “6.3.2.LVDS data” for LVDS data mapping

Symbol of CN1 (Pin No.)

5. Absolute Maximum Ratings

Parameter	Symbol	Condition	Ratings		Unit	Remark
			Min.	Max.		
Input voltage	V_I	Ta=25℃	-0.3	Vcc+0.3	V	[Note 1]
+3.3V supply voltage	VCC	Ta=25℃	0	+4.0	V	
LED forward current	I_{LED}	Ta=25℃	0	30	mA	[Note 2]
LED reverse voltage	V_{LED_R}	Ta=25℃	—	5	V	
Storage temperature	Tstg	—	-30	+70	℃	[Note 3]
Operating temperature	Topa	—	-20	+60	℃	

[Note 1] LVDS signals

[Note 2] LED_A to LED_Kn (n=1,2,3)

[Note 3] Humidity：95%RH Max. at Ta≦+40℃.

Maximum wet-bulb temperature at +39℃ or less at Ta>+40℃.

No condensation.

6. Electrical Characteristics

6-1.TFT-LCD panel driving

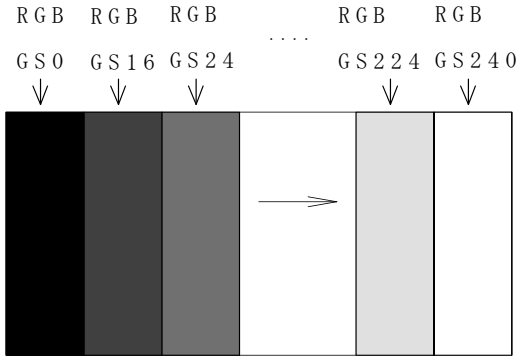
Ta＝+25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit	Remark
Supply voltage		VCC	+3.0	+3.3	+3.6	V	
Current dissipation		Icc	—	160	200	mA	[Note 1]
Permissive input ripple voltage		V_{RP}	—	—	100	mV_{P-P}	Vcc = +3.3V
Input voltage range		V_I	0		2.4	V	LVDS signals
Differential input threshold voltage	High	V_{TH}	—	—	+100	mV	V_{CM} = +1.2V [Note 2]
	Low	V_{TL}	–100	—	—	mV	
Input current (High)		I_{OH}	—	—	±10	μA	V_I = +2.4V Vcc = +3.6V
Input current (Low)		I_{OL}	—	—	±10	μA	V_I = 0V Vcc = 3.6V
Terminal resistor		R_T	—	100	—	Ω	Differential input

[Note 1] Typical current situation :

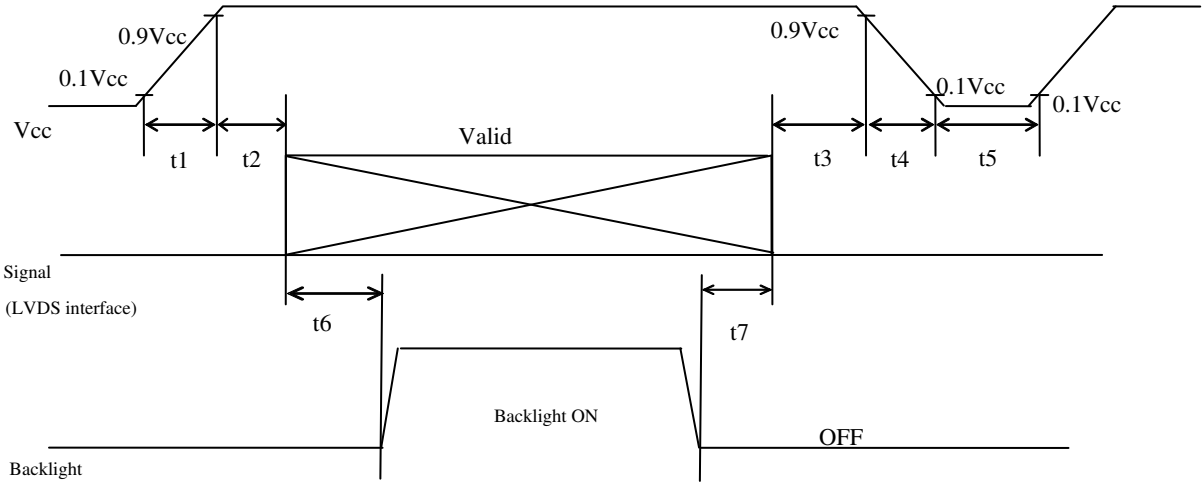
16-gray-bar pattern.

Vcc=+3.3V



[Note 2] V_{CM} : Common mode voltage of LVDS driver.

[Note 3]
On-off conditions for supply voltage



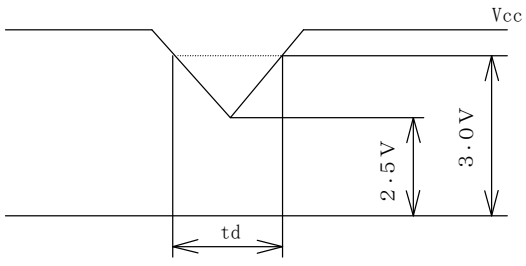
Symbol	Min.	Max.	Unit	Remark
t1	0	10	ms	
t2	0	1	ms	
t3	0	1	ms	
t4	0	400	ms	
t5	1	—	s	
t6	180	—	ms	*1
t7	5	—	ms	*1

*1 : As for the power sequence for backlight, it is recommended to apply above mentioned input timing. If the backlight is lit on and off at a timing other than shown above, displaying image may get disturbed.

