Winstar Display Co., LTD
華凌光電股份有限公司
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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF35-320240LD#000-FC

APPROVED BY: **(FOR CUSTOMER USE ONLY)**	**PCB VERSION:** **DATA:**

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
first FC components			葉虹蘭
ISSUED DATE:			

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1.Records of Revision

Winstar Display Co., LTD 華凌光電股份有限公司	MODLE NO：
RECORDS OF REVISION	**DOC. FIRST ISSUE**

VERSION	DATE	REVISED PAGE NO.	**SUMMARY**
0	2012.10.25		First issue

This technical specification applies to 3.45’ color TFT-LCD panel. The 3.45’ 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.

3.General Specification

Item	Dimension	Unit
Dot Matrix	320 x RGBx240(TFT)	dots
Module dimension	76.9(W) x 63.9(H) x 3.26(D)	mm
Active area	70.08 x 52.56	mm
Dot pitch	0.073 x 0.219	mm
LCD type	TFT, Negative, Transmissive	
View Direction	12 o’clock	
Gray Scale Inversion Direction	6 o’clock	
Backlight Type	LED,Normally White	

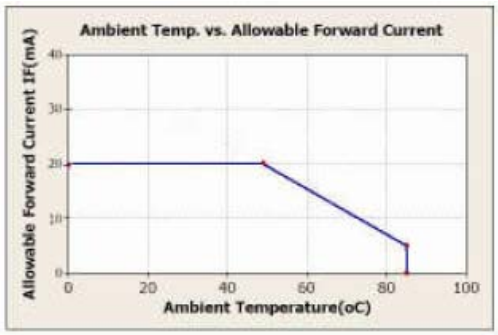
*Color tone slight changed by temperature and driving voltage.

4.Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃

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

1. Temp. ≦60^0C, 90% RH MAX. Temp. ＞ 60^0C , Absolute humidity shall be less than 90% RH at 60^0C



5.Electrical Characteristics

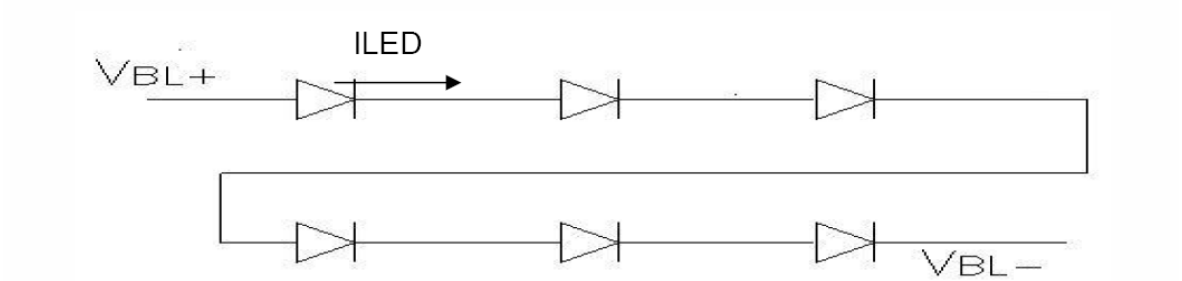
5.1. Operating conditions:

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	VCC	—	3.0	3.3	3.6	V
Digital operation current	Icc			8.6		mA

5.2 LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current		-	20	-	mA	
Power Consumption			400	420	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 ℃

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

Note 4 : The single LED lamp case

6. 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	

7. AC Characteristics

Digital Parallal RGB interface

Signal	Item	Symbol	Min	Typ	Max	Unit
Dclk	Frequency	Tosc	-	6.5	10	MHz
	High Time	Tch	-	77	-	ns
	Low Time	Tcl	-	77	-	ns
Data	Setup Time	Tsu	12	-	-	ns
	Hold Time	Thd	12	-	-	ns
Hsync	Period	TH	-	408		Tosc
	Pulse Width	THS	5	30	-	Tosc
	Back-Porch	Thb		38		Tosc
	Display Period	TEP	-	320	-	Tosc
	Hsync-den time	THE	36	68	88	
	Front-Porch	Thf	-	20	-	Tosc
Vsync	Period	Tv	-	262	-	TH
	Pulse Width	Tvs	1	3	5	TH
	Back-Porch	Tvb	-	15	-	TH
	Display Period	Tvd	-	240	-	TH
	Front-Porch	Tvf	2	4	-	TH

Note: 1. Thp + Thb = 68, the user is make up by yourself.

2. Tv = Tvs + Tvb + Tvd + Tvf , the user is make up by yourself.

3.When SYNC mode is used,1st data start from 68th Dclk after Hsync falling

CCIR601/656 Interface

Signal	Item	Symbol	Min	Typ	Max	Unit
Dclk	Frequency	Tosc	-	37	-	ns
	High Time	Tch	-	78	-	ns
	Low Time	Tcl	-	78	-	ns
Data	Setup Time	Tsu	12	-	-	ns
	Hold Time	Thd	12	-	-	ns

