| PREPARED BY : DATE | **S H A R P** <br><br> LIQUID CRYSTAL DISPLAY GROUP <br> SHARP CORPORATION <br><br> SPECIFICATION | SPEC No. LD7805A |
|---|---|---|
| | | FILE No. |
| APPROVED BY : DATE | | ISSUE : Aug . 3.1995 |
| | | PAGE : 17 pages |
| | | APPLICABLE GROUP <br> Liquid Crystal Display Group |

DEVICE SPECIFICATION FOR

# TFT-LCD Module

MODEL No.

# LQ1OP342

•1 CUSTOMER' S APROVAL

DATE _____

BY _____

PRESENTED
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SHARP CORPORATION

# RECORDS OF REVISION

L Q 1 O P 3 4 2

| SPEC No. | DATE | REVISED | | SUMMARY | NOTE |
|---|---|---|---|---|---|
| | | No. | PAGE | | |
| LD-7805 | 1995. 8. 3 | - | - | | 1 st Issue |
| LD-7805A | 1996. 5. 15 | 4 | 17 | Measurement of Bezel opening (216. 2x163. 4)→(213. 2x 160.4) | Changed |

1. Application

This specification applies to color TFT-LCD module, LQ 10 P342.

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 and power supply circuit. Graphics and texts can be displayed on a $640 \times 3 \times 480$ pixel panel with 262,144 colors by supplying 18 bit data signal (6bit/color), four kind of timing signals, +5V DCsupply voltage for TFT-LCD panel driving.

400 lines and 350 lines modes in addition to the 480 lines mode can be also applied for this module. Horizontal display reverse fiction suitable for projector use is built in this module.

3. Mechanical Specifications

| Parameter | Specifications | Unit |
|---|---|---|
| Display size | 26 (10.4") Diagonal | cm |
| Active area | 21 1.2(H) × 158.4(V) | mm |
| Pixel format | 640(H) × 480(V) | pixel |
| | (1 pixel＝R＋G＋B dots) | |
| Pixel pitch | 0.330(H) × 0.330(V) | mm |
| Pixel configuration | R.G.B vertical stripe | |
| Display mode | Normally white | |
| Unit outline dimensions | 265.0(W) × 195.0(H) × 8.0(D) | mm |
| Mass | $420^{+10}_{-20}$ | g |
| Surface treatment | clear hard-coating 2H | |

Outline dimensions is shown in Fig. 1

4. Input Terminals

4-1. TFT-LCD panel driving

CN 1 Used connector:DF9BA-3 1P- 1V (Hirose Electric Co., Ltd.)

,31 : Corresponding connector: DF9 -31S-IV ( " )

DF9A-31S-1V

DF9B-31 S-iv

CN 1 pin arrangement from module surface
(Transparent view)

| Pin No. | Symbol | Function | Remark |
|---|---|---|---|
| 1 | GND | | |
| 2 | CK | Clock signal for sampling each data signal | |
| 3 | Hsync | Horizontal synchronous signal | [Note1 ] |
| 4 | Vsync | Vertical synchronous signal | [Note1 ] |
| 5 | GND | | |
| 6 | R0 | R E D data signal(LSB) | |
| 7 | R1 | R E D data signal | |
| 8 | R2 | R E D data signal | |
| 9 | R3 | R E D data signal | |
| 10 | R4 | R E D data signal | |
| 11 | R5 | R E D data signal(MSB) | |
| 12 | GND | | |
| 13 | G0 | G R E E N data signal(LSB) | |
| 14 | G1 | G R E E N data signal | |
| 15 | G2 | G R E E N data signal | |
| 16 | G3 | G R E E N data signal | |
| 17 | G4 | G R E E N data signal | |
| 18 | G5 | G R E E N data signal(MSB) | |
| 19 | GND | | |
| 20 | B0 | B L U E data signal(LSB) | |
| 21 | B1 | B L U E data signal | |
| 22 | B2 | B L U E data signal | |
| 23 | B3 | B L U E data signal | |
| 24 | B4 | B L U E data signal | |
| 25 | B5 | B L U E data signal(MSB) | |
| 26 | GND | | |
| 27 | ENAB | Signal to settle the horizontal display position | [Note2 ] |
| 28 | Vcc | +5 .0V power supply | |
| 29 | Vcc | +5 .0V power supply | |
| 30 | R/L | Signal to settle the horizontal display reverse | [Note3 ] |
| 31 | U/D | Signal to settle the vertical display reverse | [Note4 ] |

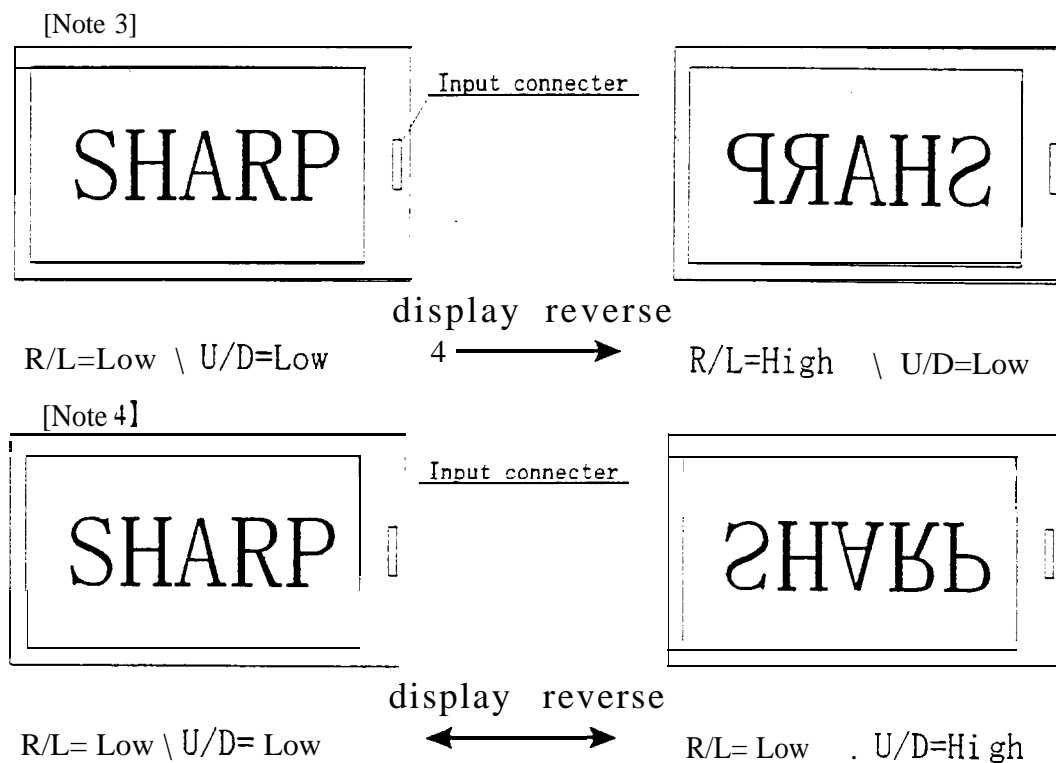※The shielding case is connected with GND.

[Note1 ] 480 line, 400 line or 350 line mode
is selected by the polarity combination
of the both synchronous signals.

| Mode | 480 lines | 400 lines | 350 lines |
|---|---|---|---|
| Hsync | negative | negative | positive |
| Vsync | negative | positive | negative |

[Note2 ] 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 7-2. Don' t keep ENAB "High" during

operation.

