SPECIFICATION

SHARP

LQ104V1DG81

10.4" TFT - VGA - C-MOS

Version: LD-24703B
Date: 11.09.2012

Note: This specification is subject to change without prior notice

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DEVICE SPECIFICATION FOR

TFT-LCD Module

MODEL No.

LQ104V1DG81

These parts have corresponded with the RoHS

□ CUSTOMER'S APPROVAL
BY _____

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RECORDS OF REVISION

LQ104V1DG81

SPEC No.	DATE	REVISED No	PAGE	SUMMARY	NOTE
LD-24703A	2012/7/20			−	
LD-24703B	2012/9/11		7	・Duty ratio（ Clock ）is chenged	
				Min.40%/Typ.50%/Max.60% →Min.35%/Typ.50%/Max.65%	

– Contents –

1. Application

This specification applies to the color TFT-LCD module LQ104V1DG81.

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In case of using the device for applications such as control and safety equipment for transportation (controls of
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require higher reliability and safety, take into consideration that appropriate measures such as fail-safe
functions and redundant system design should be taken.

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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 640×RGB×480dots panel with about 262,144
colors by using CMOS(Complementary MOS) 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.
Therefore, this module is also suitable for the multimedia use.
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 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	640（H）×480（V） （1pixel＝R＋G＋B dot)	pixel
Aspect ratio	4：3	
Pixel pitch	0.33（H）×0.33（V）	mm
Pixel configuration	R,G,B vertical stripe	
Display mode	Normally white	
Unit outline dimensions	246.5（W）×179.3（H）×12.5(D)	mm
Mass	500	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）

	Hirose Electric Co., Ltd.	I-PEX
Using connectors	DF9MA-31P-1V(32) DF9B-31P-1V(32)	20026-231*-*1F
Corresponding connectors	DF9* -31S-1V(32)	20027-*31*-*1F

Pin	Symbol	Function	Remark
1	GND	GND	
2	CK	Clock signal for sampling each data signal	
3	Hsync	Horizontal synchronous signal	Negative
4	Vsync	Vertical synchronous signal	Negative
5	GND	GND	
6	R0	RED data signal(LSB)	
7	R1	RED data signal	
8	R2	RED data signal	
9	R3	RED data signal	
10	R4	RED data signal	
11	R5	RED data signal(MSB)	
12	GND	GND	
13	G0	GREEN data signal(LSB)	
14	G1	GREEN data signal	
15	G2	GREEN data signal	
16	G3	GREEN data signal	
17	G4	GREEN data signal	
18	G5	GREEN data signal(MSB)	
19	GND	GND	
20	B0	BLUE data signal(LSB)	
21	B1	BLUE data signal	
22	B2	BLUE data signal	
23	B3	BLUE data signal	
24	B4	BLUE data signal	
25	B5	BLUE data signal(MSB)	
26	GND	GND	
27	ENAB	Signal to settle the horizontal display position	【Note1】
28	V_{CC}	+3.3V power supply	
29	V_{CC}	+3.3V power supply	
30	NC	No Connect （Please be sure to open ）	
31	SCAN	Horizontal/Vertical display mode select signal	【Note2】

【Note1】 The horizontal display start timing is settled in accordance with a rising timing of ENAB

signal. In case ENAB is fixed "Low", the horizontal start timing is determined as described in 7-1.

Don't keep ENAB "High" during operation.

【Note2】SCAN＝Low   SCAN＝High

4-3. LED backlight

LED backlight connector

CN2	Used connector	:	SM06B-SHLS-TF	(	JST	)
	Corresponding connector	:	SHLP-06V-S-B	(	JST	)

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	XSTABY	Backlight ON/OFF signal
	6	VBR	PWM signal

5. Absolute Maximum Ratings

Parameter	Symbol	Condition	Pin	Ratings	Unit	Remark
Supply voltage	V_{CC}	Ta=25°C	VCC	−0.3 ～ ＋4.0	V	【Note1,2】
	V_{DD}	Ta=25°C	VDD	−0.3 ～ ＋15.0	V	【Note1,2】
Input voltage	V_{I1}	Ta=25°C	R0-5,G0-5,B0-5 CK,Hsync,Vsync ENAB,SCAN	−0.3～V_{CC}+0.3	V	
	V_{I4}	Ta=25°C	XSTABY, VBR	−0.3～+V_{DD}	V	
Storage temperature	T_{STG}	—	–	−30 ～ ＋80	°C	【Note1】
Operating temperature	T_{OPA}	—	–	−30 ～ ＋80	°C	【Note1,3,4】

【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 V_{CC} 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】 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 65～80°C.