7.1 Waveform

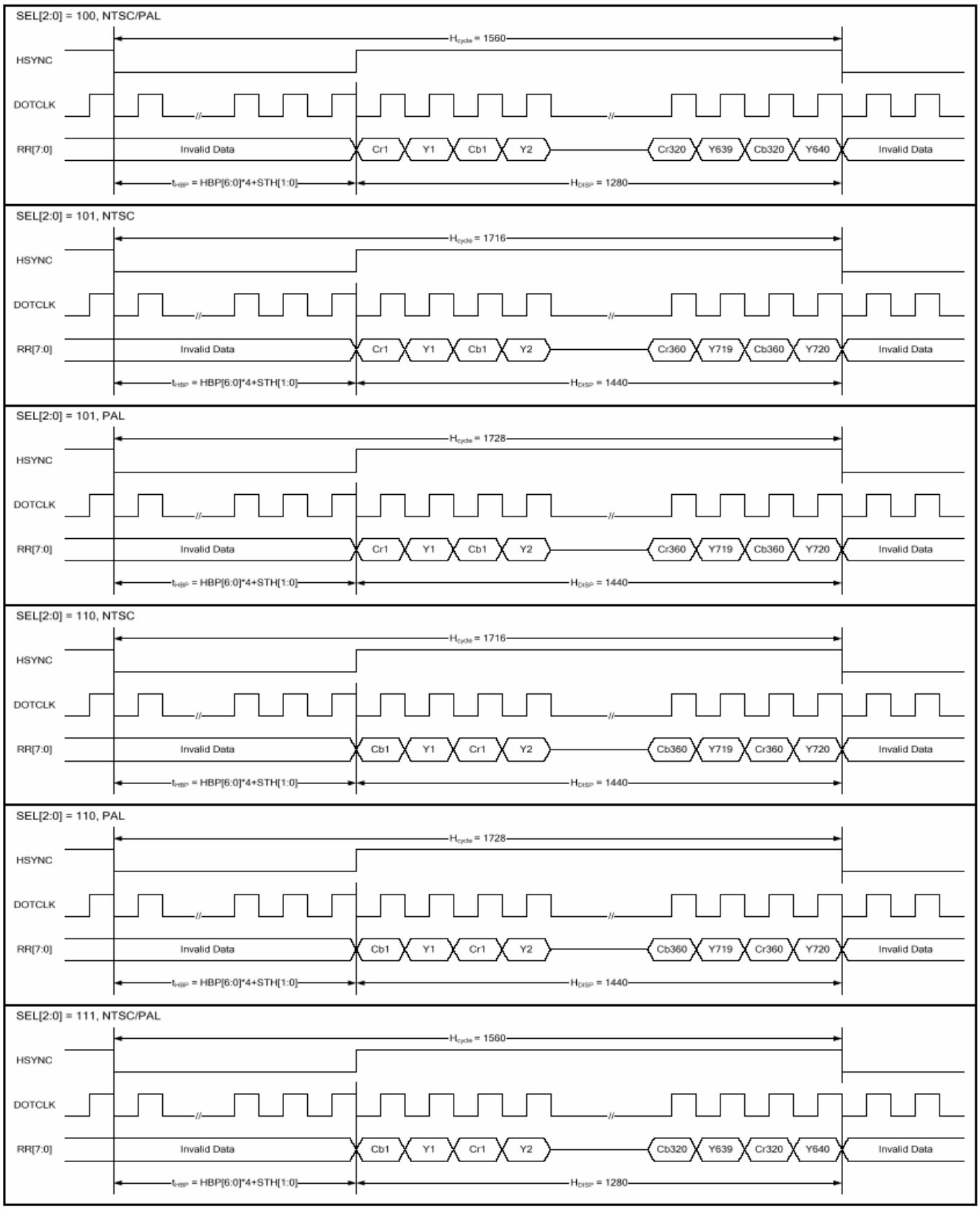


Figure 1 CCIR601 Horizontal Timing

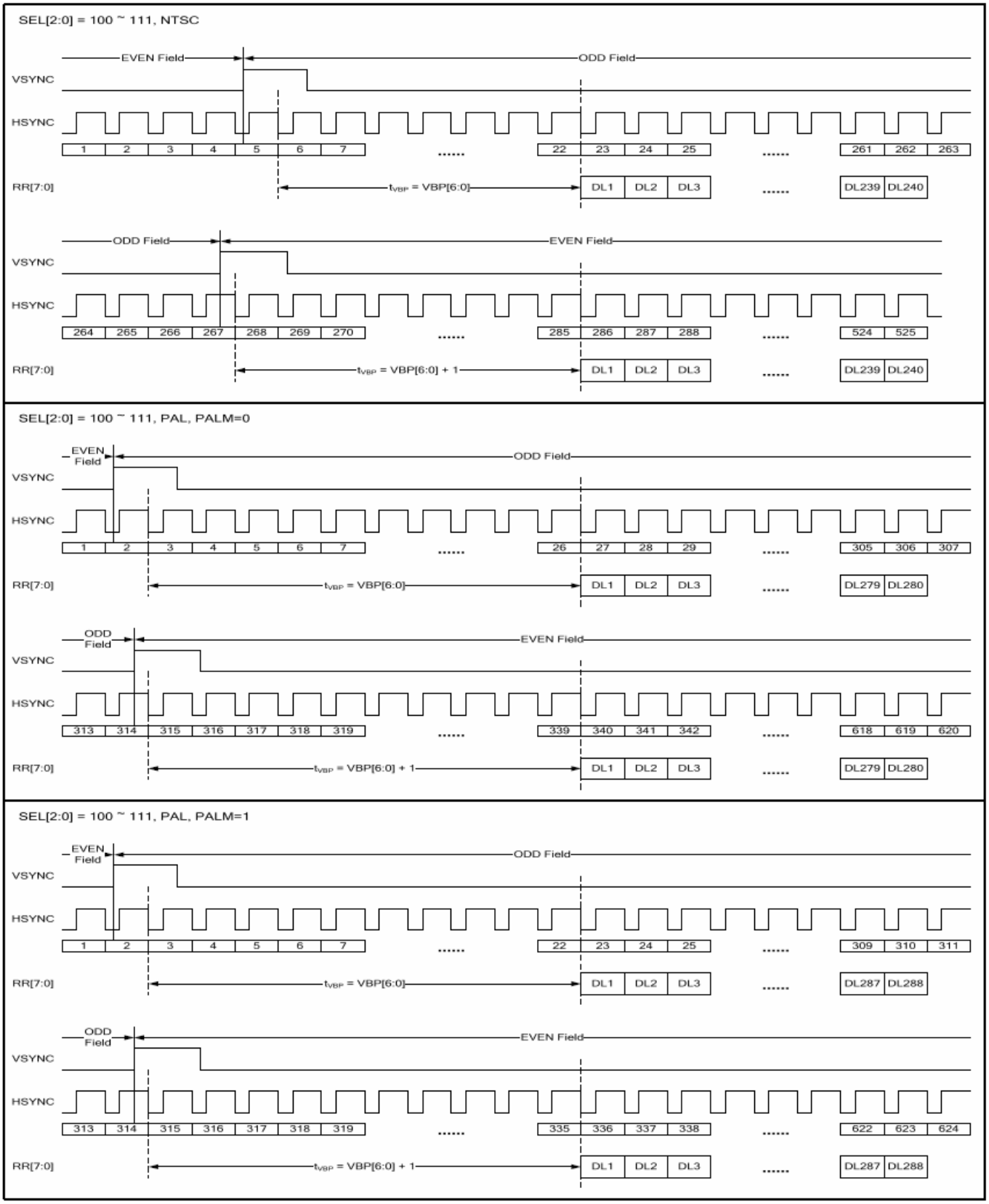


Figure 1 CCIR601 Vertical Timing

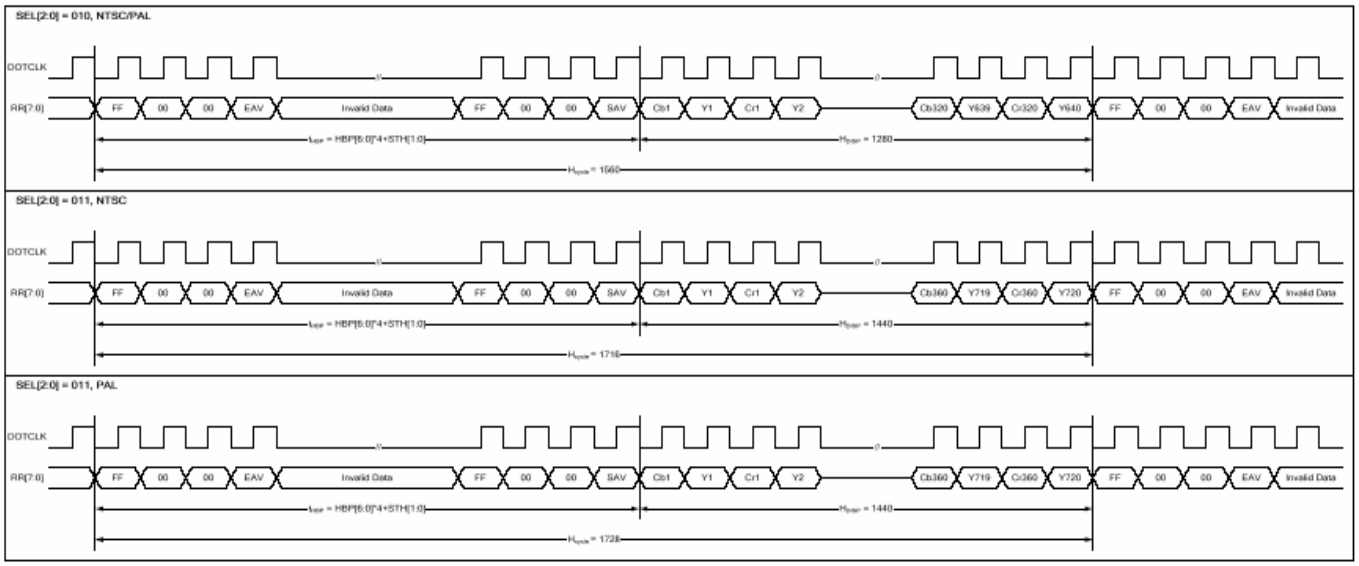


Figure 2 CCIR656 Horizontal Timing

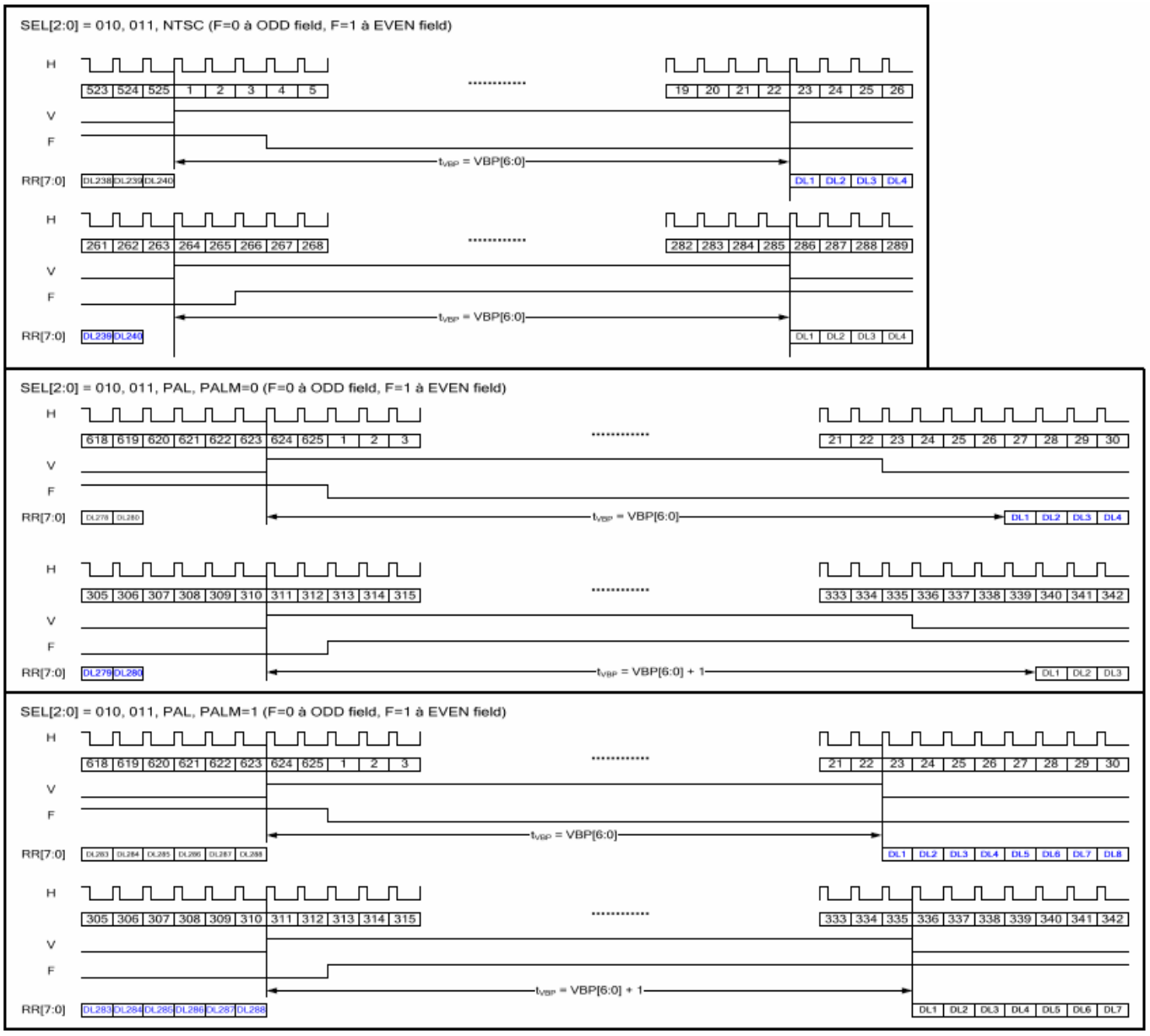


Figure 2 CCIR656 Vertical Timing

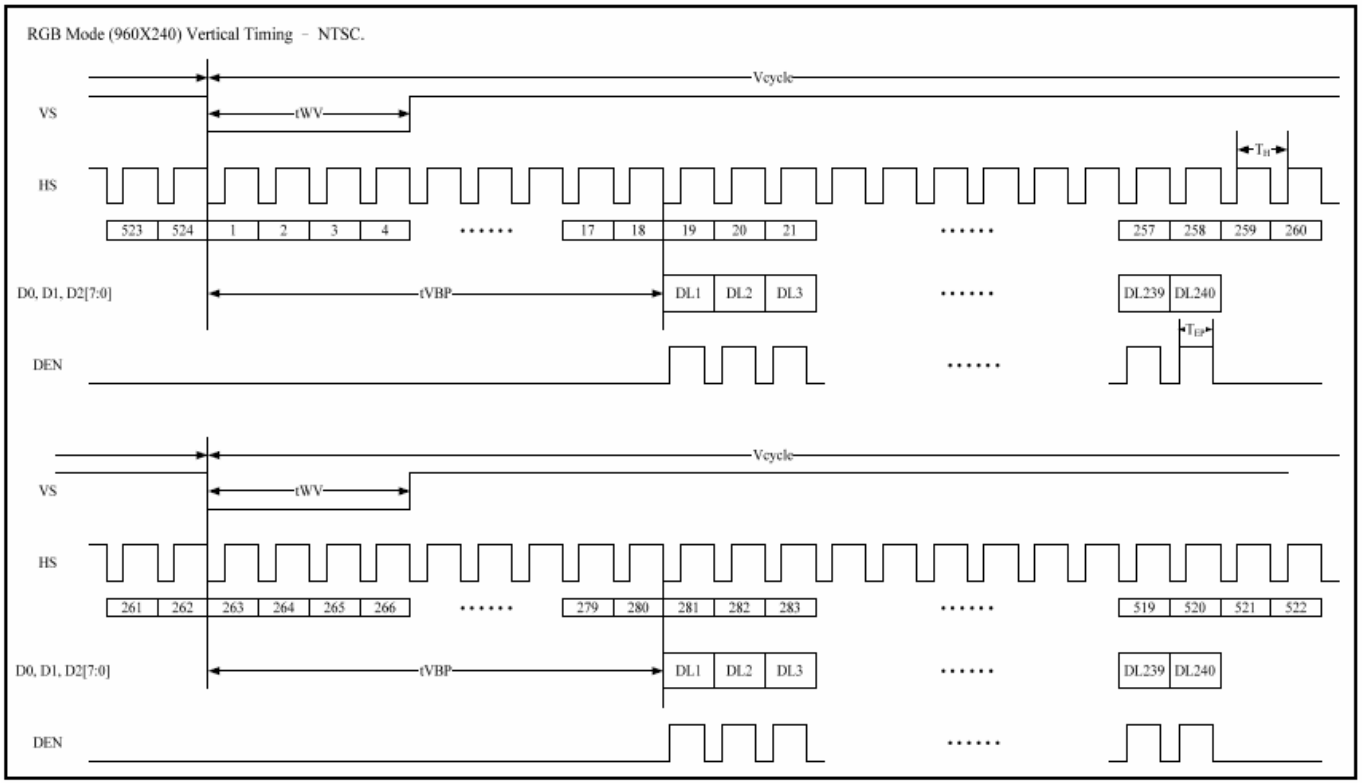
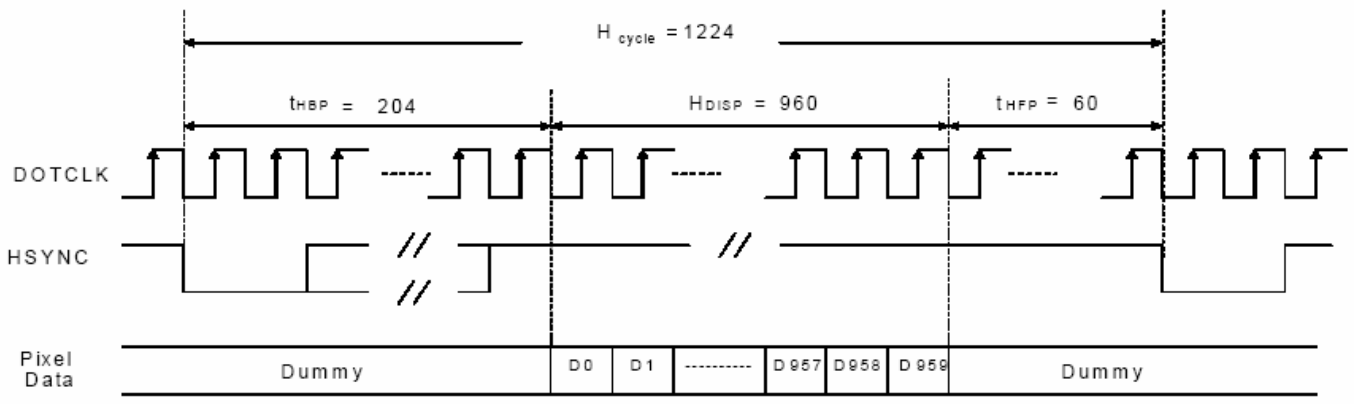
