



Surenno STP0320A2-240320 Series TFT LCD Panel User Manual

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STP0320A2-240320 Series
TFT LCD PANEL USER MANUAL

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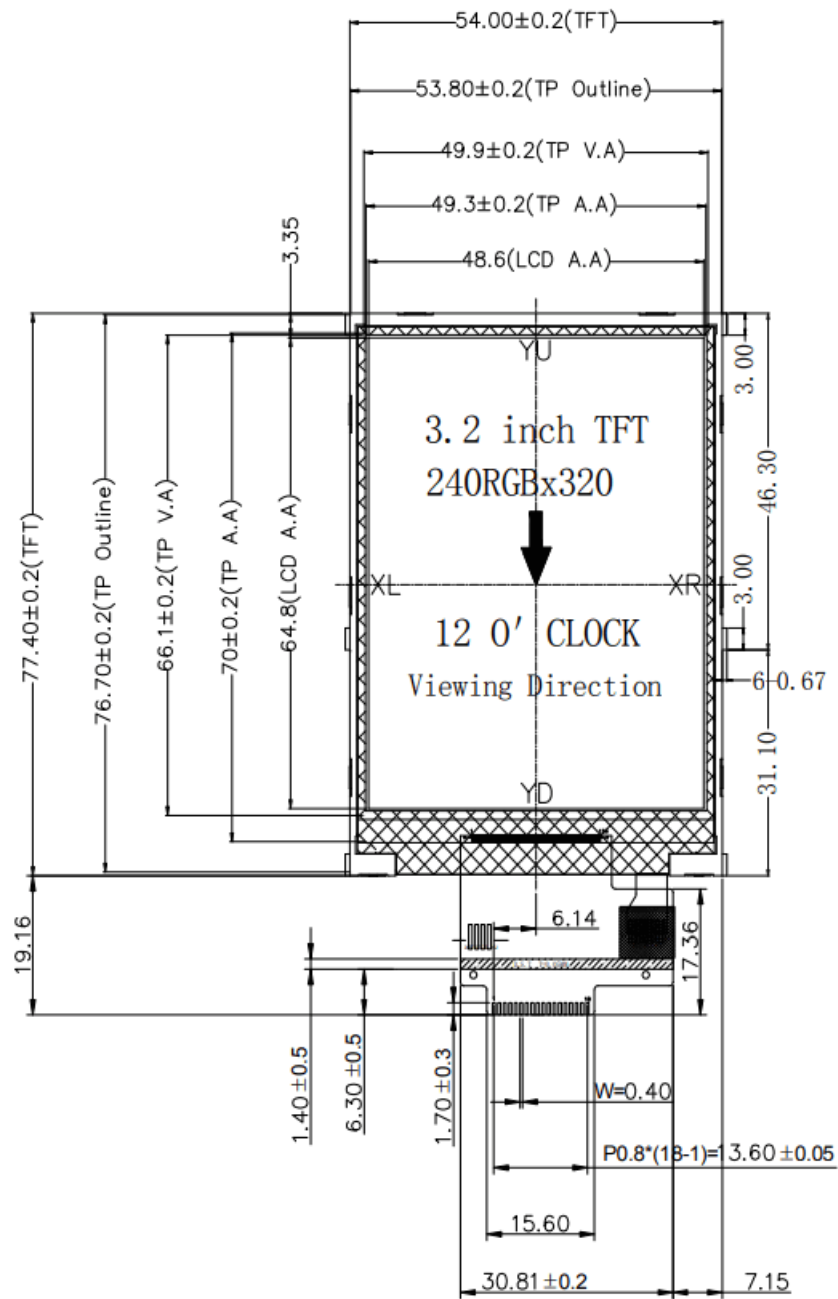
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General Description

MODEL NO	STP0320A2-240320(YT320S010)
Display Mode	Transmissive
Display Format	Graphic 240RGB*320 Dot-matrix 240xRGBx320
Input Data	4 Line-SPI interface
Viewing Direction	12 o'clock
Drive	ST7789V

