



Surennoo SHP0280A-240320 TFT LCD Display Screen Panel User Manual

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Model No.: SHP0280A-240320
SHP0280A-240320-TN/IPS-NTP/CTP Series
TFT LCD PANEL USER MANUAL



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SHP0280A-240320 TFT LCD Display Screen Panel



<http://www.surenoo.com;EMAIL:info@surenoo.com>



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



https://u.wechat.com/EAK0B_I2YfPLwx3tRqiKkf4



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



https://u.wechat.com/EAK0B_l2YfPLwx3tRqiKkf4

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Reference Controller Datasheet

TFT LCD Panel Selection Guide

ST7789

General Description

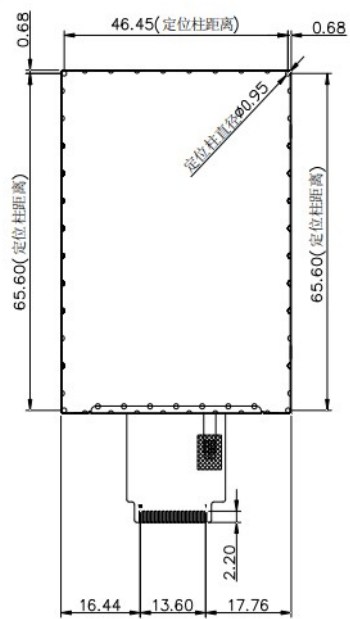
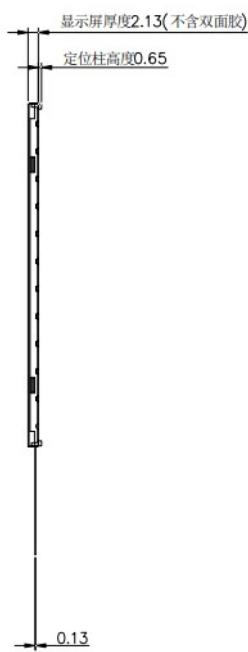
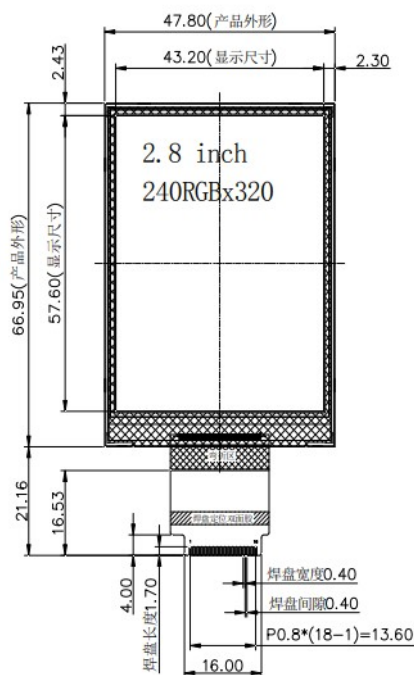
MODEL NO	SHP0280A-240320-NTP/SHP0280A-240320-CTP
Display Mode	Transmissive
Display Format	Graphic 24ORGB*320 Dot-matrix 240XRGBx320
Input Data	4 Line-SPI interface
Viewing Direction	TN: 12o'clock 12 IPS: All
Drive	ST7789V CTP: GT911

Mechanical Specification

Item	Specifications	Unit
Dimensional outline	47.80(W)*66.95(H)*2.13(T) (NTP) 47.80(W)*66.95(H)*3.56(T) (CTP) (FPC not include)	mm
Resolution	24ORGB*320	dot,,
LCD Active area	43.20(W)*57.60 (H)	mm
Pixel size	0.18W)*0.18(H)	mm

Mechanical Dimension

TFT LCD Panel



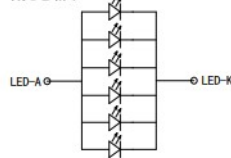
液晶显示屏接口:

1	GND
2	RESET
3	SCL
4	D/C
5	CSX
6	SDA
7	SDO
8	GND
9	VDD
10	LED-A
11	LED-K
12	LED-K
13	LED-K
14	LED-K
15	NC
16	NC
17	NC
18	NC

NOTES:

