SHARP

TECHNICAL   LITERATURE

FOR

TFT - LCD module

MODEL No. **LQ104S1DG2C**

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ENGINEERING DEPARTMENT Ⅰ
DISPLAY DEVICE DIVISION Ⅱ
DISPLAY DEVICE GROUP
SHARP CORPORATION

RECORDS OF REVISION

LQ104S1DG2C

SPEC No.	DATE	REVISED No	PAGE	SUMMARY	NOTE
LD-24252A	2012/2/10			–	

- Contents -

1．Application

This technical literature applies to the color TFT-LCD module LQ104S1DG2C.

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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, control circuit, power supply circuit and a White-LED
Backlight unit. Graphics and texts can be displayed on a 800×RGB×600dots panel with about 262,144 million
colors by using LVDS (Low Voltage Differential Signaling) and supplying +3.3V DC supply voltages for
TFT-LCD panel driving and supply voltage for backlight.

The TFT-LCD panel used for this module is a low-reflection and higher-color-saturation type.
The maximum viewing angle is in the 6 o'clock direction.
The 12 o'clock direction is difficult to reverse the grayscale.

The LED driver circuit to drive the backlight is built into the module.

3. Mechanical technical literatures

Parameter	technical literatures	Unit
Display size	26（10.4inch）Diagonal	cm
Active area	211.2（H）×158.4（V）	mm
Pixel format	800（H）×600（V） （1pixel＝R＋G＋B dot）	pixel
Aspect ratio	4：3	
Pixel pitch	0.264（H）×0.264（V）	mm
Pixel configuration	R,G,B vertical stripe	
Display mode	Normally white	
Unit outline dimensions	246.5（W）×179.3（H）×11.0(D)	mm
Mass	T.B.D	g
Surface treatment	Anti-glare and hard-coating 3H	

Outline dimensions are shown in Fig.1.

4. Input Terminals

4-1. TFT-LCD panel driving

・CN1 (Interface signals and +3.3V power supply)

Veder	Hirose Electric Co., Ltd.	
Using connectors	DF9MA-41P-1V(32)	
	DF9B-41P-1V(32)	
Corresponding connectors	DF9* -41S-1V(32)	

Pin	Symbol	Function	Remark
n1	GND	GND	
2	CK	Clock signal for sampling each data signal	
3	GND	GND	
4	Hsync	Horizontal synchronous signal	Negative
5	Vsync	Vertical synchronous signal	Negative
6	GND	GND	
7	GND	GND	
8	GND	GND	
9	R0	RED data signal(LSB)	
10	R1	RED data signal	
11	R2	RED data signal	
12	GND	GND	
13	R3	RED data signal	
14	R4	RED data signal	
15	R5	RED data signal(MSB)	
16	GND	GND	
17	GND	GND	
18	GND	GND	
19	G0	GREEN data signal	
20	G1	GREEN data signal	
21	G2	GREEN data signal	
22	GND	GND	
23	G3	GREEN data signal	
24	G4	GREEN data signal	
25	G5	GREEN data signal(MSB)	
26	GND	GND	
27	GND	GND	
28	GND	GND	
29	B0	BLUE data signal(LSB)	
30	B1	BLUE data signal	
31	B2	BLUE data signal	
32	GND	GND	
33	B3	BLUE data signal	
34	B4	BLUE data signal	
35	B5	BLUE data signal(MSB)	
36	GND	GND	
37	NC		
38	NC		
39	Vcc	+3.3V power supply	
40	Vcc	+3.3V power supply	
41	SCAN	Horizontal/Vertical display mode select signal	【Note1】

【Note2】 SCAN＝Low   SCAN＝High

4-2. LED backlight

・CN2（LED backlight connector）

Veder	JST	
Used connector	SM06B-SHLS-TF	
Corresponding connector	SHLP-06V-S-B	

Connector No.	Pin No.	symbol	function
CN2	1	V_{DD}	+12V power supply
	2	V_{DD}	+12V power supply
	3	GND	GND
	4	GND	GND
	5	BL_EN	Backlight ON/OFF signal
	6	PWM	PWM signal

5. Absolute Maximum Ratings

Parameter	Symbol	Condition	Pin	Ratings	Unit	Remark
Supply voltage	Vcc	Ta=25°C	VCC	−0.3 ～ +4.0	V	【Note1,2】
	V_{DD}	Ta=25°C	VDD	−0.3 ～ +15	V	【Note1,2】
Input voltage	ＶＩ1	Ta=25°C	【Note3】	−0.3～V_{CC}+0.3	V	【Note1】
	ＶＩ2	Ta=25°C	BL_EN、PWM	−0.3～+6.0	V	【Note2】
Storage temperature	TSTG	—	–	(−30 ～ +80)	°C	【Note1,4,5】
Operating temperature	TOPA	—	–	(−30 ～ +80)	°C	【Note1,4,5】

【Note1】　Humidity：95%RH Max.(Ta≦40°C)　Note static electricity.
　　　　　　Maximum wet-bulb temperature at 39°C or less.（Ta>40°C）　No condensation.
【Note2】　The Vcc power supply capacity must use the one of 2A or more.
　　　　　　The V_{DD} power supply capacity must use the one of 3A or more.
【Note3】　CK,R0～R5,G0～G5,B0～B5,Hsync,Vsync,SCAN
【Note4】　 There is a possibility of causing deterioration in the irregularity and others of the screen and the display
　　　　　　fineness though the liquid crystal module doesn't arrive at destruction when using it at ６0～80°C.
【Note5】　In the operating temperature item, the low temperature side is the ambient temperature regulations.
　　　　　　The high temperature side is the panel surface temperature regulations.