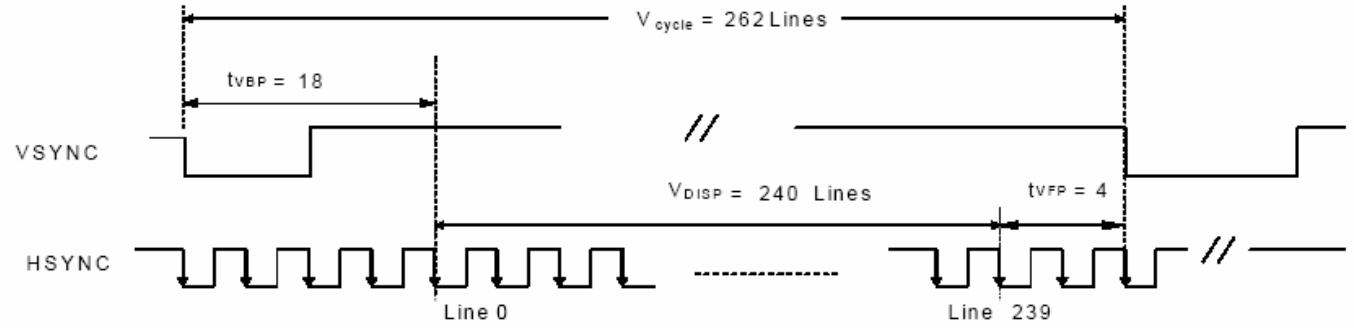


Figure 3 Digital RGB NTSC mode Vertical Data Format for 262TH



a) Horizontal D ata Transaction Timing



Vertical Data Transaction Timing

Figure 3 Data Transaction Timing in Serial RGB (8 bit) Interface (SYNC Mode)

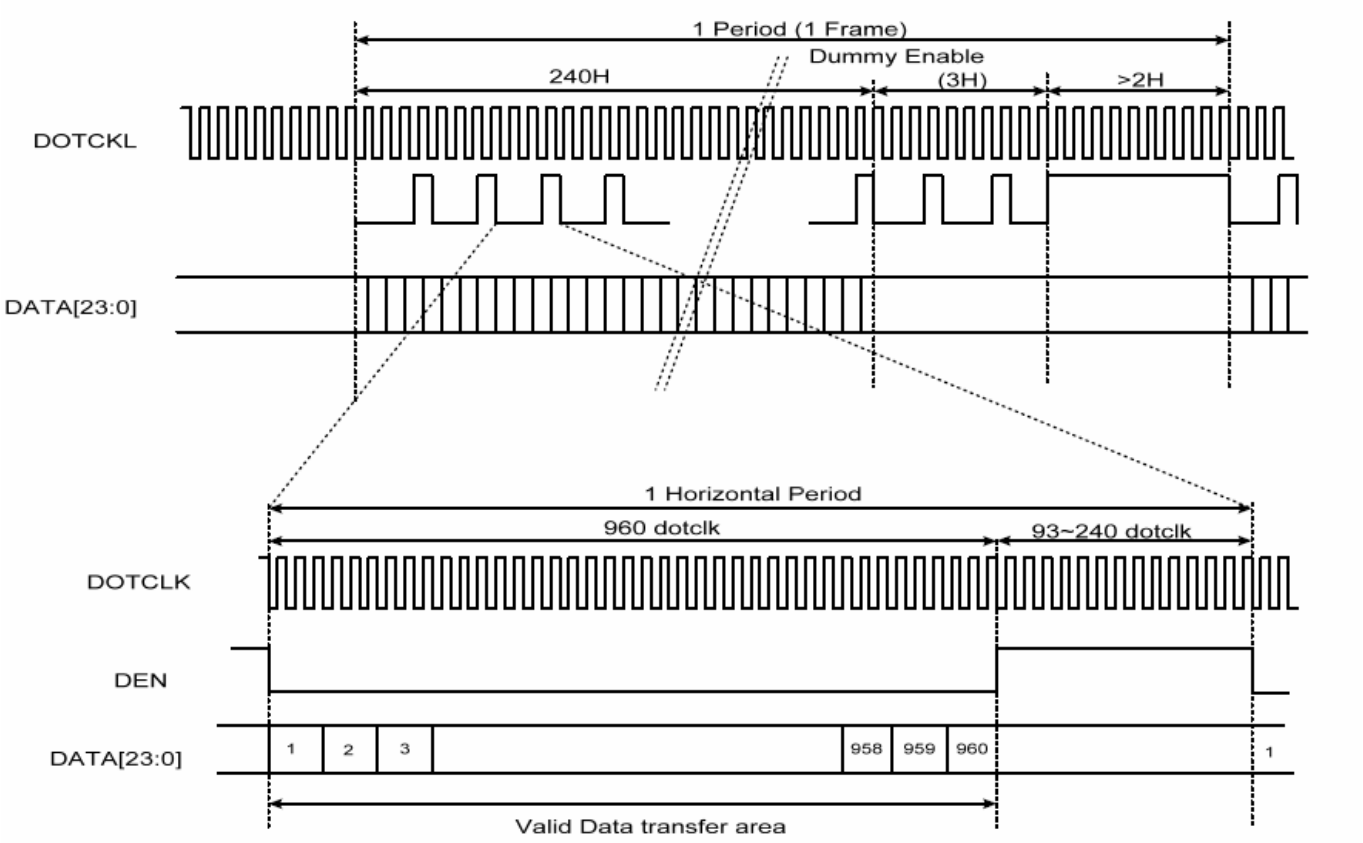


Figure 3 Data Transaction Timing in Serial RGB (8 bit) Interface (DE Mode)