【Note4】 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℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Supply voltage	V_{CC}		3.0	3.3	3.6	V	【Note1】
Current dissipation	I_{CC}	V_{CC}=3.3V	–	230	300	mA	【Note2】
Permissive input ripple voltage	V_{RP}		–	–	100	mV_{P-P}	V_{CC}=3.3V
Input voltage	V_{IH}		2.1	–	–	V	【Note3】
	V_{IL}		–	–	0.8	V	
Input leak current	I_{OH}		–	–	400	μA	VI1 =+3.3V【Note3】
	I_{OL}		–400	–	–	μA	V_{I1} =0V 【Note3】

【Note1】 On-off conditions for supply voltage
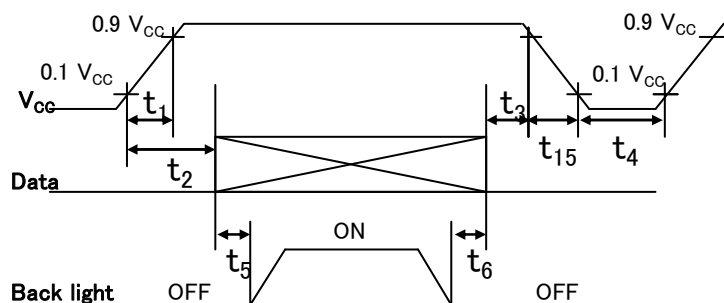
$$20\mu s \; < \; t_1 \; \leqq \; 10ms$$
$$0s \; < \; t_2 \; \leqq \; 20ms$$
$$0s \; < \; t_3 \; \leqq \; 1s$$
$$1s \; \leqq \; t_4$$
$$300ms \; \leqq \; t_5$$
$$300ms \; \leqq \; t_6$$
$$t_{15} \; \leqq \; 100ms$$

Vcc-dip conditions
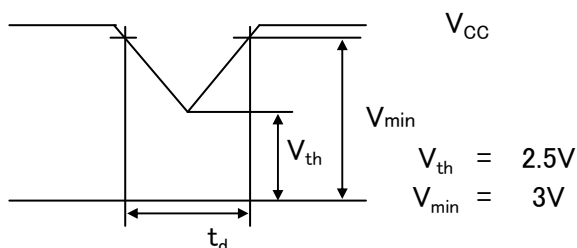
・ $Vth \; < \; V_{CC} \; \leqq \; Vmin$
$$t_d \; \leqq \; 10ms$$
・ $V_{CC} \; < \; V_{th}$

V_{th} = 2.5V
V_{min} = 3V

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
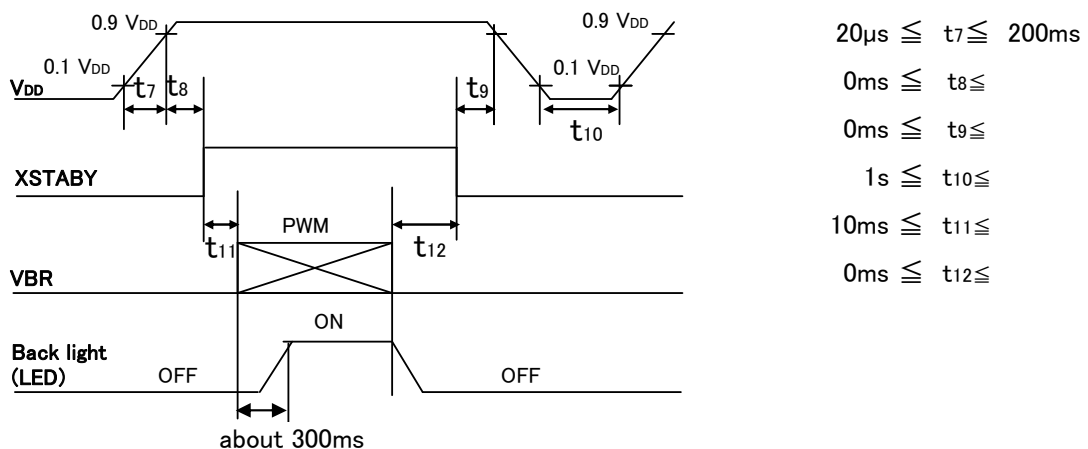V_{CC}=+3.3V、fck = 25.175MHz、Ta=25℃

Refer to Chapter 8 for RGB each step.
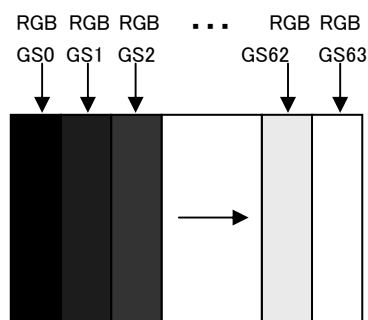
【Note3】 R0-5、G0-5、B0-5、CK、Hsyn、Vsync、ENAB、SCAN

6-2. LED backlight

Ta＝+25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit	Remark
Supply voltage		V_{DD}	10.8	12.0	13.2	V	【Note1】
Current dissipation		I_{DD1}	–	400	500	mA	【Note2】
		I_{DD2}	–	–	10	μA	【Note3,4】
Permissive input ripple voltage		V_{RP_BL}	–	–	200	mVP-P	V_{DD}=+12.0V
XSTABY	High voltage	V_{IH_BL1}	9.0	–	V_{DD}	V	【Note3】
	Low voltage	V_{IL_BL1}	–	–	0.4	V	【Note3】
	Leak current	I_{IL_XST}	–	–	5.0	V	【Note3】
VBR	High voltage	V_{IH_BL2}	2.1	–	V_{DD}	V	【Note4】
	Low voltage	V_{IL_BL2}	–	–	0.4	V	【Note4】
	Leak current	I_{IL_VBR}	–	–	1.5	V	【Note4】
PWM frequency		f_{PWM}	200	–	1,000	Hz	【Note4,5】
PWM duty		D_{PWM}	10	–	100	%	【Note4,5】
Life time		L	–	50,000 (Module)	–	h	【Reference】【Note6】

【Note1】 On-off conditions for supply voltage

$20μs \leqq t_7 \leqq 200ms$

$0ms \leqq t_8 \leqq$

$0ms \leqq t_9 \leqq$

$1s \leqq t_{10} \leqq$

$10ms \leqq t_{11} \leqq$

$0ms \leqq t_{12} \leqq$

about 300ms

【Note2】 Current dissipation

Typ. value： V_{DD}= +12V、Duty=100%

Max. value： V_{DD}= +10.8V、Duty=100%

【Note3】 XSTABY is connected by the pull-down resistor of about 2.8kΩ.

