



RAYSTAR

曜凌光電股份有限公司

住址: 42878 台中市大雅区科雅路 25 號 5F WEB: <http://www.Raystar-Optronics.com>
5F., No.25, Keya Rd., Daya Dist., Taichung E-mail: sales@raystar-optronics.com
City 428, Taiwan Tel:886-4-2565-0761 Fax :
886-4-2565-0760

RFC350L-EIW-DAS

SPECIFICATION

CUSTOMER:

APPROVED BY	
PCB VERSION	
DATE	

FOR CUSTOMER USE ONLY

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY

ISSUED DATE:

Contents

	Page
1. Revision History	3
2. General Specification	4
3. Module Coding System	5
4. Interface Pin Function	6
5. Contour Drawing & Touch panel Information	7
6. Absolute Maximum Ratings	10
7. Electrical Characteristics	11
8. Interface Timing	11
9. AC Characteristics	12
10. Optical Characteristics	13
11. Block Diagram	16
12. Reliability	17
13. Package Specification	18
14. Initial Code For Reference	20

1. Revision History

DATE	VERSION	REVISED PAGE NO.	Note
2013/4/18	1		First issue
2013/07/08	2	19	Modify the packing diagram

RAYSTAR OPTRONICS

2. General Specification

This technical specification applies to 3.5' color TFT-LCD panel. The 3.5' color TFT-LCD panel is designed for camcorder, digital camera application and other electronic products which require high quality flat panel displays. This module follows RoHS.

- Dot Matrix: 320 x RGBx240
- Module dimension: 93.5 x 66.44 x 9.06 mm³
- Active Area: 70.08 x 52.56 mm²
- Dot pitch: 0.073 x 0.219 mm²
- View direction: 12 o'clock
- Gray Scale Inversion Direction: 6 o'clock
- LCD type: TFT, Negative, Transmissive
- Backlight Type: LED, Normally White

*Color tone slight changed by temperature and driving voltage.

3. Module Coding System

R	F	C	350	L	-	E	I	W	-	D	A	S
1	2	3	4	5	-	6	7	8	-	9	10	11

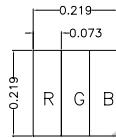
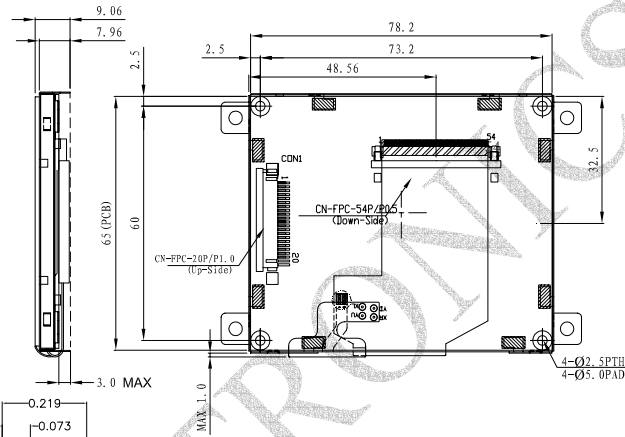
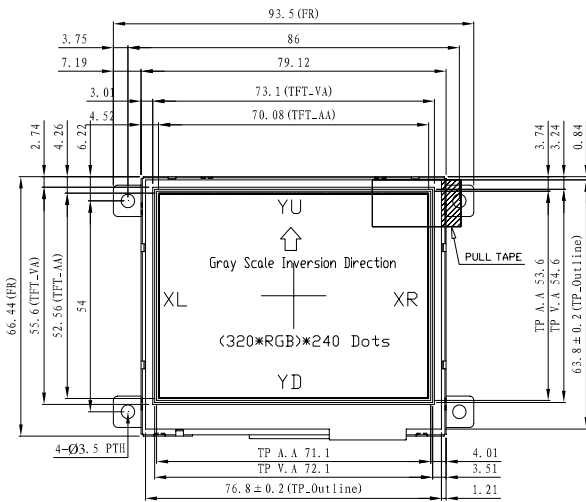
Item	Description		
1	R : Raystar Optronics Inc.		
2	Display Type : TFT Type		
3	Solution: A: 128x160 B:320x234 C:320x240 D:480x234 J:240x320		
4	Display Size : 3.5" TFT		
5	Version Code.		
6	Model serials no.		
7	Polarizer Type, Temperature range, View direction	A : Reflective, N.T, 6:00	K : Transflective, W.T,12:00
		D : Reflective, N.T, 12:00	1 : Transflective, U.T,6:00
		G : Reflective, W. T, 6:00	4 : Transflective, U.T.12:00
		J : Reflective, W. T, 12:00	C : Transmissive, N.T,6:00
		0 : Reflective, U. T, 6:00	F : Transmissive, N.T,12:00
		3 : Reflective, U. T, 12:00	I : Transmissive, W. T, 6:00
		B : Transflective, N.T,6:00	L : Transmissive, W.T,12:00
		E : Transflective, N.T.12:00	2 : Transmissive, U. T, 6:00
8	Backlight	N : Without backlight	Y : LED, Yellow Green
		P : EL, Blue green	A : LED, Amber
		T : EL, Green	W : LED, White
		D : EL, White	O : LED, Orange
		F : CCFL, White	G : LED, Green
9	Driver Method	D: Digital A: Analog	
10	Interface	N : without control board A : 8Bit B : 16Bit	
11	TS	N : Without TS S : resistive touch panel C : capacitive touch panel	