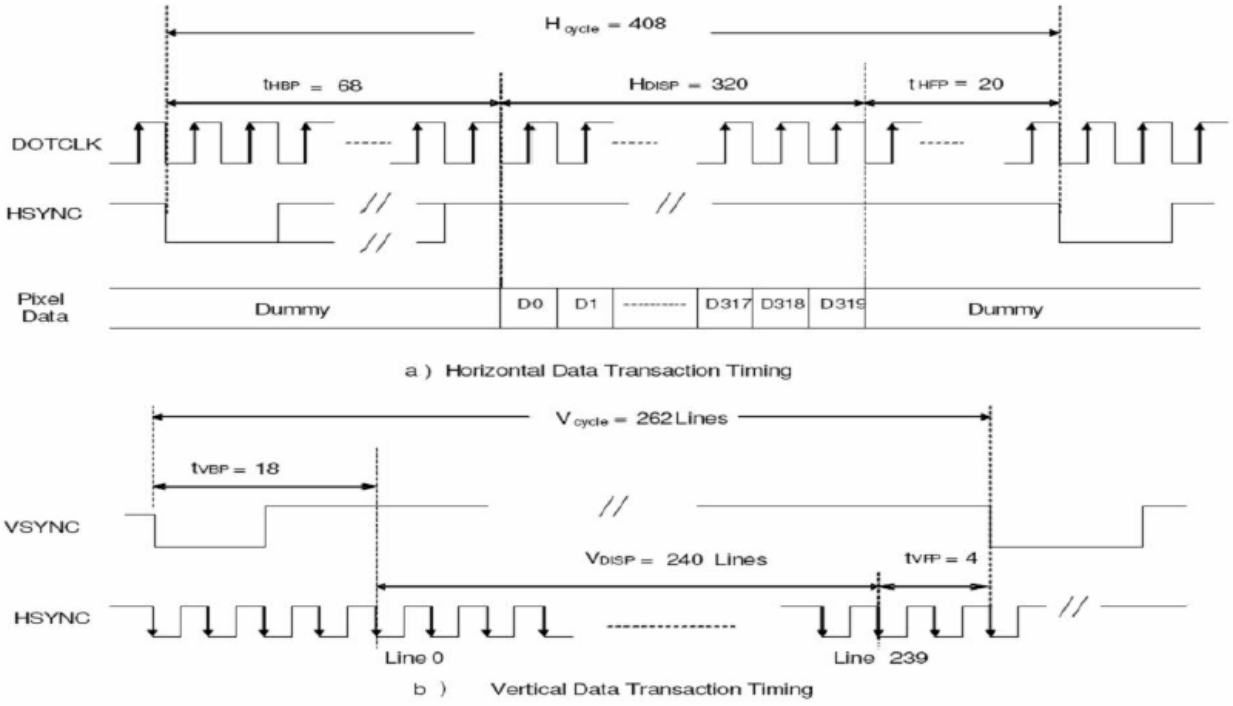


Figure 3 Data Transaction Timing in Parallel RGB (24 bit) Interface (SYNC Mode)

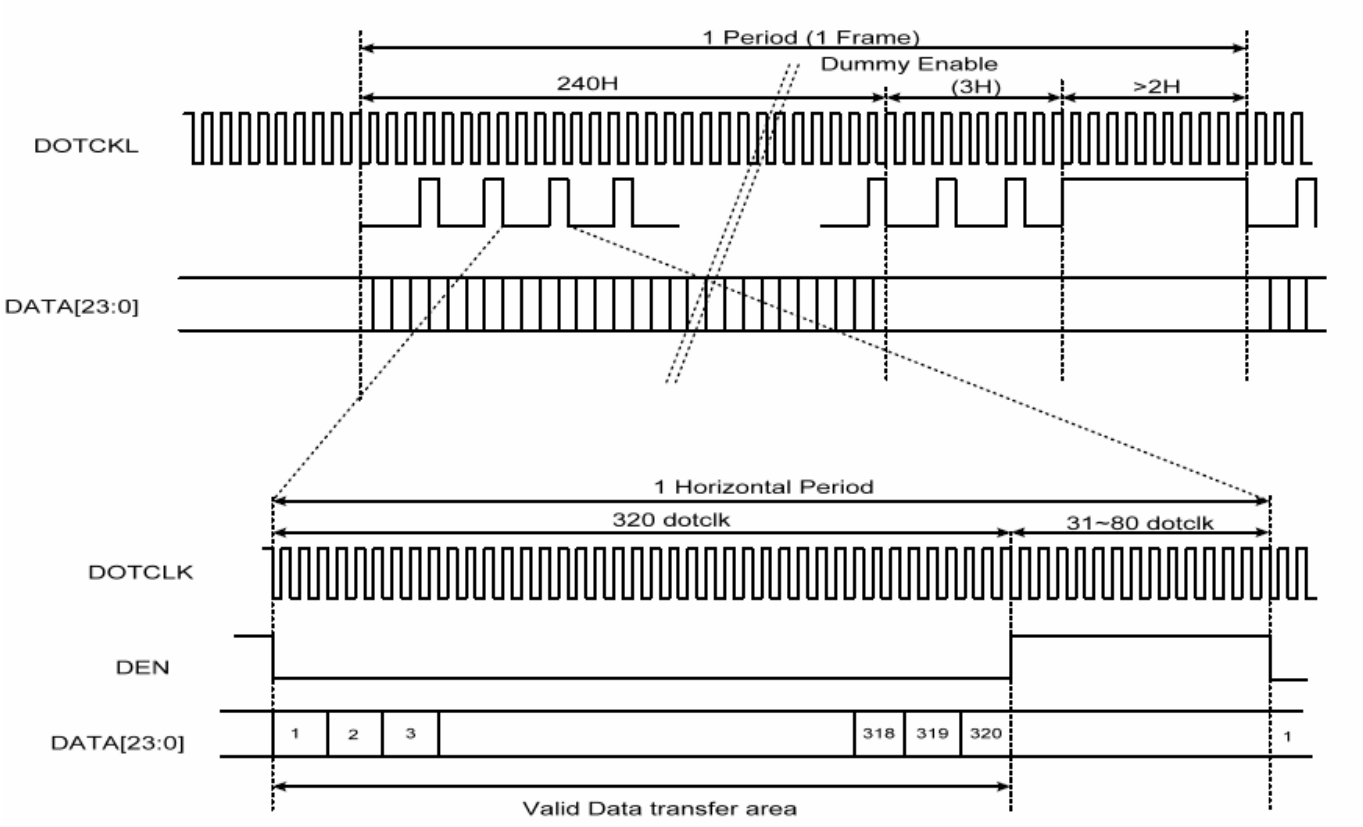


Figure 4 Data Transaction Timing in Parallel RGB (24 bit) Interface (DE Mode)