[Note 3]

SHARP

Input connecter

ЯᴙAHƧ

display reverse

R/L=Low \ U/D=Low       4 ⟶       R/L=High   \ U/D=Low

[Note 4]

SHARP

Input connecter

ƧHAᴙᑫ

display reverse

R/L= Low \ U/D= Low    ⟷    R/L= Low   . U/D=Hi gh

5. Absolute Maximum Ratings

| Parameter | Symbol | Condition | Ratings | Unit | Remark |
|---|---|---|---|---|---|
| Input voltage | $V_I$ | Ta=25 ℃ | $-0.3 \sim$ Vcc$+0.3$ | V | 【Note1】 |
| +5V supply voltage | Vcc | Ta=25 ℃ | $0 \sim +6$ | V | |
| Storage temperature | Tstg | - | $-25 \sim +60$ | ℃ | 【Note2】 |
| Operating temperature (Ambient) | Topa | - | $0 \sim +50$ | ℃ | ･ |
| Light source wave length | $\lambda_I$ | — | $\geqq 400$ | nm | |
| Light source illumination intensity | Iι | - | $\leqq 300,000$ | lx | 【Note3】 |

【Note1】 CK,R0〜R5,G0〜G5,B0〜B5,Hsync,Vsync,ENAB,R/L,U/D

【Note2】 Humidity : 95%RH Max. at Ta≦40℃.

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

　　　No condensation.

[Note3] Measurement point : panel surface

　　　The light source should be placed at the incident-light side.

incident-light-side

light source

measurement point

module
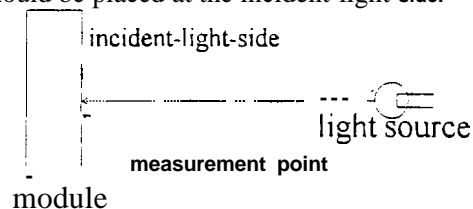
## 6. Electrical Characteristics

### 6-1. TFT-LCD panel driving                                    Ta＝25℃

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|---|
| +5V | Supply voltage | Vcc | +4.5 | +5.0 | +5.5 | V | 【Note1 1】 |
| | Current dissipation | Icc | – | 280 | 450 | mA | 【Note2】 |
| Permissive input ripple voltage | | $V_{RP}$ | – | – | 100 | mVp-p | Vcc=+5V |
| Input voltage (Low) | | $V_{IL}$ | – | – | 0.3Vcc | V | |
| Input voltage (High) | | $V_{IH}$ | 0.7Vcc | – | – | V | [Note31 |
| Input current (low) | | $I_{OL1}$ | " | – | 1.0 | μA | $V_T$=0V 【Note4】 |
| | | $I_{OL2}$ | – | – | 60.0 | μA | $V_T$=0V 【Note5】 |
| Input current (High) | | $I_{OH1}$ | – | – | 1.0 | μA | $V_T$=Vcc 【Note6】 |
| | | $I_{OH2}$ | – | – | 60.0 | μ.4 | $V_T$=Vcc 【Note7】 |

【Note1 1】
Vcc-turn-on conditions

t1≦10ms

0＜t2≦10ms

0＜t3≦1s
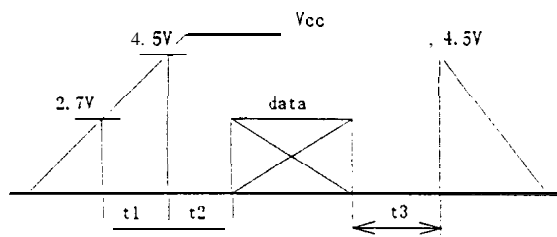
Vcc-dip conditions

1) 2.7V≦Vcc＜4.5V
    td≦10ms

2) Vcc＜2.7V

Vcc-dip conditions should also follow the Vcc-turn-on conditions
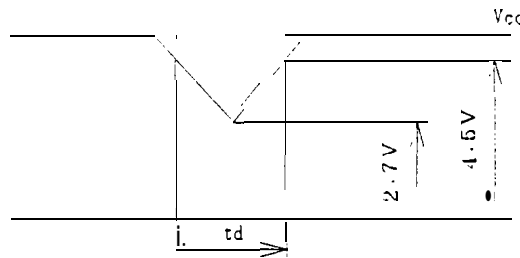
[Note21  Typical current situation : 16-gray-bar pattern.
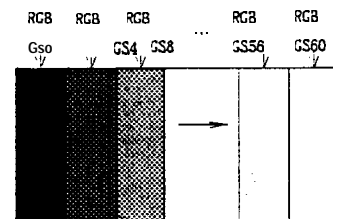
4S0 line mode

Vcc=+5.0V

[Note31  CK,R0~R5,G0~G5,B0~B5,Hsync,Vsync,ENAB,R/L,U/D

【Note4】 CK,R0~R5,G0~G5,B0~B5,Hsync,Vsync,ENAB

【Note5 1】 R/L

【Note6】 CK,R0~R5,G0~G5,B0~B5,Hsync,Vsync,R/L

【Note7】 ENAB,U/D

7. Timing Characteristics of input signals

Timing diagrams of input signal are shown in Fig.2 -1-3.

7-1. Timing characteristics

| Parameter | | Symbol | Mode | Min. | Typ. | Max. | unit | Remark |
|---|---|---|---|---|---|---|---|---|
| Clock | Frequency | In-c | all | – | 25.18 | 28.33 | MHz | |
| | High time | Tch | ″ | 5 | – | – | ns | |
| | Low time | Tcl | ″ | 10 | - | – | ns | |
| Data | Setup time | Tds | ″ | 5 | – | – | ns | |
| | Hold time | Tdh | " | 10 | - | – | ns | |
| Horizontal sync. signal | Cycle | TH | ″ | 30.00 | 31.78 | - | μs | |
| | | | ″ | 750 | 800 | 900 | clock | |
| | Pulse width | THp | // | 2 | 96 | 200 | clock | |
| Vertical sync. signal | Cycle | Tv | | 480 | 515 | 525 | 560 | line |
| | | | | 400 | 445 | 449 | 480 | line |
| | | | | 350 | 447 | 449 | 510 | line |
| | Pulse width | TVp | all | 1 | – | 34 | line | |
| Horizontal display period | | THd | ″ | 640 | 640 | 640 | clock | |
| Hsync-Clock phase difference | | THc | " | 10 | – | Tc-10 | ns | |
| Hsync-Vsync phase difference | | TVh | ″ | 0 | – | TH-THp | clock | |

Note) In case of lower frequency, the deterioration of display quality, flicker etc. may be occurred

7-2. Horizontal display position

The horizontal display position is determined by ENAB signal and the input data corresponding to the rising edge of ENAB signal is displayed at the left end of the active area.

| Parameter | | symbol | Min. | Typ. | Max. | Unit | Remark |
|---|---|---|---|---|---|---|---|
| Enable signal | Setup time | Tes | 5 | – | Tc-10 | ns | |
| | Pulse width | Tep | 2 | 640 | 640 | clock | |
| Hsync-Enable signal phase difference | | THe | 44 | - | 164 | clock | |

Note) When ENAB is fixed "Low", the display starts from the data of Cl 04(clock) as shown in Fig. 2-1-3. Be careful mat the module does not work when ENAB is fixed "High".