[Note] Do not keep the interface signal high-impedance or unusual signal when power is on.

Vcc-dip conditions

1) 2.5 V≦Vcc＜3.0 V
   td≦10 ms
   Under above condition, the display image should return to an appropriate figure after Vcc voltage recovers.
2) Vcc＜2.5 V
   Vcc-dip conditions should also follow the On-off conditions for supply voltage



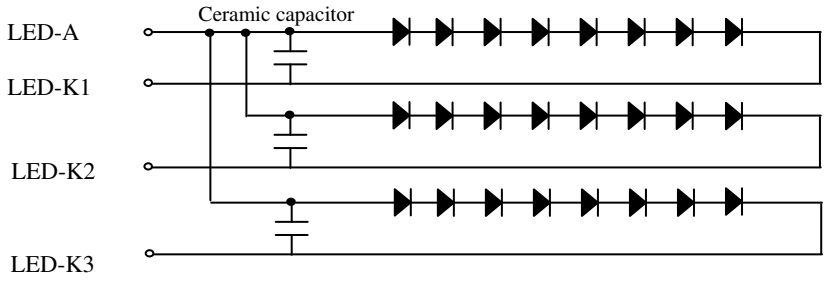
6-2. Backlight driving

The backlight system is edge-lighting type with 24 White-LED(White Light Emitting Diode).

The characteristics of White-LED are shown in the following table. (Ta=25 °C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED voltage	V_L	—	25.6	28	V	I_L=20mA
LED current range	I_L	15	20	25	mA	
Number of circuit strings		—	3	—		[Note 1]
LED power consumption	W_L	—	1.54	—	W	[Note 2]
LED life time	L_L	10000	—	—	Hour	[Note 3]

[Note 1] The LED backlight is composed by 3 strings from which 8 LED is connected with the series.
The figure below shows the circuit chart.
In each string, there is a ceramic capacitor for the electrostatic protection.



[Note 2] Calculated value for reference ($I_L \times V_L$)

[Note 3] LED life time is defined as the time when Brightness becomes 50 % of the original value.
under the condition of Ta = 25℃ and I_L = 20 mA,and continuous lighting.

