

Surenoo STP0280C1-240320 Series TFT LCD Panel User Manual

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STP0280C1-240320 Series TFT LCD Panel User Manual



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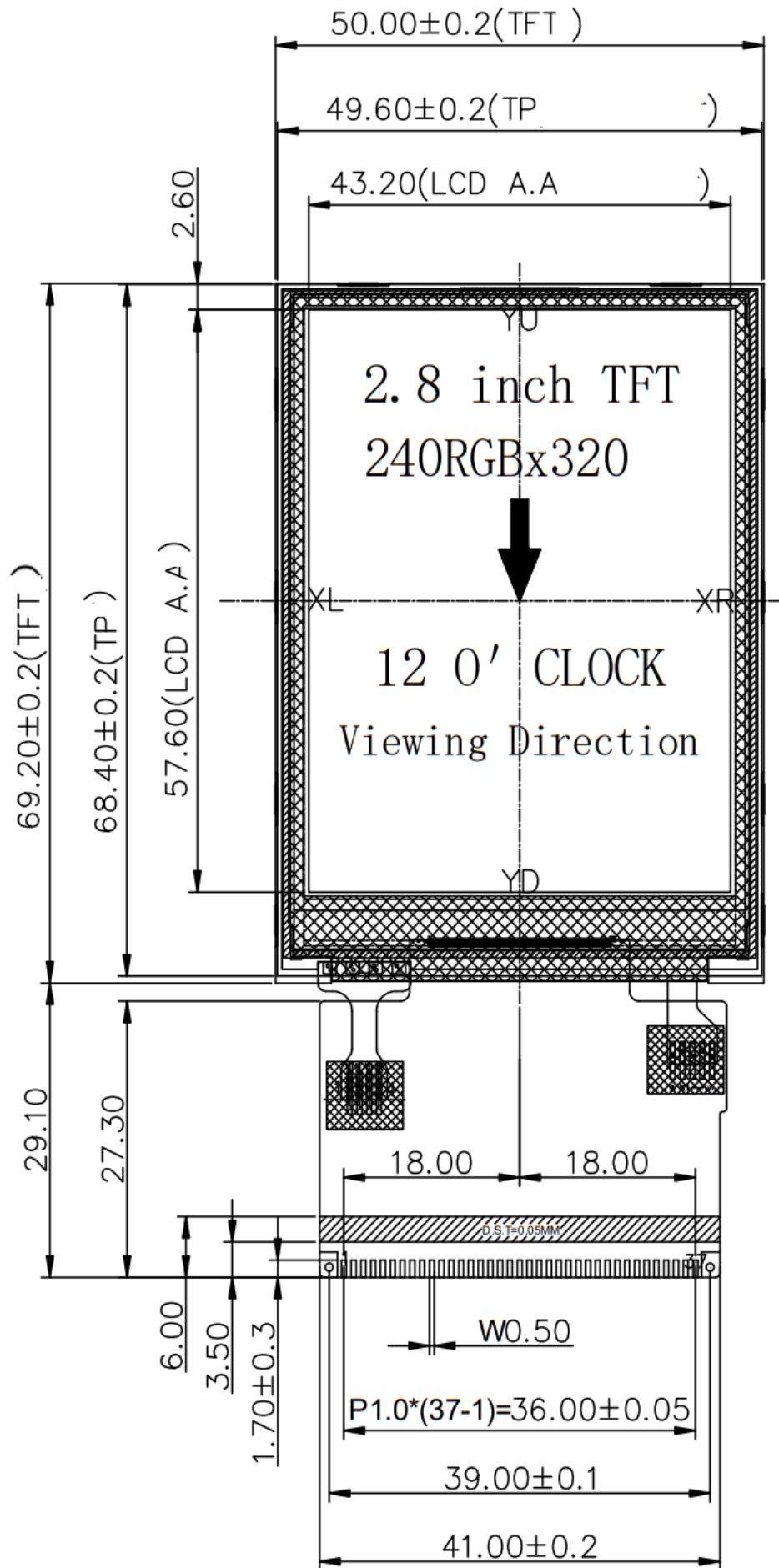
General Description

MODEL NO	STP0280C1-240320 YT280L002
Display Mode	Transmissive
Display Format	Graphic 240RGB*320 Dot-matrix 240xRGBx320
Input Data	MCU-8bit/16bit interface
Viewing Direction	12 o'clock
Drive	ILI9341V