## 7-3. Vertical display position

The vertical display position is automatically centered in the active area at each mode of VGA ,480 -,400 -,and 350-line mode Each mode is selected depending on the polarity of the synchronous signals described in 4-1(Note1 ).

In each mode ,the data of TVn is displayed at the top line of the active area. And the display position will be centered on the screen like the following figure when the period of vertical synchronous signal,TV,is typical value.

In 400-, and 35 O-line mode, the data in the vertical data invalid period is also displayed, So ,inputting all data "O" is recommended during vertical data invalid period. ENAB signal has no relation to the vertical display position.
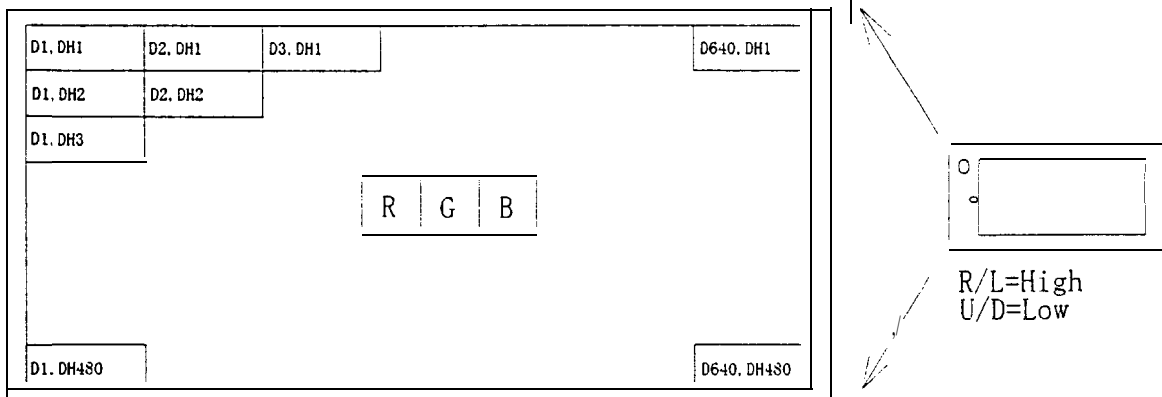
| mode | V-data start(TVs) | V-data period(TVd) | V-display start(TVn) | V-display period | Unit | Remark |
|---|---|---|---|---|---|---|
| 480 | 34 | 480 | 34 | 480 | line | |
| 400 | 34 | 400 | 443-TV | 480 | line | |
| 350 | 61 | 350 | 445-TV | 480 | line | |

400 lines mode (TV=449)          350 1 ines mode (TV=449)
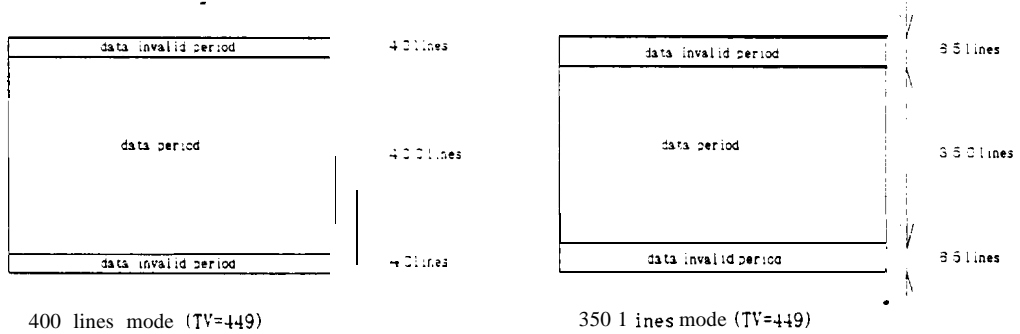
## 7-4. Input Data Signals and Display Position on the screen

Display position of input data (4S0 lines rode)
(H. V)