1. DISPLAY TYPE:TFT (TN/IPS)
2. OPERATING TEMP: -20° C~70° C
3. STORAGE TEMP: -30° C~80° C
4. LCD DRIVER: COG(IC:ST7789V);
5. BACKLIGHT: 6 CHIP-WHITE LED(Parellel)
6. GENERAL TOLERANCE: ±0.20
7. ROHS

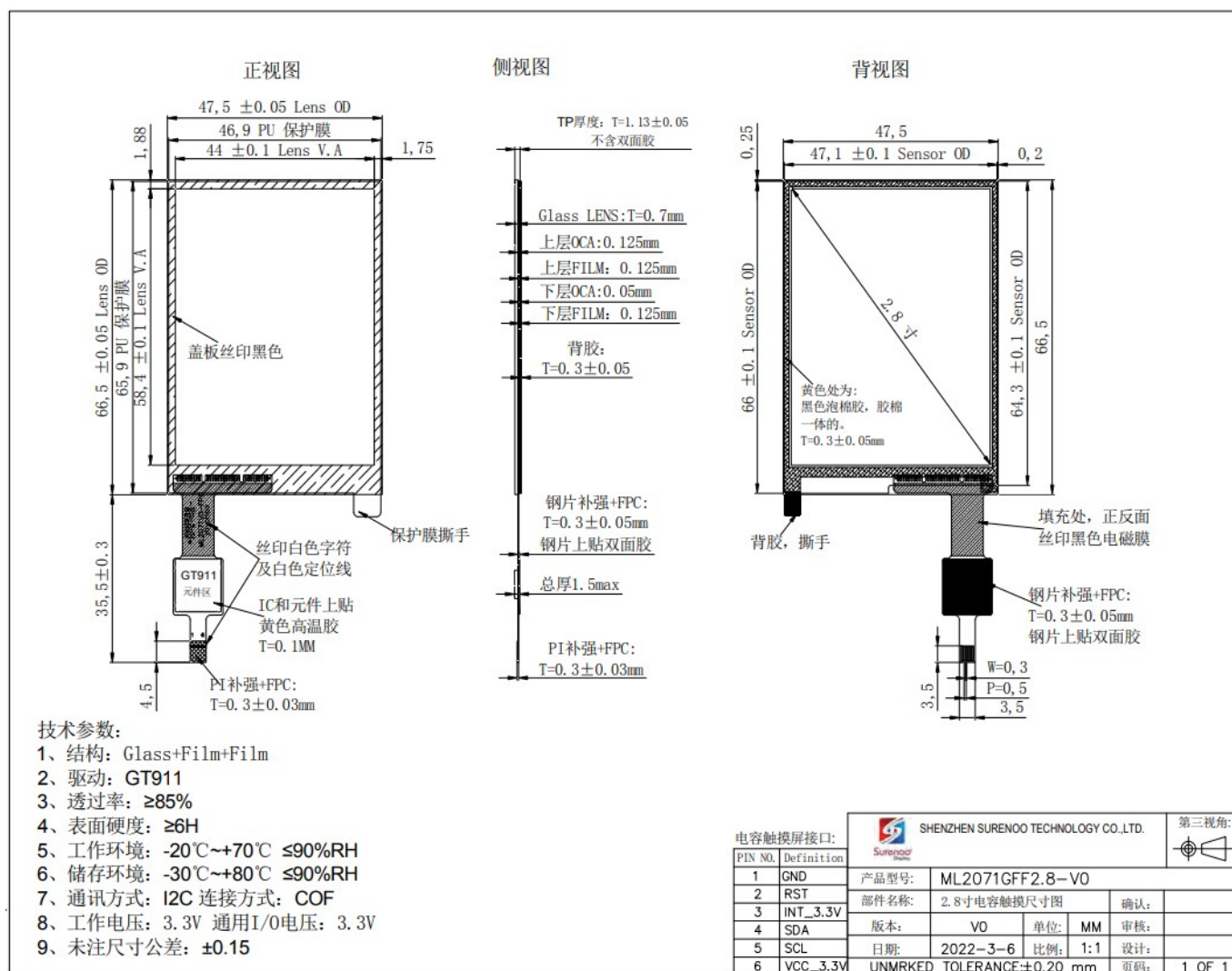
背光电路图:



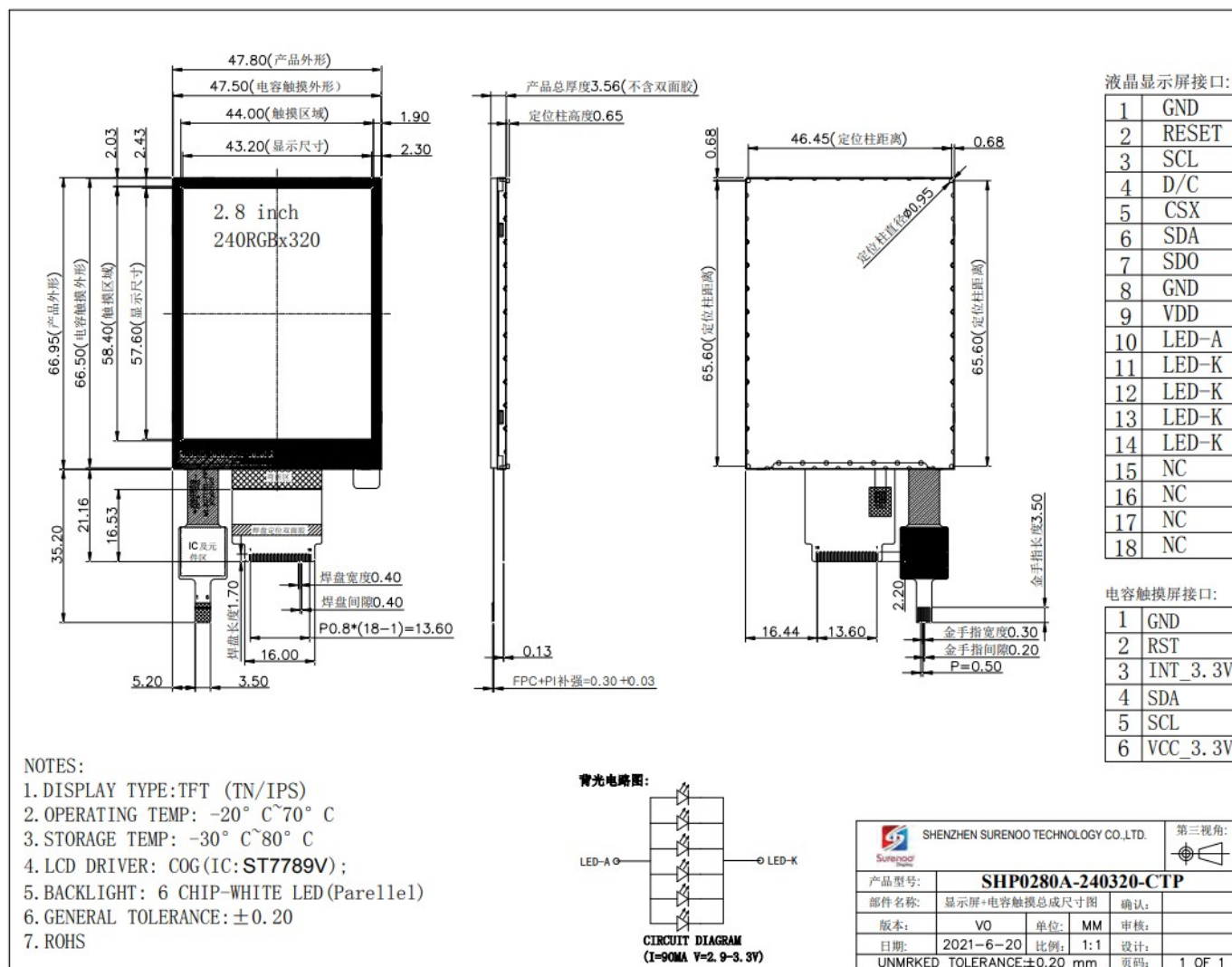
CIRCUIT DIAGRAM
(I=90MA V=2.9-3.3V)

 SHENZHEN SURENOO TECHNOLOGY CO.,LTD.		第三视图: 
产品型号:	SHP0280A-240320-NTP	
部件名称	显示屏尺寸图	
版本:	V0	单位: MM 审核:
日期:	2021-6-20	比例: 1:1 设计:
UNMRKED TOLERANCE:±0.20 mm		页码: 1 OF 1