4. Interface Pin Function

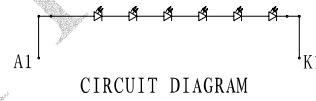
4.1. LCM PIN Definition

Pin	Symbol	I/O	Function	Remark
1	GND	P	System ground pin of the IC. Connect to system ground.	
2	VDD	P	Power Supply : +3.3V	
3	BL_E	I	Backlight control signal , H: On \ L:Off	
4	RS	I	Data/Command select	
5	WR	I	Write strobe signal	
6	RD	I	Read strobe signal	
7	DB0	I	Data bus	
8	DB1	I	Data bus	
9	DB2	I	Data bus	
10	DB3	I	Data bus	
11	DB4	I	Data bus	
12	DB5	I	Data bus	
13	DB6	I	Data bus	
14	DB7	I	Data bus	
15	CS	I	Chip select	
16	RESET	I	Hardware reset	
17	NC	-	No connect	
18	FGND	-	No connect	
19	NC	-	No connect	
20	NC	-	No connect	

5. Contour Drawing

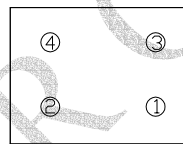


SCALE: 100X



CIRCUIT DIAGRAM

The non-specified tolerance of dimension is $\pm 0.3\text{mm}$.



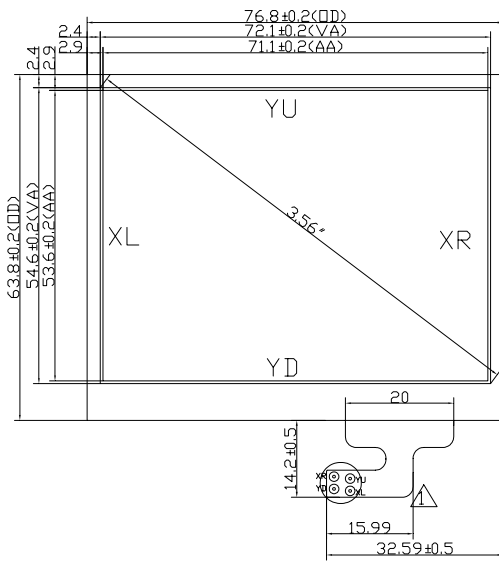
Test Point

CN1	
PIN NO	SYMBOL
1	GND
2	VDD
3	BL_E
4	RS
5	WR
6	RD
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	CS
16	RES
17	NC
18	FGND
19	NC
20	NC

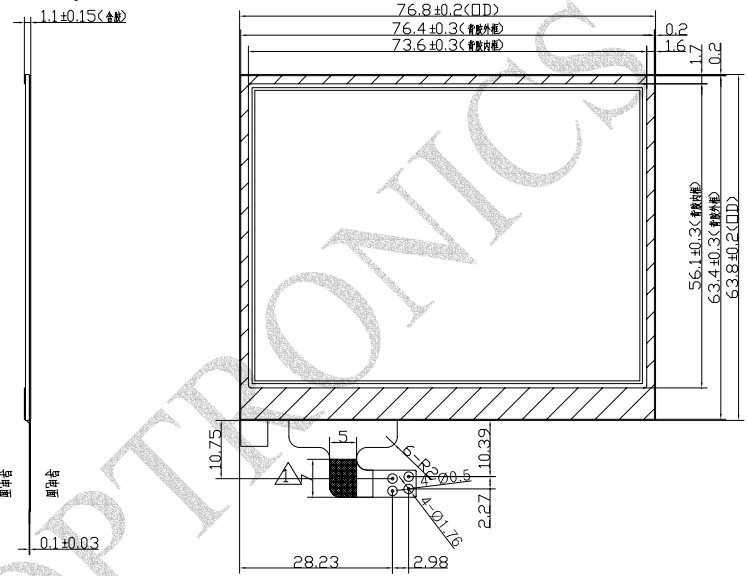
PIN	OUT
1	XR
2	YD
3	XL
4	YU

Touch panel Information

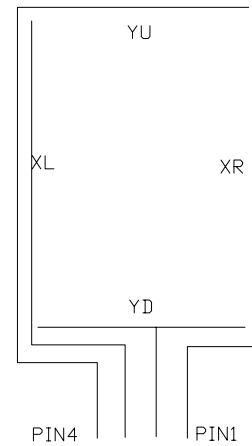
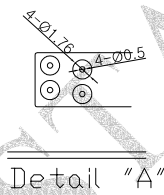
FRONT VIEW



BACK VIEW



BACK VIEW



1. TOUCH PANEL PIN ASSIGNMENT

1	XR(X2)	Bottom Glass Terminal
2	YD(Y2)	Top Film Terminal
3	XL(X1)	Bottom Glass Terminal
4	YU(Y1)	Top Film Terminal

2. MATERIAL CHARACTERISTICS

Property	Requirement
Surface treatment	Anti Glare
Approach made	ITO Film+ITO Glass
Glass thickness	0.70
Light transmission	$\geq 78\%$
Operation Temperature	-20°C ~ +70°C
Storage Temperature	-30°C ~ +80°C