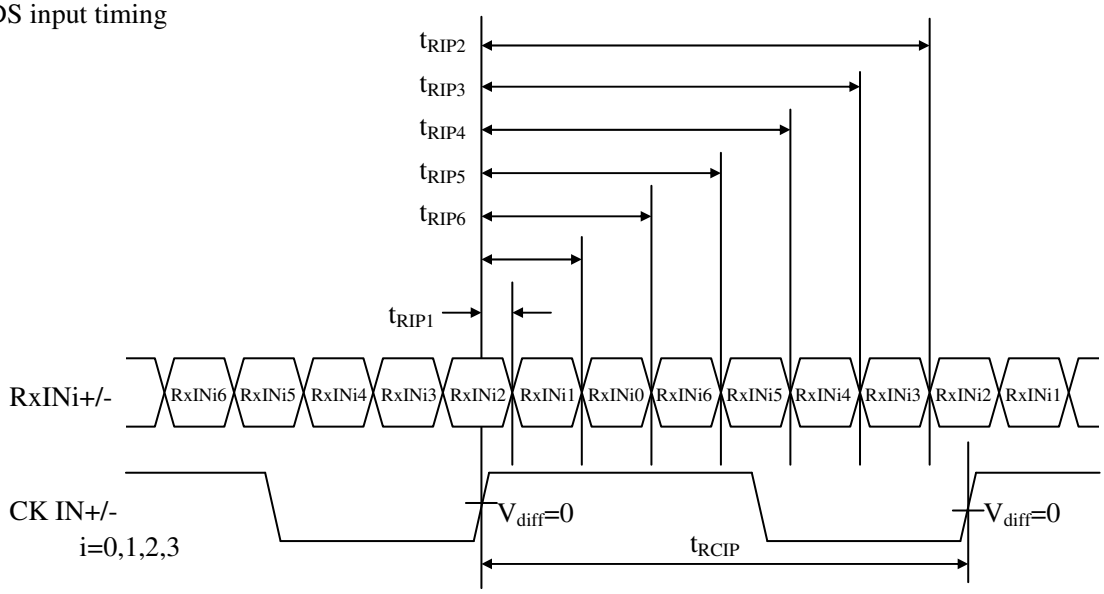
6-3. LVDS input specification

6.3.1. AC characteristics

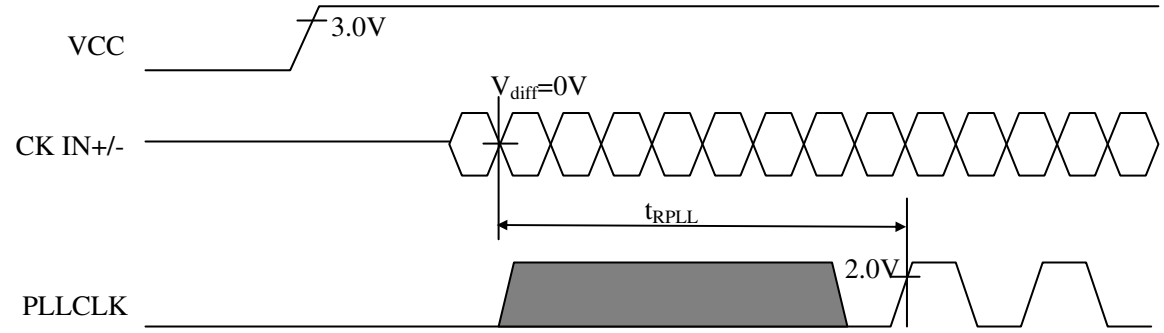
Vcc=+3.0V～+3.6V, Ta＝0℃～+60℃

Parameter	Symbol	Min	Typ.	Max.	Unit
Input Data Position 0 (tRCIP=30.1ns)	t_{RIP1}	-0.25	0.0	+0.25	ns
Input Data Position 1 (tRCIP=30.1ns)	t_{RIP0}	t_{RCIP}/7-0.25	t_{RCIP}/7	t_{RCIP}/7+0.25	ns
Input Data Position 2 (tRCIP=30.1ns)	t_{RIP6}	2 t_{RCIP}/7-0.25	2 t_{RCIP}/7	2 t_{RCIP}/7+0.25	ns
Input Data Position 3 (tRCIP=30.1ns)	t_{RIP5}	3 t_{RCIP}/7-0.25	3 t_{RCIP}/7	3 t_{RCIP}/7+0.25	ns
Input Data Position 4 (tRCIP=30.1ns)	t_{RIP4}	4 t_{RCIP}/7-0.25	4 t_{RCIP}/7	4 t_{RCIP}/7+0.25	ns
Input Data Position 5 (tRCIP=30.1ns)	t_{RIP3}	5 t_{RCIP}/7-0.25	5 t_{RCIP}/7	5 t_{RCIP}/7+0.25	ns
Input Data Position 6 (tRCIP=30.1ns)	t_{RIP2}	6 t_{RCIP}/7-0.25	6 t_{RCIP}/7	6 t_{RCIP}/7+0.25	ns
Phase Lock Loop Set	t_{RPLL}	—	—	10	ms
Input Clock Period	t_{RCIP}	28.9	30.1	31.3	ns

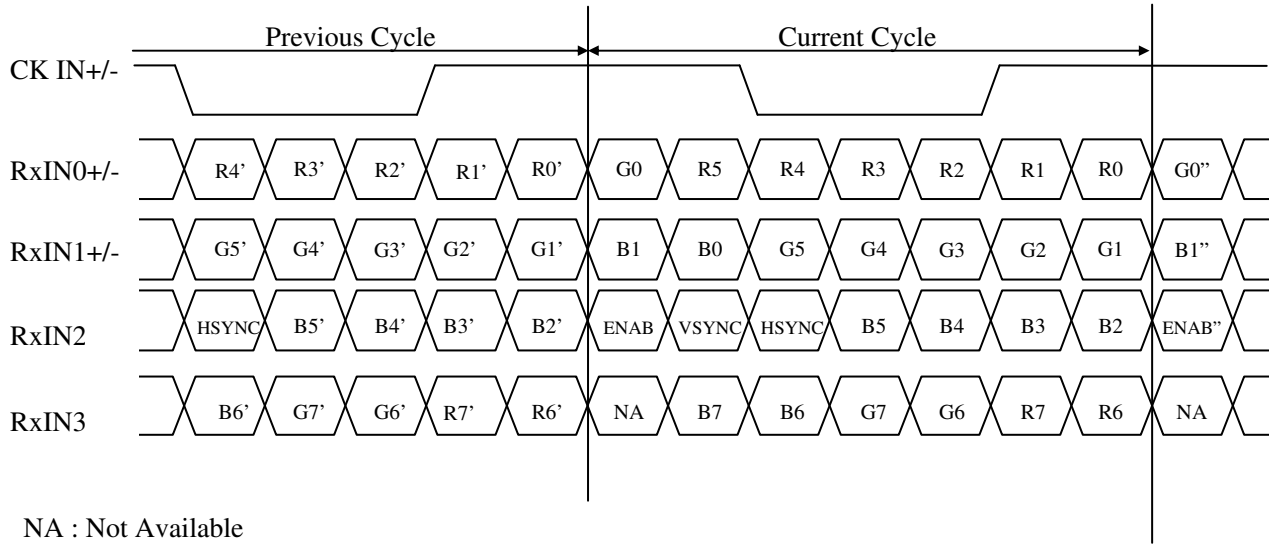
LVDS input timing



LVDS phase lock loop set



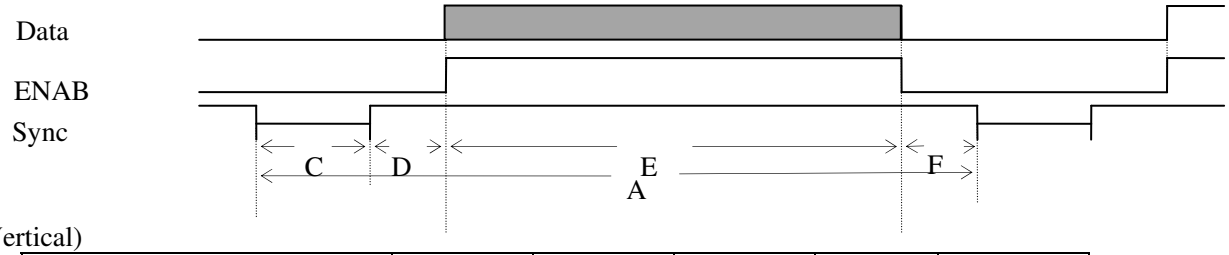
6.3.2.LVDS data



NA : Not Available

7. Timing Characteristics of Input Signals

7-1. Timing characteristics



(Vertical)