UP

| D1,DH1 | D2,DH1 | D3,DH1 | | D640,DH1 |
| D1,DH2 | D2,DH2 | | | |
| D1,DH3 | | | | |

R G B

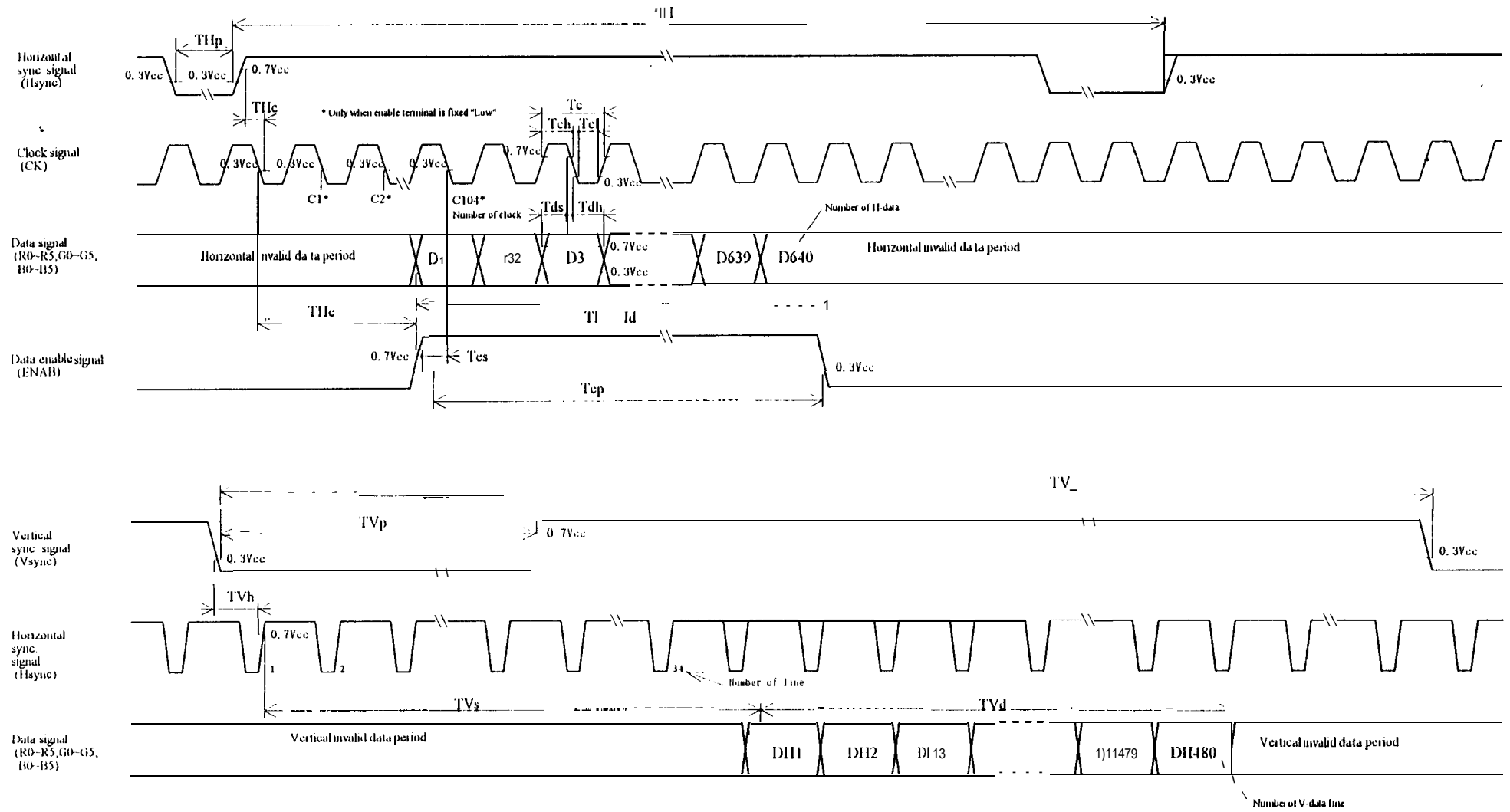D1,DH480          D640,DH480

O
o

R/L=High
U/D=Low

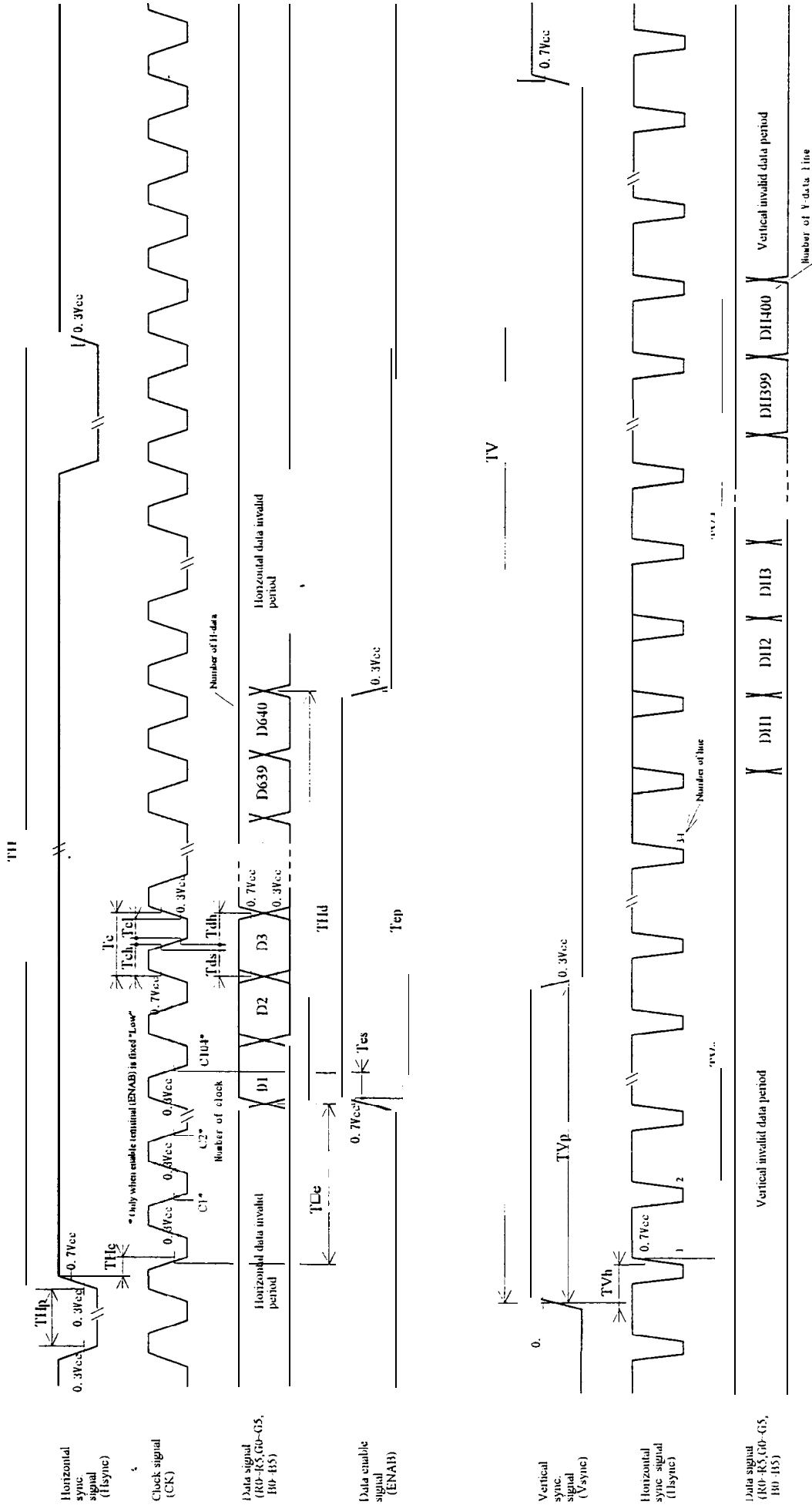Fig 2-1 Input signal waveforms (480 line mode)
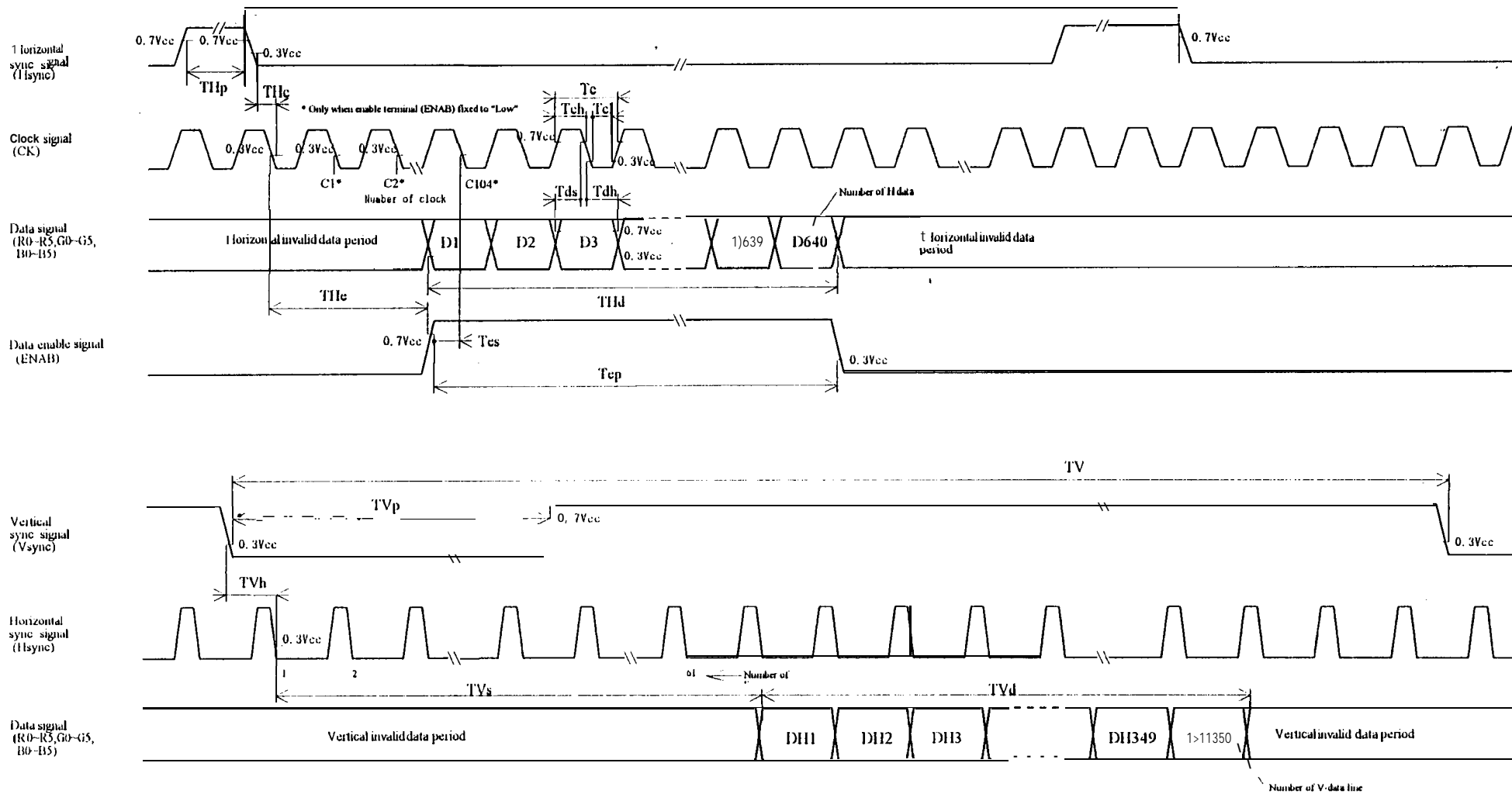
Fig.2-2 Input signal waveforms (400 line mode)

