深圳市思迪科科技有限公司
SHENZHEN CDTECH ELECTRONICS

Product Specification

Model Name	S035EQ76NS
Description	TFT LCD Module 3.5" QVGA 240(RGB)x320 Dots
Date	2021/12/17
Version	1.0

Approved by/Date	**Check by/Date**	**Prepared by/Date**
ZHP 2021/12/17	HZX 2021/12/17	ZWF 2021/12/17

Customer Approval	
Date	

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1. Record of Revision

Rev	Issued Date	Description	Editor
1.0	2021/12/17	First Release.	ZWF

2. General Specifications

Feature		Spec
Characteristics	Size	3.5 inch
	Resolution	240(horizontal)*320(Vertical)
	Interface	SPI
	Connect type	Ziff 0.5mm
	Display Colors	262K
	Technology type	a-Si
	Pixel pitch (mm)	0.219*0.219
	Pixel Configuration	R.G.B.-Stripe
	Display Mode	Normally White
	Driver IC	SSD2119
	Viewing Direction	12 O’ clock
	Gray Inversion Direction	6 O’clock
Mechanical	LCM (W x H x D) (mm)	76.84*63.84*3.27
	Active Area(mm)	52.56*70.08
	With /Without TSP	Without TSP
	Weight (g)	TBD
	LED Numbers	6 LEDs

Note 1: Requirements on Environmental Protection: RoHs
Note 2: LCM weight tolerance: +/- 5%

3. Input/Output Terminals

LCD PIN-MAP

No.	Symbol	Description
1	VCI	Booster input voltage pin
2	VCI	Booster input voltage pin
3	VSS	Ground
4	VDDIO	Voltage input pin for logic
5	VSS	Ground
6	RESET	Reset Signal pin (“Low” is enable)
7	DC/SDC	Data or Command selest PIN.
8	E/RD	6800 system: E(enable signal) 8080 system : RD(read strobe signal) Serial mode: Not use and should be connected to VDDIO or VSS
9	WR	6800 system : RW (indicates read cycle when high ,write cycle when low) 8080 system : WR (wirte strobe signal)
10	CS	Chip select
11	SCL	Serial Clock.
12	SD0	Serial Data output
13	SDI	Serial Data Input
14	WSYNC	Ram write synchronization output. Leave it OPEN when not used.
15~32	D17~D0	Data bus
33	VSS	Ground
34	DOTCLK	Dot-clock signal and oscillator source
35	HSYNC	Line Synchronous Signal
36	VSYNC	Frame Synchronous Signal
37	OE	Display enable pin for controller
38	VSS	Ground
39	PS0	Interface selest PIN
40	PS1	
41	PS2	
42	PS3	
43	VSS	Ground
44~47	NC	NC
48	VSS	Ground
49	LEDK	Backlight LED Cathode
50	LEDA	Backlight LED Anode.

PS3	PS2	PS1	PS0	Interface Mode	Data bus input
0	0	0	0	16-bit 6800 parallel interface	D[17:10], D[8:1]
0	0	0	1	8-bit 6800 parallel interface	D[17:10]
0	0	1	0	16-bit 8080 parallel interface	D[17:10], D[8:1]
0	0	1	1	8-bit 8080 parallel interface	D[17:10]
0	1	0	0	9-bit generic D[9:16] (262k colour) + 3-wire SPI If 65K color, D12 shorts to D17 internally	
0	1	0	1	16-bit generic (262k colour) + 3-wire SPI	
0	1	1	0	18-bit generic (262k colour) + 3-wire SPI	
0	1	1	1	6-bit generic D[8:3] (262k colour) + 3-wire SPI	
1	0	0	0	18-bits 6800 parallel interface	D[17:0]
1	0	0	1	9-bits 6800 parallel interface	D[17:9]
1	0	1	0	18-bit 8080 parallel interface	D[17:0]
1	0	1	1	9-bit 8080 parallel interface	D[17:9]
1	1	1	0	3-wire SPI	
1	1	1	1	4-wire SPI	

4. Absolute Maximum Rating

Driving TFT LCD Panel

Item	Symbol	MIN	MAX	Unit	Remark
Supply Voltage	V_{CC}	-0.3	4.8	V	
Operating Temperature	T_{OPR}	-20	70	℃	
Storage Temperature	T_{STG}	-30	80	℃	

5. Electrical characteristics

5.1 ELECTRICAL CHARACTERISTICS

Item		Symbol	MIN	TYP	MAX	Unit	Remark
Analog Supply Voltage		V_{CC}	2.5	3.3	3.6	V	
Input Signal Voltage	Low Level	V_{IL}	VSS	-	0.3x IOVCC	V	
	High Level	V_{IH}	0.7x IOVCC	-	IOVCC	V	

5.2 LED Driving Conditions

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Forward Current	I_F	-	20	-	mA	
Forward Voltage	V_F	16.2	-	20.4	V	
Backlight Power consumption	W_{BL}	0.324	-	0.408	W	
LED Lifetime		-	30000	-	Hrs	

Note 1: Each LED: IF =20 mA, VF =2.7-3.4V.
Note 2: Optical performance should be evaluated at Ta=25℃ only.
Note 3: If LED is driven by high current, high ambient temperature & humidity condition. The life Time of LED will be reduced. Operating life means brightness goes down to 50% initial brightness. Typical operating life time is estimated data.



Reference: IF=20mA VF=19.2V

Figure: LED connection of backlight(Constant Current)