6. Electrical Characteristics

6-1. TFT-LCD panel driving
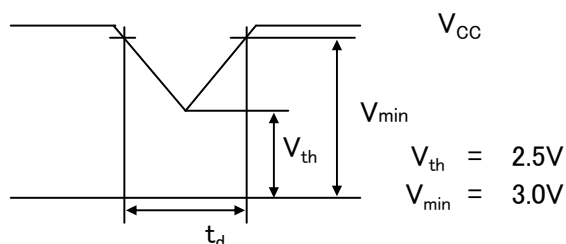$T_a = +25°C$

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Supply voltage	V_{CC}		3.0	3.3	3.6	V	【Note1】
Current dissipation	I_{CC}	Vcc=3.3V	–	TBD	TBD	mA	【Note2】
Permissive input ripple voltage	V_{RP}		—	—	100	mV_{P-P}	Vcc = 3.3V
Input voltage	V_{IH}		2.1	–	Vcc	V	【Note3】
	V_{IL}		0.0	–	0.8	V	
Input leak current	I_{OH}		—	—	400	μA	Vcc=+3.3V【Note3】
	I_{OL}		–400	—	—	μA	Vcc =0V 【Note3】

【Note1】 On-off conditions for supply voltage
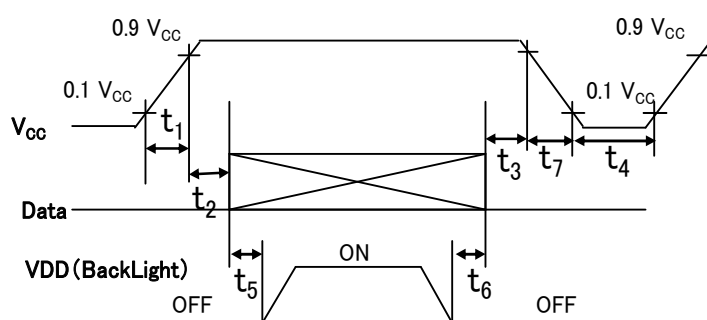
$20\mu s < t_1 \leqq 10ms$

$0 < t_2 \leqq 20ms$

$0 < t_3 \leqq 1s$

$1s \leqq t_4$

$300ms \leqq t_5$

$300ms \leqq t_6$

$t_7 \leqq 100ms$

Vcc-dip conditions

$V_{th} = 2.5V$

$V_{min} = 3.0V$

· $2.5V < V_{CC} \leqq 3.0V$

$t_d \leqq 10ms$

· $V_{CC} < 2.5V$

Vcc-dip conditions should also follow the On-off conditions for supply voltage

· The relation between the data input and the backlight lighting will recommend the above-mentioned input sequence. When the backlight is turned on before the panel operates, there is a possibility of abnormally displaying. The liquid crystal module is not damaged.

【Note2】 Current dissipation

Typical current situation : 64-gray-bar pattern

(Vcc=+3.3V、fck = 40MHz、Ta=25°C)

【Note3】 CK,R0～R5,G0～G5,B0～B5,Hsync,Vsync,SCAN
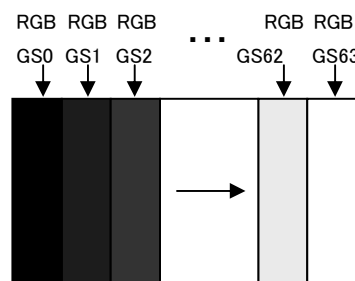
6-2. LED backlight

<div align="right">Ta＝+25℃</div>

Parameter		Symbol	Min.	Typ.	Max.	Unit	Remark
Supply voltage		V_{DD}	10.8	12.0	13.2	V	【Note1】
Current dissipation		I_{DD}	–	TBD	–	mA	【Note2】
Permissive input ripple voltage		V_{RP_BL}	–	–	200	mV_{P-P}	VDD=+12.0V
BL_EN	High voltage	V_{IH_BLEN1}	(2.1)	–	(5.5)	V	【Note3】
	Low voltage	V_{IH_BLEN1}	0.0	–	(0.8)	V	
	Leak current	I_{IH_BLEN1}	–	–	(2.0)	mA	
PWM	High voltage	V_{IH_PWM}	(2.1)	–	(5.5)	V	【Note4】
	Low voltage	V_{IH_PWM1}	0.0	–	(0.8)	V	
	Leak current	I_{IH_PWM}	–	–	(2.0)	mA	
PWM frequency		f_{PWM}	(200)	–	(1000)	Hz	【Note5】
PWM duty ratio		D_{PWM}	(10)	–	(100)	%	【Note4,5】
Life time		L	–	50,000 (Module)	–	h	【Reference】【Note6】

【Note1】 On-off conditions for supply voltage
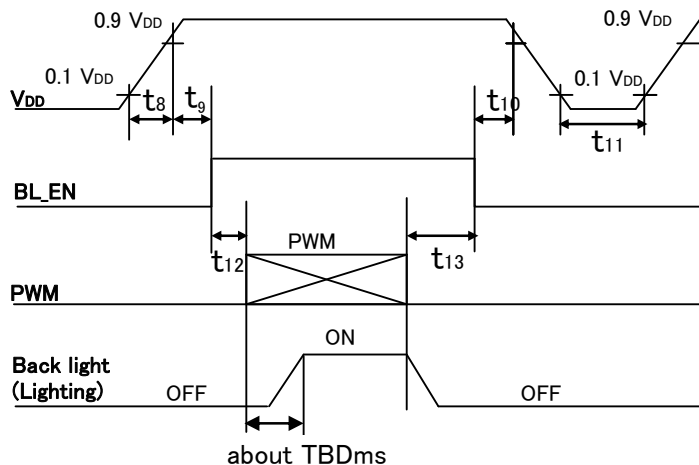
$(20)\mu s \leqq t8 \leqq (200ms)$

$0ms \leqq t9$

$0ms \leqq t10$

$1s \leqq t11$

$100ms \leqq t12$

$0ms \leqq t13$

【Note2】 Current dissipation

Typ. value： V_{DD}= +12V、Duty=100%

【Note3】 BL_EN is connected by the pull-Up resistor of about TBDkΩ.

【Note4】 PWM is connected by the pull-Up resistor of about TBDkΩ.