Fig.2-3 Input signal waveforms (350 line mode)

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

| Colors & ray scale | | GrayScale | RO | R1 | R2 | R3 | R4 | R5 | GO | G1 | G2 | G3 | G4 | G5 | BO | 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 | 1 | 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 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 010 | 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-dolor display can be achieved on the screen.

## 9. Optical Characteristics

Ta=25℃, Vcc= +5V

| Parameter | | Symbol | Condition | Min. | Typ. | Max. | unit | Remark |
|---|---|---|---|---|---|---|---|---|
| Viewing angle range | Horizontal | 921,622 | CR>10 | 35 | – | – | Deg. | [Note1,5] |
| | Vertical | $\theta 11$ | | 10 | - | – | Deg. | |
| | | $\theta 12$ | | 30 | – | – | Deg. | |
| Contrast ratio | | CR | $\theta =0°$ | 100 | – | – | | [Note2,5] |
| Response time | Rise | $\tau r$ | | — | 30 | - | m s | [Note3,5] |
| | Decay | $\tau d$ | | — | 50 | — | m s | |
| Transmissivity | | tr | | 6.2 | 7.3 | – | % | [NOte4,5] |
| Chromaticity shift | | $\triangle X$ | | -0.035 | -0.005 | +0.025 | | [Note5,6] |
| | | $\triangle Y$ | | -0.010 | +0.010 | +0.050 | | |

[ Optical characteristics of backlight for measurement ]

luminance : $\geq 3500$cd/m$^2$

wave length : $\geq 400$nm

※The measurement shall be executed 15-20 minutes tier lighting at rating. The optical characteristics shall be measured in a dark room or equivalent state with the method show in Fig.3 below.
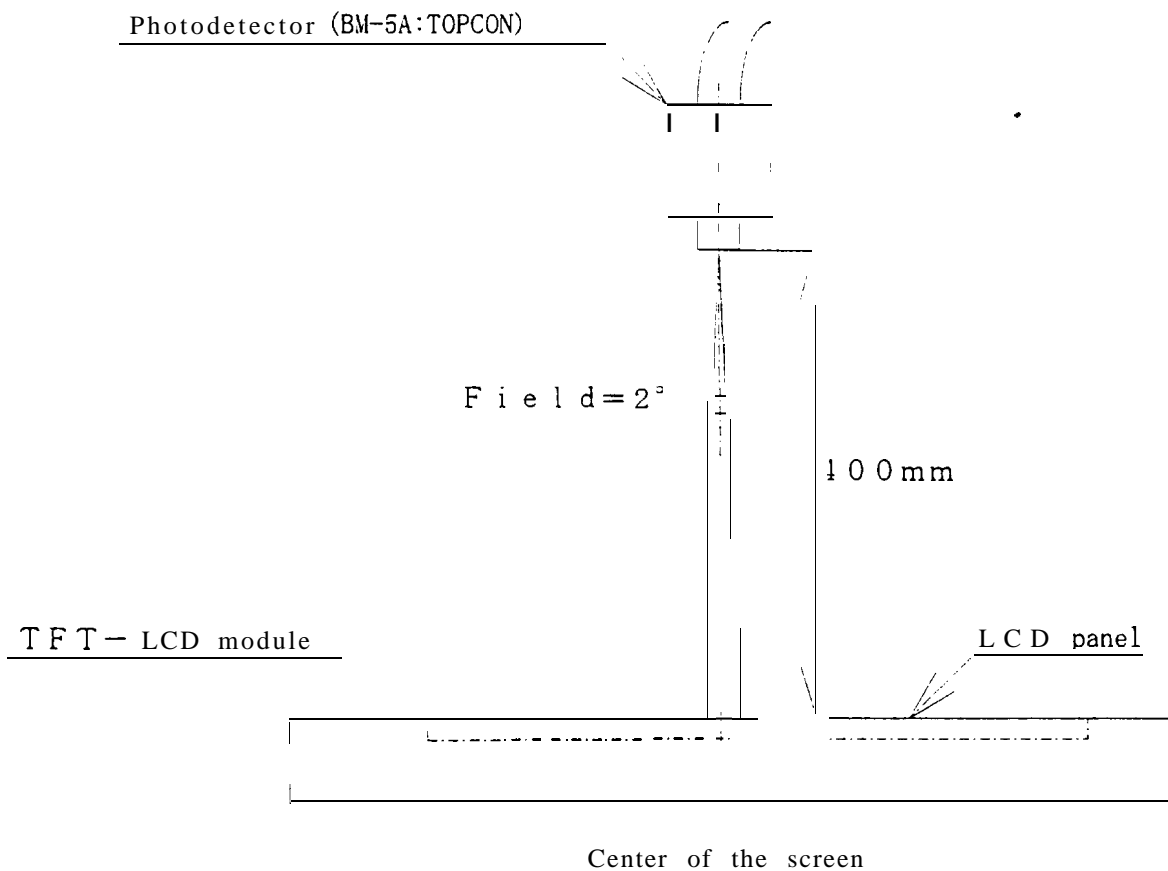


Fig.3 Optical characteristics measurement method

[Note1 1 Definitions of viewing angle range:
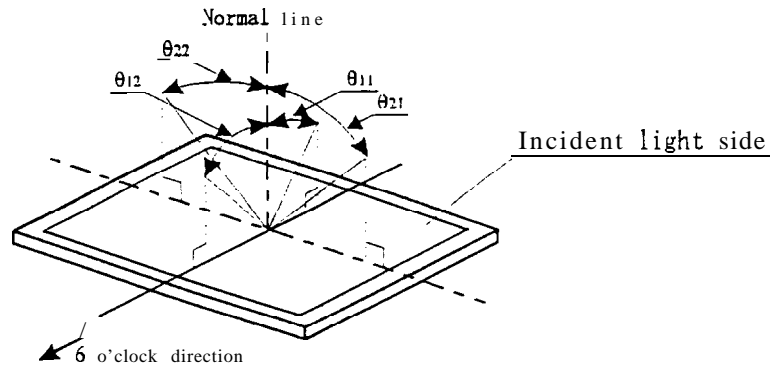


[Note2] Definition of contrast ratio:

The contrast ratio is defined as the following.