3. ELECTRICAL CHARACTERISTICS

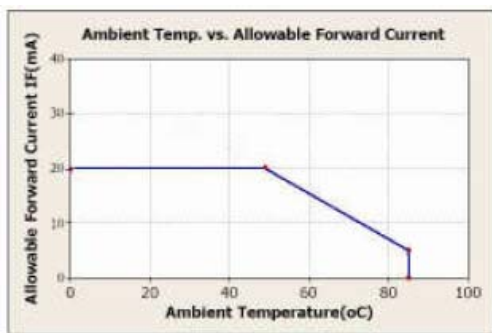
Property	Requirement
Type	Analog resistive 4 wire
Linearity	Max1.5%
X(1.3) resistance	200~1100 Ω
Y(2.4) resistance	200~1100 Ω
Insulation resistance	10MΩ (DC 25V)

6. Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T _{OP}	-20	—	+70	°C
Storage Temperature	T _{ST}	-30	—	+80	°C

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

- Temp. $\leq 60^{\circ}\text{C}$, 90% RH MAX. Temp. $> 60^{\circ}\text{C}$, Absolute humidity shall be less than 90% RH at 60°C



7. Electrical Characteristics

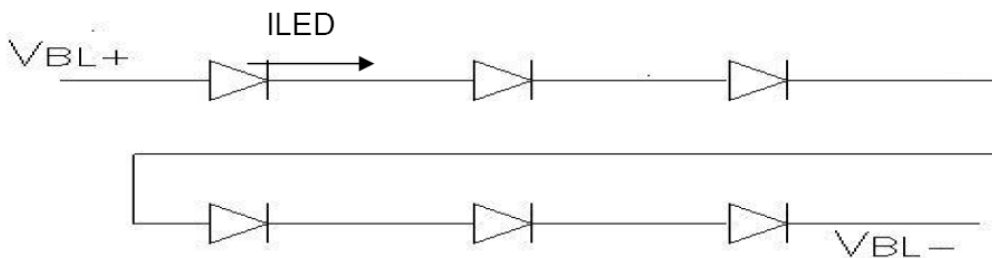
7.1. Operating conditions:

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	VCC	—	3.0	3.3	3.6	V

7.2 LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current		-	20	-	mA	
Power Consumption			384	408	mW	
LED voltage	VBL+	17.4	19.2	20.4	V	Note 1
LED Life Time		-	50,000	-	Hr	Note 2,3,4

Note 1 : There are 1 Groups LED



Note 2 : Ta = 25 °C

Note 3 : Brightness to be decreased to 50% of the initial value

Note 4 : The single LED lamp case

8. DC Characteristics

Parameter	Symbol	Rating			Unit	Condition
		Min.	Typ.	Max.		
Low level input voltage	V _{IL}	0	-	0.3 VCC	V	
Hight level input voltage	V _{IH}	0.7 VCC	-	VCC	V	