【Note5】 PWM
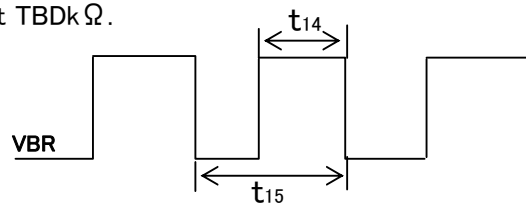
$fPWM = 1/t15$ 、 DPWM=t14/t15

Duty 10% : Min. Luminance

Duty 100% : Max. Luminance

Luminance changes in proportion to the duty ratio.

When the frequency slows, the display fineness might decrease.

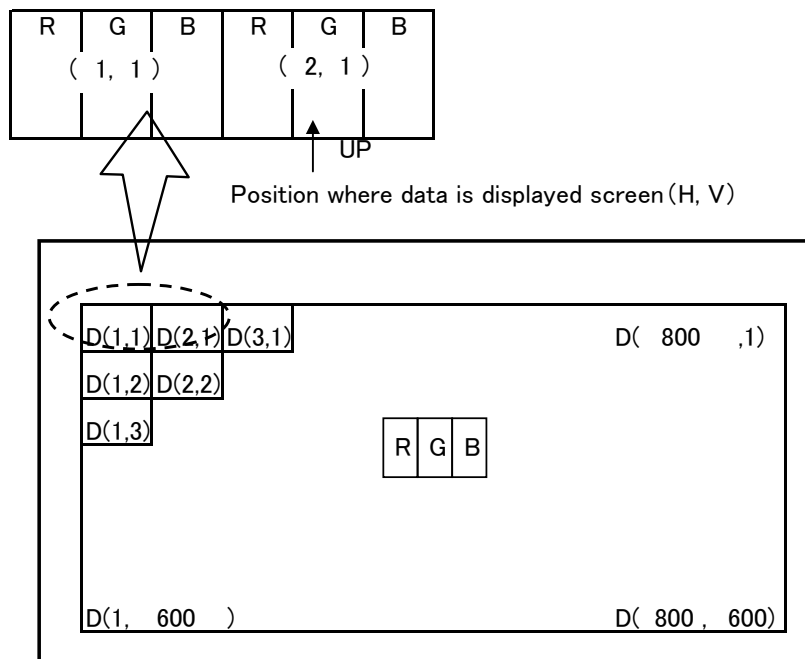【Note6】 Luminance becomes 50% of an initial value. (Ta＝25℃, PWM=100%)

7. Timing characteristics of input signals

7-1. Timing characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Remark
Clock	Frequency	1/Tc	35.0	40.00	42.0	MHz	
	High time	TCH	(6)	—	—	ns	
	Low time	TCL	(6)	—	—	ns	
	Duty ratio	TH/TC	40	50	60	%	
Data	Setup time	TDS	(3)	—	—	ns	
	Hold time	TDH	(5)	—	—	ns	
Horizontal sync. signal (Hsync)	Setup time	THC	(3)	—	—	ns	
	Cycle	TH	(832)	1056	(1395)	clock	
			20.8	26.4	39.9	µs	
	Pulse width	THP	2	128	200	clock	
	Data start position	THE	88	88	88	clock	
Vertical sync. signal (Vsync)	Setup time	TVH	0	—	(TH−THP)	clock	
	Cycle	TV	628	666	798	line	
	Frequency	1/TV	56	60	70	Hz	【Note1】
	Pulse width	TVP	2	4	6	line	
	Data start position	TVS	23	23	23	line	
display period	Horizontal	THD	800	800	800	clock	
	Vertical	TVD	600	600	600	line	

【Note1】 In case of using the long vertical period, the deterioration of display quality, flicker etc. may occur.

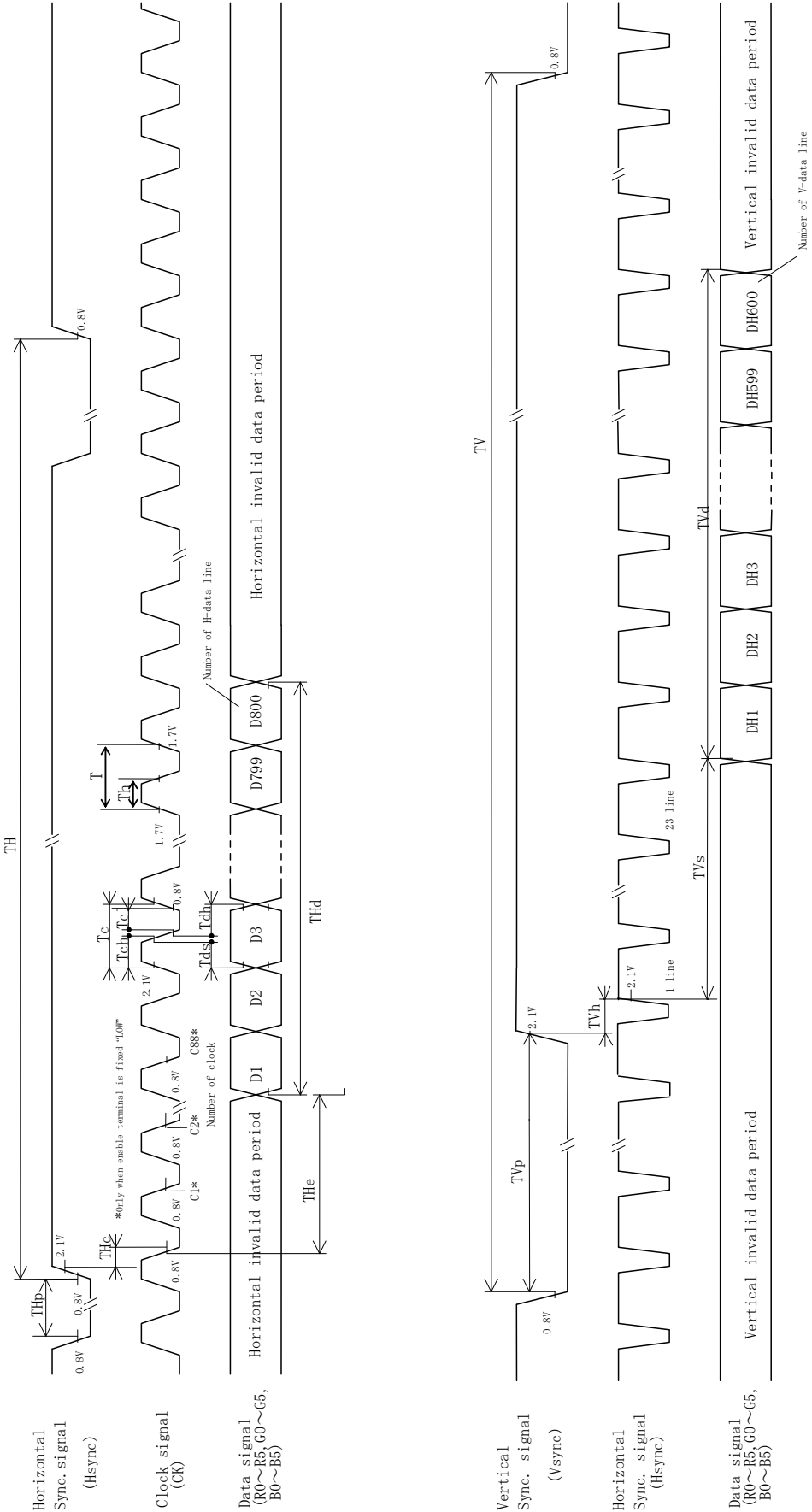## 7-2. Input Data Signals and Display Position on the screen