【Note4】 VBR is connected by the pull-down resistor of about 9.6kΩ.
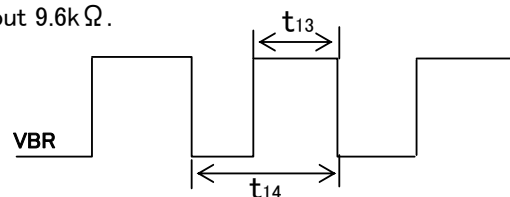
【Note5】 PWM

$f_{PWM} = 1/t_{14}$ $D_{PWM}=T_{13}/T_{14}$

Duty 0% : Min. Luminance

Duty 100% : Max. Luminance

Luminance changes in proportion to the duty ratio.

When the frequency slows, the display fineness might decrease.

【*6】 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	23.0	25.18	28.3	MHz	
	High time	TCH	10	—	—	ns	
	Low time	TCL	10	—	—	ns	
	Duty ratio	TH/TC	35	50	65	%	
Data	Setup time	TDS1/TDS2	5	—	—	ns	
	Hold time	TDH1/TDH2	5	—	—	ns	
Horizontal sync. signal (Hsync)	Setup time	THC	5	—	—	ns	
	Cycle	TH	750	800	900	clock	
			26.5	31.78	39.0	μs	
	Pulse width	THP	2	96	200	clock	
	Data start position	THS	104	104	104	clock	【Note2】
Vertical sync. signal (Vsync)	Setup time	TVH	0	—	TH−THP	clock	
	Cycle	TV	515	525	560	line	
	Frequency	1/TV	56	60	70	Hz	【Note1】
	Pulse width	TVP	1	2	32	line	
	Data start position	TVS	34	34	34	line	
Enable signal	Setup time	TEC	5	—	—	ns	
	Pulse width	TEP	640	640	640	clock	
	Hsync−Enable signal phase difference	THE	44	—	TH−664	clock	
display period	Horizontal	THD	640	640	640	clock	
	Vertical	TVD	480	480	480	line	

【Note1】 In case of lower frequency, the deterioration of display quality, flicker etc.,may be occurred.
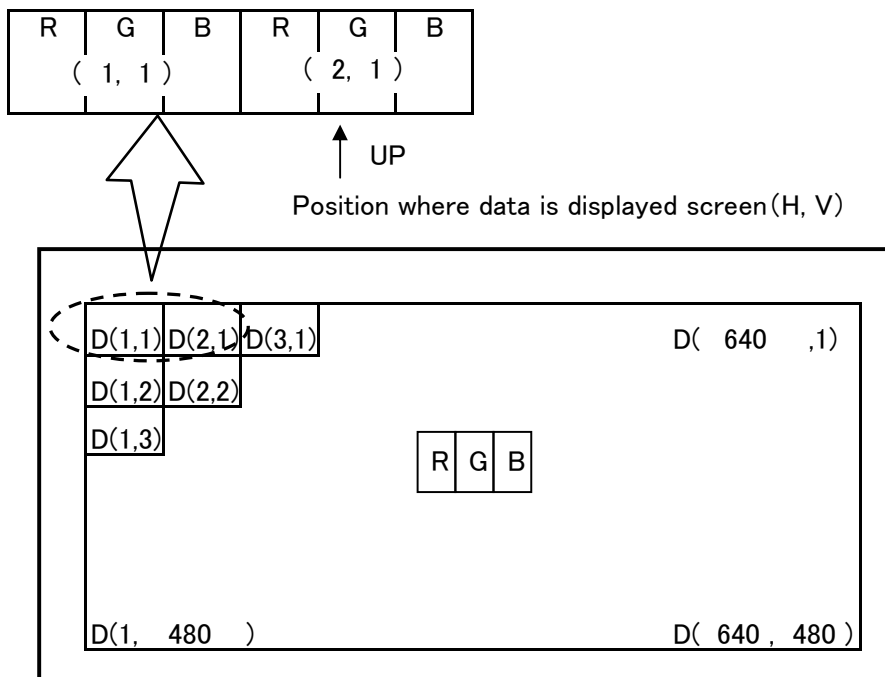
【Note2】 When ENAB is fixed "Low", the display starts from THS(104clock) as shown in Fig.4-3.

Be careful that the module does not work when ENAB is fixed "High".