Mechanical Specification

Item	Specifications	Unit
Dimensional outline	50.00(W)*69.20(H)*2.60(T) NTP 50.00(W)*69.20(H)*3.80(T) RTP (FPC not include)	mm
Resolution	240RGB*320	dots
LCD Active area	36.72(W)*48.96 (H)	mm
Pixel size	0.153(W)*0.153(H)	mm

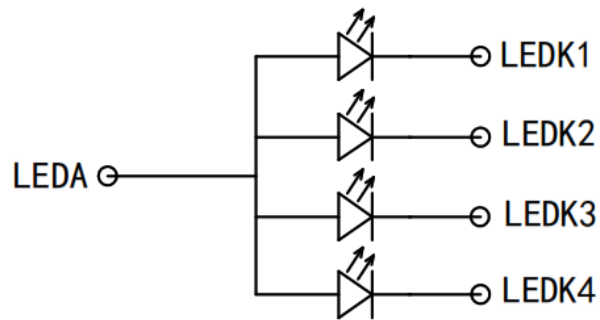
Mechanical Dimension



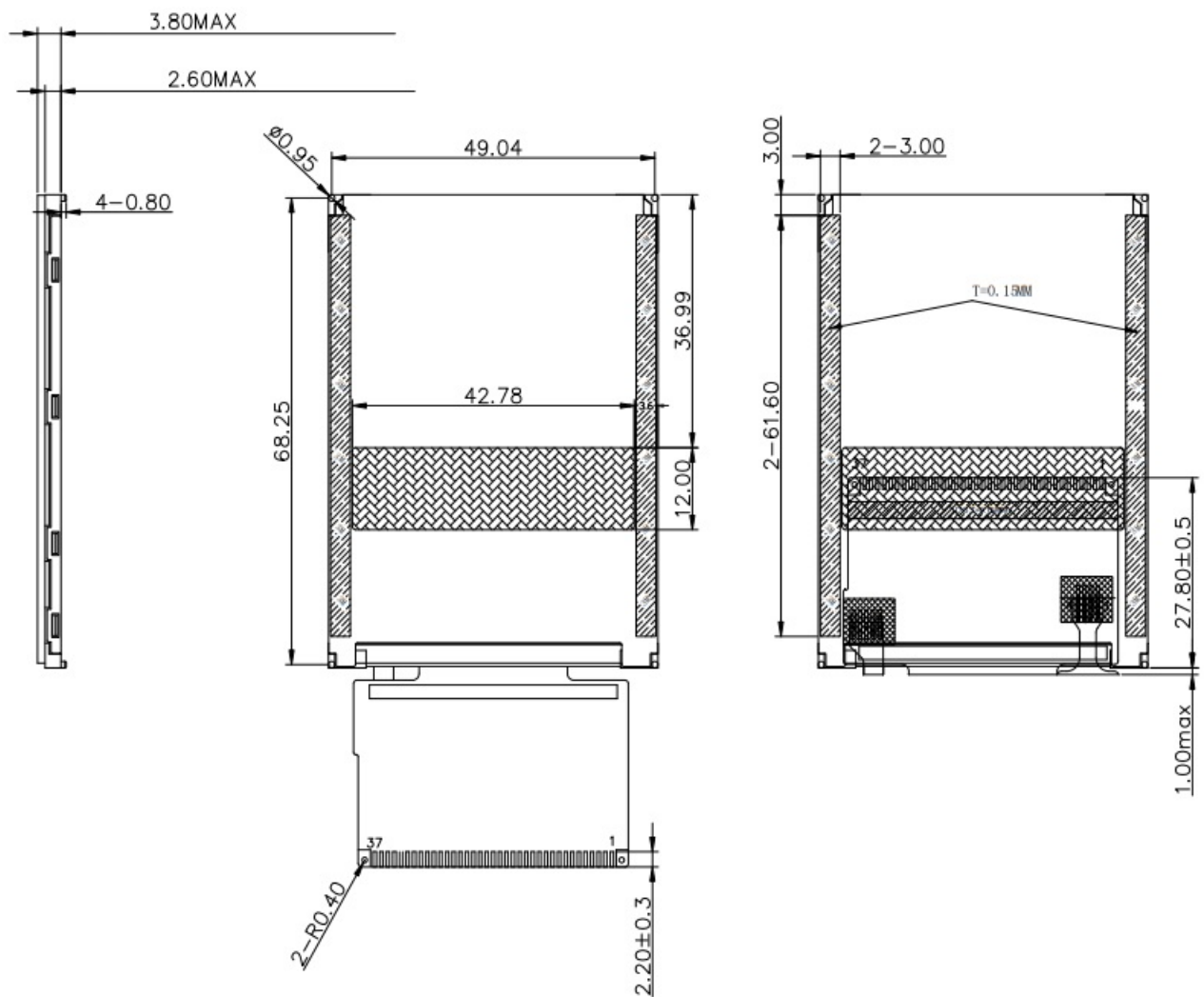
NOTES:

1. DISPLAY TYPE:TFT
2. OPERATING TEMP: -20°C~70°C

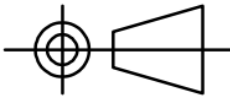
3. STORAGE TEMP: -30°C~80°C
4. LCD DRIVER: COG(IC:ST7789V);
5. BACKLIGHT: 4 CHIP-WHITE LED(Parellel)
6. GENERAL TOLERANCE: ± 0.20
7. ROHS



CIRCUIT DIAGRAM
(I=60MA V=3.0-3.4V)



Pin	Discription	Pin	Discription
1	DBO	20	LEDK4
2	DB1	21	TE
3	DB2	22	DB4
4	DB3	23	DB8
5	GND	24	DB9
6	VDDI	25	DB10
7	CSX	26	DB11 DB12
8	DCX	77	
9	WRX	28	DB13
10	RDX	29	DB14
11	NC	30	DB15
12	XL/X-	31	RESX
13	YU/y- XR/X+	32	VDD
14		33	VDDI
15	YD /Y+	34	GND
16	LEDA	35	DB5
17	LEDK1	36	DB6
18	LEDK2	37	DB7
19	LEDK3		

 SHENZHEN SUREN00 TECHNOLOGY CO.,LTD.				Third Perspective: 	
Product number:		STP0280C1-240320 (YT280L002)			
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)	V	1.8	3.3	V	—
Supply voltage (VDD)	V	2.8	3.3	V	—
Operating temperature 1	TOPR	-20	70	°C	—
Storage temperature	TSTR	-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	I LED	—	60	—	mA
LCD Surface Luminance	Ls	250	300	—	Cd/m ²
LCM Surface brightness uniform	L D	80	—	—	%
LCD power dissipation	P LCD	—	0.22	—	W

✳️**NOTE:** P LCD=VDD * (ILED+ILCD)

Module Function Description

PIN No.	Symbol	Description	Notes
1-4	DB0-DB3	MCU parallel interface data bus.	—
5	GND	Ground	—
6	VDDI	Power Supply for I/O System.	—
7	CSX	-Chip selection pin Low enable. High disable.	—
8	DCX	-Display data/command selection pin in parallel interface. DCX='1': display data or parameter. DCX='0': command data	—
9	WRX	-Write enable in MCU parallel interface.	—
10	RDX	Read enable in 8080 MCU parallel interface. -If not used, please fix this pin at VDDI or GND.	—
11	NC	No connection	—
12	XL(X-)	Touch panel Logical foot	—
13	YU(Y-)	Touch panel Logical foot	—
14	XR(X+)	Touch panel Logical foot	—
15	YD(Y+)	Touch panel Logical foot	—
16	LEDA	Anode of Backlight (2.9V-3.3V Typical:3.1V)	—
17	LEDK1	Cathode of Backlight	—
18	LEDK2	Cathode of Backlight	—
19	LEDK3	Cathode of Backlight	—
20	LEDK4	Cathode of Backlight	—
21	TE	Tearing effect signal is used to synchronize MCU to frame	—
22	DB4	MCU parallel interface data bus.	—
23-30	DB8-DB15	MCU parallel interface data bus.	—
31	RESX	-This signal will reset the device and it must be applied to properly initialize the chip. -Signal is active low.	—
32	VDD	Power Supply for Analog, Digital System and Booster Circuit.	—
33	VDDI	Power Supply for I/O System.	—
34	GND	Ground	—
35-37	DB5-DB7	MCU parallel interface data bus.	—