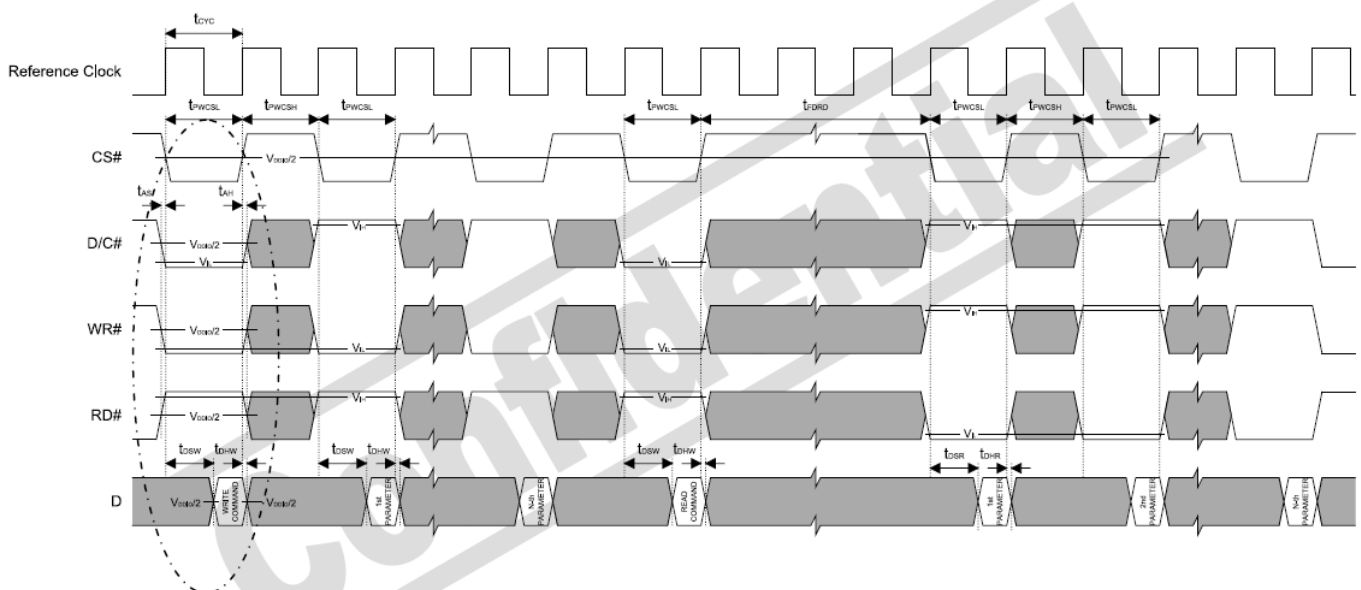
9. Interface Timing

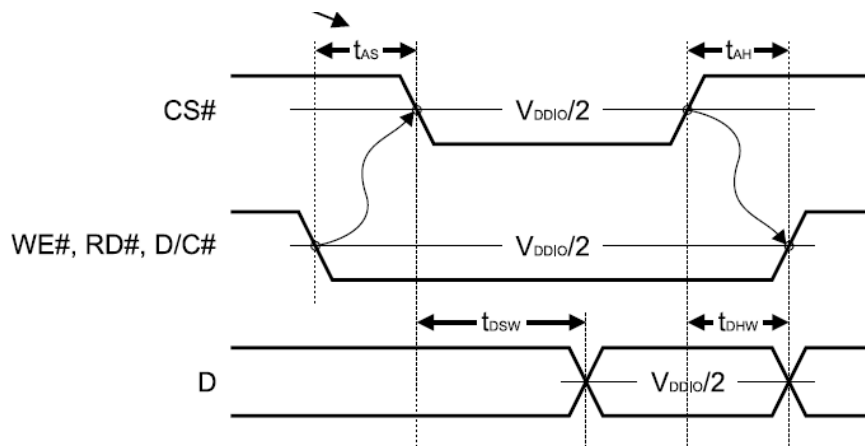
9.1.1 8080 Mode

The 8080 mode MCU interface consist of CS#, D/C#, RD#, WR#, D[23:0] and TE signals (Please refer to Table 6-1 for pin multiplexed with 6800 mode). This interface use WR# to define a write cycle and RD# for read cycle. If the WR# goes low when the CS# signal is low, the data or command will be latched into the system at the rising edge of WR#. Similarly, the read cycle will start when RD# goes low and end at the rising edge of RD#.

9.1.2 8080 Mode Write Cycle

Symbol	Parameter	Min	Typ	Max	Unit
t_{cyc}	Reference Clock Cycle Time	9	-	-	ns
t_{PWCSL}	Pulse width CS# low	1	-	-	t_{cyc}
t_{PWCSH}	Pulse width CS# high	1	-	-	t_{cyc}
t_{FDRD}	First Read Data Delay	5	-	-	t_{cyc}
t_{AS}	Address Setup Time	1	-	-	ns
t_{AH}	Address Hold Time	1	-	-	ns
t_{DSW}	Data Setup Time	4	-	-	ns
t_{DHW}	Data Hold Time	1	-	-	ns
t_{DSR}	Data Access Time	-	-	5	ns
t_{DHR}	Output Hold time	1	-	-	ns





9.1.3 Pixel Data Format

Interface	Cycle	D[23]	D[22]	D[21]	D[20]	D[19]	D[18]	D[17]	D[16]	D[15]	D[14]	D[13]	D[12]	D[11]	D[10]	D[9]	D[8]	D[7]	D[6]	D[5]	D[4]	D[3]	D[2]	D[1]	D[0]	
24 bits	1 st	R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0	
18 bits	1 st							R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0	
16 bits (565 format)	1 st									R5	R4	R3	R2	R1	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	
16 bits	1 st									R5	R4	R3	R2	R1	R0	X	X	G5	G4	G3	G2	G1	G0	X	X	
	2 nd									B5	B4	B3	B2	B1	B0	X	X	R5	R4	R3	R2	R1	R0	X	X	
	3 rd									G5	G4	G3	G2	G1	G0	X	X	B5	B4	B3	B2	B1	B0	X	X	
9 bits	1 st																	R5	R4	R3	R2	R1	R0	G5	G4	G3
	2 nd																	G2	G1	G0	B5	B4	B3	B2	B1	B0
8 bits	1 st																	R5	R4	R3	R2	R1	R0	X	X	
	2 nd																	G5	G4	G3	G2	G1	G0	X	X	
	3 rd																	B5	B4	B3	B2	B1	B0	X	X	

X: Don't Care

10. Optical Characteristic

Item	Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time	Tr	$\theta=0^\circ, \phi=0^\circ$	-	10		.ms	Note 3,5
	Tf		-	15		.ms	
Contrast ratio	CR	At optimized viewing angle	300	400	-	-	Note 4,5
Color Chromaticity	White	Wx	0.25	0.30	0.35		Note 2,6,7
		Wy	0.27	0.32	0.37		
Viewing angle	Hor.	Θ_R	50	60		Deg.	Note 1
		Θ_L	50	60			
	Ver.	Φ_T	40	50			
		Φ_B	45	55			
Brightness	-	-	250	-	370	cd/m	Center of display