Fig.4-3

Fig.4-4
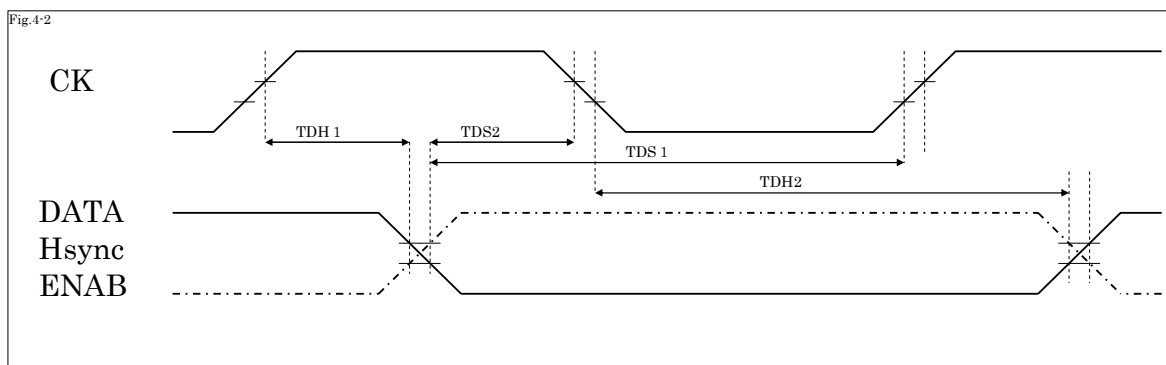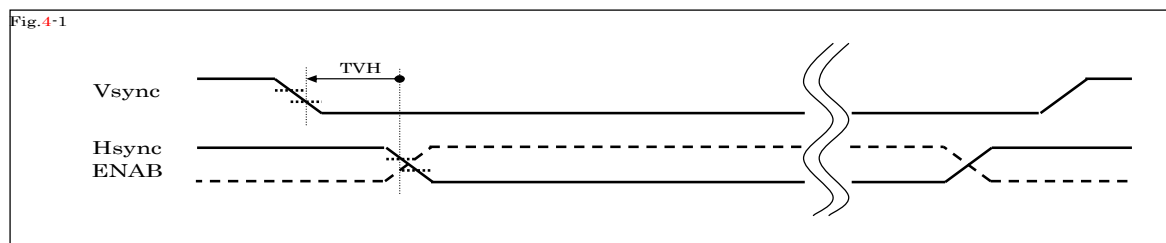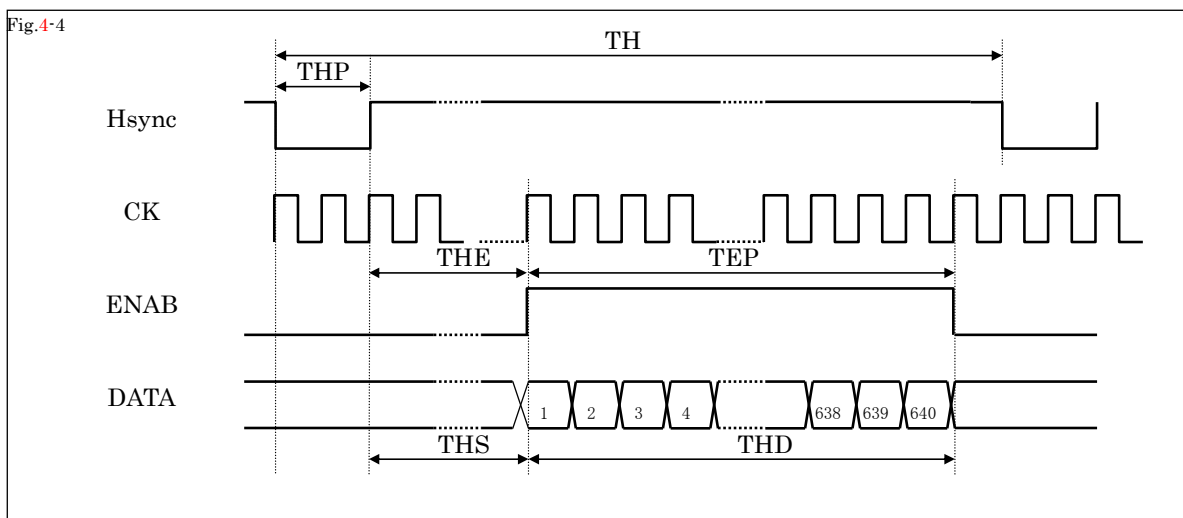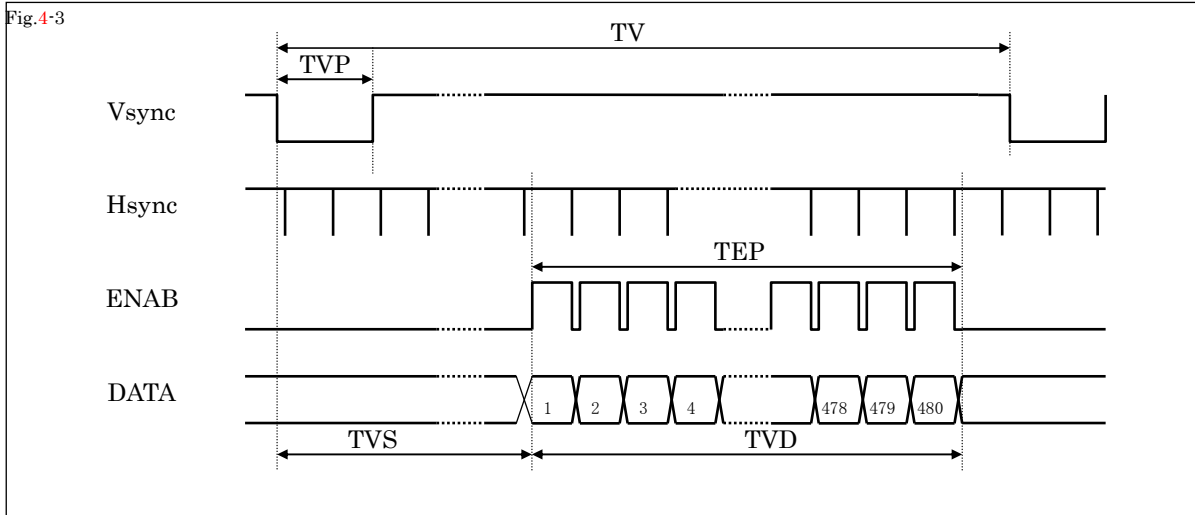
7-2. Input Data Signals and Display Position on the screen