Mechanical Specification

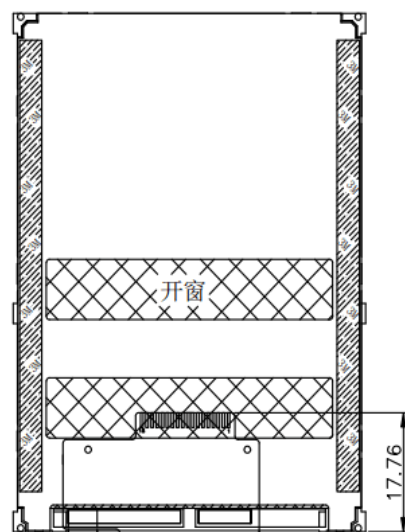
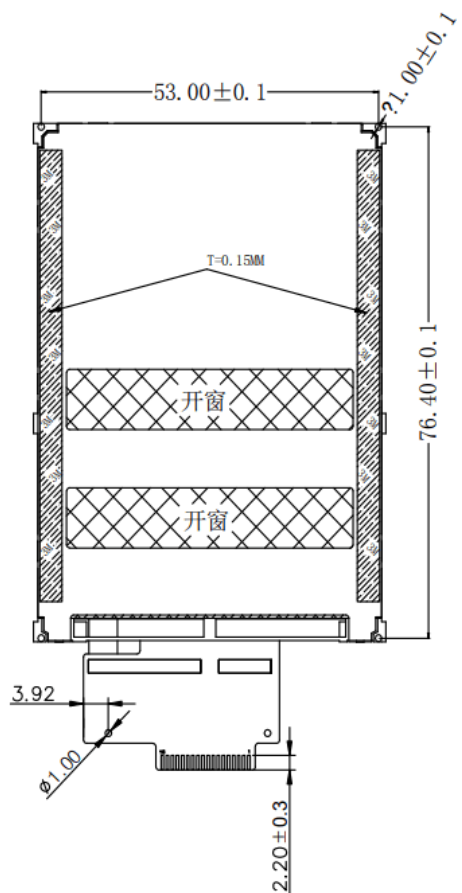
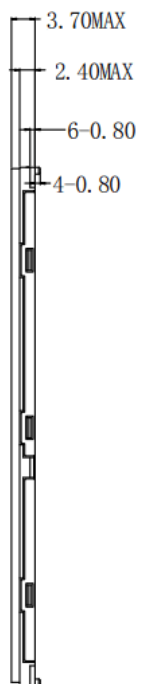
Item	Specifications
Dimensional outline	54.00(W)*77.40(H)*2.40(T) 54.00(W)*77.40(H)*3.70(T) (FPC not include)
Resolution	240RGB*320
LCD Active area	48.60(W)*64.80 (H)
Pixel size	0.2025W)*0.2025(H)



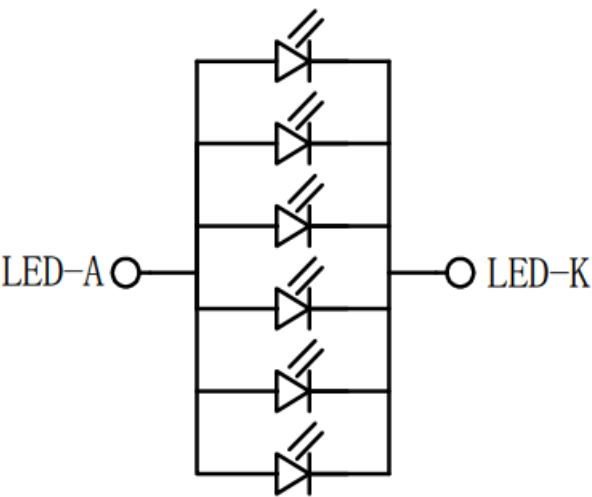
NOTES:

1. DISPLAY TYPE:TFT
2. OPERATING TEMP: $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$
3. STORAGE TEMP: $-30^{\circ}\text{C} \sim 80^{\circ}\text{C}$
4. LCD DRIVER: COG(IC:ST7789V);
5. BACKLIGHT: 6 CHIP-WHITE LED(Parellel)
6. GENERAL TOLERANCE: ± 0.20
7. ROHS

Mechanical Dimension



PIN	SYMBOL
1	GND
2	RESET
3	SCL
4	D/C
5	CSX
6	SDA
7	SDC
8	GND
9	VCC
10	LED-A
11	LED-K
12	LED-K
13	LED-K
14	LED-K
15	XL
16	YU
17	XR
18	YD

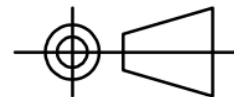


CIRCUIT DIAGRAM
(I=90MA V=2.9-3.3V)



SHENZHEN SURENOO TECHNOLOGY CO.,LTD.

Third Perspective:



Product number:	STP0320A2-240320 (YT320S010)				
Part Model:	LCM Outline			confirm:	
Version:	v0.0	unit:	MM	Audit:	
date:	2018.08.16	Proportion:	1:01	design:	
UNMRKED TOLERANCE:+0.20 mm				page number:	1 OF 1

Electrical Maximum Ratings

Item	Symbol	Min	Max	Unit	Note
Supply voltage (VDDI)		2.	3.	V	—
Supply voltage (VDD)	V	3.	3.	V	—
Operating temperature 1	T(w.	-20	70	°C	—
Storage temperature	1,1R	-30	80	°C	—

※NOTE: VDDI and VDD can be directly connected together and share a set of voltage (2.8V~3.3V) for power supply.

Brightness characteristic&Power dissipation

Item	Symbol	Min	Typical	Max	Unit
LED module Forward voltage	V LED	2.9	3.1	3.3	V
LED module current	L LED	—	—	—	mA
LCD Surface Luminance	Ls	330	350	—	Cd/m ²
LCM Surface brightness uniform	L D	80	—	—	%
LCD power dissipation	L LCD	—	0.32	—	W

※NOTE:PLCD=VDD * (ILED+ILCD)

Module Function Description

PIN No.	Symbol	Description	Notes
1	GND	Ground	—
2	RESET	-This signal will reset the device and it must be applied to properly initialize the chip. -Signal is active low.	—
3	SCL	-This pin is used to be serial interface clock.	—
4	D/C	— Display data/command selection pin in 4-line serial interface.	—
5	CSX	-Chip selection pin Low enable. High disable.	—
6	SDA	SPI interface input pin. -The data is latched on the rising edge of the SCL signal. -If not used, please fix this pin at VDDI or DGND level.	—
7	SDO	-SPI interface output pin. -The data is output on the falling edge of the SCL signal. -If not used, let this pin open.	—
8	GND	Ground	—
9	VDD	Power Supply for Analog, Digital System and Booster Circuit.	—
10	LEDA	Anode of Backlight (2.9V-3.3V Typical:3.1V)	—
11	LEDK1	Cathode of Backlight	—
12	LEDK2	Cathode of Backlight	—
13	LEDK3	Cathode of Backlight	—
14	LEDK4	Cathode of Backlight	—
15	XL	Touch panel Logical foot	—
16	YU	Touch panel Logical foot	—
17	XR	Touch panel Logical foot	—
18	YD	Touch panel Logical foot	—

Figure 6-1: Display STP0320A2 4-wire-SPI serial port reference application circuit