Capacitive Touch Panel



TFT LCD Panel + Touch Panel



Electrical Maximum Ratings

Item	Symbol	Min	Max	Unit	Note
Supply voltage (VDDI)	V	2.	3.		—
Supply voltage (VDD)	V	3.	3.		—
Operating temperature I	Top	-20	70		—

5. Brightness characteristic & Power dissipation

Item	Symbol	Min	Typical	Max	Unit
LED module Forward voltage	V _{fun}	3.0	3.	3.	
LED module current	I _{une}	—	90	—	mA
LCD Surface Luminance	L _s	270	290	—	Cd/m ²
LCM Surface brightness uniform	L _{i>}	80	—	—	%
LCD power dissipation	P _{i.cn}	—	0.33	—	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	1)/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	LIMA	Anode of Backlight (2.9V-3.3V Typical:3.1V)	
11	IEDIC1	Cathode of Backlight	—
12	LEDK2	Cathode of Backlight	—
	LEDK3	Cathode of Backlight	—
14	LEDK4	Cathode of Backlight	—
15	XL	Touch panel Logical foot	—
16	It	Touch panel Logical foot	—
17	30I	Touch panel Logical foot	—
18	I)	Touch panel Logical foot	—

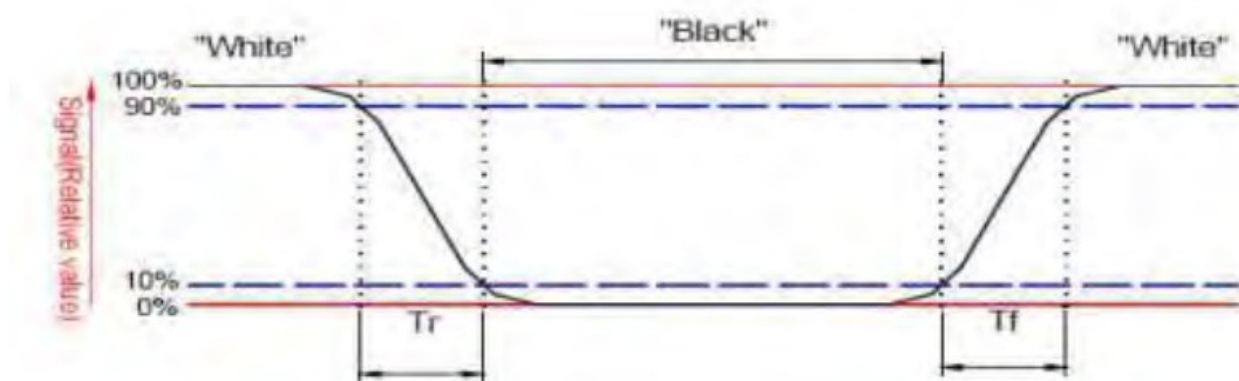
CTP Interface Description

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 3.3 V	0	CTP External interrupt to the host
4	SDA	I/O	CTP 12C data input and output
5	SCL	I	CTP 12C clock input
6	VCC 3.3V	Power supply	CTP Power input

Response time & Contrast ratio

Item	Symbol	Condition	Remark			Unit
			Min.	Typ.	Max.	
Response time	T _{rot}	0 → 00	—	25	40	ms
Contrast ratio	CR	0 → 0°	350	500	—	—



Contrast ratio (CR)= Brightness on the “white” state / Brightness on the “black” state

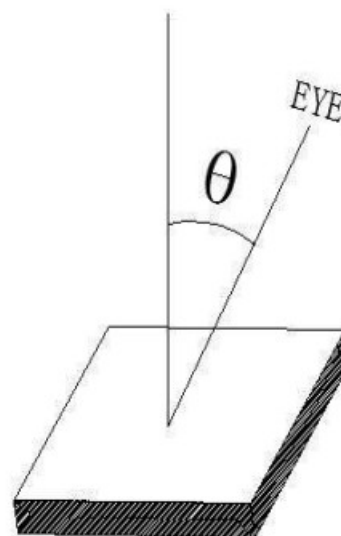
Viewing Angle

TN Display

Item	Symbol	Condition	Remark			Unit
			Min.	Typ.	Max.	
Viewing angle	Top	CR? : 10	40	50	—	Doff.
	Bottom	CR.? : 10	55	65	—	
	Left	CRS 10	55	65	—	
	Right	CRS 10	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	Cit_./-10	—	80	—	