Figure 6-1: Display STP0260C1 MCU-8-bit parallel port reference application circuit

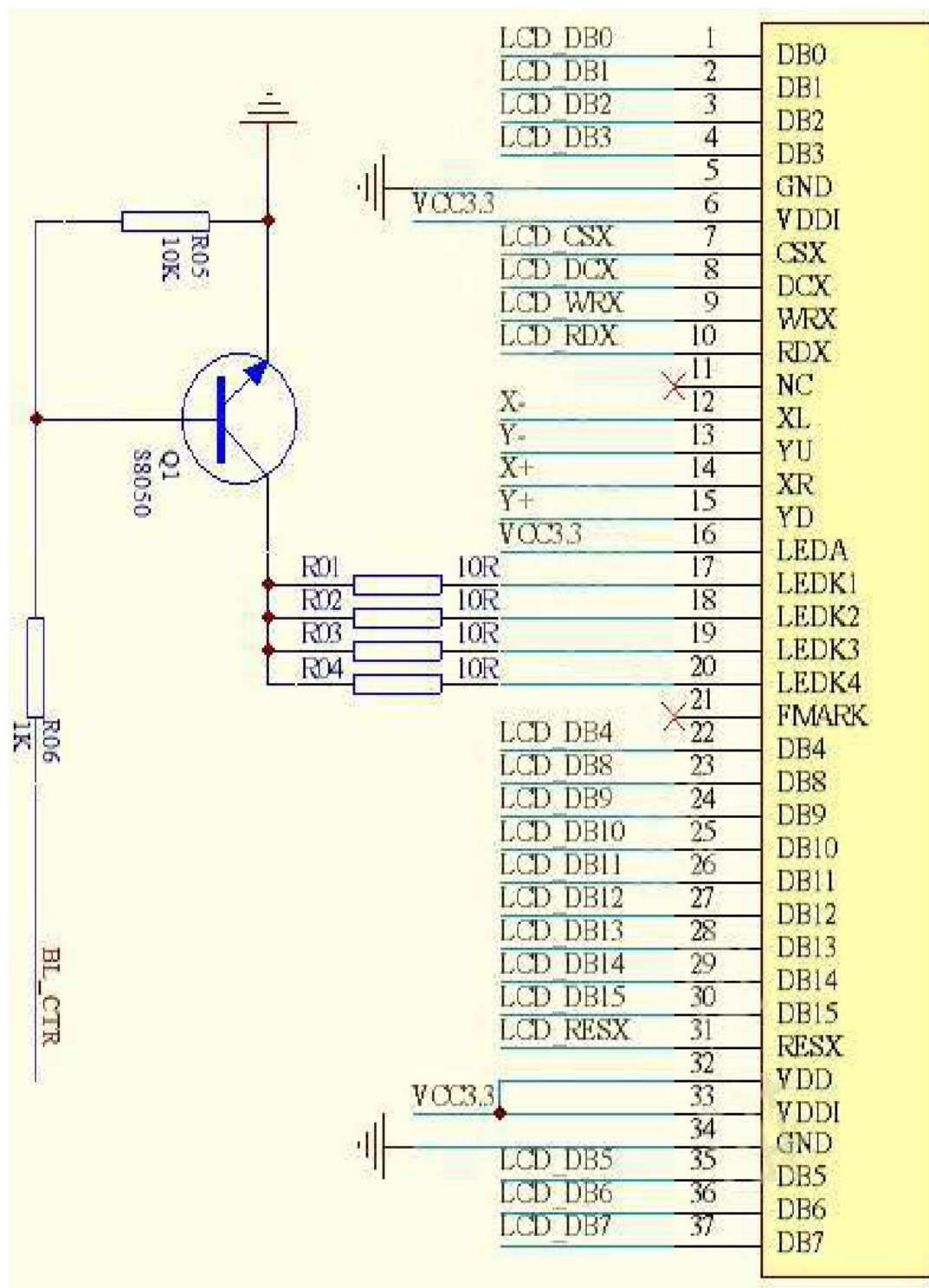


Figure 6-2: Reference application STP0280C1 MCU-8 circuit of display screen bit parallel port