Position where data is displayed screen(H, V)

Horizontal
Sync. signal
(Hsync)

Clock signal
(CK)

Data signal
(R0～R5, G0～G5,
B0～B5)

Vertical
Sync. signal
(Vsync)

Horizontal
Sync. signal
(Hsync)

Data signal
(R0～R5, G0～G5,
B0～B5)

TH

THp

THc

0.8V

0.8V

2.1V

0.8V

C1*

C2*

C88*

Number of clock

*Only when enable terminal is fixed "LOW"

2.1V

Tc

Tch Tcl

0.8V

T

TH

1.7V

1.7V

Tds Tdh

THe

D1 D2 D3

THd

D799 D800

Number of H-data line

Horizontal invalid data period

Horizontal invalid data period

TV

TVp

0.8V

2.1V

TVh

2.1V

1 line

23 line

TVs

0.8V

TVd

DH1 DH2 DH3 DH599 DH600

Number of V-data line

Vertical invalid data period

Vertical invalid data period

Fig. 1 Input signal waveforms

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

8-1. 6 bit input

	Colors & Gray scale	GrayScale	R0	R1	R2	R3	R4	R5	G0	G1	G2	G3	G4	G5	B0	B1	B2	B3	B4	B5
Basic Color	Black	—	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	1	1	1	1	1	1
	Green	—	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Cyan	—	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Red	—	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	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	Black	GS0	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
	Darker	GS2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↑	↓			↓						↓						↓			
	↓	↓			↓						↓						↓			
	Brighter	GS61	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	↓	GS62	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red	GS63	1	1	1	1	1	1	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
	↑	GS1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	Darker	GS2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	↑	↓			↓						↓						↓			
	↓	↓			↓						↓						↓			
	Brighter	GS61	0	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0
	↓	GS62	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0
	Green	GS63	0	0	0	0	0	0	1	1	1	1	1	1	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
	↑	GS1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	Darker	GS2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
	↑	↓			↓						↓						↓			
	↓	↓			↓						↓						↓			
	Brighter	GS61	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1
	↓	GS62	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
	Blue	GS63	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

0 :Low level voltage   1 :High level voltage

Each basic color can be displayed in 64 gray scales from 6 bit data signals. According to the combination of total 18 bit data signals, the 262,144-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	θ21,θ22	CR>10	–	70	–	Deg.	【Note1,2,4】
	Vertical	θ11		–	50	–	Deg.	
		θ12		–	60	–	Deg.	
Contrast ratio		CR	optimized angle	–	500	–		【Note2,4】
Response Time	White Black	τr＋τd		–	35	–	ms	【Note3,4】
Chromaticity of White		Wx		–	(0.313)	–		【Note4】
		Wy		–	(0.329)	–		
Chromaticity of Red		Rx		–	TBD	–		
		Ry		–	TBD	–		
Chromaticity of Green		Gx	θ=0°	–	TBD	–		
		Gy		–	TBD	–		
Chromaticity of Blue		Bx		–	TBD	–		
		By		–	TBD	–		
Luminance of white		Y_{L1}		280	350	–	cd/m^2	【Note4】
White Uniformity				–	–	1.45		【Note5】

※The measurement shall be executed 30 minutes after lighting at rating.

The optical characteristics shall be measured in a dark room or equivalent state with the method shown in Fig.2 below.

Photodetector：(EZ-CONTRAST)

Panel center(θ=0°)

TFT-LCD module
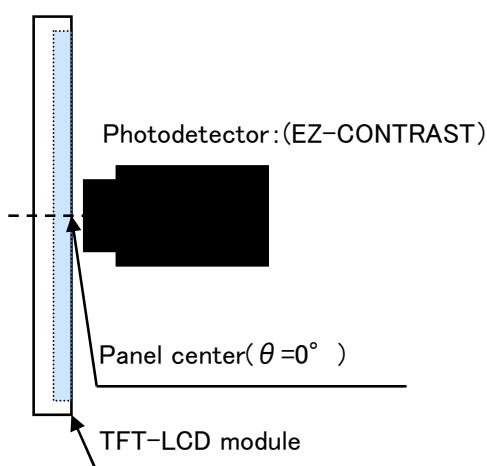
fig.2-1 Measuring method of Viewing angle range.