6.Interface Timing

6.1 Serial Interface Characteristics (3-line serial):

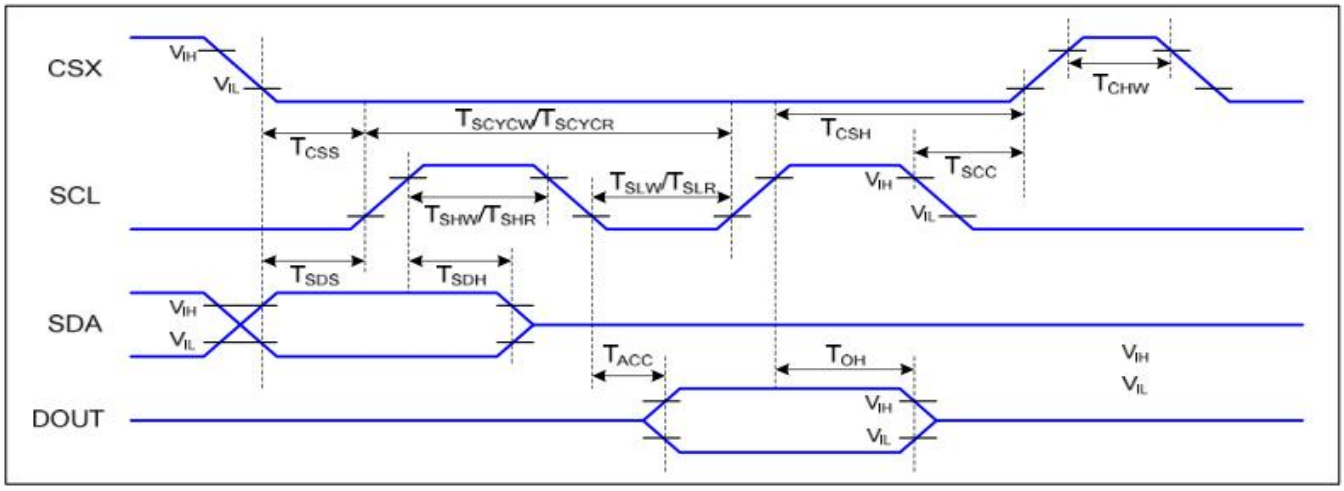


Figure 4 3-line serial Interface Timing Characteristics

VDDI=1.65 to 3.3V, VDD=2.4 to 3.3V, AGND=DGND=0V, Ta=25℃

Signal	Symbol	Parameter	Min	Max	Unit	Description
CSX	T_{CSS}	Chip select setup time (write)	15		ns	
	T_{CSH}	Chip select hold time (write)	15		ns	
	T_{CSS}	Chip select setup time (read)	60		ns	
	T_{SCC}	Chip select hold time (read)	65		ns	
	T_{CHW}	Chip select "H" pulse width	40		ns	
SCL	T_{SCYCW}	Serial clock cycle (Write)	16		ns	
	T_{SHW}	SCL "H" pulse width (Write)	7		ns	
	T_{SLW}	SCL "L" pulse width (Write)	7		ns	
	T_{SCYCR}	Serial clock cycle (Read)	150		ns	
	T_{SHR}	SCL "H" pulse width (Read)	60		ns	
	T_{SLR}	SCL "L" pulse width (Read)	60		ns	
SDA (DIN)	T_{SDS}	Data setup time	7		ns	
	T_{SDH}	Data hold time	7		ns	
DOUT	T_{ACC}	Access time	10	50	ns	For maximum CL=30pF
	T_{OH}	Output disable time	15	50	ns	For minimum CL=8pF

Table 5 3-line serial Interface Characteristics

6.2 Serial Interface Characteristics (4-line serial):

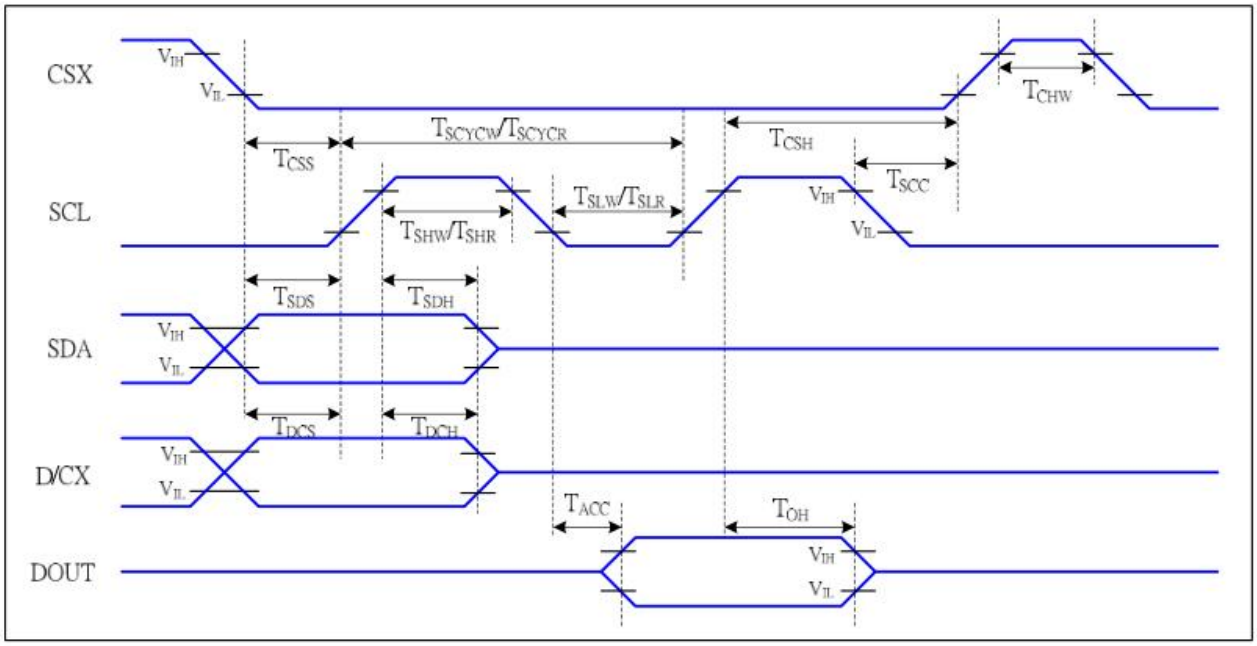


Figure 5 4-line serial Interface Timing Characteristics

VDDI=1.65 to 3.3V, VDD=2.4 to 3.3V, AGND=DGND=0V, Ta=25℃

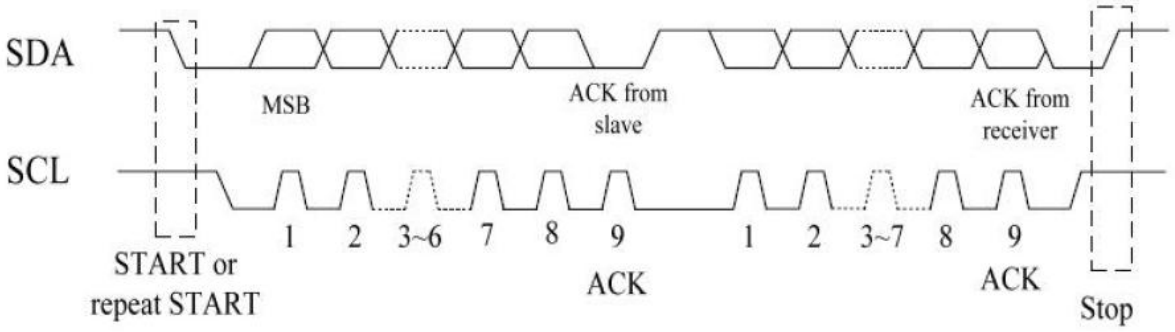
Signal	Symbol	Parameter	MIN	MAX	Unit	Description
CSX	T_{CSS}	Chip select setup time (write)	15		ns	
	T_{CSH}	Chip select hold time (write)	15		ns	
	T_{CSS}	Chip select setup time (read)	60		ns	
	T_{SCC}	Chip select hold time (read)	65		ns	
	T_{CHW}	Chip select "H" pulse width	40		ns	
SCL	T_{SCYCW}	Serial clock cycle (Write)	16		ns	-write command & data ram
	T_{SHW}	SCL "H" pulse width (Write)	7		ns	
	T_{SLW}	SCL "L" pulse width (Write)	7		ns	
	T_{SCYCR}	Serial clock cycle (Read)	150		ns	-read command & data ram
	T_{SHR}	SCL "H" pulse width (Read)	60		ns	
	T_{SLR}	SCL "L" pulse width (Read)	60		ns	
D/CX	T_{DCS}	D/CX setup time	10		ns	
	T_{DCH}	D/CX hold time	10		ns	
SDA (DIN)	T_{SDS}	Data setup time	7		ns	
	T_{SDH}	Data hold time	7		ns	
DOUT	T_{ACC}	Access time	10	50	ns	For maximum CL=30pF
	T_{OH}	Output disable time	15	50	ns	For minimum CL=8pF