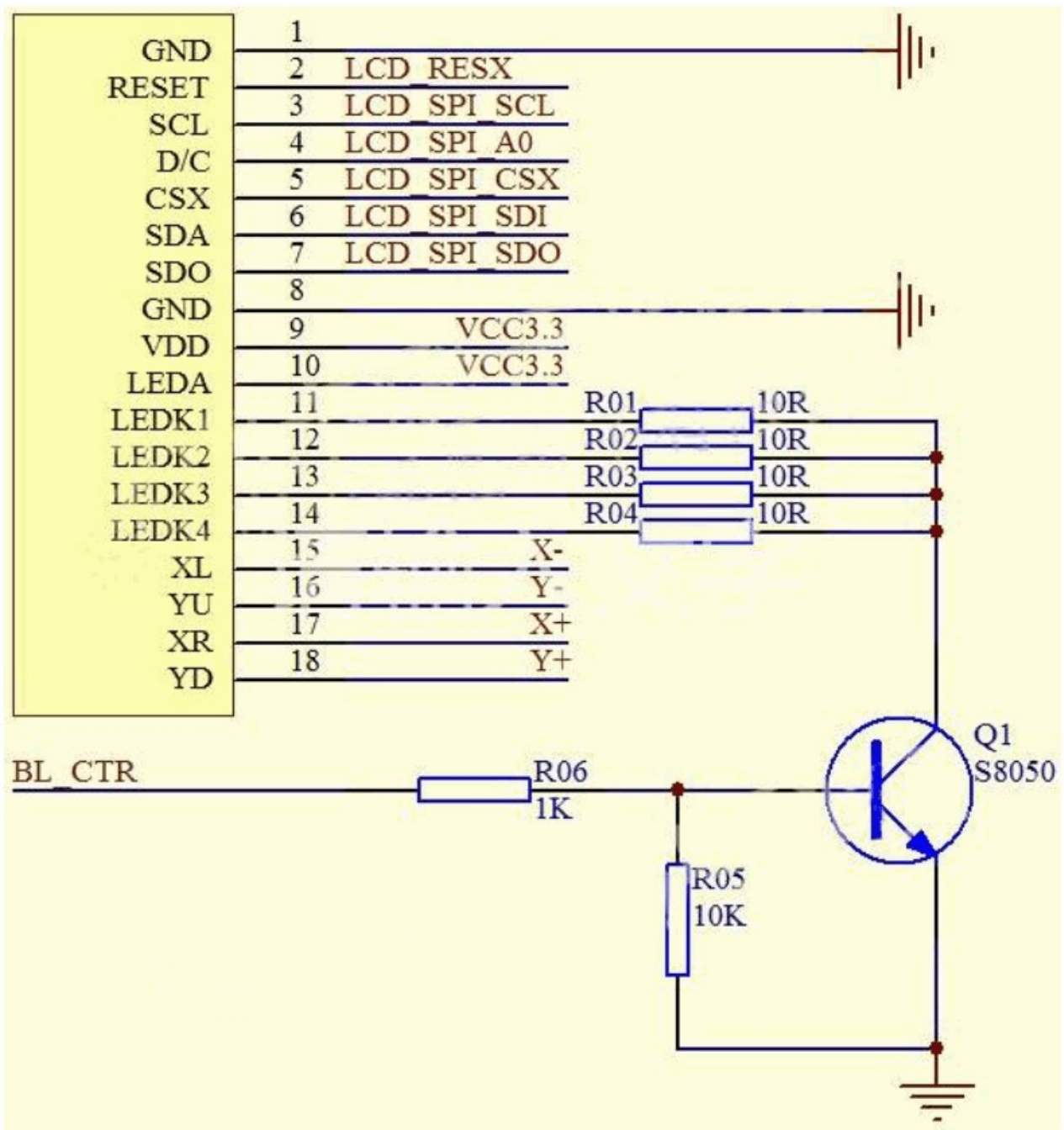
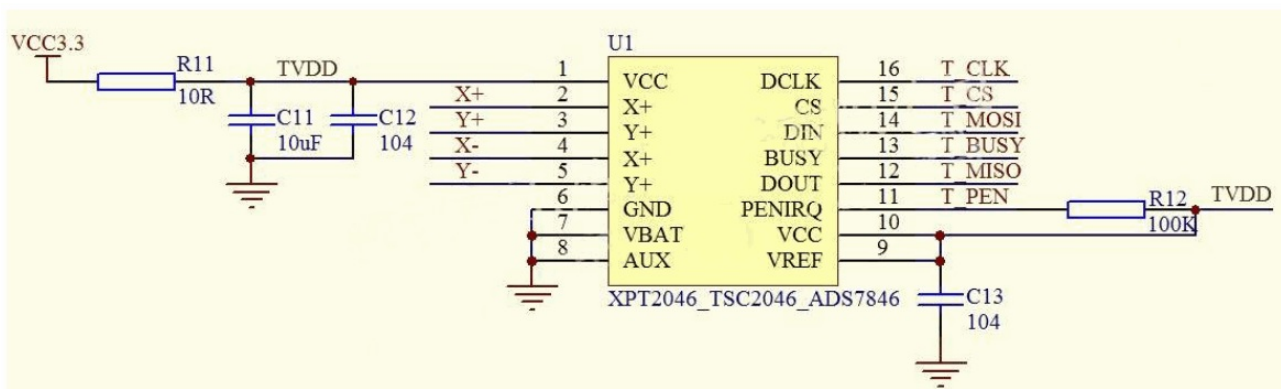