Item (symbol)	Min.	Typ.	Max.	Unit	Remark
Vsync cycle (T_{VA})	520	525	530	line	
Sync pulse width (T_{VC})	2		TV-515	line	
Back porch(T_{VC}+T_{VD})	-	35(Fixed)	-	line	
Active display area (T_{VE})	480	480	480	line	
Front porch (T_{VF})	3	-	-	line	

(Horizontal)

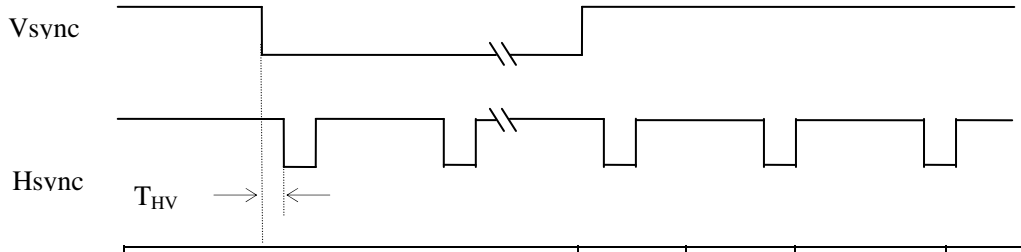
Item (symbol)	Min.	Typ.	Max.	Unit	Remark
Hsync cycle (T_{HA})	31.45	31.75	-	us	Positive
	1024	1056	1088	clock	
Sync pulse width (T_{HC})	5	128	186	clock	
Active display area (T_{HE})	800	800	800	clock	

(Clock)

Item (symbol)	Min.	Typ.	Max.	Unit	Remark
Frequency	31.95	33.26	34.6	MHz	[Note1]

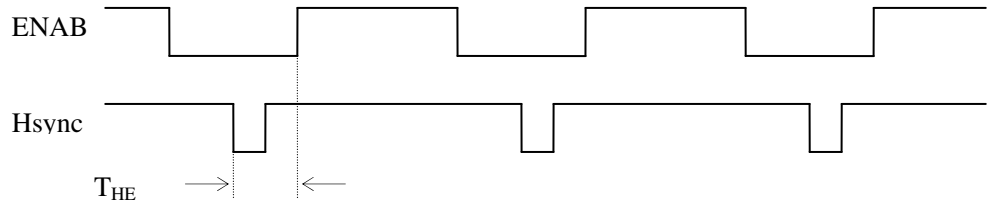
[Note1] In case of lower frequency, the deterioration of display quality, flicker etc., may be occurred.

(Hsync-Vsync Phase difference)



Item (symbol)	Min.	Typ.	Max.	Unit	Remark
Hsync-Vsync Phase difference (T_{HV})	8	-	TH-THp	clock	

(Hsync-ENAB Phase difference)



Item	Min.	Typ.	Max.	Unit	Remark
Hsync-ENAB Phase difference (T_{HN})	88	-	216	clock	

7-2. Display position

Item	Standards	Beginning	Ending	Unit	Remark
Horizontal	rising edge of ENAB	0	800	clock	
	falling edge of Hsync	216	1016	clock	[Note 1]
Vertical	falling edge of Vsync	36	516	clock	

[Note 1] ENAB signal must be fixed to low.

[Note]

(Horizontal display direction)

When ENAB is fixed low, 216 clocks are counted from Hsync negative edge and data from after are available. If you need other timing, please use ENAB signal.

(Vertical display direction)

36 lines are counted from Vsync negative edge and data from next line are available.

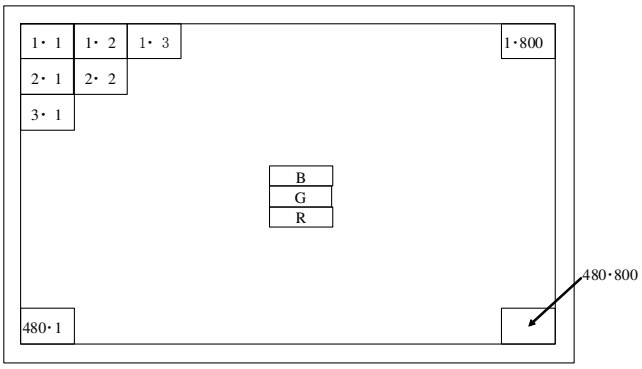
(ENAB signal)

ENAB could not be used for the purpose of the vertical display start timing.

Caution

Image will not be displayed on the right position otherwise.