Table 6 4-line serial Interface Characteristics

6.3 Capacitive touch panel Specification

I2C

The I2C is always configured in the Slave mode. The data transfer format is shown in Figure 2-4.



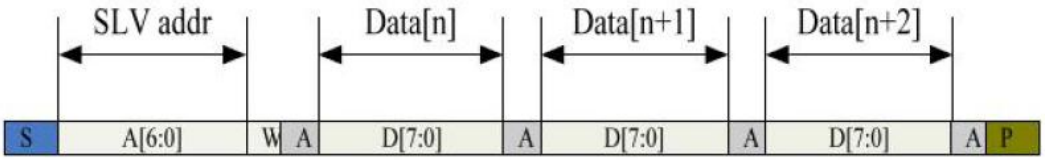


Figure 2-5 I2C master write, slave read

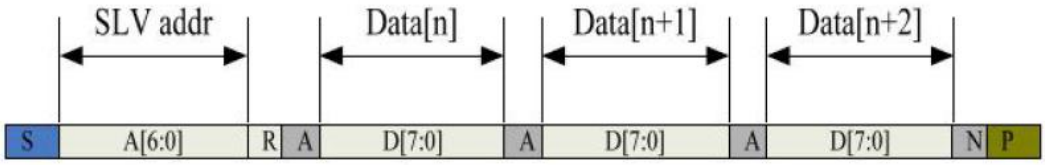


Figure 2-6 I2C master read, slave write

Table 2-1 lists the meanings of the mnemonics used in the above figures.

Table 2-1 Mnemonics Description

Mnemonics	Description
S	I2C Start or I2C Restart
A[6:0]	Slave address A[6:4]: 3'b011 A[3:0]: data bits are identical to those of I2CCON[7:4] register.
W	1'b0: Write
R	1'b1: Read
A(N)	ACK(NACK)
P	STOP: the indication of the end of a packet (if this bit is missing, S will indicate the end of the current packet and the beginning of the next packet)

I2C Interface Timing Characteristics is shown in Table 2-2.

Table 2-2 I2C Timing Characteristics

Parameter	Min	Max	Unit
SCL frequency	0	400	KHz
Bus free time between a STOP and START condition	1.3		us
Hold time (repeated) START condition	0.6		us
Data setup time	100		ns
Setup time for a repeated START condition	0.6		us
Setup Time for STOP condition	0.6		us

6.4 Command

1. LCD_Initial_SSD2119:(for 16bit 8080 interface)

COMMAND	CODE	DESCRIPTION
R00H	0001	OSCEN=1
R10H	0000	Sleep=0
R07H	0033	Display control. CM=0
R11H	6870	65K color, X, Y auto increase ,updated in horizontal direction
R02H	0600	line inversion
R03H	4A38	VGH/VGL= 5/-3
R01H	72EF	Gate lines =240
R0FH	0000	Start scan line = 0
R25H	A000	Frame frequency
R28H	0006	Enable R25, R29 register
R12H	0999	Sleep mode
R26H	3800	Analogue setting
R0BH	5308	Frequency
R0CH	0003	VCIX2
R0DH	0009	VLCD63
R0EH	2300	VCOML
R1EH	0010	VCOMH
R44H	EF00	HAS and HEA station
R45H	0000	Vertical address start station
R46H	013F	Vertical address end station
R30H	0000	Gamma B control 1
R31H	0101	Gamma B control 2
R32H	0100	Gamma B control 3
R33H	0305	Gamma B control 4
R34H	0707	Gamma B control 5
R35H	0305	Gamma B control 6
R36H	0707	Gamma B control 7
R37H	0201	Gamma B control 8
R3AH	1200	Gamma B control 9
R3BH	0900	Gamma B control 10
R22H	--	Write data to RAM

2. LCD_Initial_SSD2119:(for 18bit+3wire SPI and 4wire SPI)

COMMAND	CODE	DESCRIPTION
R00H	0001	OSCEN=1
R10H	0000	Sleep=0
R07H	0033	Display control. CM=0
R11H	4E70	DFM[1:0] : 262k Color Mode DenMode = 1 : RGB interface ignore HSYNC, VSYNC pin and HBP, VBP WMode = 1 : Write RAM from Generic RGB data (POR, if PS:00xx)
R02H	0600	line inversion
R03H	6A38	VGH/VGL= 5/-3
R01H	72EF	Gate lines =240
R28H	0006	Enable R25, R29 register
R12H	0999	Sleep mode
R26H	3800	Analogue setting
R0CH	0005	VCIX2
R0DH	000D	VLCD63
R0EH	2300	VCOML
R1EH	0010	VCOMH
R15H	0058	Entry mode
R30H	0000	Gamma B control 1
R31H	0101	Gamma B control 2
R32H	0100	Gamma B control 3
R33H	0305	Gamma B control 4
R34H	0707	Gamma B control 5
R35H	0305	Gamma B control 6
R36H	0707	Gamma B control 7
R37H	0201	Gamma B control 8
R3AH	1200	Gamma B control 9
R3BH	0900	Gamma B control 10
R22H	--	Write data to RAM