Ta=25±2°C, IL=20mA

Note 1: Definition of viewing angle range

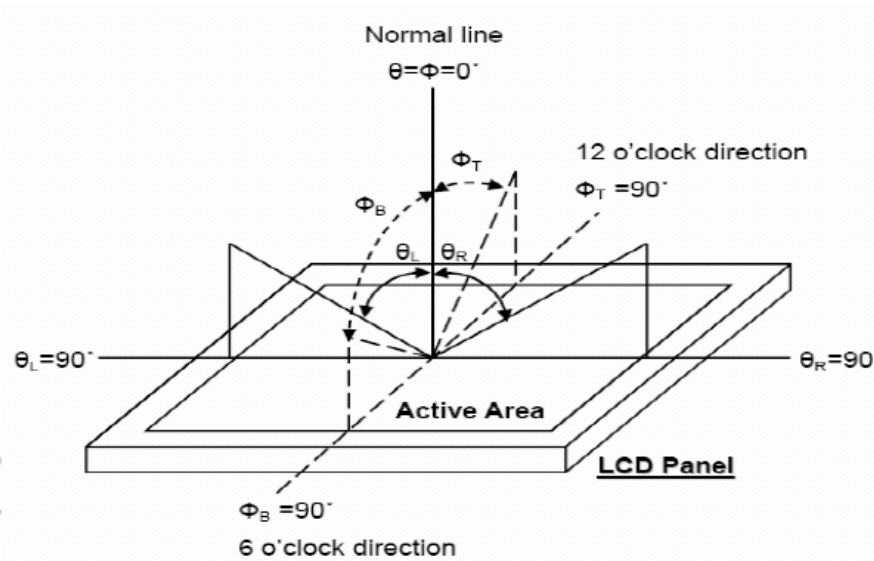


Fig. 10-1 Definition of viewing angle

Note 2: Test equipment setup:

After stabilizing and leaving the panel alone at a driven temperature for 10 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

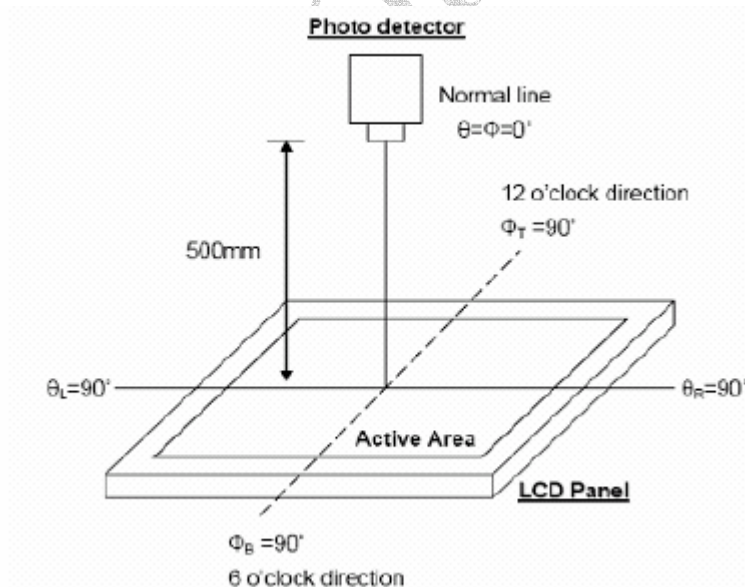


Fig. 10-2 Optical measurement system setup

Note 3: Definition of Response time:

The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Rise time, T_r , is the time between photo detector output intensity changed from 90% to 10%. And fall time, T_f , is the time between photo detector output intensity changed from 10% to 90%

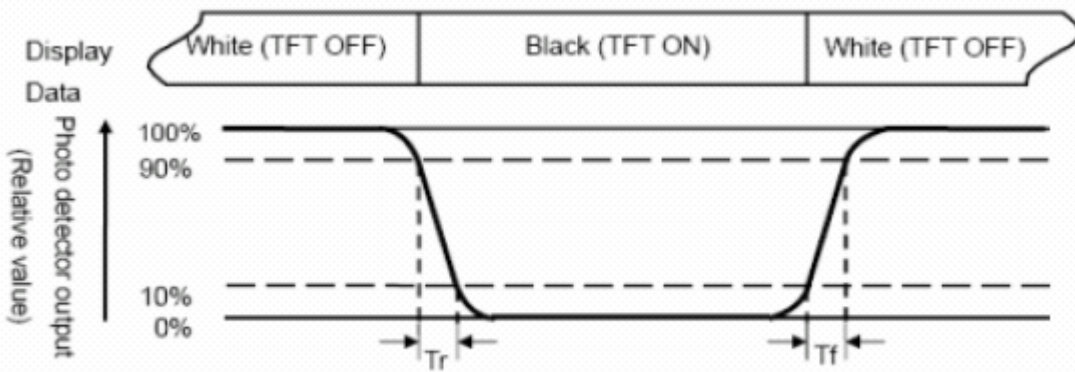


Fig. 3-3 Definition of response time

Note 4: Definition of contrast ratio:

The contrast ratio is defined as the following expression.

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: White $V_i = V_{i50} \pm 1.5V$

Black $V_i = V_{i50} \pm 2.0V$

"±" means that the analog input signal swings in phase with VCOM signal.

"±" means that the analog input signal swings out of phase with VCOM signal.

The 100% transmission is defined as the transmission of LCD panel when all the input terminals of module are electrically opened.