Figure 6-2: Touch screen reference application circuit



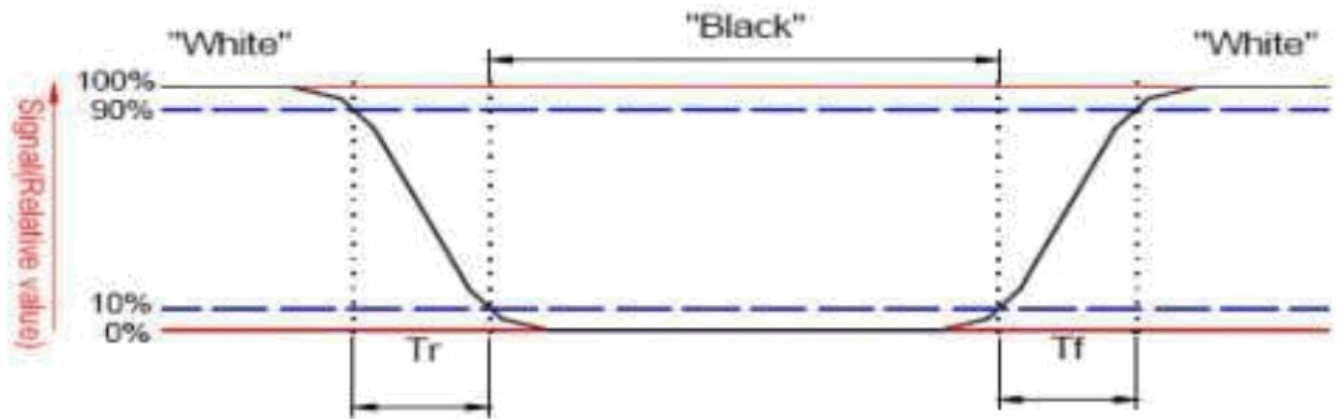
※NOTE:

1. If it is a version without touch, refer to the attached circuit in Figure 6-1, and hang the four touch pins XL, YU,

XR, and YD of the display in the air

Response time&Contrast ratio

Item	Symbol	Condition	Remark			Unit
			Min.	Typ.	Max.	
Response time	Tr+Tf	$\theta = 0^\circ$	—	25	40	ms
Contrast ratio	CR	$\theta = 0^\circ$	350	500	—	—