Position where data is displayed screen(H, V)

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
									Data signal											
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	$\theta 21, \theta 22$	CR>10	70	80	–	Deg.	【Note1,2,4】
	Vertical	$\theta 11$		45	65	–	Deg.	
		$\theta 12$		70	80	–	Deg.	
Contrast ratio		CR	optimized angle	450	800	–		【Note2,4】
Response Time White Black		$\tau r + \tau d$		–	35	–	ms	【Note3,4】
Chromaticity of White		Wx		0.250	0.300	0.350		【Note4】
		Wy		0.270	0.320	0.370		
Chromaticity of Red		Rx		–	0.560	–		
		Ry		–	0.325	–		
Chromaticity of Green		Gx	$\theta=0°$	–	0.335	–		
		Gy		–	0.595	–		
Chromaticity of Blue		Bx		–	0.155	–		
		By		–	0.120	–		
Luminance of white		Y_{L1}		360	450	–	cd/m^2	【Note4】
White Uniformity				–	–	1.33		【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.
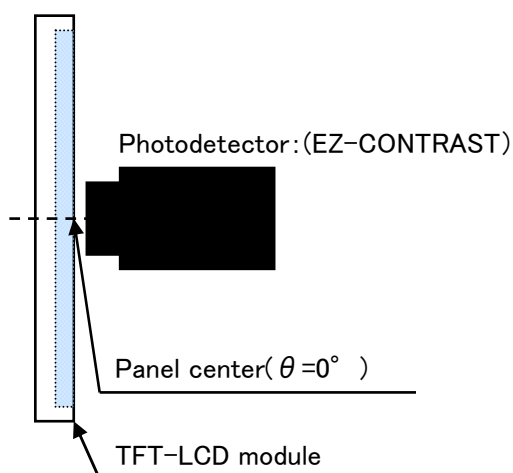
fig.2-1 Measuring method of Viewing angle range.
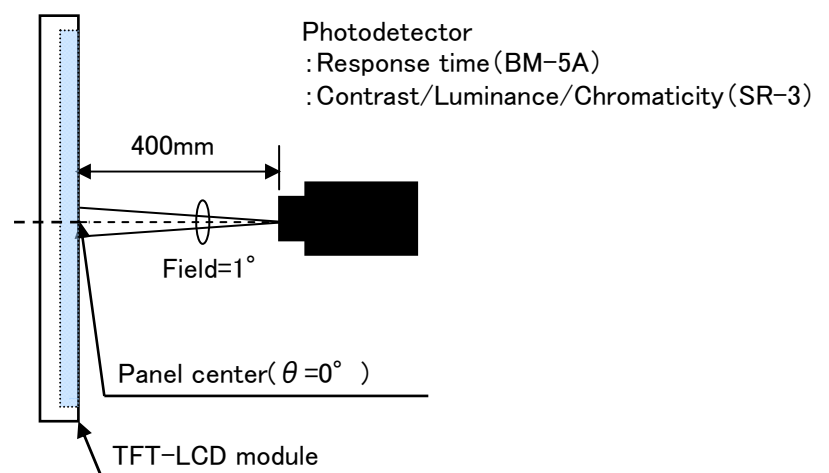
fig.2-2 Measuring method of contrast, luminance, response time, and Chromaticity.