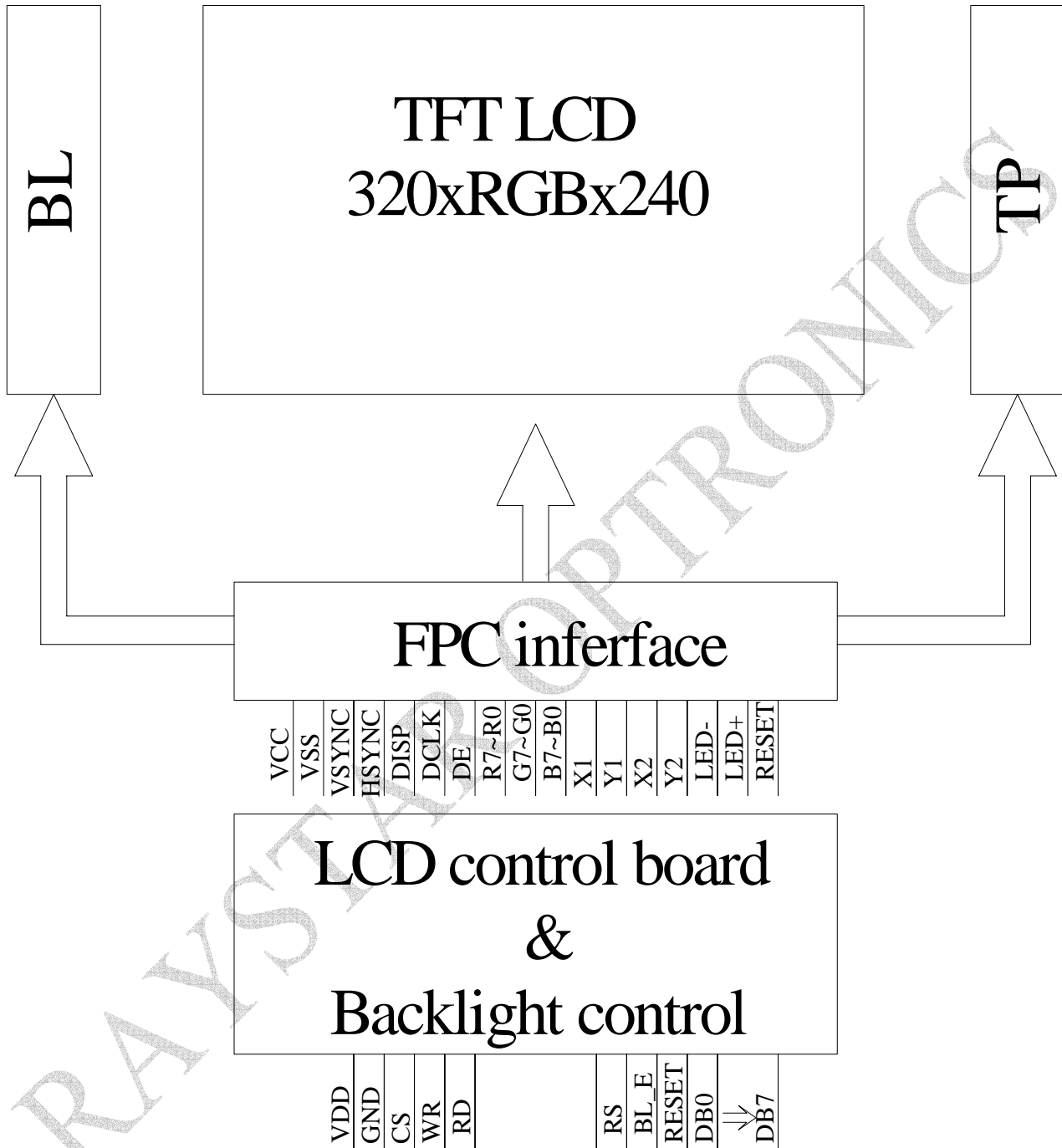
Note 6: Definition of color chromaticity (CIE 1931)

Color coordinates measured at the center point of LCD

Note 7: Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.

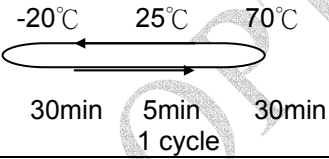
$$\text{Note 8 : Uniformity (U)} = \frac{\text{Brightness (min)}}{\text{Brightness (max)}} \times 100\%$$

11. Block Diagram



12. Reliability

Content of Reliability Test (Wide temperature, -20°C~70°C)

Environmental Test			
Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80°C 200hrs	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°C 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70°C 200hrs	—
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20°C 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60°C,90%RH max For 96hrs under no-load condition excluding the polarizer, Then taking it out and drying it at normal temperature.	60°C,90%RH 96hrs	1,2
Thermal resistance shock	The sample should be allowed stand the following 10 cycles of operation <div style="text-align: center;">  <p>-20°C 25°C 70°C</p> <p>30min 5min 30min</p> <p>1 cycle</p> </div>	-20°C/70°C 10 cycles	—
Vibration test	Endurance test applying the vibration during transportation and using.	Total fixed amplitude : 15mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes	3
Static electricity test	Endurance test applying the electric stress to the terminal.	VS=800V,RS=1.5kΩ CS=100pF 1 time	—

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: The packing have to including into the vibration testing.

13. PACKAGE SPECIFICATION

LCM Model	RFC350L-EIW-DAS	LCM 包裝規格書 LCM Packaging Specifications	Approve	Check	Contact
Drawing NO.			DATE	初版	版次 Ver
			2013/4/18	2013/4/18	0

1. 包裝材料規格表 (Packaging Material) :(per carton)

NO.	Item	Model	Dimensions	Quantity
1	成品 (LCM)	RFC350L-EIW-DAS	93.5x66.44x9.06	TBD
2	TRAY 盤 (2)	PKCA1XXXXXXXXXXXX0232	TBD	TBD
3	BP01 內盒(3)Product Box	PK3R1XXXXXXXXXXXX0001	332 x 280 x 100	TBD
4	泡棉(4)Foam	-----	283 x 230 x 8	TBD
5	外紙箱(5)Carton	PK4Q1XXXXXXXXXXXX0000	565 x 340 x 320	TBD
6				
7				
8				
9				