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

[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"
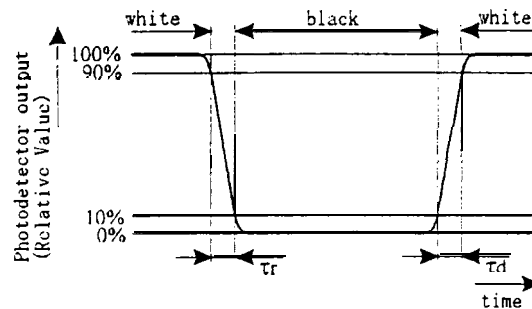


[Note4] Definitions of Transmissivity:

$$\text{Transrnissivity} = \frac{\text{light detected level of the transmission through the LCD panel}}{\text{light detected level of the original light source}}$$

[Note51 The values are measured at center of the screen.

[Note6] Chromaticity shift is the difference of those of the light source and the module placed on it.
The values are measured with standard illuminant : C(x=0.310, y=0.3 16)

10. Display Quantity

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

11. Handling Precautions

11- 1) Be sure to insert the cable into the connector or take out of the connector after turning off
the power supply on the set side.

1 1-2) Precautions in mounting

a)When installing the module, be sure to fix the module on the same plane. taking care not to
warp or twist the module.

b) Since the polarizer is made of soft material. care must be taken not to scratch the surface.
Protective laminated film is attached on the outgoing light side surface glass to protect from
scratches or dirts. It is recommended that the laminated film is peeled off, just before the
use, with strict attention to electrostatic charges.

※Precautions when peeling off the laminated film:

A)Working environment

When the laminated film is peeled off, there maybe cases that some particles like dust are
stuck by electrostatic charges, so the following working environment is recommended.

(a)Floor: Anti-electro-static treatment more than $1 M \Omega$ on the tile.

(b) Spread an adhesive mat at a doorway in the clean room.

(c)Humidity: 50% to 70%, Temperrature: 15°C to 27°C

(d)Worker needs anti-electro-static shose, anti-electro-static work wear, anti-electro-static
gloves and earth band.

B)Working way

(a)Keep the distance between the module and the heated ionized air blower within 20cm.
The module shall be well blown to the wind of the blower. (Fig. ①)

(b)Attach an adhesive tape to a comer of the laminated film near the heated ionized air blower.
(Fig.②)

(c)Peel the laminated film pulling the adhesive tape to your side. It is important that it takes
more than 5 seconds to peel off the laminated film.

(d)The module after peeling laminated film must be moved to next work immediately without
getting dust.

(c)The way to remove 'dust' from the polarizer

● B1OW it off by nitrogen blow that is taken measures against electrostatic charges.
Ionized air gun is recommended.

● Since polarizer is easily damaged, In unavoidable case, wipe it carefully by the cloth
like a wiper for lens. breathing on it.

Heated Ionized
Air Blower

Less than 20cm

Module

Fig. ①

The direction of the wind of
the blower

Adhesive Tape

Fig. ②
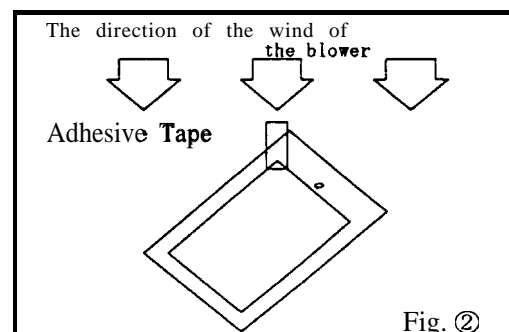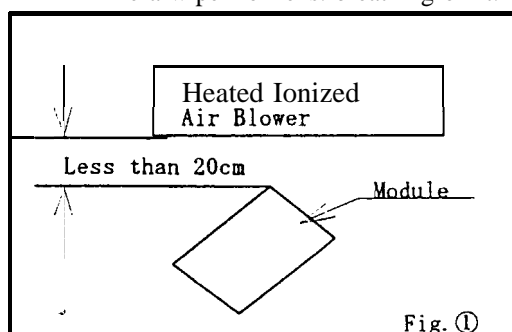
11-3) Others

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

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

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

d)Since CMOS LSI is used in this module, take care of static electricity and ground your body when handling.

e) Observe all *other* precautionary requirements in handling components.

12. Packing form

a) Piling number of cartons : MAX. 7

b) Package quantity in one carton : 10pts

c) Carton size : 460(W) × 300(D) ×380(H)mm

d) Total mass of 1 carton filled with full modules :6 150g

Packing form is shown in Fig.4

3. 1 eliability test items

| No. | Test item | Conditions |
|---|---|---|
| 1 | High temperature storage test | Ta=60℃ 240h |
| 2 | Low temperature storage test | Ta=-25℃ 240h |
| 3 | High temperature & high humidity operation test | Ta=40℃ ; 95%RH 240h (No condensation) |
| 4 | High temperature operation test | Ta=50℃ 240h |
| 5 | Low temperature operation test | Ta=0℃ 240h |
| 6 | Vibration test (non- operating) | Frequency : 10.5 Vibration width (one side) :0.075mm :58 ～500Hz/Gravity:9.8m/s$^2$ Sweep time :11 minutes Test period: 3 hours (1 hour for each direction of X,Y,Z) |
| 7 | Shock test (non- operating) | Max. gravity : 490m/s$^2$ Pulse width : 11 ms. half sine wave Direction : ±X,±Y,±Z once 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 fiction.

14. Others

1) Lot No. Label:

```
      SHARP                  Model No.
      LQ1OP342    ←
  1    56 000001  ←         Lot  No.
      MADE  IN JAPAN
```
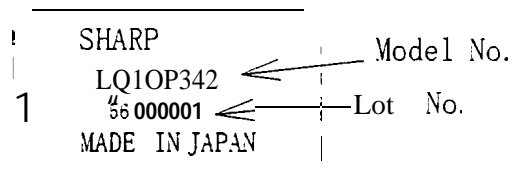
2) Adjusting volume have been set optimally before shipment, so do not change any adjusted value. If adjusted value is changed, the specification may not be satisfied.

3) Disassembling the module can cause permanent damage and should be strictly avoided.

4) Please be careful since image retention may occur when a fixed pattern is displayed for a long time

5) If any problem occurs in relation to the description of this specification , it shall be resolved through discussion with spirit of cooperation.