7.1.1 Clock and Sync waveforms

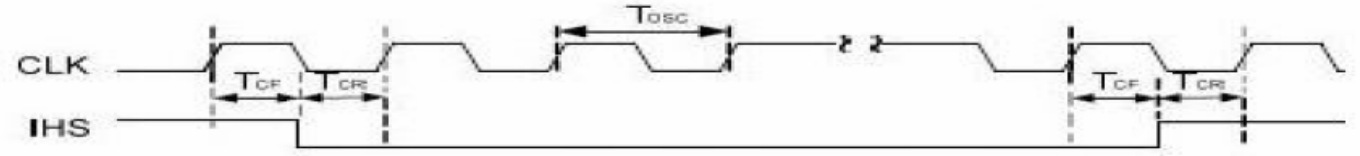


Figure 6 CLK and IHS timing waveform

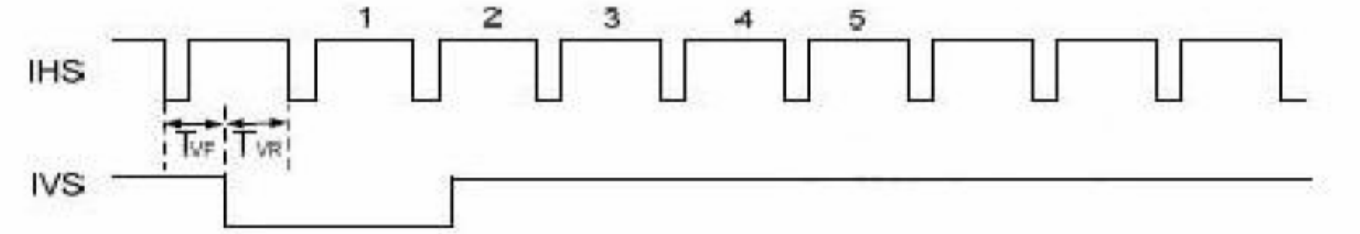
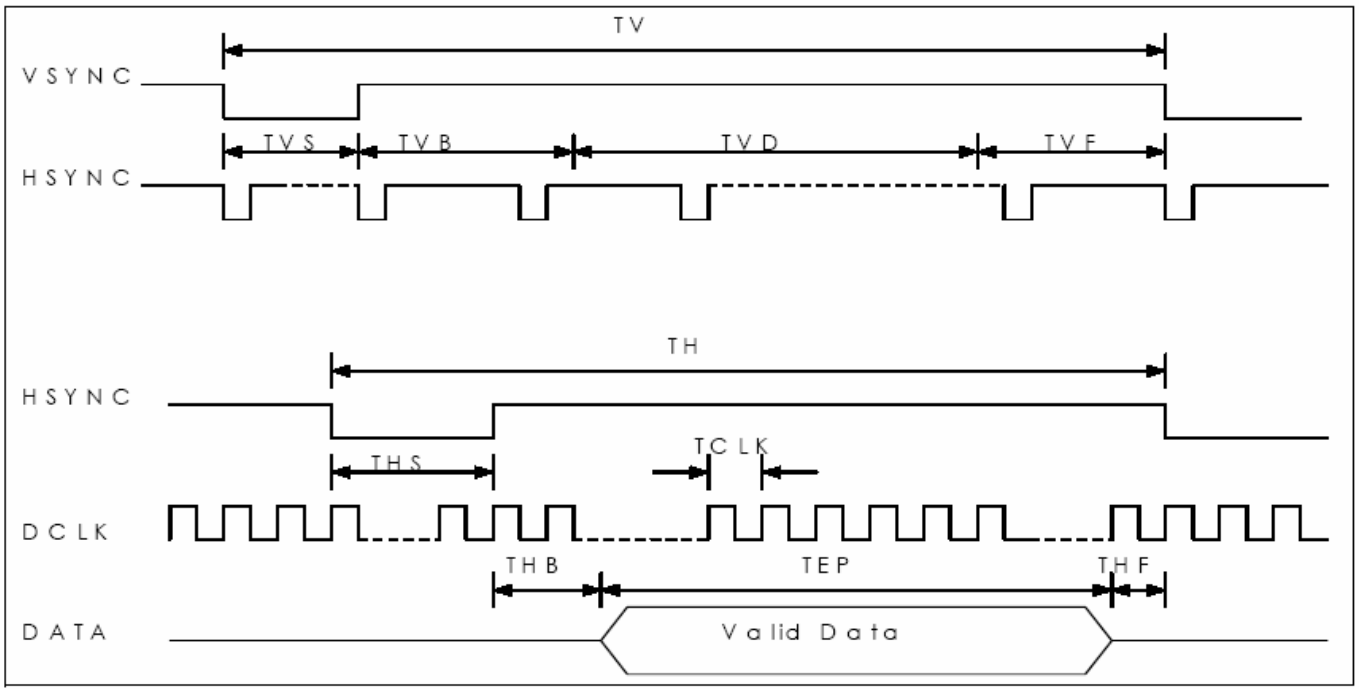
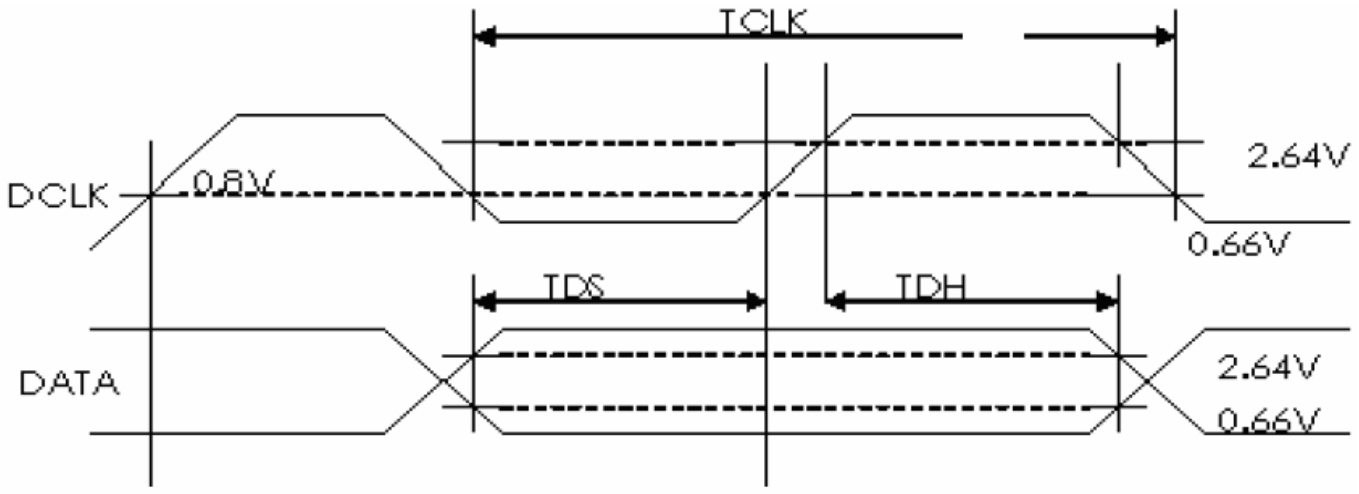


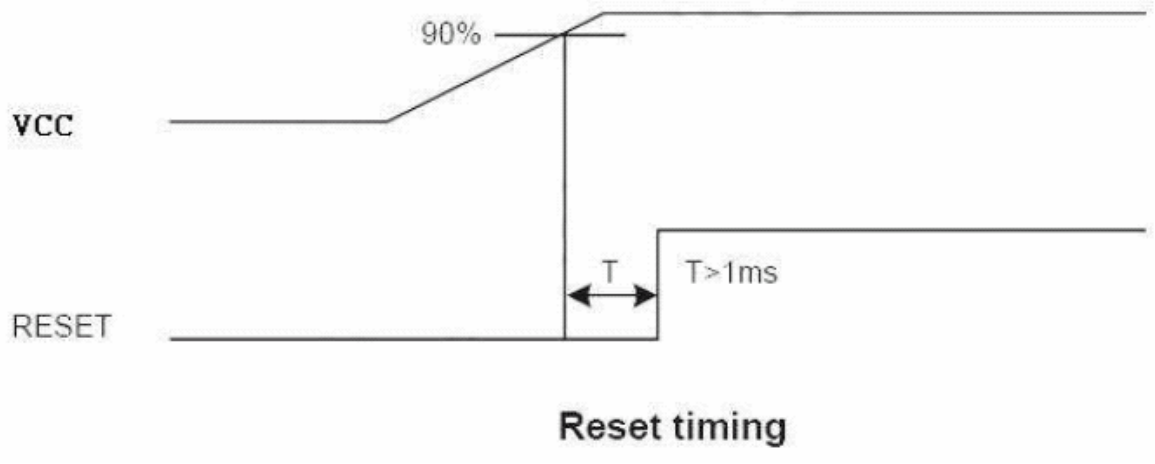
Figure 7 IHS and IVS timing waveforms





7.2 Reset Timing Chart

The RESET input must be held at least 1ms after power is stable



Reset timing

8. Optical Charateristic

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr	θ =0° 、 Φ=0°	-	10		.ms	Note 3,5
		Tf		-	15		.ms	
Contrast ratio		CR	At optimized viewing angle	300	400	-	-	Note 4,5
Color Chromaticity	White	Wx	θ =0° 、 Φ=0	0.25	0.30	0.35		Note 2,6,7
		Wy		0.27	0.32	0.37		
Viewing angle	Hor.	ΘR	CR≧10	50	60		Deg.	Note 1
		ΘL		50	60			
	Ver.	ΦT		40	50			
		ΦB		45	55			
Brightness		-	-	350	-	500	cd/m	Center of display

Ta=25±2℃, IL=20mA

Note 1: Definition of viewing angle range

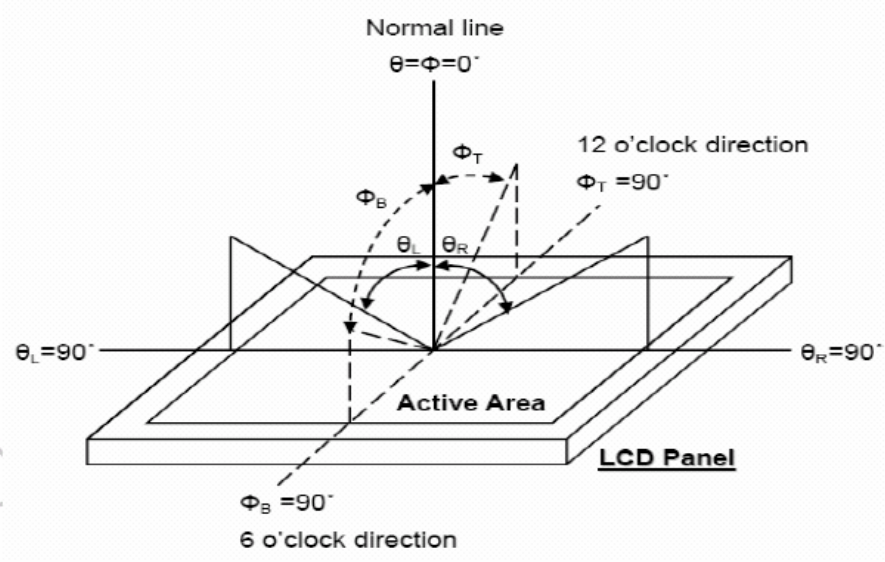


Fig. 8-1 Definition of viewing angle

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.

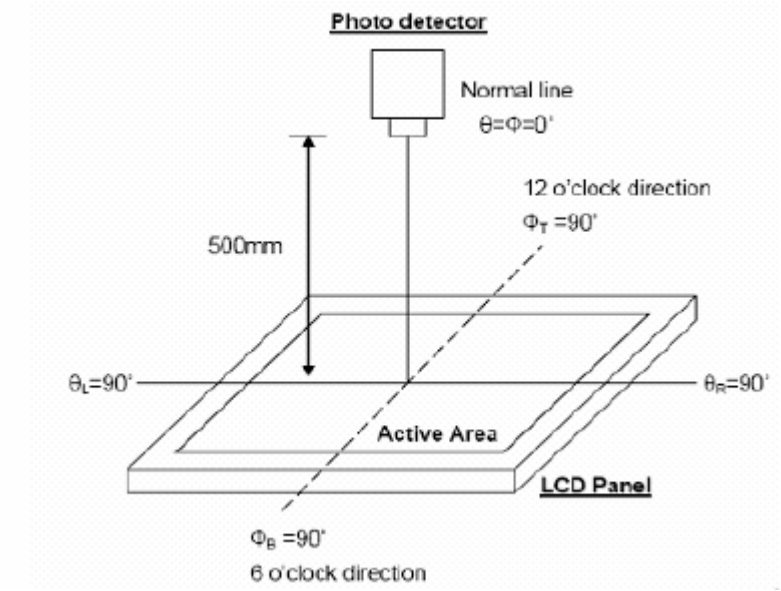


Fig. 8-2 Optical measurement system setup

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, Tr, is the time between photo detector output intensity changed from 90%to 10%. And fall time, Tf, is the time between photo detector output intensity changed from 10%to 90%