6.5 DC Electrical Characteristics

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
VDDIO	Power supply pin of IO pins	Recommend Operating Voltage Possible Operating Voltage	1.4	-	3.6	V
VCI	Booster Reference Supply Voltage Range	Recommend Operating Voltage Possible Operating Voltage	2.5 or VDDIO whichever is higher	-	3.6	V
VGH	Gate driver High Output Voltage Booster efficiency	No panel loading; 4x or 5x booster; ITO for CYP, CYN, VCIX2, VCI and VCHS = 10 Ohm	88	90	-	%
		No panel loading; 6x booster; ITO for CYP, CYN, VCIX2, VCI and VCHS = 10 Ohm	82	84	-	%
VCIX2	VCIX2 primary booster efficiency	No panel loading, ITO for CYP, CYN, VCIX2, VCI and VCHS = 10 Ohm	83	85	-	%
VGH	Gate driver High Output Voltage		9	-	18	V
VGL	Gate driver Low Output Voltage		-15	-	-6	V
VcomH	Vcom High Output Voltage		V_{CI} + 0.5	-	5	V
VcomL	Vcom Low Output Voltage		$-V_{CIM}$+0.5	-	-1	V
VLCD63	Max. Source Voltage		-	-	6	V
ΔVLCD63	Source voltage variation		-2		2	%
V_{OH1}	Logic High Output Voltage	Iout=-100μA	0.9* VDDIO	-	VDDIO	V
V_{OL1}	Logic Low Output Voltage	Iout=100μA	0	-	0.1*VDDIO	V
V_{IH1}	Logic High Input voltage		0.8*VDDIO	-	VDDIO	V
V_{IL1}	Logic Low Input voltage		0	-	0.2*VDDIO	V
I_{OH}	Logic High Output Current Source	Vout = V_{DDIO}-0.4V	50	-	-	μA
I_{OL}	Logic Low Output Current Drain	Vout = 0.4V	-	-	-50	μA
I_{OZ}	Logic Output Tri-state Current Drain Source		-1	-	1	μA
I_{IL}/I_{IH}	Logic Input Current		-1	-	1	μA

6.6 AC Electrical Characteristics

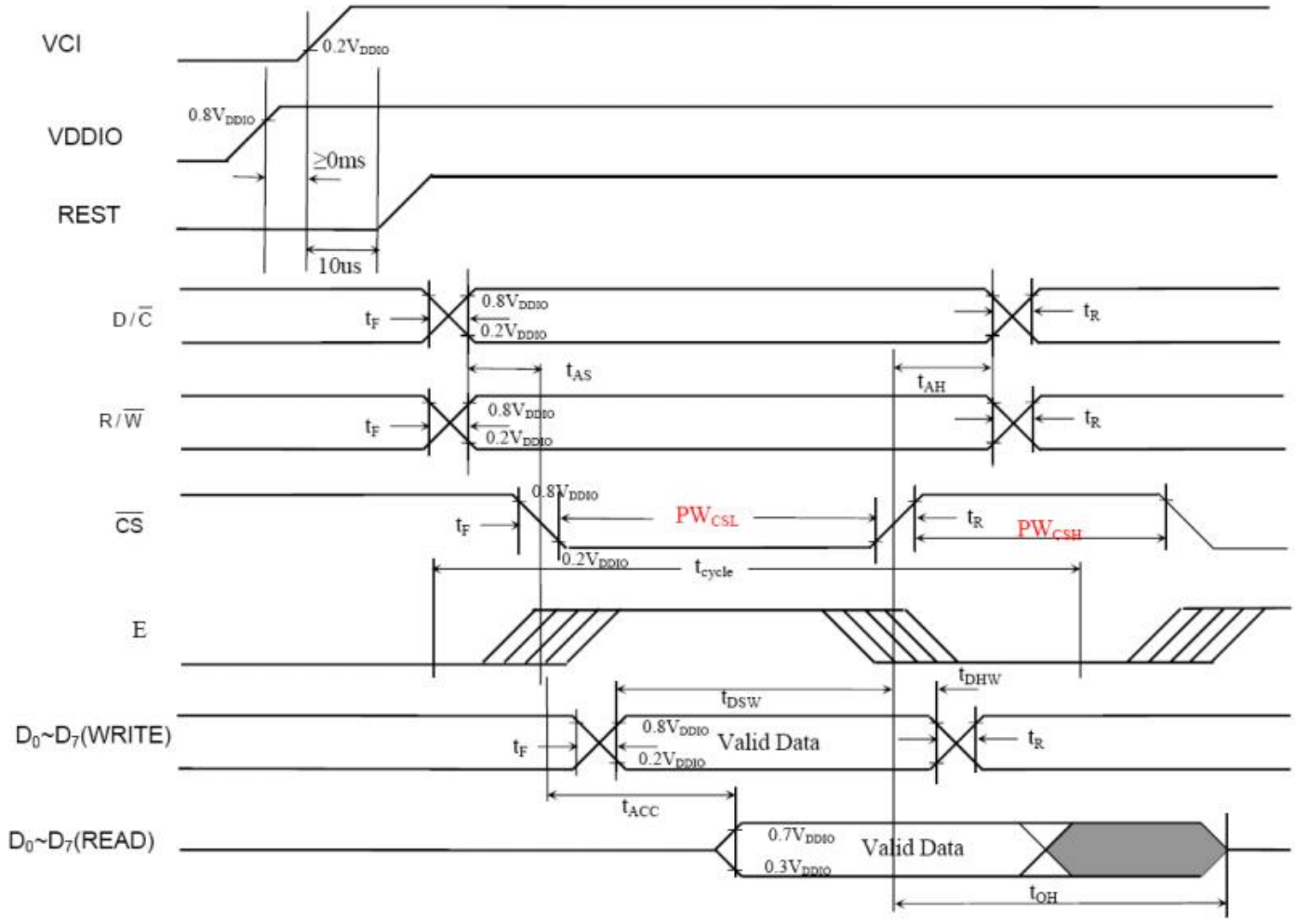
Parallel 6800-series Interface Timing Characteristics

(T_A = -40 to 85°C, V_{DDIO} = 1.4V to 3.6V)

Symbol	Parameter	Min	Typ	Max	Unit
t_{cycle}	Clock Cycle Time (write cycle)	75	-	-	ns
t_{cycle}	Clock Cycle Time (read cycle)	1000	-	-	ns
t_{AS}	Address Setup Time (R/$\overline{W}$)	0	-	-	ns
t_{AH}	Address Hold Time (R/$\overline{W}$)	0	-	-	ns
t_{DSW}	Data Setup Time (D0~D7, WRITE)	5	-	-	ns
t_{DHW}	Data Hold Time (D0~D7, WRITE))	5	-	-	ns
t_{ACC}	Data Access Time (D0~D7, READ)	250	-	-	ns
t_{OH}	Output Hold time (D0~D7, READ)	100	-	-	ns
PW_{CSL}	Pulse width /CS low (write cycle)	40	-	-	ns
PW_{CSH}	Pulse width /CS high (write cycle)	25	-	-	ns
PW_{CSL}	Pulse width /CS low (read cycle)	500	-	-	ns
PW_{CSH}	Pulse width /CS high (read cycle)	500	-	-	ns
t_R	Rise time (/CS)	-	-	4	ns
t_F	Fall time (/CS)	-	-	4	ns