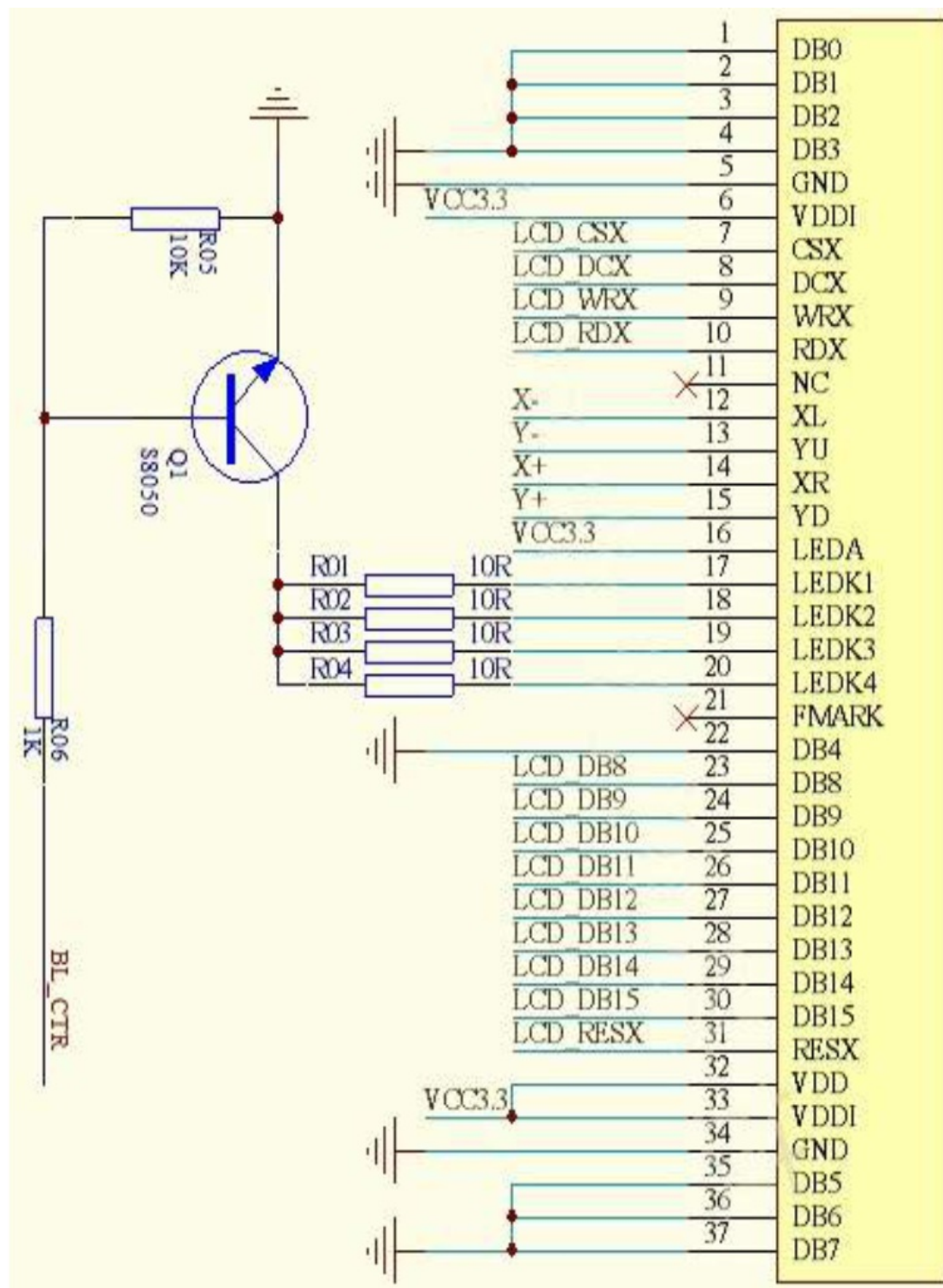
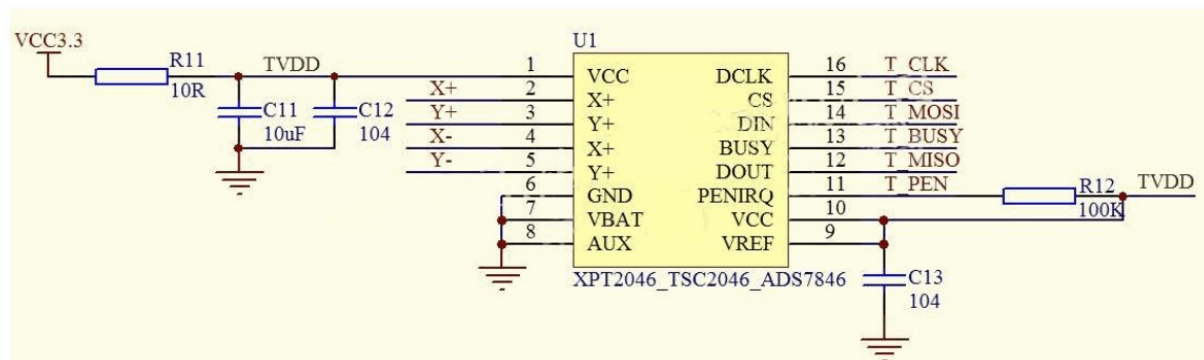