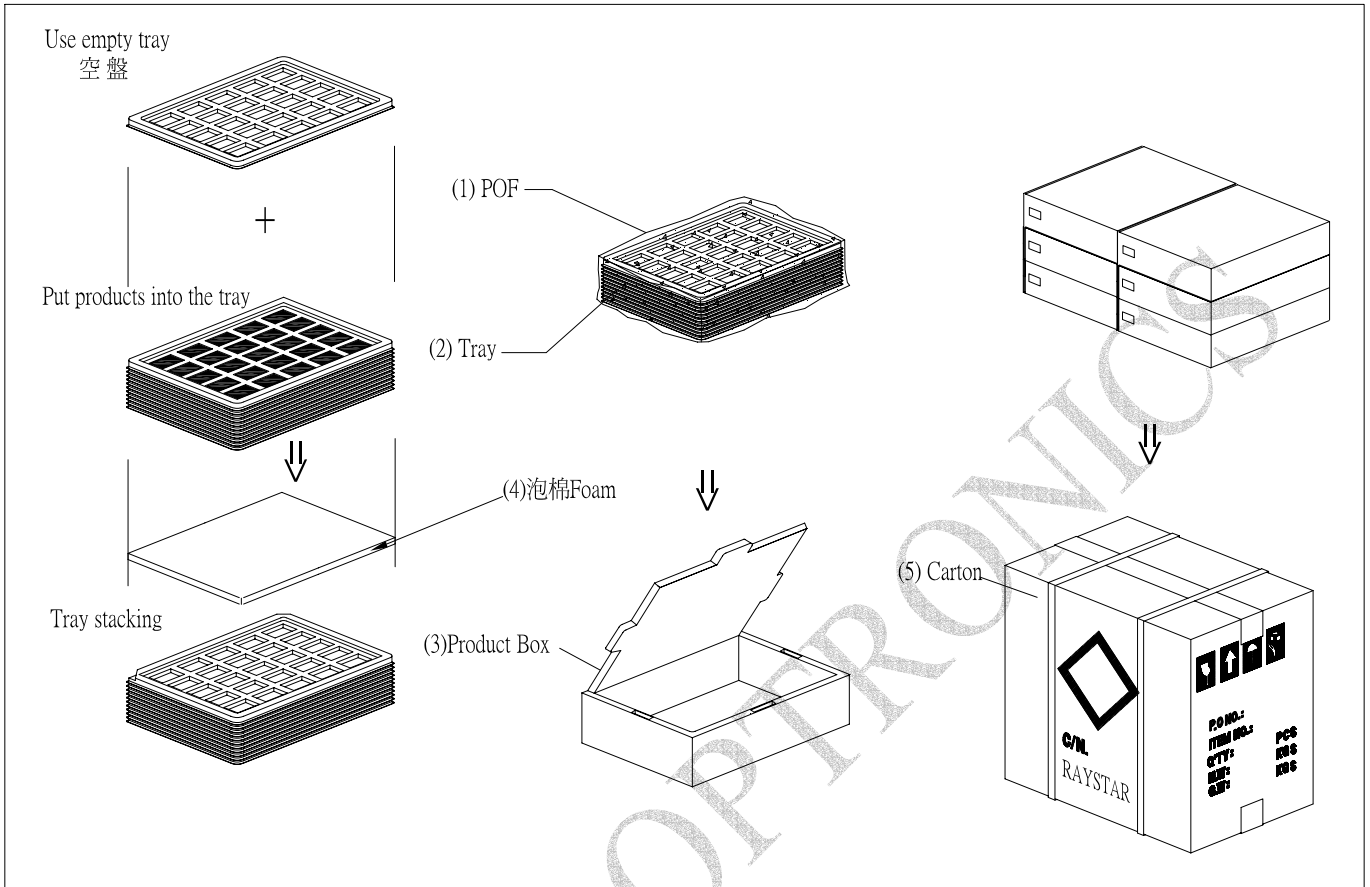
2. 單箱數量規格表(Packaging Specifications and Quantity) :

(1) LCM quantity per box : no per tray TBD x no of tray TBD = TBD

(2) Total LCM quantity in carton : quantity per box TBD x no of boxes TBD = TBD

特 記 事 項 (REMARK)

<p>1. Label Specifications :</p> <table border="1" style="width:100%; height: 40px;"> <tr> <td style="font-size: small;">MOOEL:</td> </tr> <tr> <td style="font-size: small;">LOT NO :</td> </tr> <tr> <td style="font-size: small;">QUANTITY:</td> </tr> <tr> <td style="font-size: small;">CHECK:</td> </tr> </table>	MOOEL:	LOT NO :	QUANTITY:	CHECK:	
MOOEL:					
LOT NO :					
QUANTITY:					
CHECK:					