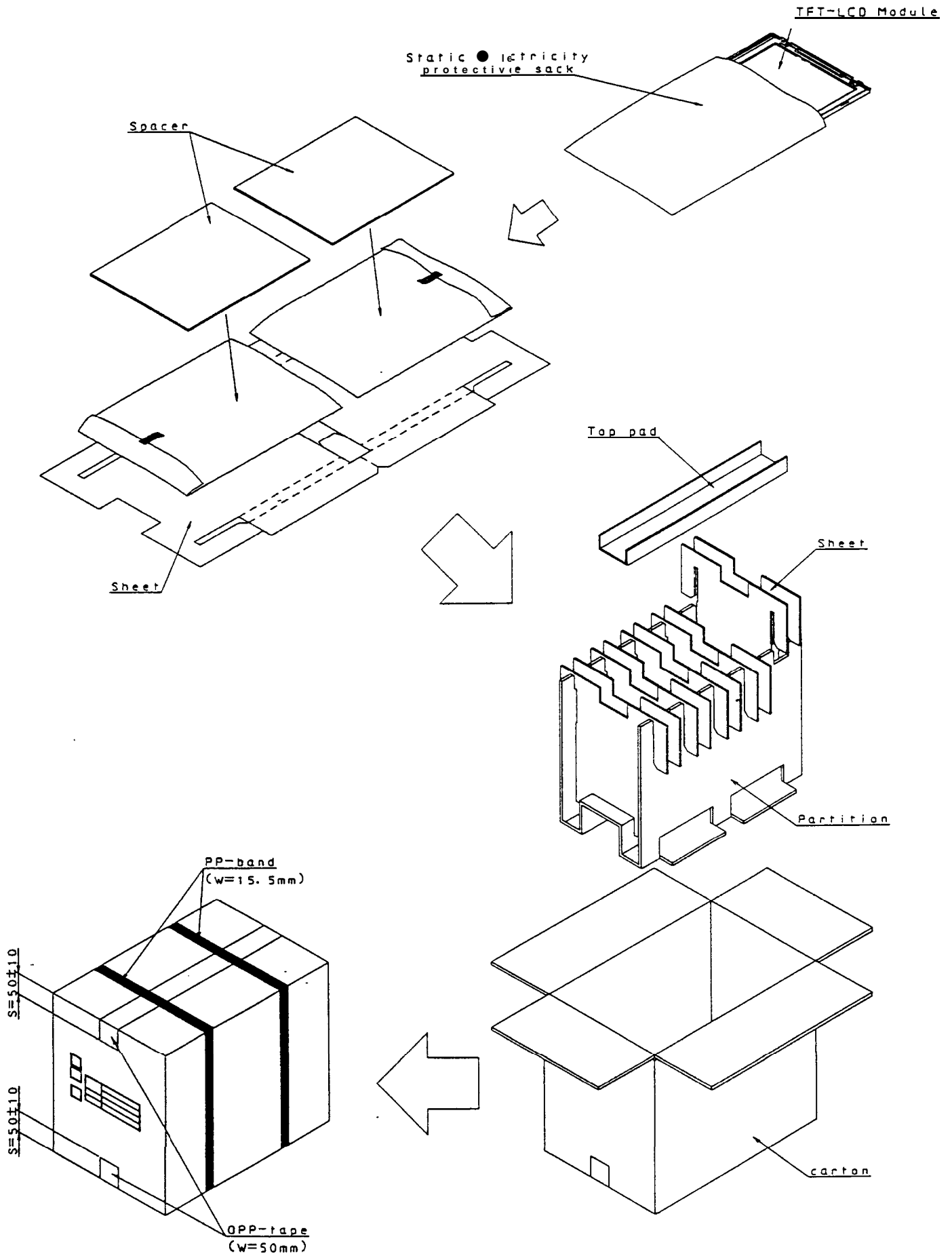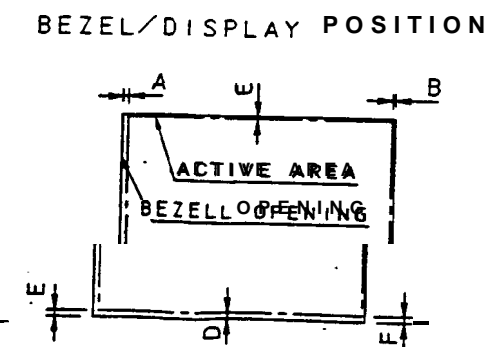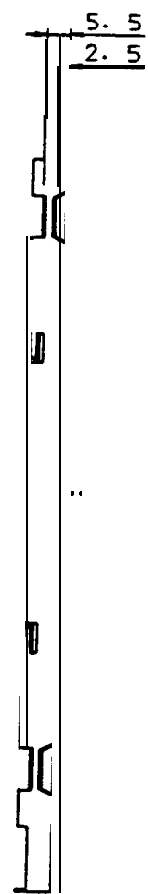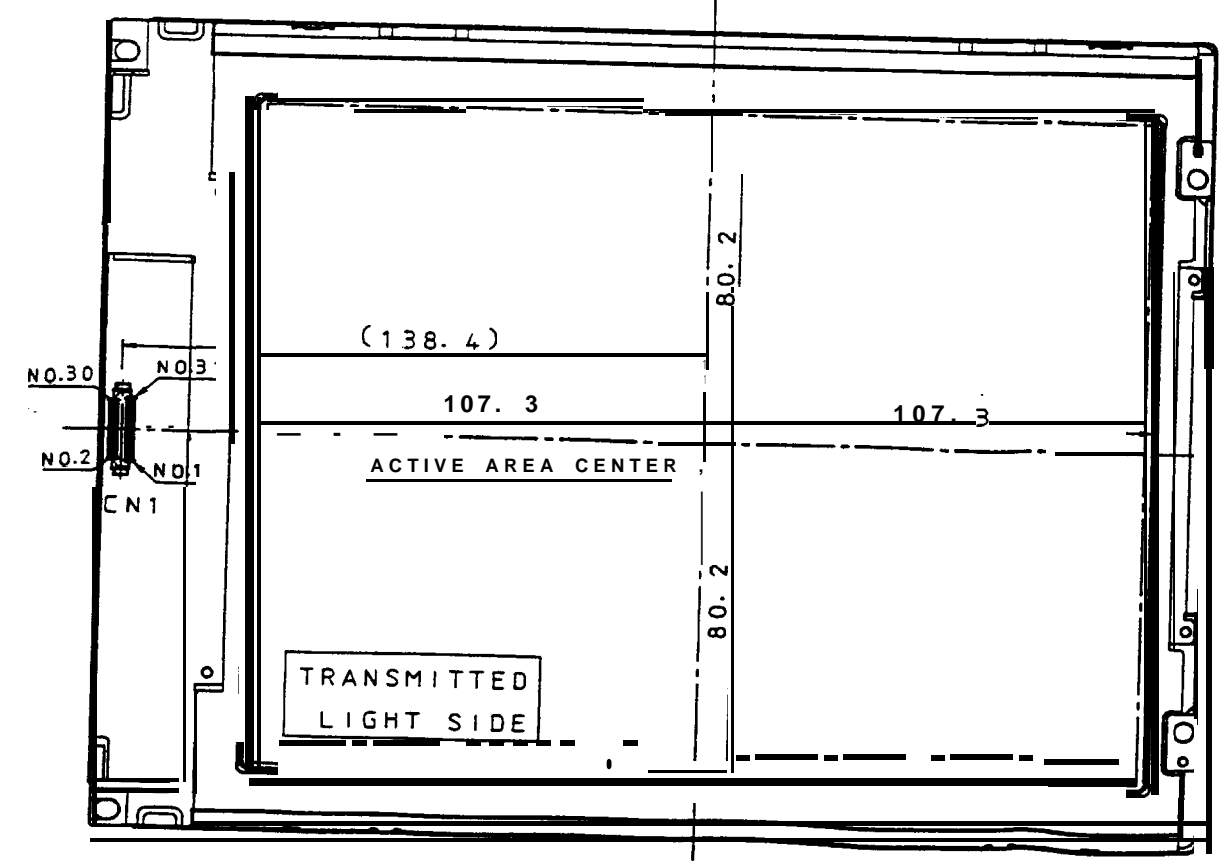TFT-LCD Module