Fig.2 Optical characteristics measurement method

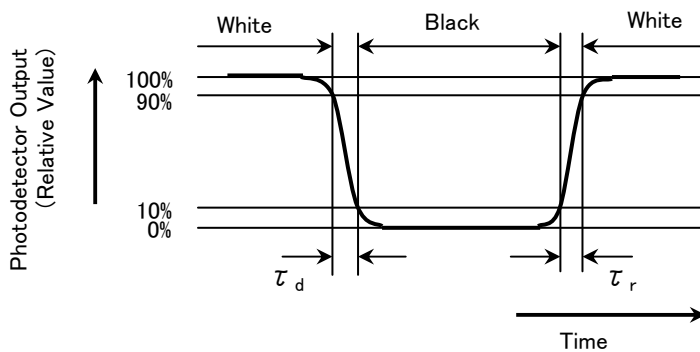【Note1】Definitions of viewing angle range:
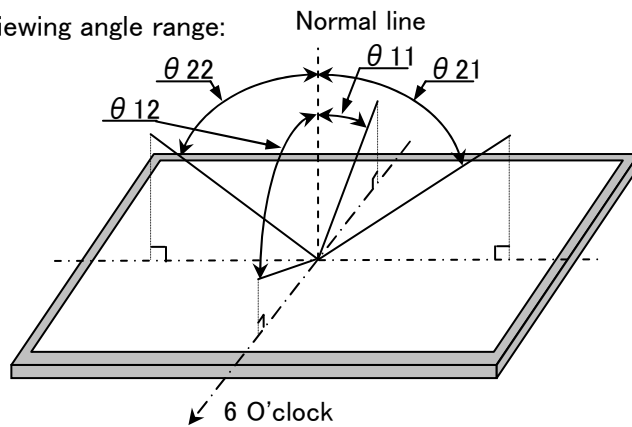
【Note2】Definition of contrast ratio:

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

【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".
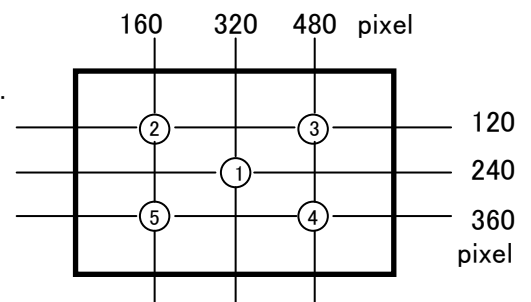

【Note4】This shall be measured at center of the screen.

【Note5】Definition of white uniformity:

White uniformity is defined as the following with five measurements. (①〜⑤)

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

10. Handling Precautions

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

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

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

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

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

f) 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.

g) 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.

h) 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.

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

j) Connect GND to stabilize against EMI and external noise.

k) 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.

l) 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.

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

n) 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.

o) 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.

p) 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.

q) 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.

r) Never take to pieces the module , because it will cause failure.
Please do not peel off the Black tape pasted to the product.

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

11. Packing form

 a) Piling number of cartons :   MAX. 6

 b) Package quantity in one carton：   20pcs

 c) Carton size(TYP)：   451mm(W) × 440mm(D)×313mm(H)

 d) Total mass of one carton filled with full modules(20pcs)： 13.5kg

  Packing form is shown in Fig 3.

12. Reliability test items

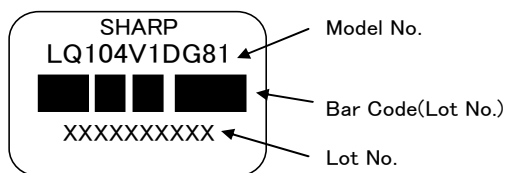| No.	Test item	Conditions	Remark
1	High temperature storage test	Ambient temperature 80℃ 240H	【Note1】
2	Low temperature strage test	Ambient temperature −30℃ 240H	【Note1】
3	High temperature & high humidity operation test	Ambient temperature 40℃、Humidity 95% RH 240H (No condensation.)	【Note1】
4	High temperature 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℃,

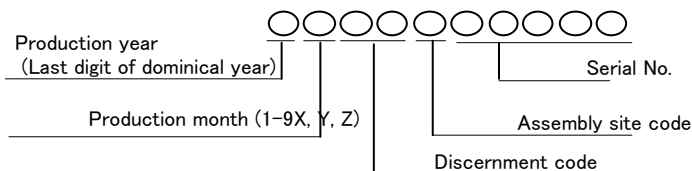   Humidity:45～75%, Atmospheric pressure:86～106kpa)

13. Others

13-1. Lot No Label:

A）Module serial label

The label that displays SHARP・Model No.（ LQ104V1DG81）・Lot No. is stuck on the back of the module.
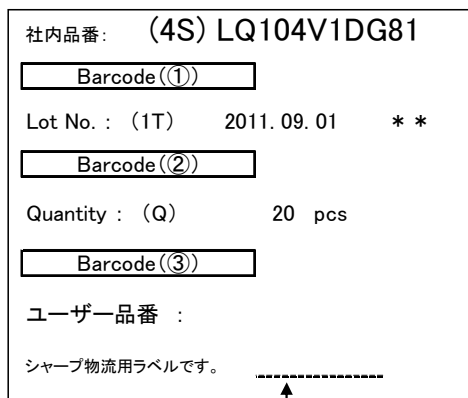
Lot No display method（Figure and alphabet）

SHARP
LQ104V1DG81 ← 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）
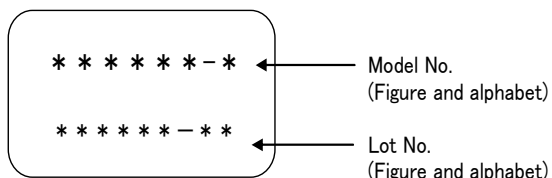
13-2. Packing box Label:

The label that displays ①Model number（ LQ104V1DG81）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) LQ104V1DG81

Barcode(①)

Lot No. :　(1T)　　2011. 09. 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。　---------------

① Model number（ LQ104V1DG81）
② Lot number（DATA）
③ Quantity of module

Our management product number might be filled i
（Example：LQ104V1DG81A etc.）

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.