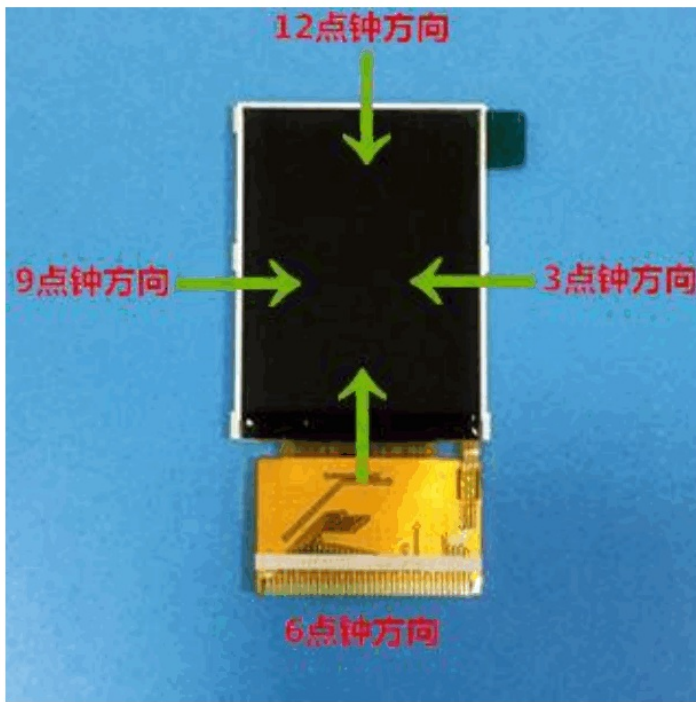
Response time graph

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "white" state}}{\text{Brightness on the "black" state}}$$

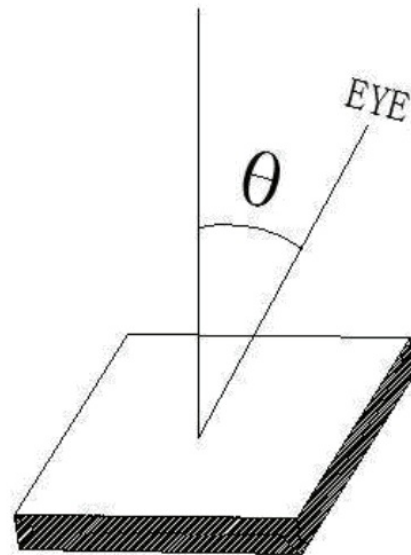
Contrast calculation formula

Viewing Angle

Item	Symbol	Condition	Remark			Unit
			Min.	Typ.	Max.	
Viewing angle	Top	$CR \geq 10$	40	50	—	Deg.
	Bottom	$CI \geq 10$	55	65	—	
	Left	$CR \geq 10$	55	65	—	
	Right	$CR \geq 10$	55	65	—	



垂直于屏表面

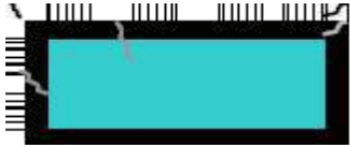


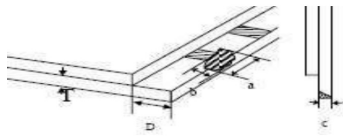
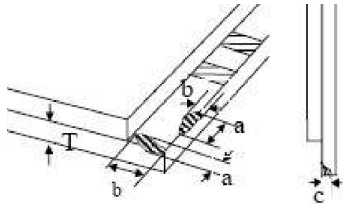
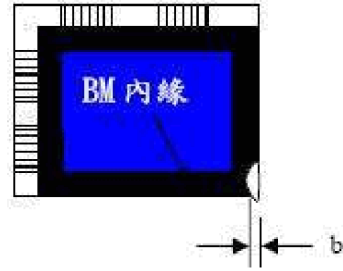
NOTE: The angle of view of 3 o'clock, 6 o'clock, 9 o'clock, and 12 o'clock refers to the angle (θ) between the lines perpendicular to the surface of the screen and the line of sight of the eye.

Reliability Trial

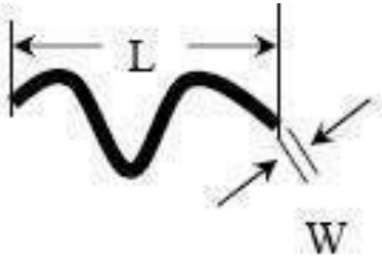
NO.	ITEM	CONDITION	CRITERION
1	High Temperature Non-Operating Test	80°C *120Hrs	No Defect Of Operational Function In Room Temperature Are Allowable
2	Low Temperature Non-Operating Test	-30 C*120Hrs	
3	High Temperature/Humidity Non Operating Test	60°C*90%RH*120Hrs	
4	High Temperature Operating Test	70 C*72Hrs	
5	Low Temperature Operating Test	20°C *72Hrs	
6	Thermal Shock Test	-20 °C (30Min) Q 70 °C (30 Min) *10CYCLES	