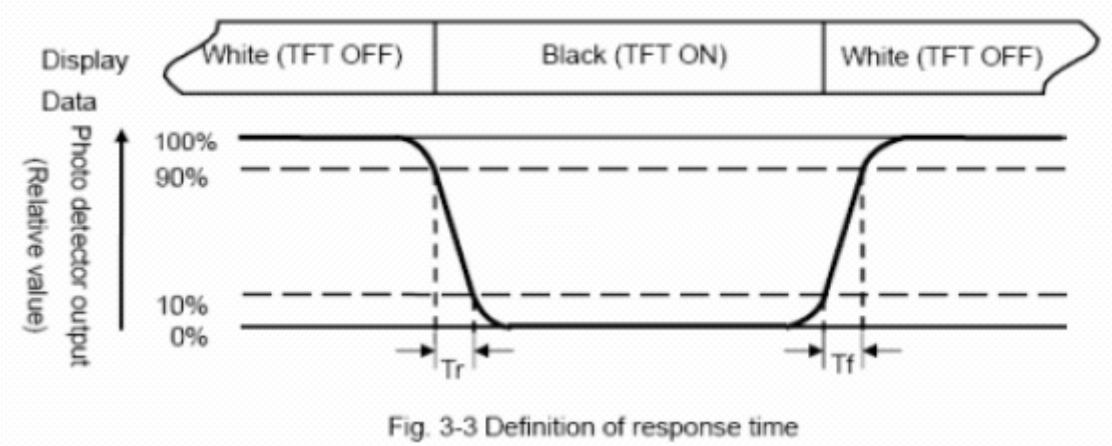


Fig. 3-3 Definition of response time

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 Vi = V_{i50} ± 1.5V

Black Vi = V_{i50} ± 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.

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

9. Interfae

9.1. LCM PIN Definition

Pin	Symbol	I/O	Function	Remark
1	LED-	I	Backlight LED Ground	
2	LED-	I	Backlight LED Ground	
3	LED+	I	Backlight LED Power	
4	LED+	I	Backlight LED Power	
5	NC (Y1)	I	Not use (Top electrode)	
6	NC (X1)	I	Not use (Right electrode)	
7	NC		Not use	
8	/RESET	-	Hardware reset	
9	SPENA	I	SPI interface Data Enable signal	Note:3
10	SPCLK	I	SPI interface Data Clock	Note:3
11	SPDAT	I	SPI interface Data	Note:3
12	B0	I	Blue Data Bit 0	
13	B1	I	Blue Data Bit 1	
14	B2	I	Blue Data Bit 2	
15	B3	I	Blue Data Bit 3	
16	B4	I	Blue Data Bit 4	
17	B5	I	Blue Data Bit 5	
18	B6	I	Blue Data Bit 6	
19	B7	I	Blue Data Bit 7	
20	G0	I	Green Data Bit 0	
21	G 1	I	Green Data Bit 1	
22	G 2	I	Green Data Bit 2	
23	G 3	I	Green Data Bit 3	
24	G 4	I	Green Data Bit 4	
25	G 5	I	Green Data Bit 5	
26	G 6	I	Green Data Bit 6	
27	G 7	I	Green Data Bit 7	
28	R0	I	Red Data Bit0/DX0	Note:4
29	R1	I	Red Data Bit1/DX1	Note:4
30	R2	I	Red Data Bit2/DX2	Note:4
31	R3	I	Red Data Bit3/DX3	Note:4
32	R4	I	Red Data Bit4/DX4	Note:4
33	R5	I	Red Data Bit5/DX5	Note:4
34	R6	I	Red Data Bit6/DX6	Note:4
35	R7	I	Red Data Bit7/DX7	Note:4
36	HSYNC	I	Horizontal sync input	
37	VSYNC	I	Vertical sync input	
38	DCLK	I	Dot Data Clock	
39	NC		Not use	
40	NC		Not use	
41	Vcc	I	Digital power	
42	Vcc	I	Digital power	
43	NC(Y2)	I	Not use (Bottom electrode)	
44	NC(X2)	I	Not use (Left electrode)	
45	NC		Not use	
46	NC		Not use	
47	NC		Not use	
48	IF2	I	Control the input data format /floating	Note:1

49	IF1	I	Control the input data format	Note:1,5
50	IF0	I	Control the input data format	Note:1,5
51	NC		Not use	
52	DE	I	Data Enable input	Note:2
53	DGND	I	Ground for digital circuit	
54	AVSS	I	Ground for analog circuit	

Note:

1. The mode control (IF2) not use, it can't control CCIR601 interface, If not use CCIR601, it can floating.
2. For digital RGB input data format, both SYNC mode and DE+SYNC mode are supported. If DE signal is fixed low, SYNC mode is used. Otherwise, DE+SYNC mode is used. Suggest used SYNC mode!!_
3. Usually pull high._
4. IF select serial RGB or CCIR601/656 input mode is selected, only DX0-DX7 used, and the other short to GND, Only selected serial RGB_CCIR601/656 interface, DX BUS will enable, Digital input mode DX0 is LSB and DX7 is MSB.
5. Control the input data format.

IF2-0: Define the input interface mode.

IF2	IF1	IF0	Format	Operating Frequency
0	0	0	Parallel-RGB data format (only support stripe type color filter)	6.5MHz
0	0	1	Serial-RGB data format	19.5MHz
0	1	0	CCIR 656 data format (640RGB)	24.54MHz
0	1	1	CCIR 656 data format (720RGB)	27MHz
1	0	0	YUV mode A data format (Cr-Y-Cb-Y)	24.54MHz
1	0	1	YUV mode A data format (Cr-Y-Cb-Y)	27MHz
1	1	0	YUV mode B data format (Cb-Y-Cr-Y)	27MHz
1	1	1	YUV mode B data format (Cb-Y-Cr-Y)	24.54MHz

Input format	DOTCLK Freq (MHz)	Display Data	Active Area (DOTCLK)
YUV mode	24.54	640	1280
	27	720	1440

Mode	D[23:16]	D[15:8]	D[7:0]	IHS	IVS	DEN
ITU-R BT 656	D[23:16]	GND	GND	NC	NC	NC
ITU-R BT 601	D[23:16]	GND	GND	IHS	IVS	NC
8 bit RGB	D[23:16]	GND	GND	IHS	IVS	NC for HV Mode DEN for DEN Mode
24 bit RGB	R[7:0]	G[7:0]	B[7:0]	IHS	IVS	NC for HV Mode DEN for DEN Mode

9.2 SPI timing Characteristics

PARAMETER	Symbol	Min.	Typ.	Max.	Unit
SPCK period	T_{CK}	60	-	-	ns
SPCK high width	T_{CKH}	30	-	-	ns
SPCK low width	T_{CKL}	30	-	-	ns
Data setup time	T_{SU1}	12	-	-	ns
Data hold time	T_{HD1}	12	-	-	ns
SPENA to SPCK setup time	T_{CS}	20	-	-	ns
SPENA to SPDA hold time	T_{CE}	20	-	-	ns
SPENA high pulse width	T_{CD}	50	-	-	ns
SPDA output latency	T_{CE}	-	1/2	-	T_{CK}