Figure 6-3: Touch screen reference application circuit

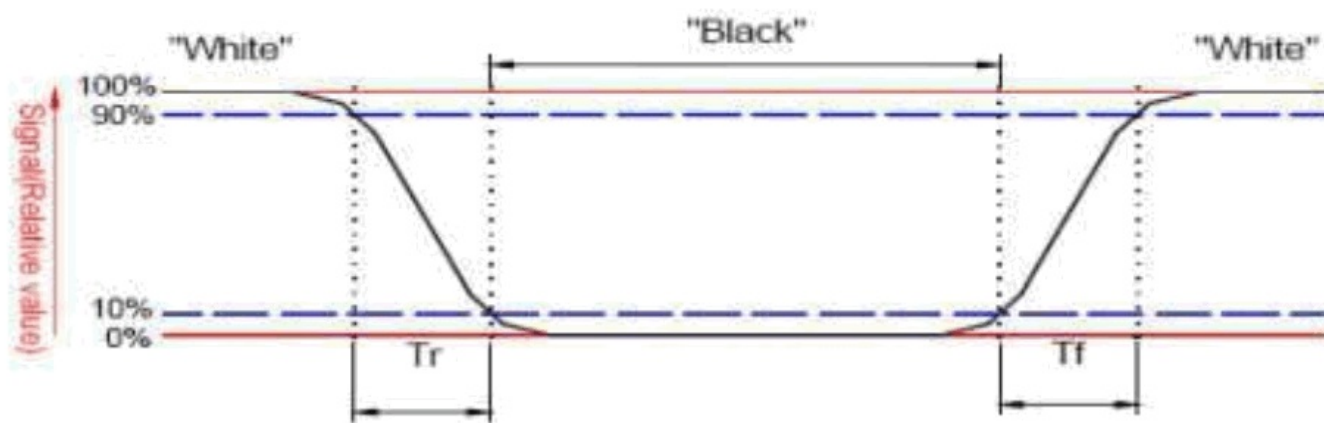


✳NOTE:

1. If it is a version without touch screen, refer to Figure 6-1 or Figure 6-2 to connect the circuit, and connect the four screens XL, YU, XR, and YD Just touch the foot and hang it in the air.
2. For the version with touch, refer to Figure 6-3 Touch Application Connection Circuit.