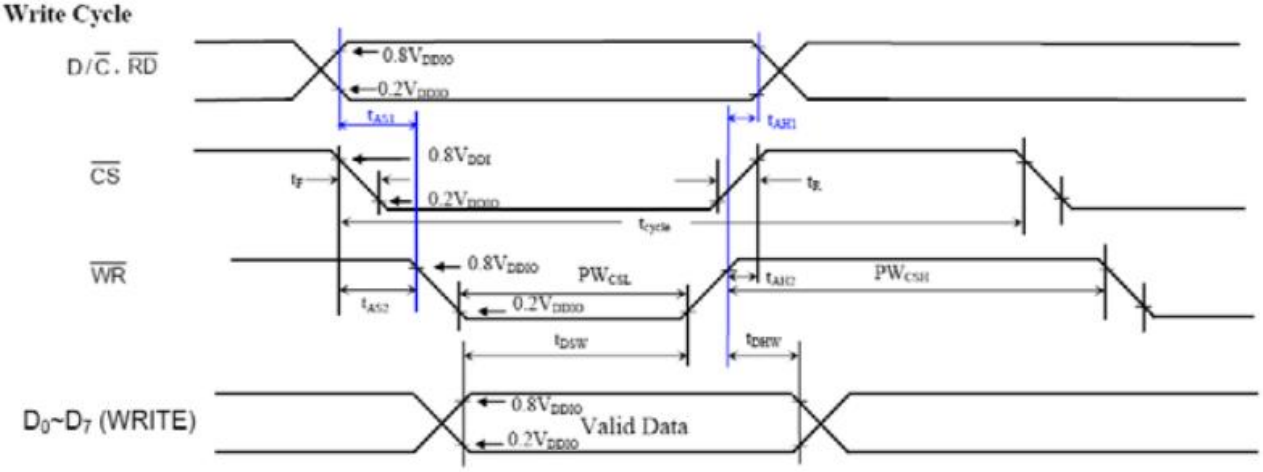
Note: CS can be pulled low during the write cycle, only /RW is needed to be toggled

Parallel 6800-series Interface Timing Characteristics



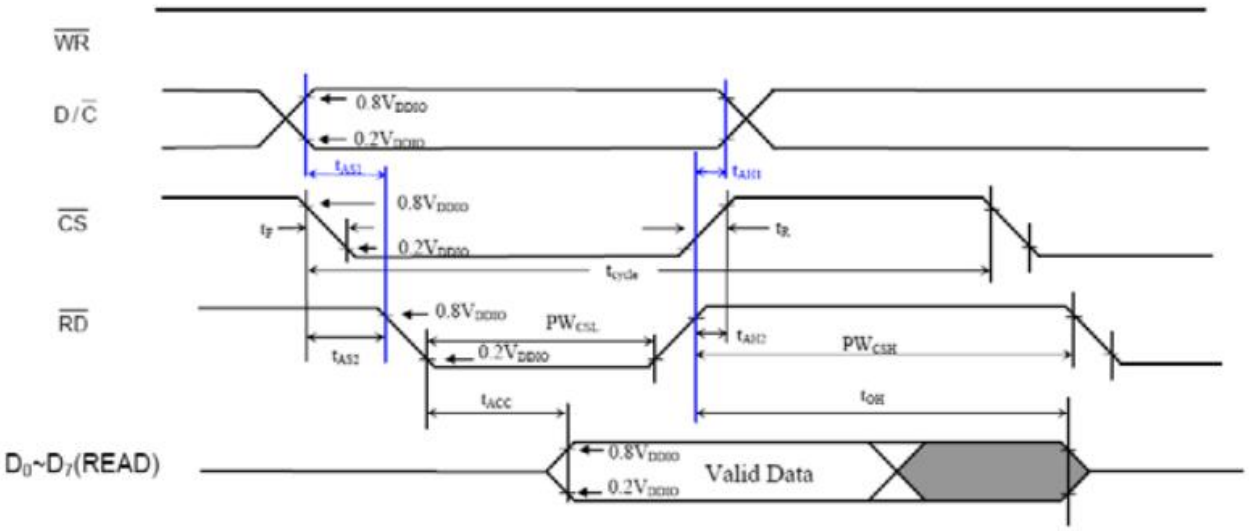
6.7 Parallel 8080 Timing Characteristics

Write Cycle



Remark: It's highly recommended that $\overline{RD}$ remains high for the whole write cycle

Read Cycle



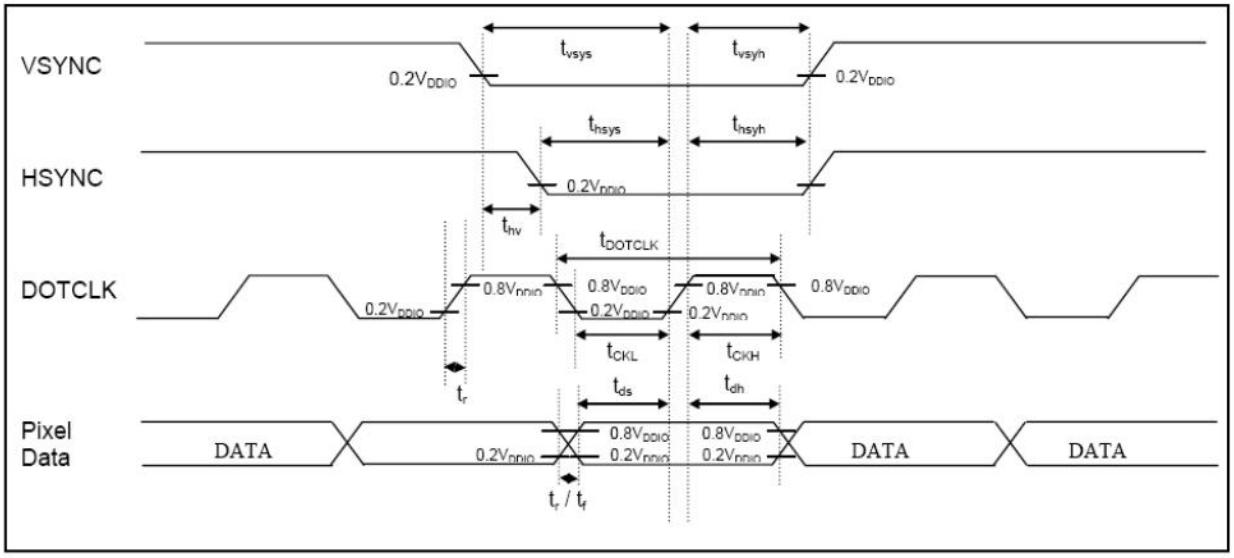
6.8 RGB Timing Characteristics

(T_A = -40 to 85°C, V_{DDIO} = 1.4V to 3.6V)

Symbol	Parameter	Min	Typ	Max	Unit
f_{DOTCLK}	DOTCLK Frequency (70Hz frame rate)	1	5.5	8.2	MHz
t_{DOTCLK}	DOTCLK Period	122	182	1000	us
t_{VSYS}	Vertical Sync Setup Time	20	-	-	ns
t_{VSYH}	Vertical Sync Hold Time	20	-	-	ns
t_{HSYS}	Horizontal Sync Setup Time	20	-	-	ns
t_{HSYH}	Horizontal Sync Hold Time	20	-	-	ns
t_{HV}	Phase difference of Sync Signal Falling Edge	0	-	320	t_{DOTCLK}
t_{CLK}	DOTCLK Low Period	61	-	-	ns
t_{CKH}	DOTCLK High Period	61	-	-	ns
t_{DS}	Data Setup Time	25	-	-	ns
t_{DH}	Data hold Time	25	-	-	ns
t_{RES}	Reset pulse width	8			ns

Note: External clock source must be provided to DOTCLK pin of SSD2119. The driver will not operate in absence of the clocking signal.