MADE IN JAPAN　　OR　MADE IN CHINA

R.C.

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

13-4. If any problem occurs in relation to the description of this specification , 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.
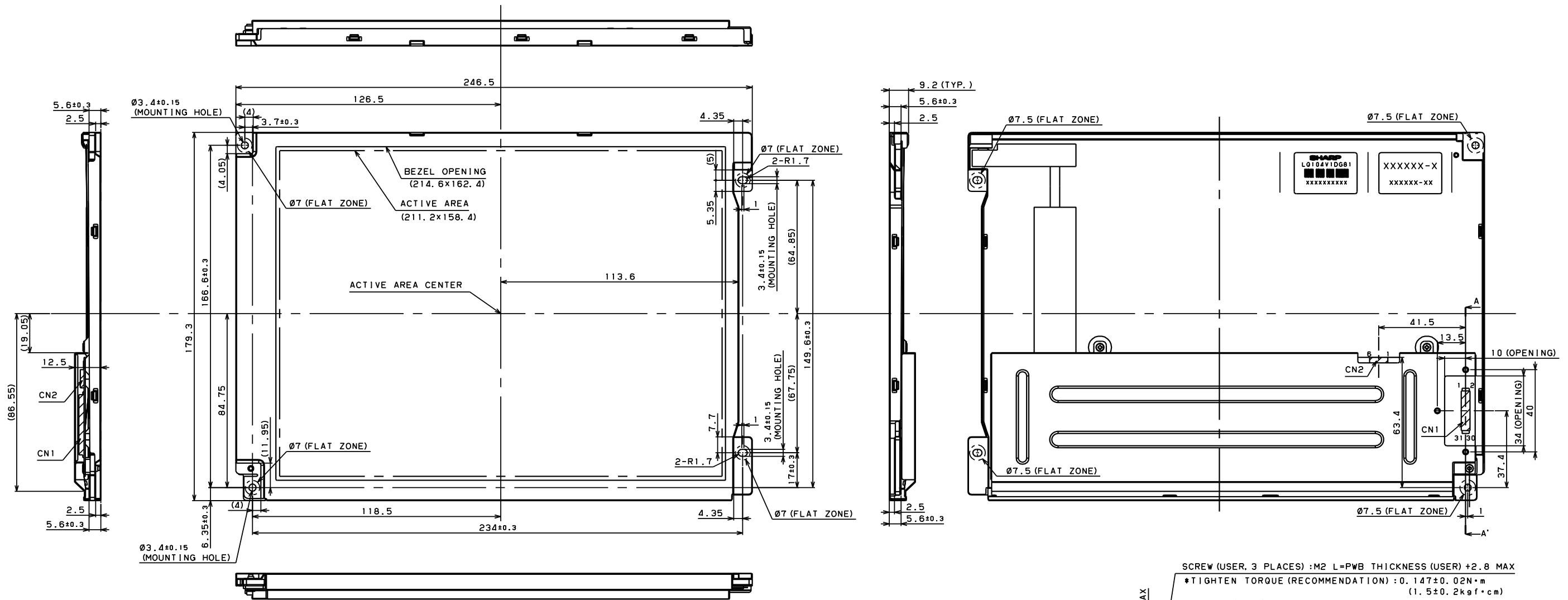
【I/F Connector】

CN1:20186-020E-11(IPEX)

PIN LAYOUT

1	2	3	4	5	6	7	8
VCC	VCC	GND	GND	RXIN0-	RXIN0+	GND	RXIN1-
9	10	11	12	13	14	15	16
RXIN1+	GND	RXIN2-	RXIN2+	GND	RXCLK IN-	RXCLK IN+	GND
17	18	19	20				
NC	SCAN	GND	GND				

【LED Backlight Connector】

CN2:SM06B-SHLS-TF(JST)

PIN LAYOUT

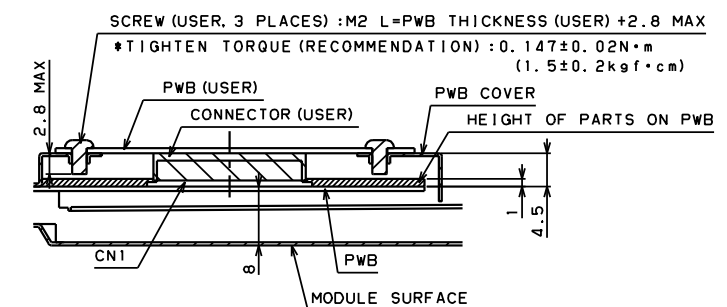| 1	2	3	4	5	6
VDD	VDD	GND	GND	XSTABY	VBR

BEZEL/DISPLAY POSITION
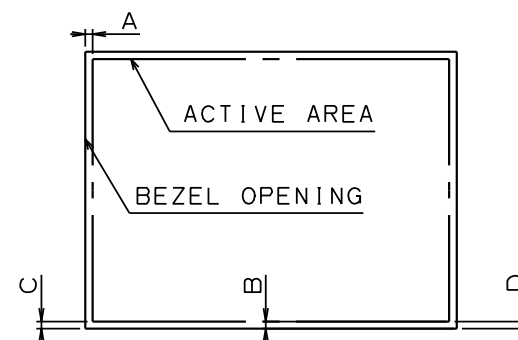
1) TOLERANCE X-DIRECTION A:1.7±0.8
2) TOLERANCE Y-DIRECTION B:2.0±0.8
3) OBLIQUITY OF DISPLAY AREA IC-DI<0.8

SECTION A-A'

NOTES

1) UNSPECIFIED TOLERANCE TO BE ±0.5

2) WARP AND FLOATING FOR PWB AND CHASSIS ARE
   EXCLUDED FROM THE THICKNESS OF THE UNIT.