Static ● letricity
protectivie sack

Spacer

Top pad

Sheet

Sheet

Partition

PP-band
(W=15. 5mm)

S=50±10

S=50±10

carton

OPP-tape
(W=50mm)

Fig4. Packing form

LD7805-17

SEE DETAIL A

(143. 9)
265

BEZEL OPENING
(210.2×165.4)    (213..2×11600.4)4)
ACTIVE AREA
(211.2×158.4)

ACTIVE AREA
CENTER

182
100

38
6. 2

(91)

105.6(ACTIVE AREA)
108 (BEZEL OPENING)
106. 6
A

05.6(ACTIVE AREA)
09 (BEZEL OPENING)
06.6

INCIDENT
LIGHT SIDE

SEE DETAIL A

256

(116.6)

(256)
4. 5
1
3. 4
4. 5
R1.7
ENLARGED DETAIL A

SEE DETAIL B

(132. 6)
(66. 3)

79. 2(ACTIVE AREA)
(BEZEL OPENING)
80. 2

79. 2(ACTIVE AREA)
(BEZEL OPENING)
80. 2

SEE DETAIL B

4. 5
Ø3. 4
4. 5
4. 5
R4
4. 5
ENLARGED DETAIL B

mLH
8
5.
2.
5.5
2.5

BEZEL/DISPLAY POSITION

A    E    B
ACTIVE AREA
BEZEL OPENING
E
D    F

(138. 4)

107. 3         107. 3

80. 2

ACTIVE AREA CENTER

NO.30  NO3
NO.2   NO1
CN1

80. 2

TRANSMITTED
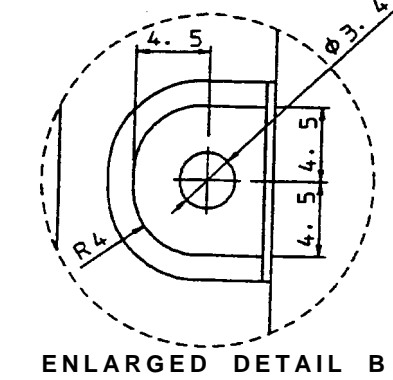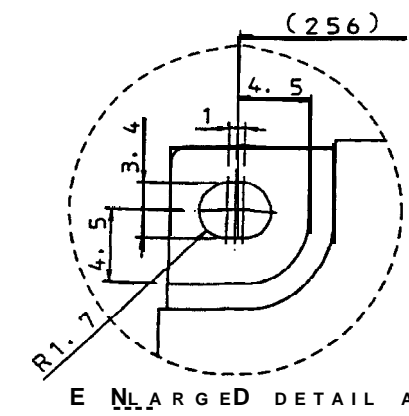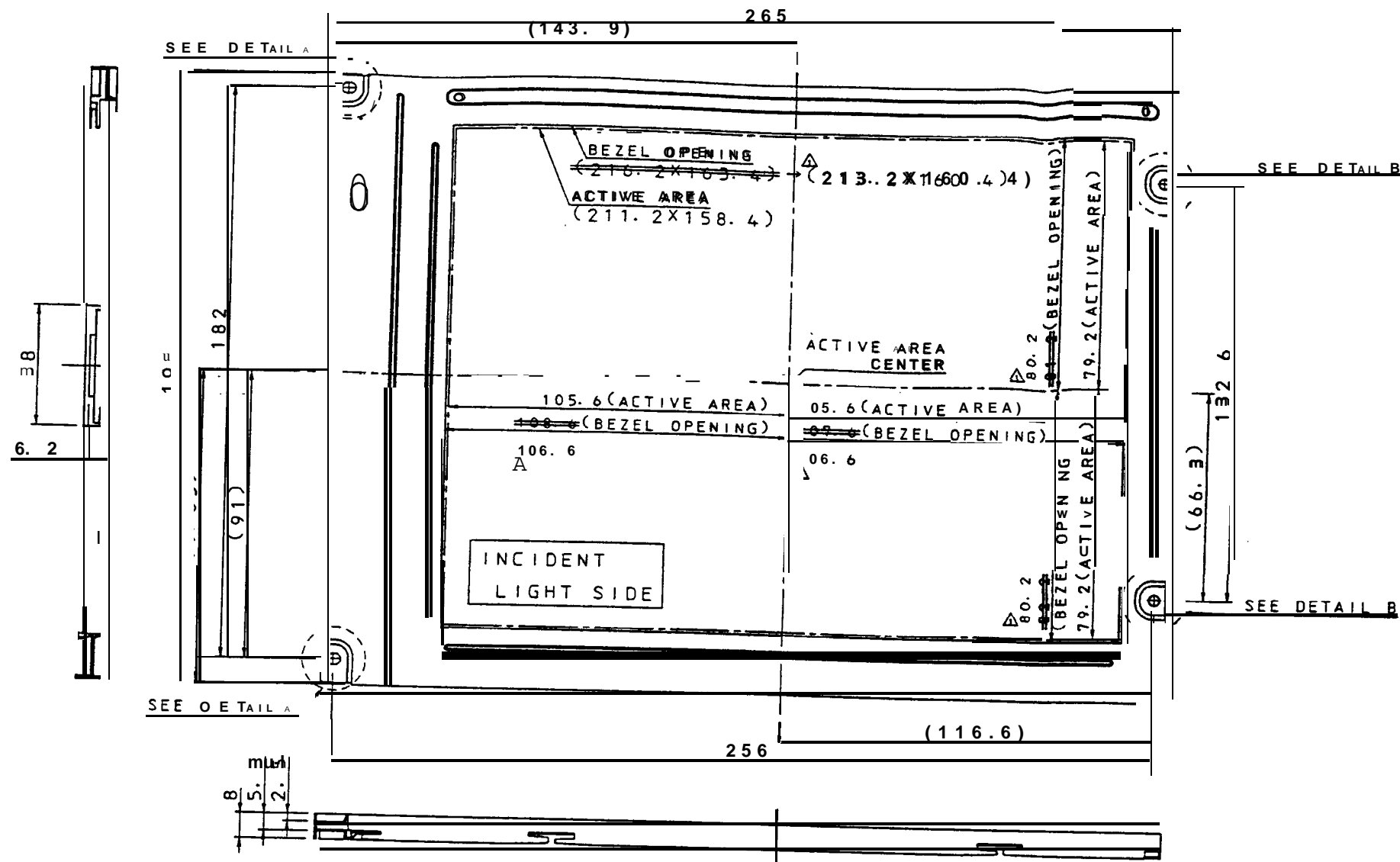LIGHT SIDE

① TOLERANCE X-DIRECTION A: 1.0±0.8
② TOLERANCE X-DIRECTION B: 1.0±0.8
③ TOLERANCE Y-DIRECTION C: 1.0±0.8
④ TOLERANCE Y-DIRECTION D: 1.0±0.8
⑤ OBLIQUITY OF DISPLAY AREA |E-F|<0. ,

NOTES
※UNSPECIFIED TOLERANCE TO BE ±0. 5
△Changed BEZEL opening area. (Apr. 23. 96)

FIG1.  LQ10P.342  OUTLINE DEMENSIONS