Photodetector
：Response time（BM-5A）
：Contrast/Luminance/Chromaticity（SR-3）

400mm

Field=1°

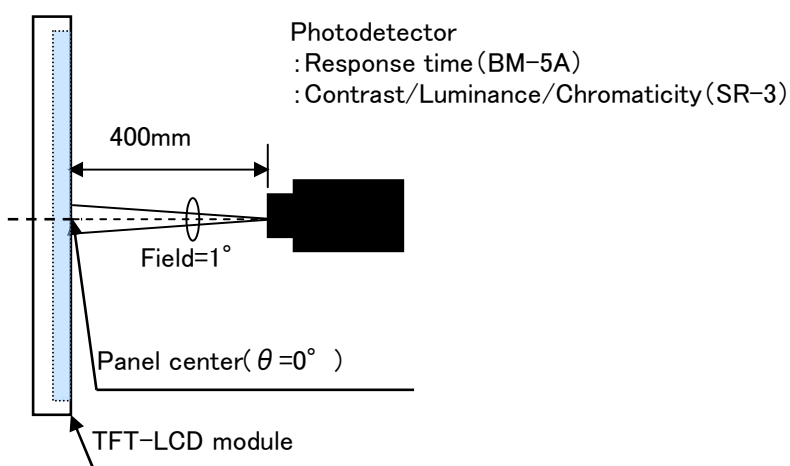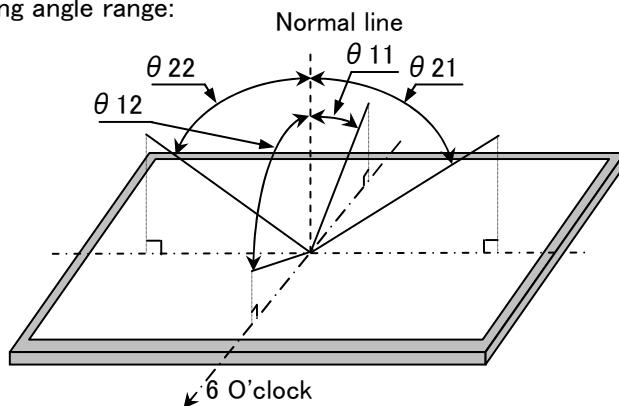Panel center(θ=0°)

TFT-LCD module

fig.2-2 Measuring method of contrast, luminance, response time, and Chromaticity.

Fig.2 Optical characteristics measurement method
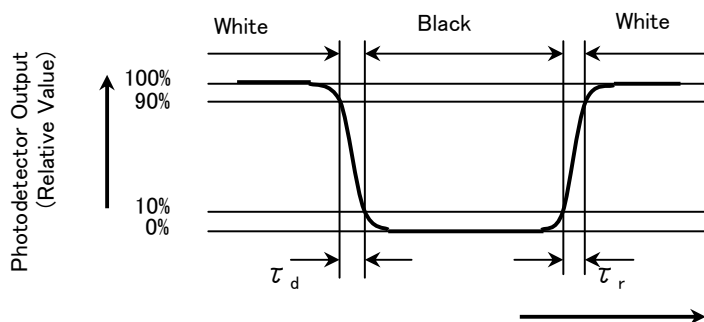
【Note1】Definitions of viewing angle range:

【Note2】Definition of contrast ratio:

The contrast ratio is defined as the following.   Contrast（CR）＝ $\dfrac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$

【Note3】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".
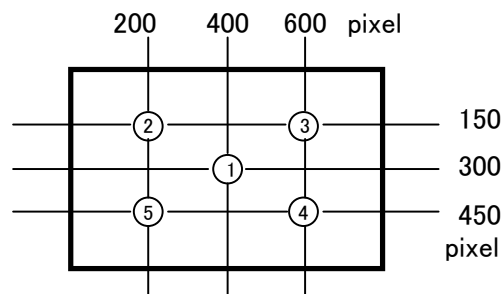

【Note4】This shall be measured at center of the screen.
【Note5】Definition of white uniformity:
White uniformity is defined as the following with five measurements.
(①～⑤)

$\delta_w = \dfrac{\text{Maximum luminance of 5 points(①～⑤).}}{\text{Minimum luminance of 5 points(①～⑤).}}$

10. Handling Precautions

【Handling Precautions】

a ）Treat LCD module in dustless surroundings. Metal foreign material stuck to the circuit is possible to cause a short.

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

c ）Be careful not to give any physical stress onto the circuit and/or the connector of LCD module
when you pull/plug a cable. Physical stress will cause a break or worse connection.

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

e ）Use N2-blower such as an ionized nitrogen has anti-electrostatic when you blow dusts on Polarizer.

f ）Since a long contact with water may cause discoloration or spots, wipe it with absorbent cotton or other soft
cloth immediately.

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 ）Be careful with the edge parts of the module which is made of metal.

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

j ）When the panel is broken, don't touch the glass. Although the panel is difficult to be scattered, touching the
broken part may hurt your hands.

k ）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.

l ）Don't touch the circuit and the pattern of the board. If you touch it, the circuit may be broken.

m ）Follow the regulations when LCD module is scrapped. The government you stay may have some regulations
about it.

【Set-Design Precautions】

a ）Notice : Never take to pieces the module , because it will cause failure. Please don't remove the fixed tape,
insulating tape etc. that was pasted on the original module. (except for protection film of the panel)

b ）Protection film is attached to the module surface to prevent it from being scratched .Peel the film off slowly ,
just before the use, with strict attention to electrostatic charges. Blow off 'dust' on the polarizer by using
an ionized nitrogen.

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

d ）Connect GND to flame of module to stabilize against EMI and external noise.

e ）When install LCD modules in the cabinet, please tighten with("torque=0.294±0.02N·m(3.0±0.2kgf·cm)").
Be sure to confirm it in the same condition as it is installed in your instrument.

f ）Since there is a circuit board in the module back, stress is not added at the time of a design assembly.
Please make it like. If stress is added, there is a possibility that circuit parts may be damaged.

g) It causes an irregular display and the defective indication, etc., when always put constant pressure
on the back of the module. Please do not make the structure to press the back of the module.

h) Be careful of a back light FPC not to pull by force at the time of the connecting to a W-LED driver,
or FPC processing.

i) The polarizer surface on the panel is treated with Anti-Glare for low reflection. In case of attaching

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

j) Don't change the volume of LCD module. It is optimized when the shipping. Any change may not meet

the specification.

k) 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.

l) Be sure to follow the absolute maximum rating in the specification. The design should consider the surrounding

temperature, the fluctuating input signal, and tolerance of the electronic parts. Exceeding values is possible to

cause worse characteristic such as burn and/or broken of the parts on LCD module.

m) Be sure to use LCD module within the recommended operating conditions. Operating module out of the

recommended range is not guaranteed even if it is in the absolute maximum rating.

n) Follow the power, signal, and supply voltage sequence which the specification indicates, regarding on-off

input signal after power on of LCD module.

o) According to the using application, power circuit protection is recommended at module failure.