7-3. Input data signals and display position on the screen



Display position of input data(V・H)

8. Input Signals, Basic Display Colors and Gray Scale of Each Color

	Colors & Gray scale	Grav Scale	Data signal 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	X	X	1	1	1	1	1	1
	Green	–	0	0	0	0	0	0	0	0	X	X	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Cyan	–	0	0	0	0	0	0	0	0	X	X	1	1	1	1	1	1	X	X	1	1	1	1	1	1
	Red	–	X	X	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Magenta	–	X	X	1	1	1	1	1	1	0	0	0	0	0	0	0	0	X	X	1	1	1	1	1	1
	Yellow	–	X	X	1	1	1	1	1	1	X	X	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	White	–	X	X	1	1	1	1	1	1	X	X	1	1	1	1	1	1	X	X	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
	⇧	↓					↓								↓								↓			
		↓					↓								↓								↓			
		GS250	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	⇩	GS251	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Brighter	GS252	X	X	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	⇩	↓					↓								↓								↓			
	Red	GS255	X	X	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
	⇧	↓					↓								↓								↓			
		↓					↓								↓								↓			
		GS250	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0
	⇩	GS251	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0
	Brighter	GS252	0	0	0	0	0	0	0	0	X	X	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	⇩	↓					↓								↓								↓			
	Green	Gs255	0	0	0	0	0	0	0	0	X	X	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
	⇧	↓					↓								↓								↓			
		↓					↓								↓								↓			
		GS250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1
	⇩	GS251	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1
	Brighter	GS252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	X	X	1	1	1	1	1	1
	⇩	↓					↓								↓								↓			
	Blue	GS255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	X	X	1	1	1	1	1	1

0 : Low level voltage, 1 : High level voltage. X :Don't care(GS252～GS255 are same grayscale)

Each basic color can be displayed in 253 gray scales from 8 bit data signals. According to the combination of total 24 bit data signals, the 16-million-color display can be achieved on the screen.

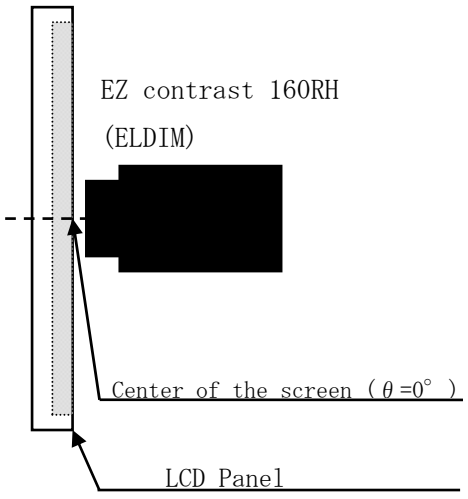
9. Optical Characteristics

Ta=+25℃, Vcc=+3.3V

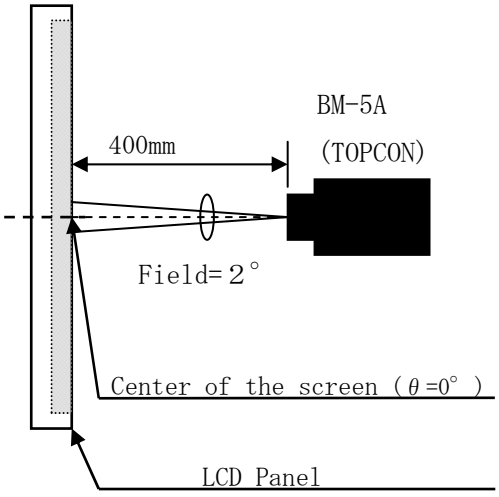
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing angle range	Horizontal	θ 21, θ 22	CR>10	55	65	—	Deg.	[Note 1,3,6]
	Vertical	θ 11		40	50	—	Deg.	
		θ 12		50	60	—	Deg.	
Contrast ratio		CRn	θ =0°	300	400	—		[Note 2,4,6]
Response time		τ r+ τ d	θ =0°	—	35	50	ms	[Note 2,5,6]
Chromaticity of white		x		0.252	0.302	0.352		[Note 2,6]
		y		0.279	0.329	0.379		
Chromaticity of red		x		0.533	0.583	0.633		
		y		0.272	0.322	0.372		
Chromaticity of green		x		0.274	0.324	0.374		
		y		0.496	0.546	0.596		
Chromaticity of blue		x		0.103	0.153	0.203		
		y		0.048	0.098	0.148		
Luminance of white		Y_{LI}		280	350	—	cd/m^2	I_f=20mA [Note 2,6]

※ The measurement shall be executed 30 minutes after lighting at rating. Condition : (I_f=20mA)
The optical characteristics shall be measured in a dark room or equivalent.

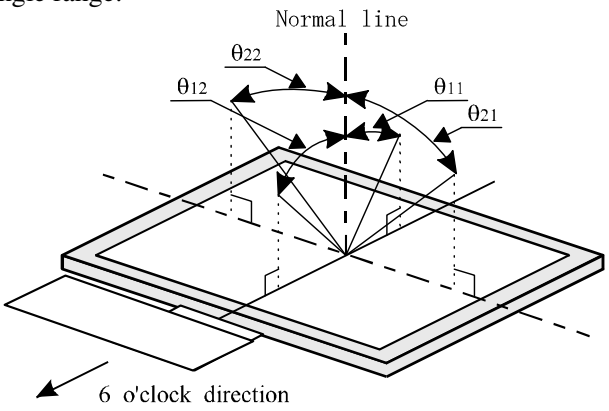
[Note 1] Measuring Viewing Angle Range



[Note 2] Other Measurements



[Note 3] Definitions of viewing angle range:



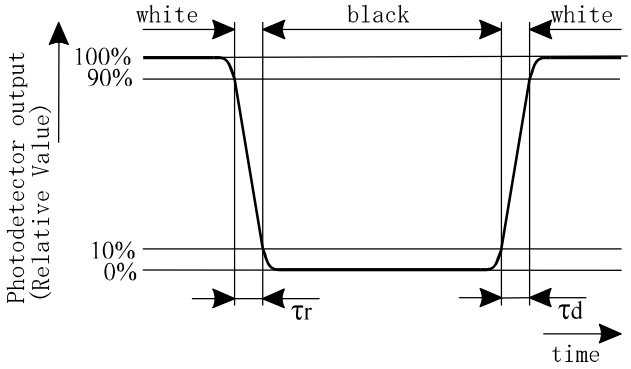
[Note 4] Definition of contrast ratio:

The contrast ratio is defined as the following.

$$\text{Contrast Ratio (CR)} = \frac{\text{Luminance (brightness) with all pixels white}}{\text{Luminance (brightness) with all pixels black}}$$

[Note 5] Definition of response time:

The response time is defined as the following figure and shall be measured by switching the input signal for "black" and "white" .



[Note 6] This shall be measured at center of the screen.

10. Display Quality

The display quality of the color TFT-LCD module shall be in compliance with the Incoming Inspection Standard.

11. Handling Precautions

a) Be sure to turn off the power supply when inserting or disconnecting the cable.

b) Be sure to design the cabinet so that the module can be installed without any extra stress such as warp or twist.

c) Since the front polarizer is easily damaged, pay attention not to scratch it.

d) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.

e) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.

f) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface. Handle with care.

g) Since CMOS LSI is used in this module, take care of static electricity and injure the human earth when handling. Observe all other precautionary requirements in handling components.

h) This module has its circuitry PCBs on the rear side and should be handled carefully in order not to be stressed.

i) Protect sheet is attached to the module surface to prevent it from being scratched. Peel the sheet off slowly just before the use with strict attention to electrostatic charges. Ionized air shall be blown over during the action. Blow off the 'dust' on the polarizer by using an ionized nitrogen gun, etc..

j) The polarizer surface on the panel is treated with Anti-Glare for low reflection. In case of attaching protective board over the LCD, be careful about the optical interface fringe etc. which degrades display quality.

k) Do not expose the LCD module to a direct sunlight, for a long period of time to protect the module from the ultra violet ray.

l) When handling LCD modules and assembling them into cabinets, please be noted that long-term storage in the environment of oxidization or deoxidization gas and the use of such materials as reagent, solvent, adhesive, resin, etc. which generate these gasses, may cause corrosion and discoloration of the LCD modules.

m) Liquid crystal contained in the panel may leak if the LCD is broken. Rinse it as soon as possible if it gets inside your eye or mouth by mistake.

n) Disassembling the module can cause permanent damage and should be strictly avoided.
Please don't remove the fixed tape, insulating tape etc that was pasted on the original module.
(Except for protection film of the panel and the crepe tape (yellow tape) of fixing lamp cable temporarily.)

o) Be careful when using it for long time with fixed pattern display as it may cause afterimage.
(Please use a screen saver etc., in order to avoid an afterimage.)

p) Adjusting volume have been set optimally before shipment, so do not change any adjusted value. If adjusted value is changed, the specification may not be satisfied.

q) If a minute particle enters in the module and adheres to an optical material, it may cause display non-uniformity issue, etc. Therefore, fine-pitch filters have to be installed to cooling and inhalation hole if you intend to install a fan.

r) Epoxy resin (amine series curing agent), silicone adhesive material (dealcoholization series and oxime series), tray forming agent (azo compound) etc, in the cabinet or the packing materials may induce abnormal display with polarizer film deterioration regardless of contact or noncontact to polarizer film.

Be sure to confirm the component of them.

s) Do not use polychloroprene. If you use it, there is some possibility of generating Cl_2 gas that influences the reliability of the connection between LCD panel and driver IC.

t) Do not put a laminate film on LCD module, after peeling of the original one. If you put on it, because of the occurrence of air gaps between the polarizer and the film, It may cause discoloration or spots.

12. Packing form

Piling number of cartons	Max.8
Package quantity in one carton	40pcs
Carton size	380 (W)×575(D)×225(H) mm
Total mass of one carton filled with full modules	10 kg
Packing form	Fig.1

13. Reliability Test Items

No.	Test item	Conditions
1	High temperature operation test	Ta = +60℃ 240h
2	Low temperature operation test	Ta = -20℃ 240h
3	High temperature storage test	Ta = +70℃ 240h
4	Low temperature storage test	Ta = -30℃ 240h
5	High temperature & high humidity operation test	Ta = +40℃ ; 95 %RH 240h (No condensation)
6	Shock test (non- operating)	Max. gravity : 490 m/s^2 (50G) Pulse width : 11 ms, half sine wave Direction : ±X,±Y,±Z once for each direction.
7	Vibration test (non- operating)	Frequency : 10～57Hz: half amplitude 0.075mm 57～500Hz: Gravity 9.8m/s^2 Sweep time: 11minutes Test time: 3h (X,Y,Z 1h for each direction)

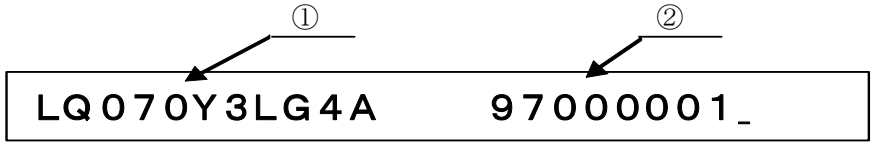
[Result Evaluation Criteria]