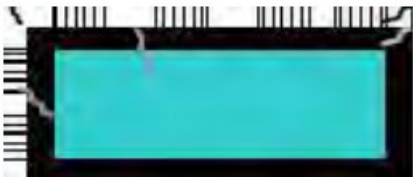


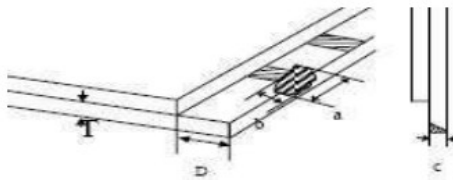
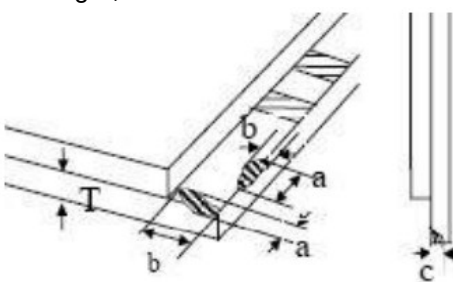
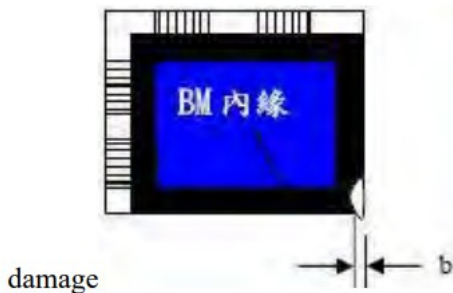
Reliability Tria

NO.	ITEM	CONDITION	CRITERION
	High Temperature Non-Operating Test	80°C	No Defect Of Operational Function In Room Temperature Are Allowable
2	Low Temperature Non-Operating Test	-30°C*120Hrs	
	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 t (30Min) Q 70 °C (30 Min) *10CYCLES	

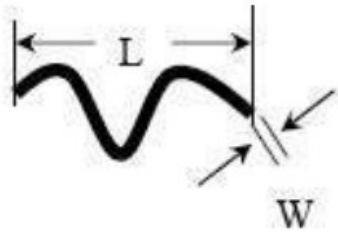
Inspection standards

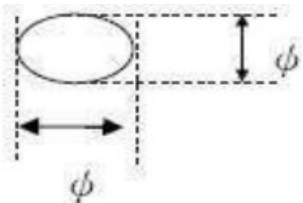
Glass defect

NO	Defect item	Criteria	Remark
I	Dimension Unconformity (Major defect)	By Engineering Drawing	
(-1	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 on assembly. 1) $1) \sim 1/3$ Pin width (non bonding area) [Accept] 2) bonding area ~ 0.5 mm [Accept]	A: Length, b: Width