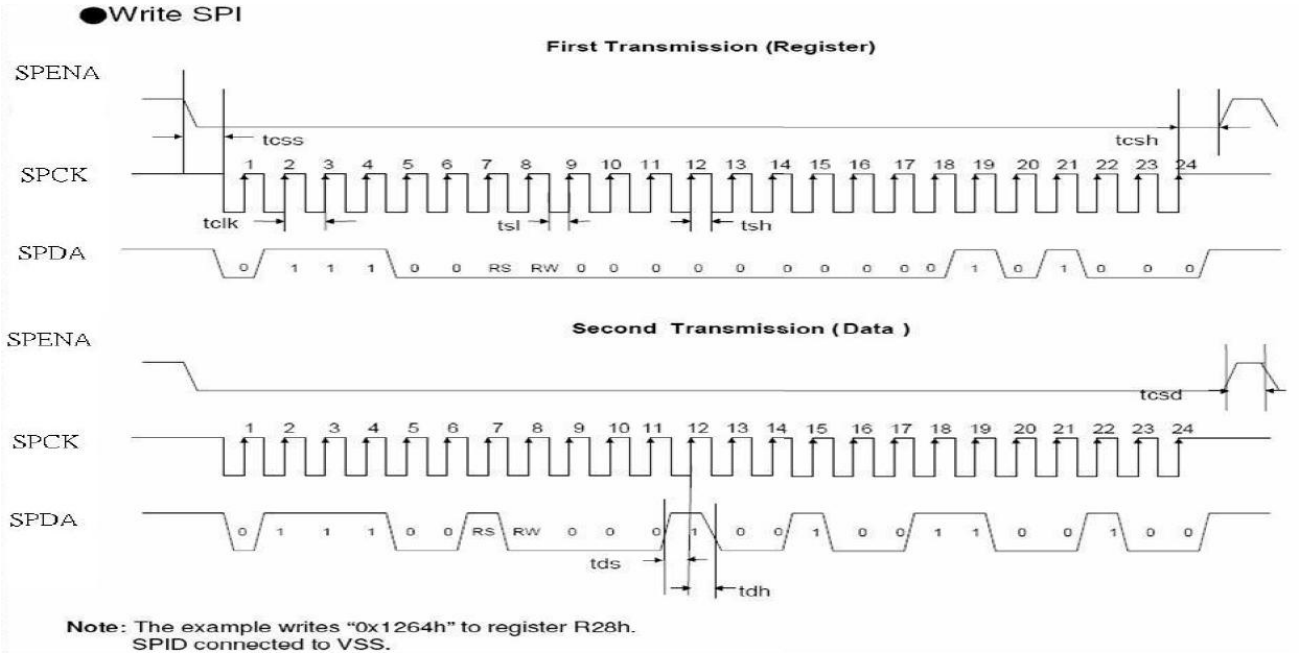


Figure9 SPI read、write timing

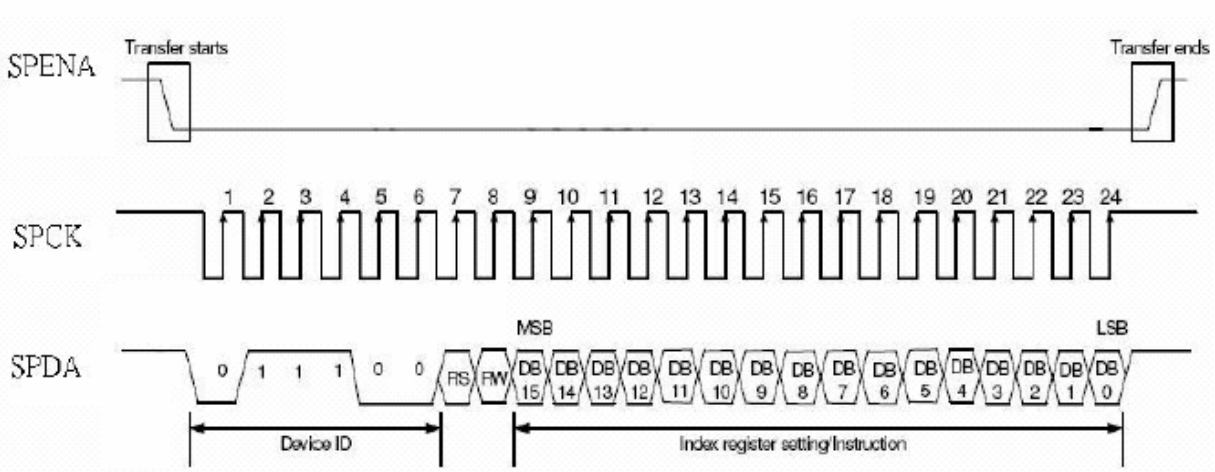
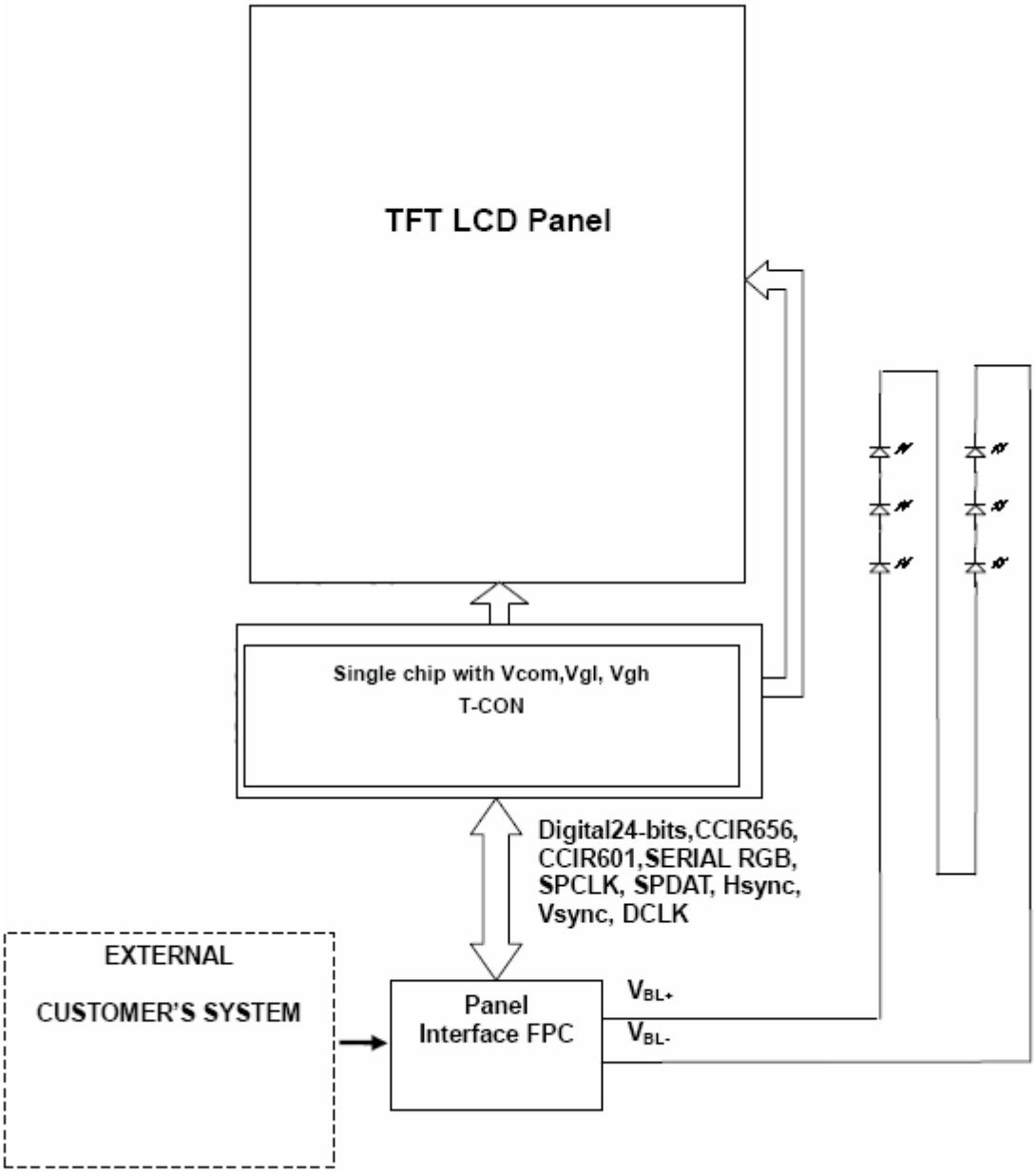


Figure10 SPI timing

9.3 Basic Display Color and Gray Scale

Color		Input Color Data																							
		Red								Green								Blue							
		MSB							LSB	MSB							LSB	MSB							LSB
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	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	1	1	1	1	1	1
Red	Red(0) Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(253)	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255) Bright	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green	Green(0) Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0
	Green(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	Green(255)Bright	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Blue	Blue(0) Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	Blue(255) Bright	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

10. Block Diagram



11.Reliability

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

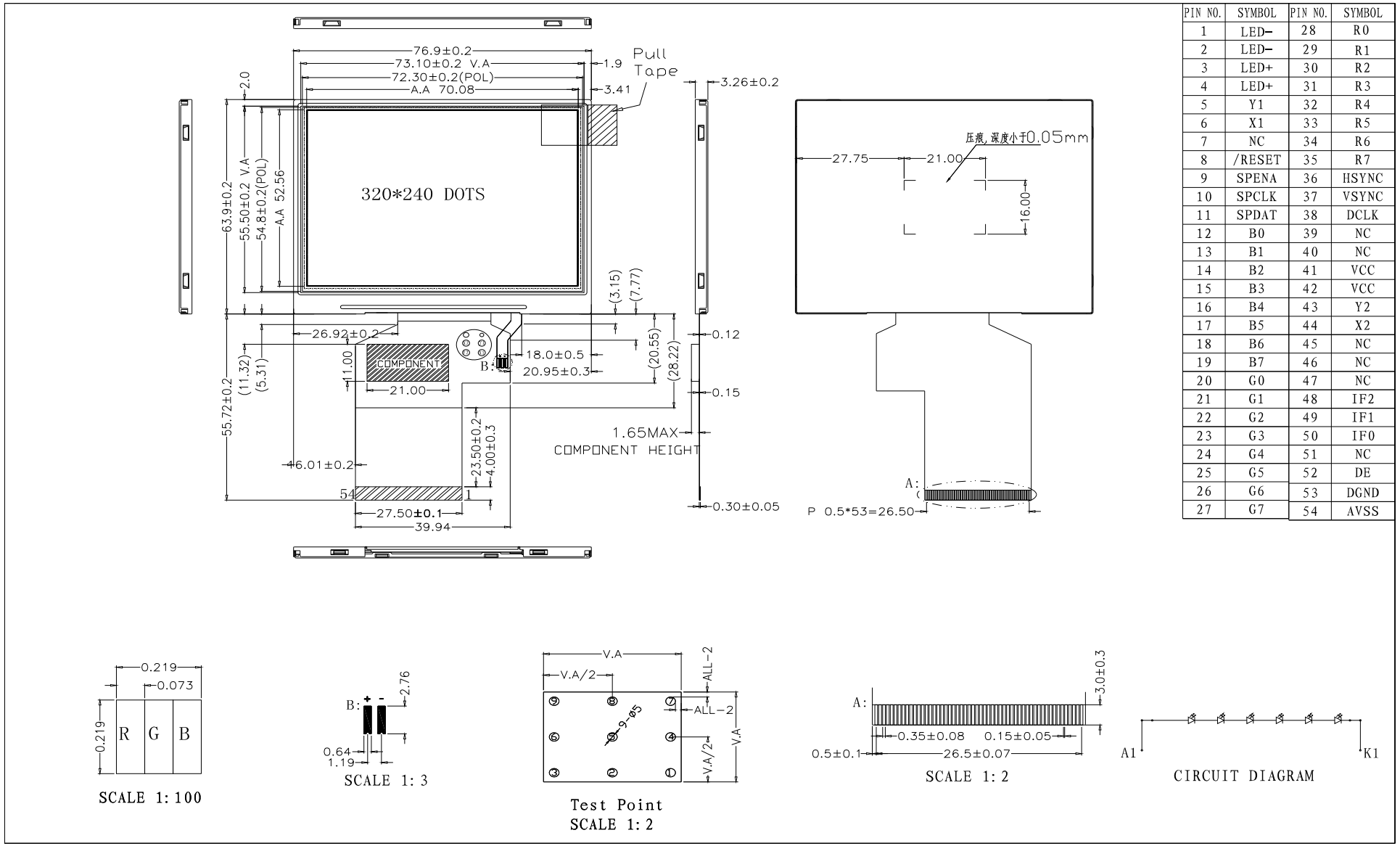
Environmental Test			
Test Item	**Content of Test**	**Test Condition**	**Note**
High Temperature storage	Endurance test applying the high storage temperature for a long time.	80℃ 200hrs	2
Low Temperature storage	Endurance test applying the high storage temperature for a long time.	-30℃ 200hrs	1,2
High Temperature Operation	Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time.	70℃ 200hrs	——
Low Temperature Operation	Endurance test applying the electric stress under low temperature for a long time.	-20℃ 200hrs	1
High Temperature/ Humidity Operation	The module should be allowed to stand at 60℃,90%RH max For 96hrs under no-load condition excluding the polarizer, Then taking it out and drying it at normal temperature.	60℃,90%RH 96hrs	1,2
Thermal shock resistance	The sample should be allowed stand the following 10 cycles of operation -20℃ 25℃ 70℃ 30min 5min 30min 1 cycle	-20℃/70℃ 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: Vibration test will be conducted to the product itself without putting it in a container.