14. Initial Code For Reference

```
void Initial_code()
{
    Unsigned int SOURCE,GATE;
    SOURCE=320;
    GATE=240;

    Reset = 1;
    Delay_ms(10);
    Reset = 0;
    Delay_ms(50);
    Reset = 1;
    Delay_ms(100);

    Write_Command(0x01);
    Delay_ms(10);
    Write_Command(0xe0);    //START PLL
    Write_Parameter(0x01);
    Delay_ms(5);
    Write_Command(0xe0);    //LOCK PLL
    Write_Parameter(0x03);
    Delay_ms(5);
    Write_Command(0xb0);
    Write_Parameter(0x0c);
    Write_Parameter(0x80);
    Write_Parameter((SOURCE-1)>>8);
    Write_Parameter(SOURCE-1);
    Write_Parameter((GATE-1)>>8);
    Write_Parameter(GATE-1);
    Write_Parameter(0x00);
    Write_Command(0xf0);
    Write_Parameter(0x03);
    Write_Command(0x3a);
    Write_Parameter(0x60);
    //Set the MN of PLL
    Write_Command(0xe2);
    Write_Parameter(0x1d);
```

```
Write_Parameter(0x02);
Write_Parameter(0x54);
Write_Command(0xe6);
Write_Parameter(0x01);
Write_Parameter(0x40);
Write_Parameter(0xff);
//Set front porch and back porch
Write_Command(0xb4);
Write_Parameter(0x01);
Write_Parameter(0xb8);
Write_Parameter(0x00);
Write_Parameter(0x44);
Write_Parameter(0x07);
Write_Parameter(0x00);
Write_Parameter(0x00);
Write_Parameter(0x00);
Write_Command(0xb6);
Write_Parameter(0x01);
Write_Parameter(0x08);
Write_Parameter(0x00);
Write_Parameter(0x12);
Write_Parameter(0x07);
Write_Parameter(0x00);
Write_Parameter(0x00);
Write_Command(0x2a);
Write_Parameter(0x00);
Write_Parameter(0x00);
Write_Parameter((SOURCE-1)>>8); /
Write_Parameter(SOURCE-1);
Write_Command(0x2b);
Write_Parameter(0x00);
Write_Parameter(0x00);
Write_Parameter((GATE-1)>>8);
Write_Parameter(GATE-1);
Write_Command(0x29);
Write_Command(0x2c);
```

```
}
```

LCM Sample Estimate Feedback Sheet

Module Number : _____

1 、 Panel Specification :

1. Panel Type :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
2. View Direction :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
3. Numbers of Dots :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
4. View Area :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
5. Active Area :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
6. Operating Temperature :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
7. Storage Temperature :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
8. Others :	_____	

2 、 Mechanical Specification :

1. PCB Size :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
2. Frame Size :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
3. Material of Frame :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
4. Connector Position :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
5. Fix Hole Position :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
6. Backlight Position :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
7. Thickness of PCB :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
8. Height of Frame to PCB :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
9. Height of Module :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
10. Others :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____

3 、 Relative Hole Size :

1. Pitch of Connector :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
2. Hole size of Connector :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
3. Mounting Hole size :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
4. Mounting Hole Type :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
5. Others :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____

4 、 Backlight Specification :

1. B/L Type :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
2. B/L Color :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
3. B/L Driving Voltage (Reference for LED Type) :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
4. B/L Driving Current :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
5. Brightness of B/L :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
6. B/L Solder Method :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
7. Others :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____

>> **Go to page 2** <<

Module Number : _____		
5 · <u>Electronic Characteristics of Module</u> :		
1.Input Voltage :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
2.Supply Current :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
3.Driving Voltage for LCD :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
4.Contrast for LCD :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
5.B/L Driving Method :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
6.Negative Voltage Output :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
7.Interface Function :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
8.LCD Uniformity :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
9.ESD test :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
10.Others :	<input type="checkbox"/> Pass	<input type="checkbox"/> NG , _____
6 · <u>Summary</u> :		
<p style="text-align: right;">Sales signature : _____</p> <p style="text-align: right;">Customer Signature : _____ Date : / / </p>		

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [TFT Displays & Accessories](#) category:

Click to view products by [Raystar](#) manufacturer:

Other Similar products are found below :

[OAI-80038AA-2013-A](#) [HDA430T-3G1H](#) [EA CARREDIPTFT02](#) [NL6448BC20-21D](#) [NB7W-KBA04](#) [NB-ATT01](#) [NB5Q-ATT01](#) [NB5Q-KBA04](#) [NB-CN001](#) [NL12880BC20-05](#) [NL8060BC26-35C](#) [NL8060BC26-35F](#) [TCG104SVLQAPNN-AN20](#) [OAI-80038AA-2008-A](#) [315-U004B15300](#) [UMSH-8596MD-34T \(REV D\)](#) [98-0003-3490-8](#) [1044278](#) [1029309](#) [1060549](#) [DE 127-TU-30/7,5](#) [DE 128-TU-20/7,5](#) [EP-LK007TFTPCAP](#) [FR7.0A00](#) [RC2002A-TIG-CSX](#) [NL6448BC2021C](#) [TX17D01VM2EAB](#) [TX14D23VM5BAA](#)
[TCG121WXLRXVNNANX35](#) [EIC-LCD-1080P](#) [T272480C07VR01](#) [1060632](#) [TCG070WVLPAAANN-AN50](#) [TCG035QVLPDANN-GN50](#)
[1060630](#) [RFE430V-AIW-DNG](#) [T-55619GD065J-LW-ABN](#) [NHD-1.8-128160EF-SSXN-FT](#) [TCG104SVLPEANN-AN30](#) [NL6448BC33-70](#)
[NL192108BC18-06F](#) [NLB150XG02L-01](#) [NL6448BC20-30D](#) [NL10276BC16-06](#) [NL192108AC10-01D](#) [NL6448AC18-08F](#) [NL6448BC20-30F](#)
[NL12880BC20-05BD](#) [NL12880BC20-05D](#) [NL8060BC26-35BA](#)