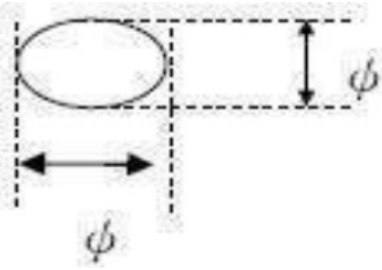
Inspection standards

NO	Defect item	Criteria	Remark
1	Dimension Unconformity (Major defect)	By Engineering Drawing	
2	Cracks (Major defect)	1. Linear cracks panel Reject 2. Nonlinear crack contrast by limited sample	
3	Glass extrude the conductive area (minor defect)	a: disregards and no influence assemblage. 1) $b \leq 1/3$ Pin width (non bonding area) Accept 2) bonding area $\leq 0.5\text{mm}$ Accept	A: Length, b: Width

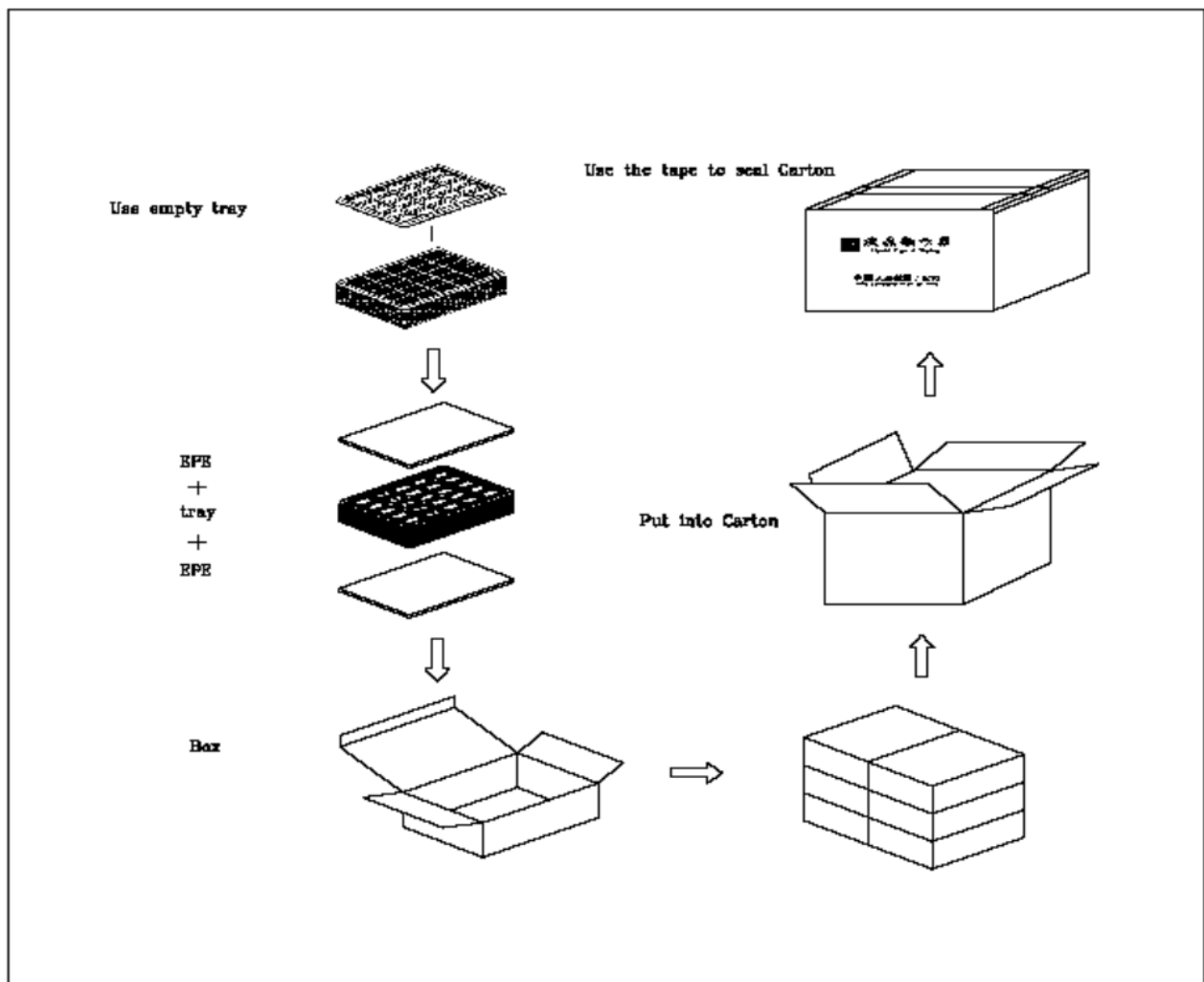
4	Pin-side ,conductive area damaged (minor defect)	(a c: disregards) $b \leq 1/3$ of effective length for bonding electrode Accept	a: length, b: Width, c: Thickness 
5	Pin-side, non-conductive area damaged (minor defect)	1) Damage area don't touch the ITO (Including contraposition mark, except scribing mark) Accept 2) $C < T$ $b \leq BM1/3$ of width Accept 3) $c = T$ b not touch the seal glue Accept 4) a disregards	a: Length, b: Width c: Thickness 
6	Non-pin-side damage (minor defect)	$c < T$ 1) b exceeds $1/3 B_m$ Reject $c = T$ b not touch the seal glue Reject	c: Thickness b: width of damage 