Under the display quality test conditions with normal operation state, these shall be no change which may affect practical display function. (normal operation state：Temperature:15～35℃, Humidity:45～75%, Atmospheric pressure:86～106kpa)

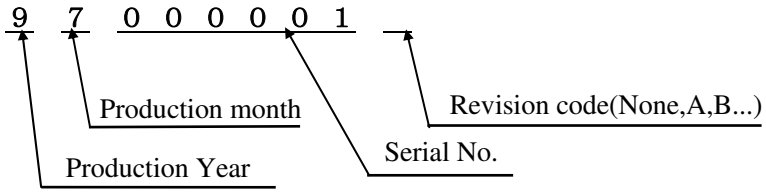
14.Label

1) Module label:

Notation: ①Model No. ②Serial No.



Serial No.

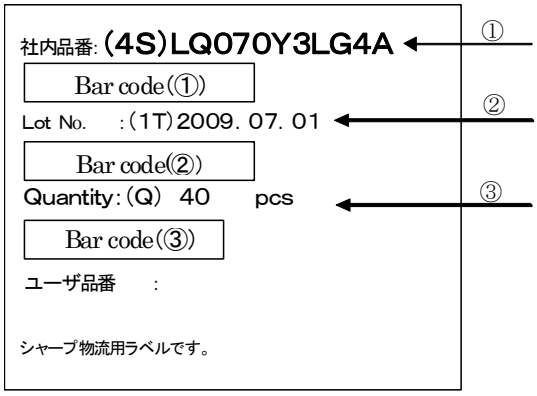


(Production months)

1-9(Jan.-Sep.),X(Oct.),Y(Nov.),Z(Dec)

2) Packing bar code label

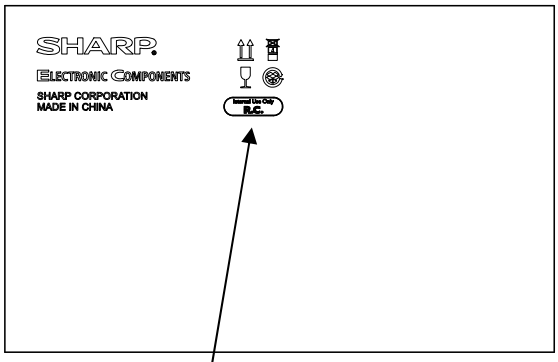
Notation/ Bar code: ①Model No. ②Date ③Quantity



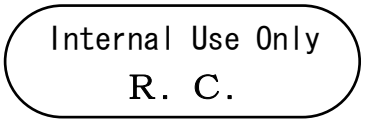
15. RoHS Regulations

This LCD module is compliant with RoHS Directive.

Carton mark



Carton mark (This side)