【Operation Precautions】

a） Do not expose the LCD panel to direct sunlight. Lightproof shade etc. should be attached when LCD panel is used

under such environment.

b） When handling LCD modules and assembling them into cabinets, please avoid that long-terms 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 modules.

Do not use the LCD module under such environment.

c） An abnormal display by changing in quality of the polarizing plate might occur regardless of contact or no contact

to the polarizing plate, because of epoxy resin (amine system curing agent) that comes out from the material

and the packaging material used for the set side, the silicon adhesive (dealcoholization system and oxime system),

and the tray blowing agents (azo-compound), etc. Please confirm adaptability with your employed material.

d） Don't use polychloroprene (CR) with LCD module. It will generate chlorine gas, which will damage the reliability of

the connection part on LCD panel.

e） Be careful when using it for long time with fixed pattern display as it may cause accidential image.

Pleave use a screen saver etc., in order to avoid an afterimage.

f） The LED (Light Emitting Diode) used in this LCD module is very sensitive to temperature change. If it operates

for extremely long time under high temperature, it is possible rapidly to shorten the life time of LED.

In case of such a condition, consult with us.

g) If stored at the temperatures lower than the rated storage temperature, the LC may freeze and it may cause

LCD panel damage. If storage temperature exceeds the specified rating, the molecular orientation of the LC may

change to that of a liquid, and they may not revert to their original state. Store the module in normal room

temperature.

h) Keep LCD module in the range of the specified temperature conditions at all times. Once out of the range,

liquid crystal will lose its characteristics, and it cannot recover.

i) Nature of dew consideration prevention is necessary when LCD is used for long time under high-temperatur

and high-humidity.

11. Packing form

a) Piling number of cartons :   MAX. TBD

b) Package quantity in one carton: TBD pcs

c) Carton size(TYP):   TBD mm(W) × TBD mm(D)×TBD mm(H)

d) Total mass of one carton filled with full modules(20pcs):   TBDkg

   Packing form is shown in Fig 3.

12. Reliability test items

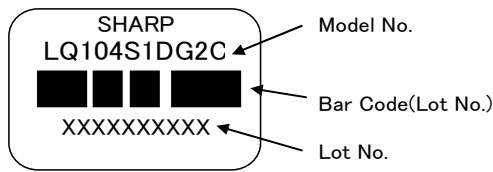| No.	Test item	Conditions	Remark
1	High temperature storage test	Ambient temperature 80℃ 240H	【Note1】
2	Low temperature strage test	Ambient temperature −30℃ 240H	【Note1】
3	High temperature & high humidity operation test	Ambient temperature 40℃、Humidity 95% RH 240H (No condensation.)	【Note1】
4	High temperature operation test	Panel surface(Active Area) 80℃ 240H	【Note1】
5	Low temperature operation test	Ambient temperature −30℃ 240H	【Note1】
6	Vibration test	＜Sin wave＞ Frequency ：10～57Hz／Vibration width (one side)：0.076mm ：57～500Hz／Gravity：9.8m/s2 Sweep time：11minutes Test period ：3H(X, Y, Z direction 1H)	【Note1】
7	Shock test	Max. gravity：490m/s2 Pulse width：11ms Direction：±X,±Y,±Z Test period ：1time／1direction	【Note1】

【Note1】 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℃,

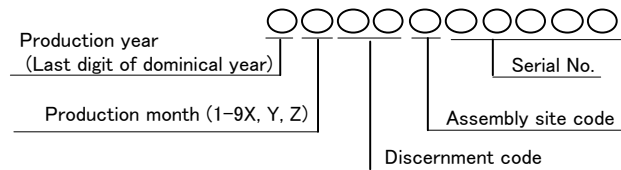Humidity:45～75%, Atmospheric pressure:86～106kpa)

13. Others

13-1. Lot No Label:

A) Module serial label

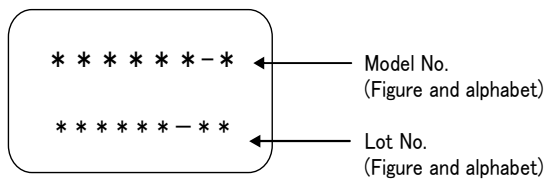The label that displays SHARP・Model No.(LQ104S1DG2C)・Lot No. is stuck on the back of the module.
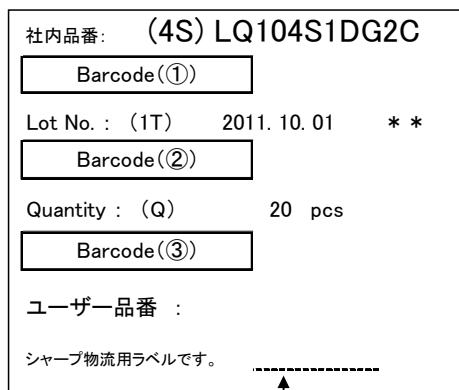
Lot No display method（Figure and alphabet）

SHARP
LQ104S1DG2C ← Model No.

■■■■ ← Bar Code(Lot No.)

XXXXXXXXXX ← Lot No.

Production year
(Last digit of dominical year)

Production month (1-9X, Y, Z)

Discernment code

Assembly site code

Serial No.

B) Backlight serial label

The label that displays the model No. and lot No. for the backlight is stuck on the back of the module.

＊＊＊＊＊＊-＊ ← Model No.
(Figure and alphabet)

＊＊＊＊＊＊-＊＊ ← Lot No.
(Figure and alphabet)

13-2. Packing box Label:

The label that displays ①Model number(LQ104S1DG2C) ②Lot number ③Quantity of module is stuck

on the packing box. Moreover, the display of bar code also applies to this.

