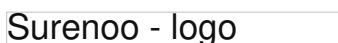


Surenno TFT LCD Panel User Manual

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SHENZHEN SURENOO TECHNOLOGY CO.,LTD.

Model No.: SHP0280C-240320

SHP0280C-240320-TN/IPS-NTP/CTP Series

TFT LCD PANEL USER MANUAL

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Reference Controller Datasheet

TFT LCD Panel Selection Guide

ST7789

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General Description

MODEL NO	SHP0280C-240320-NTP/SHP0280C-240320-CTP
Display Mode	Transmissive
Display Format	Graphic 240RGB*320 Dot-matrix 240xRGBx320
Input Data	4 Line-SPI interface 4 -SPI
Viewing Direction	TN: 12o'clock 12 IPS: All
Drive	ST7789V CTP: GT911

Mechanical Specification

Item	Specifications	Unit
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Dimensional outline	47.80(W)*66.95(H)*2.13(T) (NTP) 47.80(W)*66.95(H)*3.56(T) (CTP) %F.C n.t includ.&	mm
Resolution	240RGB*320	dots
LCD Active area	43.20%W&*57.60 %H&	mm
Pixel size	0.18W&*0.18%H&	mm

Mechanical Dimension

3.1 TFT LCD Panel

Surenno TFT LCD Panel - fig1

3.2 Capacitive Touch Panel

Surenno TFT LCD Panel - fig2

3.3 TFT LCD Panell + Touch Panel

Surenno TFT LCD Panel - fig3

Electrical Maximum Ratings

Item	Sym bol	Min	Max	Unit	Note
Supply voltage VDDI	V	1.8	3.3	V	—
Supply voltage VDD	V	2.8	3.3	V	—

Operating temperature	TOP R	-20	70	°C	—
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Brightness characteristic&Power dissipation

Item	Symbol	Min	Typical	Max	Unit
TET module Forward voltage	VLED	3.0	3.1	3.3	V
LED module current	ILED	—	90	—	mA
LCD Surface Luminance	LS	270	290	—	Cd/m2
LCM Surface brightness uniform	LT	80	—	—	%
LCD power dissipation	PLCD	—	0.33	—	W

6.1 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.	—
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 memory	—
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.	—

6.2 CTP Interface Description

GT911 Touch Controller

NO.	Symbol	I/O	DESCRIPTION
1	GND	Power supply	Power ground
2	RESET	I	CTP external reset signal, Low is active
3	INT 3.3V	O	CTP External interrupt to the host
4	SDA	I/O	CTP I2C data input and output
5	SCL	I	CTP I2C clock input

6	VCC 3.3 V	Power supply	CTP Power input
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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	—	—

Surenno TFT LCD Panel - fig4



Viewing Angle

TN Display

Item	Symbol	Condition	Remark			Unit
			Min.	Typ.	Max.	
Viewing angle	Top	$CR\geq10$	40	50	—	Deg.
	Bottom	$CR\geq10$	55	65	—	
	Left	$CR\geq10$	55	65	—	
	Right	$CR\geq10$	55	65	—	

IPS Display

Item	Symbol	Condition	Remark			Unit
			Min.	Typ.	Max.	
Viewing angle	Top	CR≥10	—	80	—	Deg.
	Bottom	CR≥10	—	80	—	
	Left	CR≥10	—	80	—	
	Right	CR≥10	—	80	—	

Surenno TFT LCD Panel - fig5

Reliability Trial

NO.	ITEM	CONDITION	CRITERION
	High Temperature Non-Operating Test	90°C	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 (30Min) *10CYCLES	

Inspection standards

10.1Glass defect

N O	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 contrast position mark, except scribing mark) Accept 2) $C < T$ $b \leq BM/3$ 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 damage

10.2 LCD appearance defect (View area)

NO	Defect item	Criteria		Remark
1	Fiber glass scratch/polarizer scratch/folded (minor defect)	Specification	Allowable	note1: L: Length, W: Width note2: disregard if out of AA
		$W \leq 0.03\text{mm}$	disregard	
		$0.03\text{mm} < W \leq 0.05\text{mm};$ $L \leq 3.0\text{mm}$	2	
		$0.05\text{mm} < W \leq 0.1\text{mm};$ $L \leq 3.0\text{mm}$	1	

		$W > 0.1\text{mm}; L > 3.0\text{mm}$	0	
2	Polarizer bubble concave and convex (minor defect)	$\phi \leq 0.2\text{mm}$	disregard	note1: $\phi = (L+W)/2$, L:Length, W:Width note2:disregard if out of AA
		$0.2\text{mm} < \phi \leq 0.3\text{mm}$	2	
		$0.3\text{mm} < \phi \leq 0.5\text{mm}$	1	
		$0.5\text{mm} < \phi$	0	
3	Black dots dirty dots	$\phi \leq 0.15\text{mm}$	disregard	note2:disregard if out of AA

	impurities eye winker (minor defect)	$0.15\text{mm} < \phi \leq 0.25\text{mm}$	2	
		$0.25\text{mm} < \phi \leq 0.3\text{mm}$	1	
		$0.3\text{mm} < \phi$	0	
4	Polarizer prick (minor defect)	$\phi \leq 0.1\text{mm}$	disregard	note1: $\phi = (L+W)/2$, L=Length, W=Width note2:the distance between two dots >5mm
		$0.1\text{mm} < \phi \leq 0.25\text{mm}$	3	
		$\phi > 0.25\text{mm}$	0	

Package Method

Surenno TFT LCD Panel - fig12

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Documents / Resources

	Surenoo TFT LCD Panel [pdf] User Manual SHP0280A3 C-240320, SHP0280C-240320-TN-IPS-NTP-CTP Series, SHP0280C, SHP0280C TFT LCD Panel, TFT LCD Panel, LCD Panel, Panel
	Surenoo TFT LCD PANEL [pdf] User Manual STP0350A3 C-320480, STP0350C1-320480-TN, STP0350C2-320480-IPS, STP0350C-320480 Series, STP0350C-320480 Series TFT LCD Panel, TFT LCD Panel, LCD Panel, Panel

References

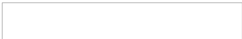
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