10.2LCD appearance defect(View area)

NO	Defect item	Criteria		Remark
1	Fiber, glass cratch, polarizer scratch/folded (minor defect)	Specification	Allowable	notel:L: Length, W: Width note2: disregard if out of AA 
		W- 0.03mm	disregard	
		0.03mm<W O. 05mm; 1_- 3. 0mm	2	
		0.05mm<W O. 1mm; L-<= 3. 0mm	1	
		W>0.1mm;L>3.0mm	0	
2	Polarizer bubble, concave and convex (minor defect)	0.2mm	disregard	notel: (I)= (L+W) /2, L : Length, W :Width note2:disregard if out of AA
		0.2mm< (I) 0. 3mm	2	
		0.3mm< (I) 0. 5mm	1	
		0.5mm< (I)	0	
3	Black dots, dirty dots,	(1) 0.15 mm	disregard	note2:disregard if out of AA

	impurities, eye winker (minor defect)	0.15mm< (1) -.. O. 25mm	2	
		0.25mm< (1) -.. 0. 3m	1	
		0.3mm< (1)	0	
4	Polarizer prick (minor defect)	(1) 0.1mm	disregard	notel: (1) = (L+W) /2, L=Length, W=Width note2:the distance between two dots>5mm
		0.1mm< (1) 0. 25m	3	
		(1) >O. 25mm	0	

Package Method



<https://wa.me/qr/4GGOIDYZ2PXXN1>



<https://wa.me/qr/4GGOIDYZ2PXXN1>

<http://qr.kakao.com/ta>



<https://line.me/ti/p/oas8BmVLVd>



https://u.wechat.com/EAK0B_I2YfPLwx3tR

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Reference Controller Datasheet

TFT LCD Panel Selection Guide

ST7789V

Documents / Resources

	Surenoo STP0320A2-240320 Series TFT LCD Panel [pdf] User Manual STP0320A2-240320 Series, TFT LCD Panel, STP0320A2-240320 Series TFT LCD Panel, LCD Panel, Panel, STP0320A2-240320
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References

- [Surenoo Tech: Professional LCD Module Supplier Since 2005](#)

Manuals+.