社内品番:　（4S）LQ104S1DG2C

Barcode(①)

Lot No. : （1T）　2011. 10. 01　　＊＊

Barcode(②)

Quantity : （Q）　　20　pcs

Barcode(③)

ユーザー品番 :

シャープ物流用ラベルです。

Our management product number might be filled
（Example: LQ104S1DG2CA etc.）

① Model number(LQ104S1DG2C)

② Lot number (DATA)

③ Quantity of module

A right picture is written to the packing box of module for the RoHS restriction.

※ R.C.（RoHs Compliance）means these parts have corresponded with the RoHs directive.

This module corresponds from the first sample to RoHS Directive.

The production country of the figure below is written in the wrapping box.

R.C.

MADE IN JAPAN　OR　MADE IN CHINA

13-3. The ozone-depleting substances is not used.

13-4. If any problem occurs in relation to the description of this technical literature, it shall be resolved

through discussion with spirit of cooperation.

14. Storage conditions

Environmental condition range of storage temperature and humidity

Temperature　　　　0 to 40 degrees Celsius

Relative humidity　95% and below

【Note】 Please refer below as a mean value of the environmental conditions.

Summer time temperature 20 to 35 degrees Celsius humidity , 85% and below

Winter time temperature 5 to 15 degrees Celsius humidity , 85% and below

Please maintain within 240 hours of accumulated length of storage time, with conditions of 40 degrees Celsius and room humidity of 95%.

Direct sun light

Please keep the product in a dark room or cover the product to protect from direct sun light.

Atmospheric condition

Please refrain from keeping the product with possible corrosive gas or volatile flux.
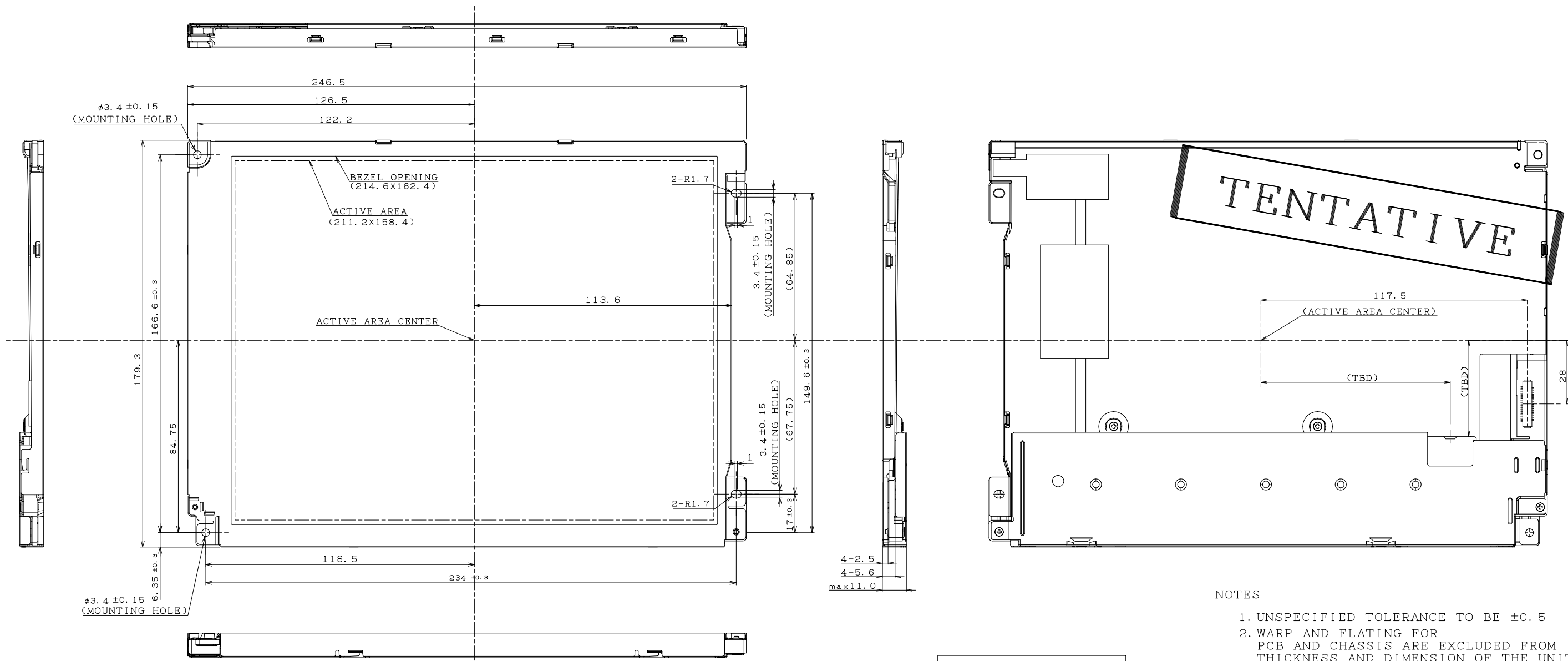
Prevention of dew

Please store the product carton either on a wooden pallet or a stand / rack to prevent dew.

Do not place directly on the floor. In addition, to obtain moderate ventilation in between the pallet's top and bottom surfaces, pile the cartons up in a single direction and in order.

Please place the product cartons away from the storage wall.

Storage period

Within above mentioned conditions, maximum storage period should be one year.