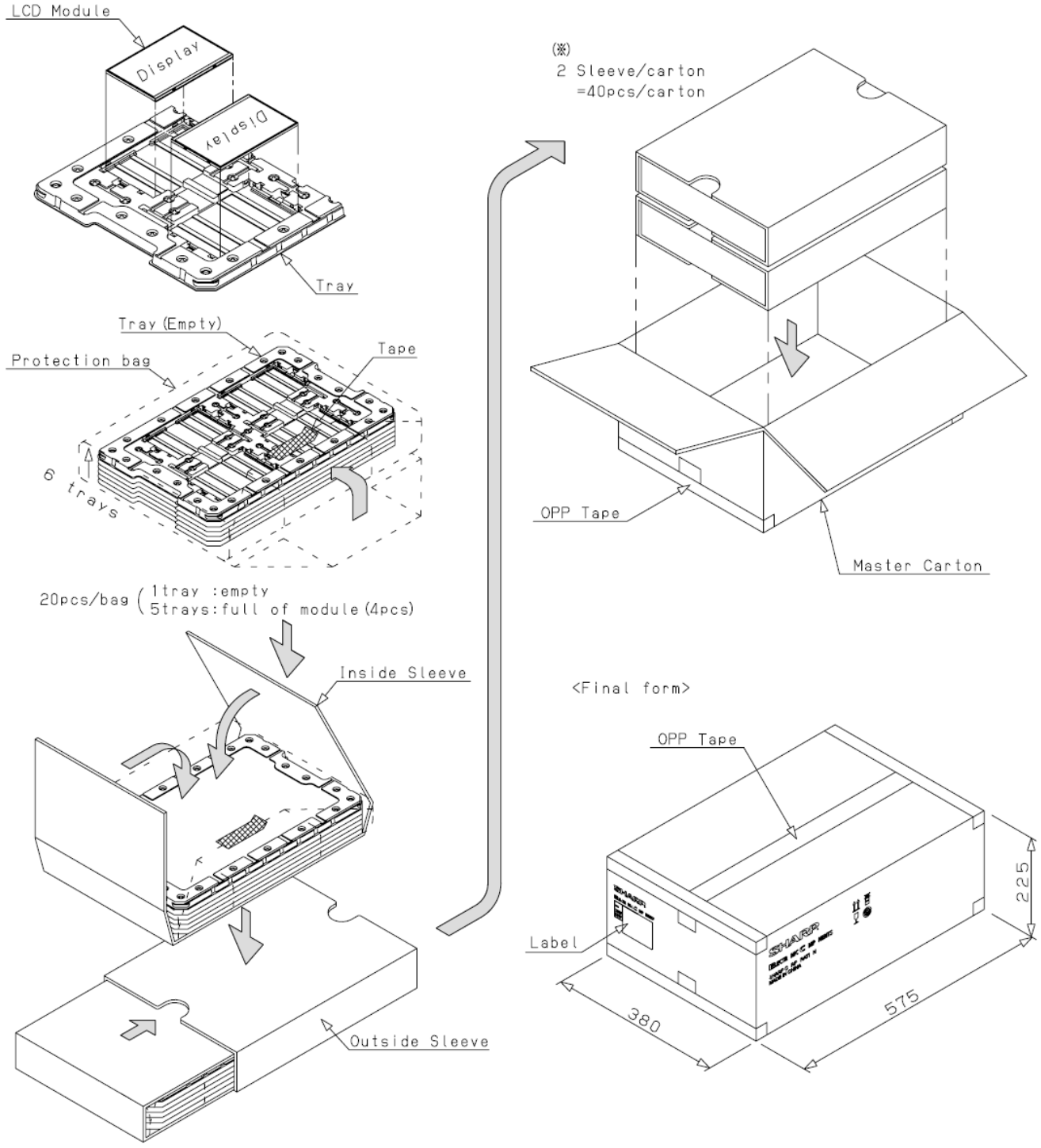
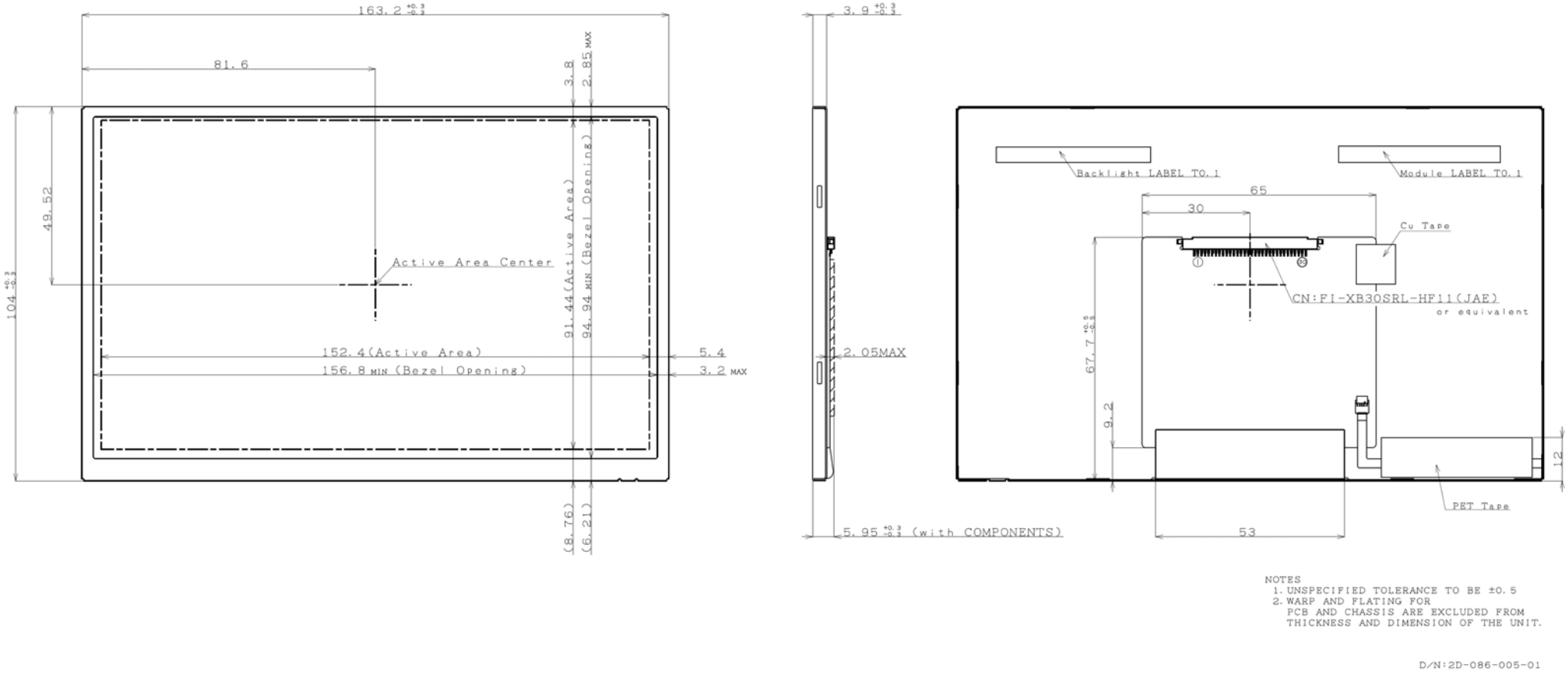


Fig1. Packing Form



NOTES
1. UNSPECIFIED TOLERANCE TO BE ±0.5
2. WARP AND FLATING FOR PCB AND CHASSIS ARE EXCLUDED FROM THICKNESS AND DIMENSION OF THE UNIT.

D/N:2D-086-005-01

Fig2 Outline Dimensions