RGB Timing Characteristics



7.Optical Characteristics

Items		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark	Note
Response time		Tr+Tf	-	-	25	50	ms	FIG.1	Note4
Contrast Ratio		CR		300	400	-	-	FIG.2	Note1
Surface luminance		LV	θ =0°	300	350	-	cd/m2	FIG.2	Note2
Luminance uniformity		Yu	θ =0°	80	-	-	%	FIG.2	Note3
NTSC		-	θ =0°	-	60	-	%	FIG.2	Note5
Viewing angle		θ Cr>10	θ_T	-	70	-	deg	FIG.3	Note6
			θ_B	-	75	-	deg	FIG.3	
			θ_L	-	75	-	deg	FIG.3	
			θ_R	-	75	-	deg	FIG.3	
Chromaticity	Red	R_X	θ =0° ∅ =0° Ta=25°	0.581	0.631	0.681	-	FIG.2 CIE1931	Note5
		R_Y		0.273	0.323	0.373	-		
	Green	G_X		0.245	0.295	0.345	-		
		G_Y		0.525	0.575	0.625	-		
	Blue	B_X		0.093	0.143	0.193	-		
		B_Y		0.053	0.103	0.153	-		
	White	W_X		0.250	0.300	0.350	-		
		W_Y		0.270	0.320	0.370	-		

Note1. Definition of contrast ratio

Contrast ratio(Cr) is defined mathematically by the following formula. For more information see FIG.2.

$$\text{Contrast ratio} = \frac{\text{Luminance measured when LCD on the “White” state}}{\text{Luminance measured when LCD on the “Black” state}}$$

For contrast ratio, Surface Luminance, Luminance uniformity and CIE,the testing data is base on TOPCON’s BM-5 or BM-7 photo detector or compatible.

Note2. Definition of surface luminance.

Surface luminance is the luminance with all pixels displaying white. For more information see FIG.2.

Lv = Average Surface Luminance with all white pixels(P1,P2,P3, ...,Pn)

Note3. Definition of luminance uniformity

The luminance uniformity in surface luminance is determined by measuring luminance at each test position 1 through n, and then dividing the maximum luminance of n points luminance by minimum luminance of n points luminance.For more information see FIG.2.

$$YU = \frac{\text{Minimum surface luminance with all white pixels (P1,P2,P3,.....,Pn)}}{\text{Maximum surface luminance with all white pixels (P1,P2,P3,.....,Pn)}}$$

Note4. 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%.

For additional information see FIG1.

Note5. Definition of color chromaticity (CIE1931)

CIE (x,y) chromaticity,The x,y value is determined by screen active area center position P5.For more information see FIG.2.

Note6. Definition of viewing angle

Viewing angle is the angle at which the contrast ratio is greater than 10. Angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG.3.

For viewing angle and response time testing, the testing data is base on Autronic-Melchers's ConoScope or DMS series Instruments or compatible.

FIG.1.The definition of response Time

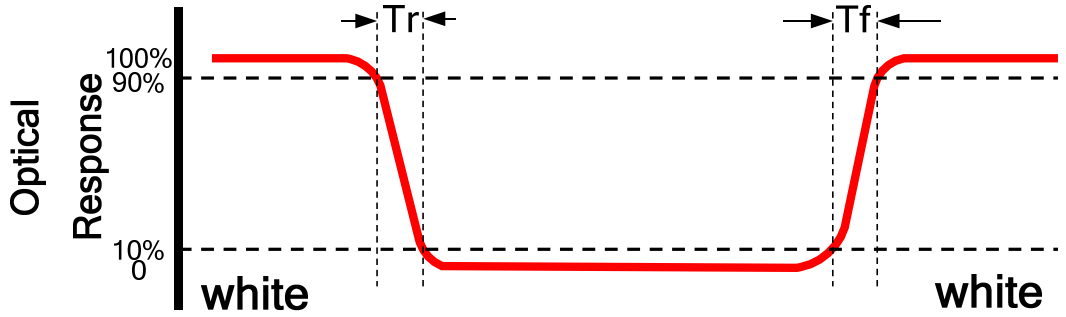


FIG.2. Measuring method for contrast ratio, surface luminance, luminance uniformity, CIE (x,y) chromaticity

Size : S≤5"(see Figure a) A : 5 mm B : 5 mm
H,V : Active area
Light spot size ∅=5mm(BM-5) or ∅=7.7mm (BM-7)50cm distance or compatible distance from the LCD surface to detector lens.
test spot position : see Figure a.
measurement instrument : TOPCON's luminance meter BM-5 or BM-7 or compatible (see Figure c).

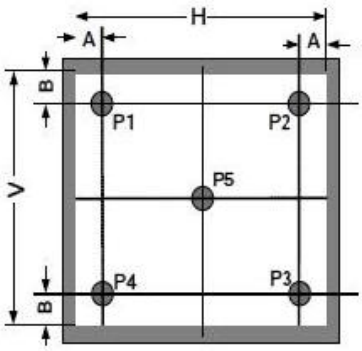


Figure a

Size : 5"＜S≤12.3"(see Figure b) H,V : Active area

Light spot size ∅=5mm(BM-5) or ∅=7.7mm (BM-7)50cm distance or compatible distance from the LCD surface to detector lens.

test spot position : see Figure b.

measurement instrument : TOPCON's luminance meter BM-5 or BM-7 or compatible (see Figure c).