12.Contour Drawing



PIN NO.	SYMBOL	PIN NO.	SYMBOL
1	LED−	28	R0
2	LED−	29	R1
3	LED+	30	R2
4	LED+	31	R3
5	Y1	32	R4
6	X1	33	R5
7	NC	34	R6
8	/RESET	35	R7
9	SPENA	36	HSYNC
10	SPCLK	37	VSYNC
11	SPDAT	38	DCLK
12	B0	39	NC
13	B1	40	NC
14	B2	41	VCC
15	B3	42	VCC
16	B4	43	Y2
17	B5	44	X2
18	B6	45	NC
19	B7	46	NC
20	G0	47	NC
21	G1	48	IF2
22	G2	49	IF1
23	G3	50	IF0
24	G4	51	NC
25	G5	52	DE
26	G6	53	DGND
27	G7	54	AVSS

13. PACKAGE SPECIFICATION

LCM Mode	WF35-320240LD#000-FC
Drawing NO.	

LCM 包裝規格書
LCM Packaging Specifications

Approve	Check	Contact
DATE	初版	版次 Ver
12'11/15	12'11/15	0

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

NO.	Item	Model	Dimensions	Quantity
1	成品（LCM）	WF35-320240LD#000-FC	76.9 x 63.9x 3.26	432
2	TRAY 盤 (2)	PKCA1XXXXXXXXXXX0232	315 x 265 x 13.5	72
3	BP01 內盒(3)Product Box	PK3R1XXXXXXXXXXX0001	332 x 280 x 100	6
4	泡棉(4)Foam	-----	283 x 230 x 8	6
5	外紙箱(5)Carton	PK4Q1XXXXXXXXXXX0000	565 x 340 x 320	1
6				
7				
8				
9				

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

(1)LCM quantity per box : no per tray 6 x no of tray 12 = 72

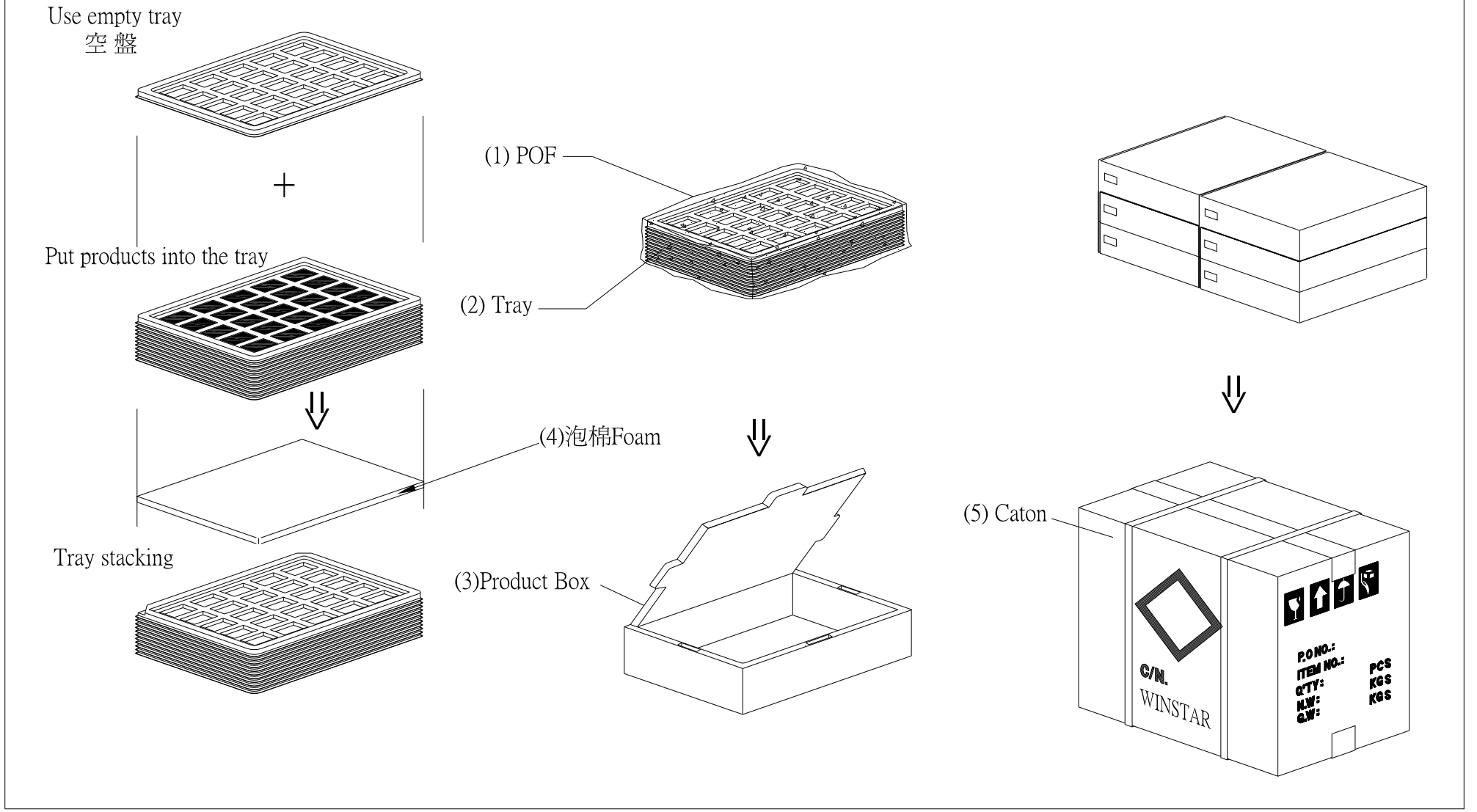
(2)Total LCM quantity in carton : quantity per box 72 x no of boxes 6 = 432

特 記 事 項 (REMARK)

1. Label Specifications :

MOOEL:
LOT NO :
QUANTITY:
CHECK:

2.Rotate tray 180 degrees and place on top of stack. (TRAY 盤相疊時,需旋轉 180 度)


Use empty tray
空盤
Put products into the tray
Tray stacking
(1) POF
(2) Tray
(4)泡棉Foam
(3)Product Box
(5) Caton
C/N.
WINSTAR
P.O NO.:
ITEM NO.:
Q'TY:
N.W:
G.W:
PCS
KGS
KGS

Module Number： _____ **Page: 1**

1、Panel Specification：

1. Panel Type： ☐ Pass ☐ NG ,_____
2. View Direction： ☐ Pass ☐ NG ,_____
3. Numbers of Dots： ☐ Pass ☐ NG ,_____
4. View Area： ☐ Pass ☐ NG ,_____
5. Active Area： ☐ Pass ☐ NG ,_____
6. Operating Temperature： ☐ Pass ☐ NG ,_____
7. Storage Temperature： ☐ Pass ☐ NG ,_____
8. Others：_____

2、Mechanical Specification：

1. PCB Size： ☐ Pass ☐ NG ,_____
2. Frame Size： ☐ Pass ☐ NG ,_____
3. Material of Frame： ☐ Pass ☐ NG ,_____
4. Connector Position： ☐ Pass ☐ NG ,_____
5. Fix Hole Position： ☐ Pass ☐ NG ,_____
6. Backlight Position： ☐ Pass ☐ NG ,_____
7. Thickness of PCB： ☐ Pass ☐ NG ,_____
8. Height of Frame to PCB： ☐ Pass ☐ NG ,_____
9. Height of Module： ☐ Pass ☐ NG ,_____
10. Others： ☐ Pass ☐ NG ,_____

3、Relative Hole Size：

1. Pitch of Connector： ☐ Pass ☐ NG ,_____
2. Hole size of Connector： ☐ Pass ☐ NG ,_____
3. Mounting Hole size： ☐ Pass ☐ NG ,_____
4. Mounting Hole Type： ☐ Pass ☐ NG ,_____
5. Others： ☐ Pass ☐ NG ,_____

4、Backlight Specification：

1. B/L Type： ☐ Pass ☐ NG ,_____
2. B/L Color： ☐ Pass ☐ NG ,_____
3. B/L Driving Voltage (Reference for LED Type)： ☐ Pass ☐ NG ,_____
4. B/L Driving Current： ☐ Pass ☐ NG ,_____
5. Brightness of B/L： ☐ Pass ☐ NG ,_____
6. B/L Solder Method： ☐ Pass ☐ NG ,_____
7. Others： ☐ Pass ☐ NG ,_____

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5、Electronic Characteristics of Module：

1.	Input Voltage：	☐ Pass	☐ NG ,_____
2.	Supply Current：	☐ Pass	☐ NG ,_____
3.	Driving Voltage for LCD：	☐ Pass	☐ NG ,_____
4.	Contrast for LCD：	☐ Pass	☐ NG ,_____
5.	B/L Driving Method：	☐ Pass	☐ NG ,_____
6.	Negative Voltage Output：	☐ Pass	☐ NG ,_____
7.	Interface Function：	☐ Pass	☐ NG ,_____
8.	LCD Uniformity：	☐ Pass	☐ NG ,_____
9.	ESD test：	☐ Pass	☐ NG ,_____
10.	Others：	☐ Pass	☐ NG ,_____

6、Summary：

Sales signature：_____

Customer Signature：_____ **Date**：____/____/____