3) TIGHTEN TORQUE (RECOMMENDATION)
   :0.294±0.02N·m(3.0±0.2kgf·cm)
   ※PLASE CONFIRM WHETHER THERE IS
   THE PROBLEM SUCH AS LOOSENING OF
   THE SCREW IN A REAL MACHINE.

4) NEVER TAKE TO PIECES THE MODULE,
   BECAUSE IT WILL CAUSE FAILURE.
   PLEASE DO NOT PELL OFF THE PWB COVER,
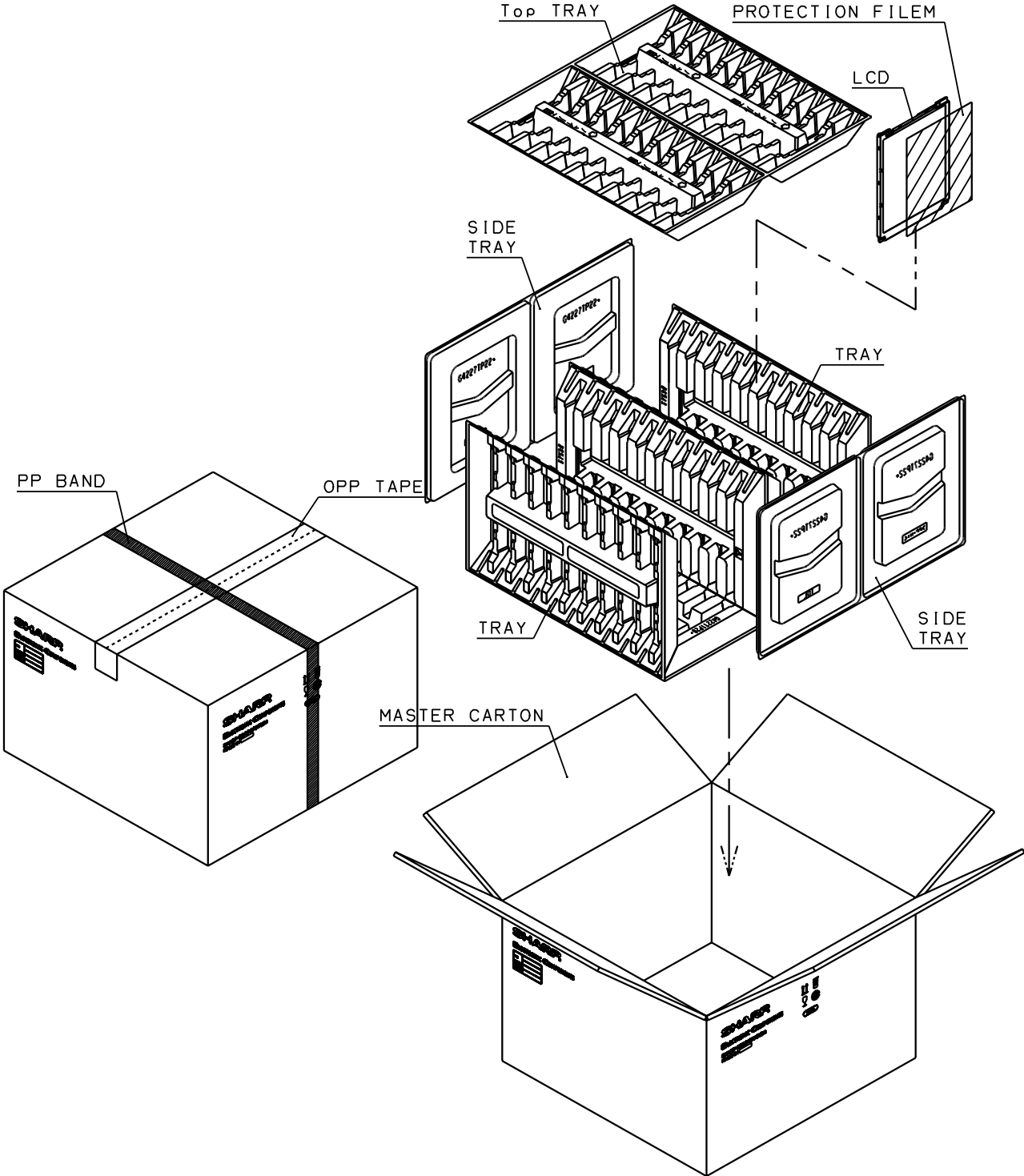   SCREW, TAPE PASTED TO THE PRODUCT.

Fig.1:LQ104V1DG81 OUTLINE DIMENSIONS

Top TRAY PROTECTION FILEM

LCD

SIDE
TRAY

TRAY

PP BAND OPP TAPE

TRAY

SIDE
TRAY

MASTER CARTON

Fig.3 : PACKING FORM

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