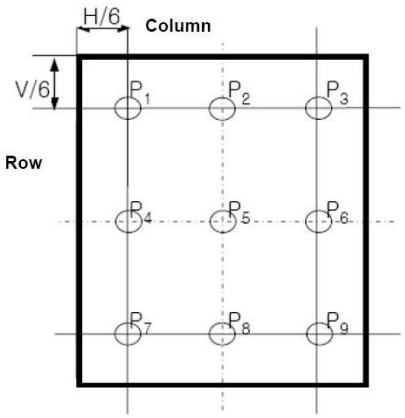


Figure b

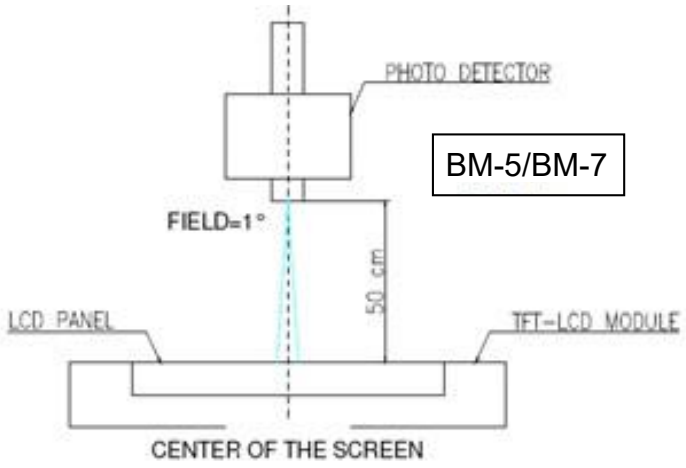
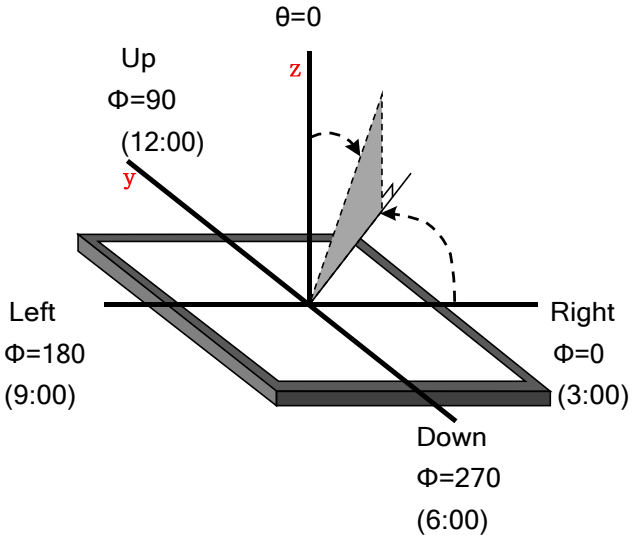