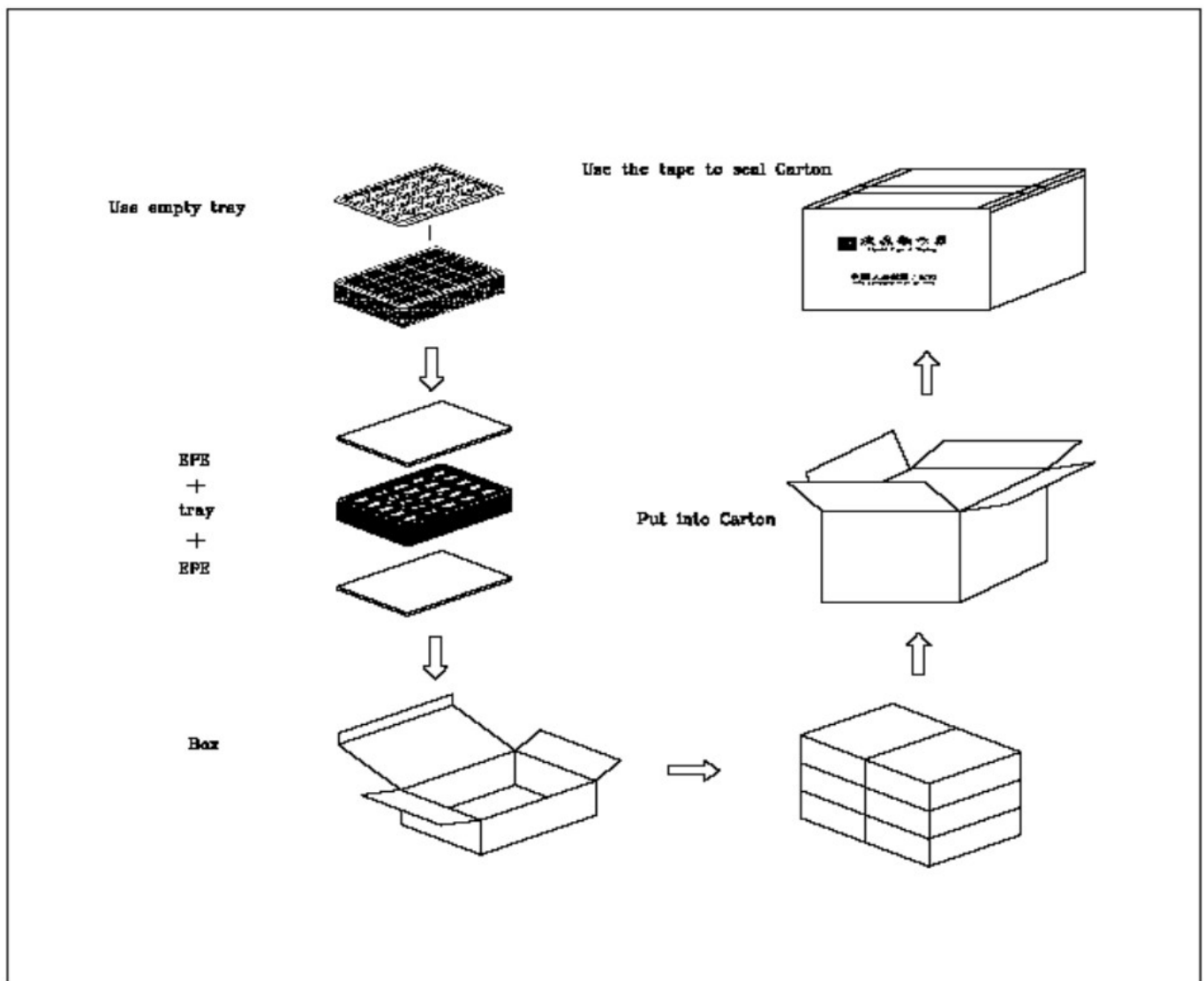
4	Pin-side ,conductive area damaged (minor defect)	(a c: disregards) $b < 1/3$ of effective length for bonding electrode [Accept]	a: length, b: Width, c: Thickness 
5	Pin-side, on-conductive area damaged (minor defect)	1) Damage area don't touch the ITO (Including contraposition mark, except scribing mark) [Accept] 2) $CC \leq 1/3$ 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 $1/3$ Bm [Reject] $c = T$ b not touch the seal glue [Reject]	c: Thickness b: width of damage 

LCD appearance defect(View area)

NO	Defect item	Criteria		Remark
	Fiber, glass crutch, polarizer scratch/folded (minor defect)	Specification	Allowable	note1: L: Length, W: Width note2: disregard if out of AA 
		Noise 0.03mm	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)	$d \leq 0.2\text{mm}$	disregard	note 1: $d = (L+W)/2$, L: Length, W: Width note2: disregard if out of AA
		$0.2\text{mm} < d \leq 0.3\text{mm}$	2	
		$0.3\text{mm} < d \leq 0.5\text{mm}$	1	
		$d > 0.5\text{mm}$	0	
3	Black dots, dirty dots,	$d \leq 0.15\text{mm}$	disregard	note2: disregard if out of AA

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

Package Method



Documents / Resources



[Surenoo SHP0280A-240320 TFT LCD Display Screen Panel](#) [pdf] User Manual
SHP0280A-240320, SHP0280A-240320 TFT LCD Display Screen Panel, TFT LCD Display Screen Panel, LCD Display Screen Panel, Display Screen Panel, Screen Panel

References

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

Manuals+.