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	–	–



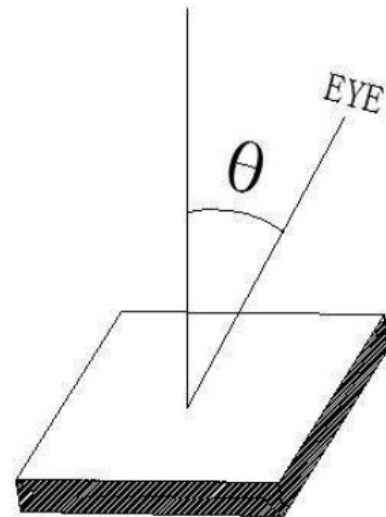
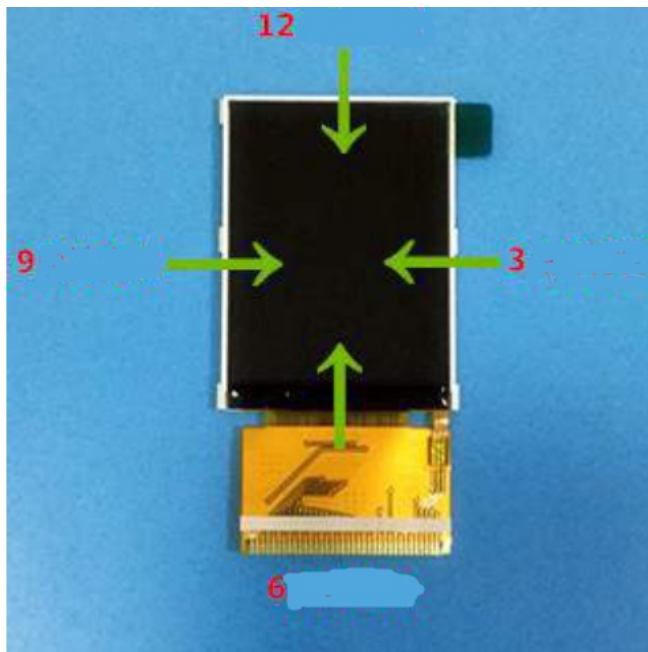
Response time graph

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

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	–	

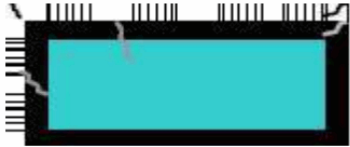


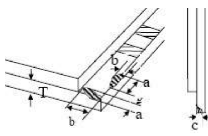
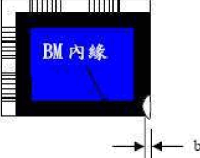
NOTE: The angle of view of 3 o'clock, 6 o'clock, 9 o'clock, and 12 o'clock refers to the angle (θ) between the lines perpendicular to the surface of the screen and the line of sight of the eye.

Reliability Trial

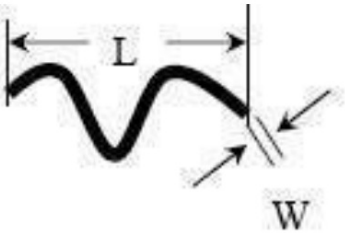
NO.	ITEM	CONDITION	CRITERION
1	High Temperature Non-Operating Test	80°C *120Hrs	No Defect Of Operational Function In Room Temperature Are Allowable
2	Low Temperature Non-Operating Test	-30 C*120Hrs	
3	High Temperature/Humidity Non Operating Test	60°C*90%RH*120Hrs	
4	High Temperature Operating Test	70°C*72Hrs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