Figure c

FIG.3.The definition of viewing angle

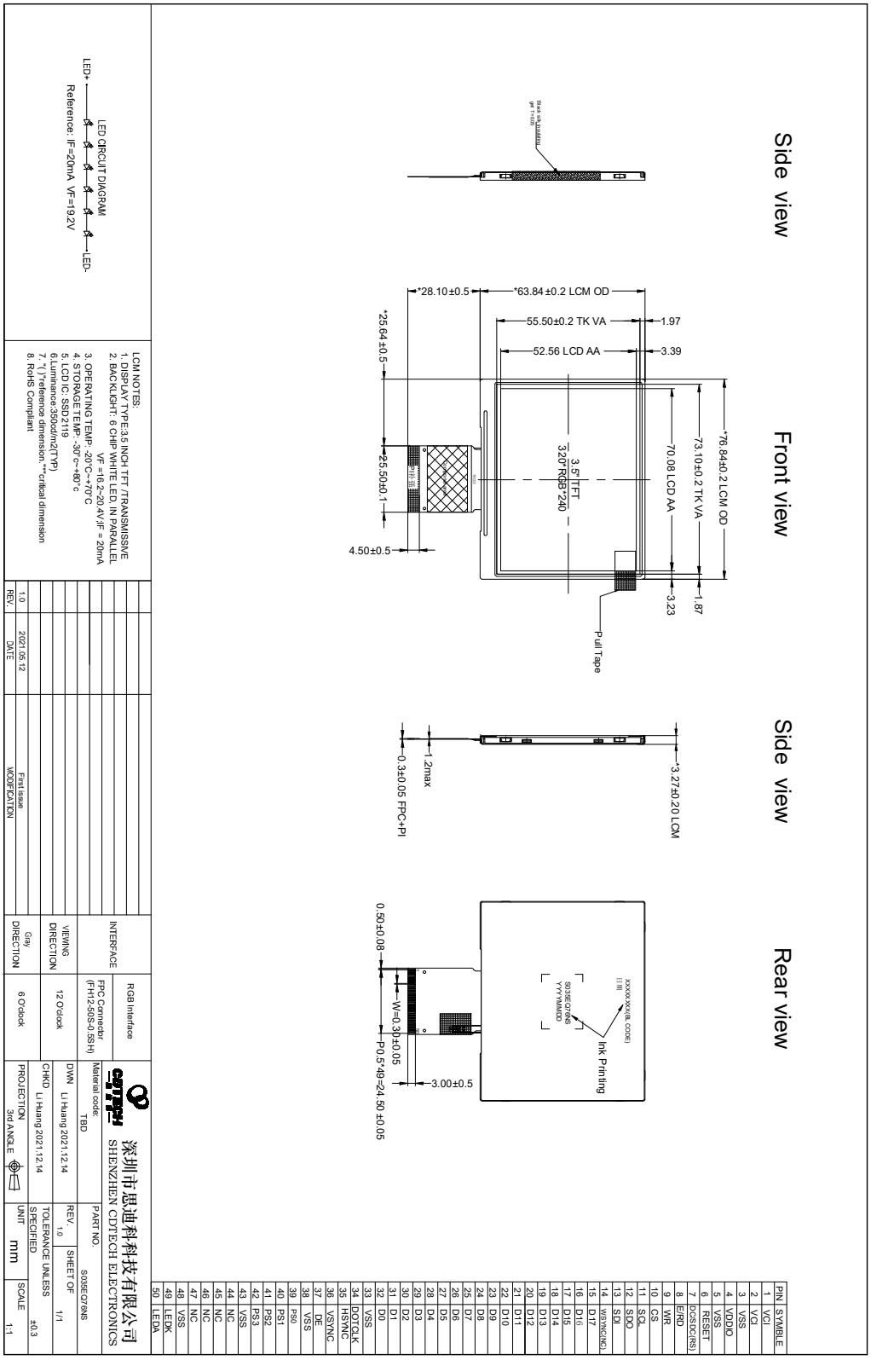


8.Environmental / Reliability Tests

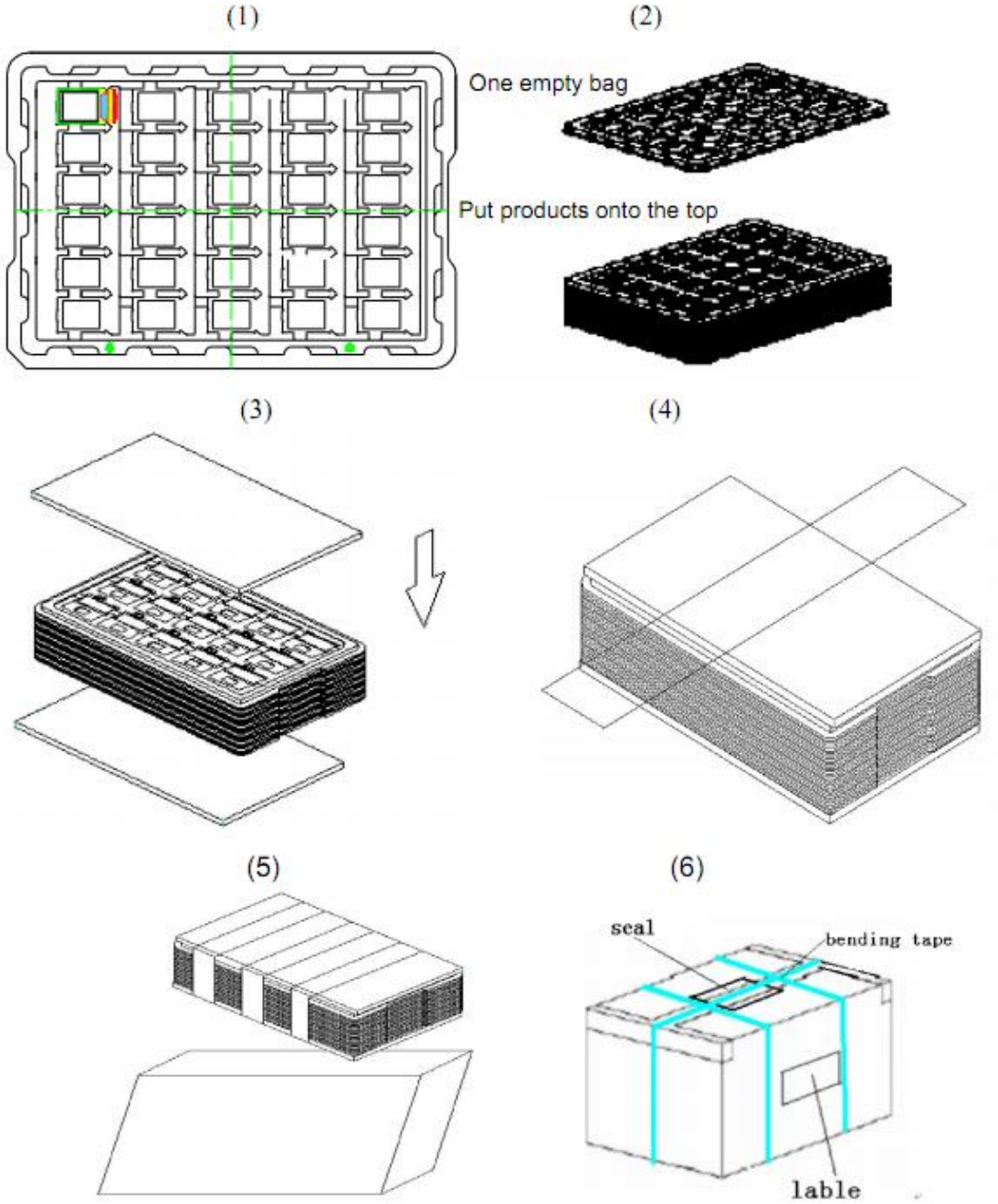
No	Test Item	Condition	Remarks
1	High Temperature Operation	Ts= +70℃, 96hrs	Note 1 IEC60068-2-2, GB2423. 2-89
2	Low Temperature Operation	Ta= -20℃, 96hrs	Note 2 IEC60068-2-1 GB2423.1-89
3	High Temperature Storage	Ta= +80℃, 96hrs	IEC60068-2-2 GB2423. 2-89
4	Low Temperature Storage	Ta= -30℃, 96hrs	IEC60068-2-1 GB/T2423.1-89
5	High Temperature & Humidity Storage	Ta= +60℃, 90% RH max,96 hours	IEC60068-2-3 GB/T2423.3-2006
6	Thermal Shock (Non-operation)	-20℃ 30 min ~ +60℃ 30 min Change time: 5min, 30 Cycle	Start with cold temperature, end with high temperature IEC60068-2-14, GB2423.22-87
7	Electro Static Discharge (Operation)	C=150pF, R=330 Ω, 5 points/panel Air:±8KV, 5 times; Contact: ±4KV, 5 times; (Environment: 15℃ ~ 35℃, 30% ~ 60%, 86Kpa ~ 106Kpa)	IEC61000-4-2 GB/T17626.2-1998
8	Vibration (Non-operation)	Frequency range: 10~55Hz, Stroke: 1.mm Sweep: 10Hz~55Hz~10Hz 2 hours for each direction of X .Y. Z. (package condition)	IEC60068-2-6 GB/T2423.5-1995
9	Shock (Non-operation)	60G 6ms, ± X, ±Y , ± Z 3 times for each direction	IEC60068-2-27 GB/T2423.5-1995
10	Package Drop Test	Height: 100 cm, 1 corner, 3 edges, 6 surfaces	IEC60068-2-32 GB/T2423.8-1995

Note:1. Ts is the temperature of panel's surface.
2. Ta is the ambient temperature of sample.
3. The size of sample is 5pcs.

9.Mechanical Drawing



10.Packing



1. Put module into tray cavity:
2. Tray stacking
3. Put 1 cardboard under the tray stack and 1 cardboard above:
4. Fix the cardboard to the tray stack with adhesive tape:
5. Put the tray stack into carton.
6. Carton sealing with adhesive tape.

11.Precautions for Use of LCD modules

11.1 Handling Precautions

11.1.1. The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

11.1.2. If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

11.1.3. Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

11.1.4. The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

11.1.5. If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

- Isopropyl alcohol
- Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

- Water
- Ketene
- Aromatic solvents

11.1.6. Do not attempt to disassemble the LCD Module.

11.1.7. If the logic circuit power is off, do not apply the input signals.

11.1.8. To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

11.1.8.1. Be sure to ground the body when handling the LCD Modules.

11.1.8.2. Tools required for assembly, such as soldering irons, must be properly ground.

11.1.8.3. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

11.1.8.4. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

11.2 Storage Precautions

11.2.1. When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.

11.2.2. The LCD modules should be stored under the storage temperature range If the LCD modules will be stored for a long time, the recommend condition is:

Temperature : 0℃ ～ 40℃ Relatively humidity: ≤80%

11.2.3. The LCD modules should be stored in the room without acid, alkali and harmful gas.

11.3 Transportation Precautions

The LCD modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.

LCD Warranty Time: 1 year