TENTATIVE

246.5
126.5
122.2

φ3.4 ±0.15
(MOUNTING HOLE)

BEZEL OPENING
(214.6×162.4)

ACTIVE AREA
(211.2×158.4)

2-R1.7

ACTIVE AREA CENTER

113.6

3.4 ±0.15
(MOUNTING HOLE)

(64.85)

166.6 ±0.3

179.3

84.75

149.6 ±0.3

(67.75)

3.4 ±0.15
(MOUNTING HOLE)

2-R1.7

1

17 ±0.3

118.5

234 ±0.3

6.35 ±0.3

φ3.4 ±0.15
(MOUNTING HOLE)

4-2.5
4-5.6
max11.0

117.5
(ACTIVE AREA CENTER)

(ACTIVE AREA CENTER)

(TBD)

(TBD)

2.8

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.
3. FRONT SIDE:REGARDING THE HEIGHT OF
   USER'S BOSSES.PLEASE DESIGN THEM
   FROM φ6mm TO φ7mm.
4. REAR SIDE:REGARDING THE HEIGHT OF
   USER'S BOSSES.PLEASE DESIGN THEM
   FROM φ6mm TO φ7.5mm.
5. RECOMMENDED TIGHTEN TORQUE FOR
   MOUNTING.
   0.294±0.02N·m(3.0±0.2kgf·cm)

INTERFACE CONNECTOR PIN LAYUOT

pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Symbol	GND	CK	GND	Hsync	Vsync	GND	GND	GND	R0	R1	R2	GND	R3	R4	R5
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
GND	GND	GND	G0	G1	G2	GND	G3	G4	G5	GND	GND	GND	B0	B1	B2
32	33	34	35	36	37	38	39	40	41						
GND	B3	B4	B5	GND	NC	NC	VCC	VCC	SCAN						

CORRESPONDING CONNECTOR:
DF9-41S-1V.DF9A-41S-1V.
DF9B-41S-1V.DF9M-41S-1V

LED BACKLIGHT CONNECTOR PIN LAYOUT

pin	1	2	3	4	5	6
Symbol	V	V	VI1	VI2	TSTG	TOPA

CORRESPONDING CONNECTOR:
SHLP-06V-S-B(JAE)

BEZEL/DISPLAY POSITION

A

ACTIVE AREA

BEZEL OPENING

C
B
D

1)TOLERANCE X-DIRECTION A:1.7±0.8
2)TOLERANCE Y-DIRECTION B:2.0±0.8
3)OBLIQUITY OF DISPLAY AREA |C-D|<0.8

Fig1. OUTLINE DIMENSIONS
(LQ104S1DG2C)

LCD MODULE

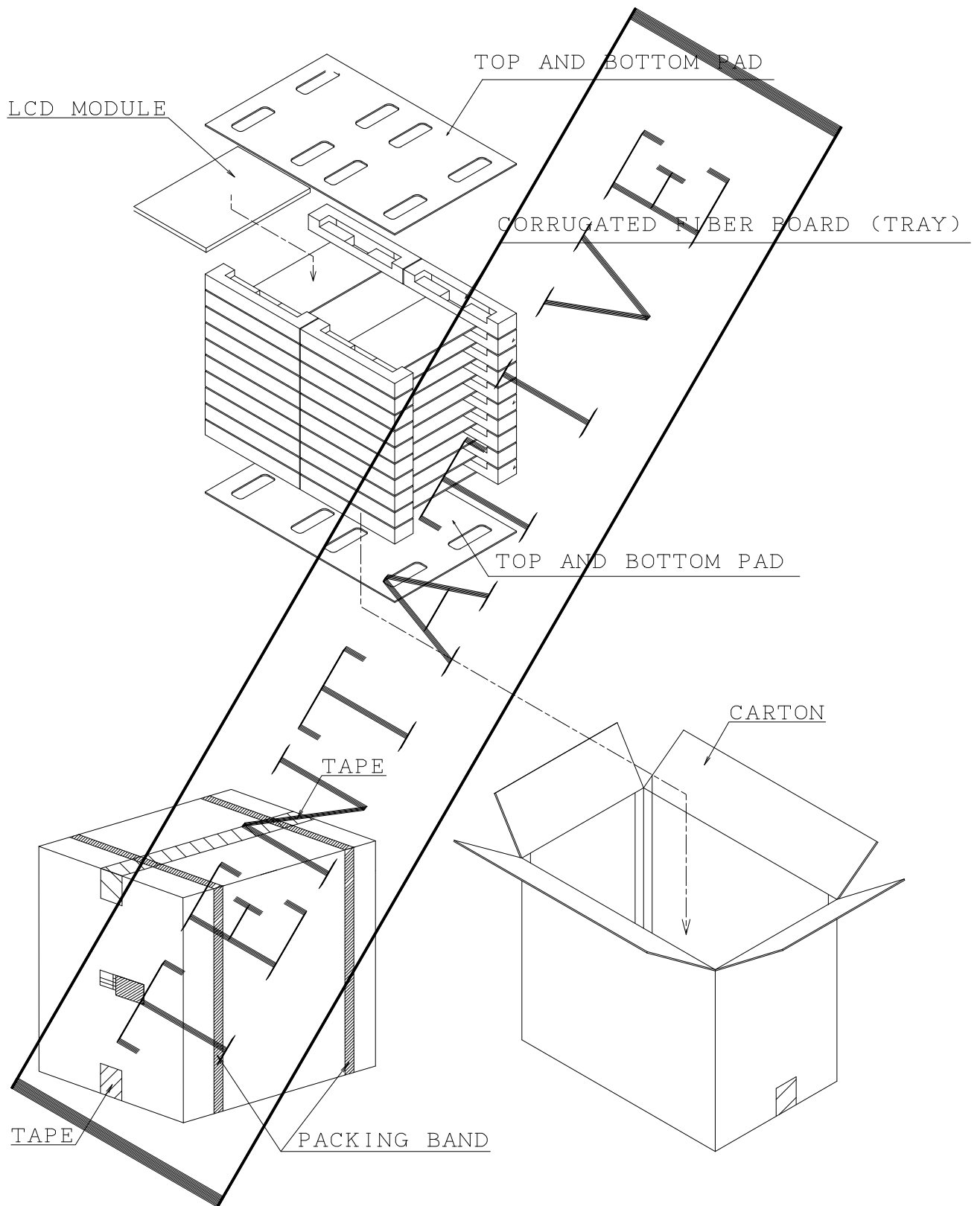TOP AND BOTTOM PAD

CORRUGATED FIBER BOARD (TRAY)

TOP AND BOTTOM PAD

CARTON

TAPE

TAPE

PACKING BAND

FIG. 3:PACKING FORM