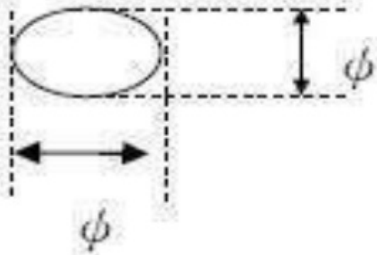
Inspection standards

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

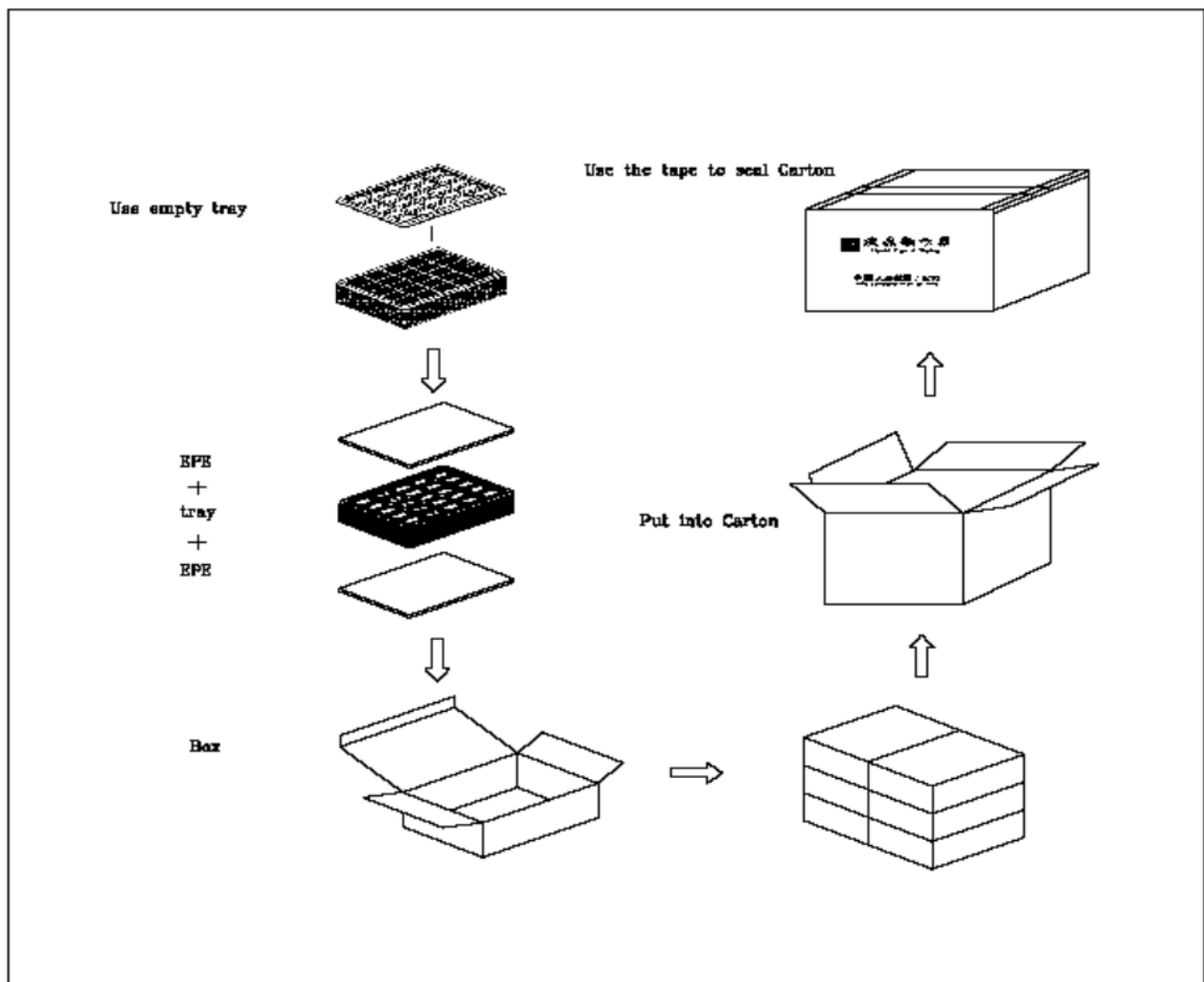
4	Pin-side ,conductive area damaged (minor defect)	(a c: disregards) $b \leq 1/3$ of effective length for bonding electrode Accept	a: length, b: Width, c: Thickness 
5	Pin-side, non-conductive area damaged (minor defect)	1) Damage area don't touch the ITO (Including contraposition mark, except scribing mark) Accept 2) $C < T$ $b \leq 1/3$ 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 

10.2 LCD appearance defect(View area)

NO	Defect item	Criteria		Remark
1	Fiber, glass cratch, pol arizer scratch/folded (minor defect)	Specification	Allowable	note 1:L: Length, W: Width note 2: 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, conc ave and convex (minor defect)	0.2mm	disregard	note 1: (l)= (L+W) /2, L : Length, W :Width note 2:disregard if out of AA
		0.2mm< (l) 0. 3mm	2	
		0.3mm< (1) 0. 5mm	1	
		0.5mm< (1)	0	
3	Black dots, dirty dots,	(1) 0.15 mm	disregard	note 2:disregard if out of AA

	impurities, eye winker (minor defect)	0.15mm< (1) -.. O. 25m m	2	
		0.25mm< (1) -.. 0. 3m	1	
		0.3mm< (1)	0	
4	Polarizer prick (minor defect)	(1) 0.1mm	disregard	note 1: (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/talk/THom9tzJN5OMzvX1vTL1V.LvnEc->

	
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Documents / Resources

	Surenoo STP0280C1-240320 Series TFT LCD Panel [pdf] User Manual STP0280C1-240320 Series TFT LCD Panel, STP0280C1-240320 Series, TFT LCD Panel, LCD Panel, Panel
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References

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