



**SPECIFICATION
FOR
LCM+CTP Module
KD067WSFLA001-C001A**

MODULE:	KD067WSFLA001-C001A
CUSTOMER:	

STARTEK	INITIAL	DATE
PREPARED BY		
CHECKED BY		
APPROVED BY		

CUSTOMER	INITIAL	DATE
APPROVED BY		

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In Full Range

**Revision History**

Date	Rev. No.	Page	Summary
2018.01.26	V1.0	ALL	FIRST ISSUE

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*** Description**

This is a color active matrix TFT (Thin Film Transistor) LCD (liquid crystal display) that uses amorphous silicon TFT as a switching device. This model is composed of a Transmissive type TFT-LCD Panel, driver circuit, back-light unit. The resolution of a 6.7" TFT-LCD contains 1920X1080 pixels, and can display up to 65K/262K/16.7M colors.

*** Features**

- Low Input Voltage: 3.3V (TYP)
- Display Colors of TFT LCD: 65K/262K/16.7M colors
- Interface: 6/8BIT LVDS+EBD

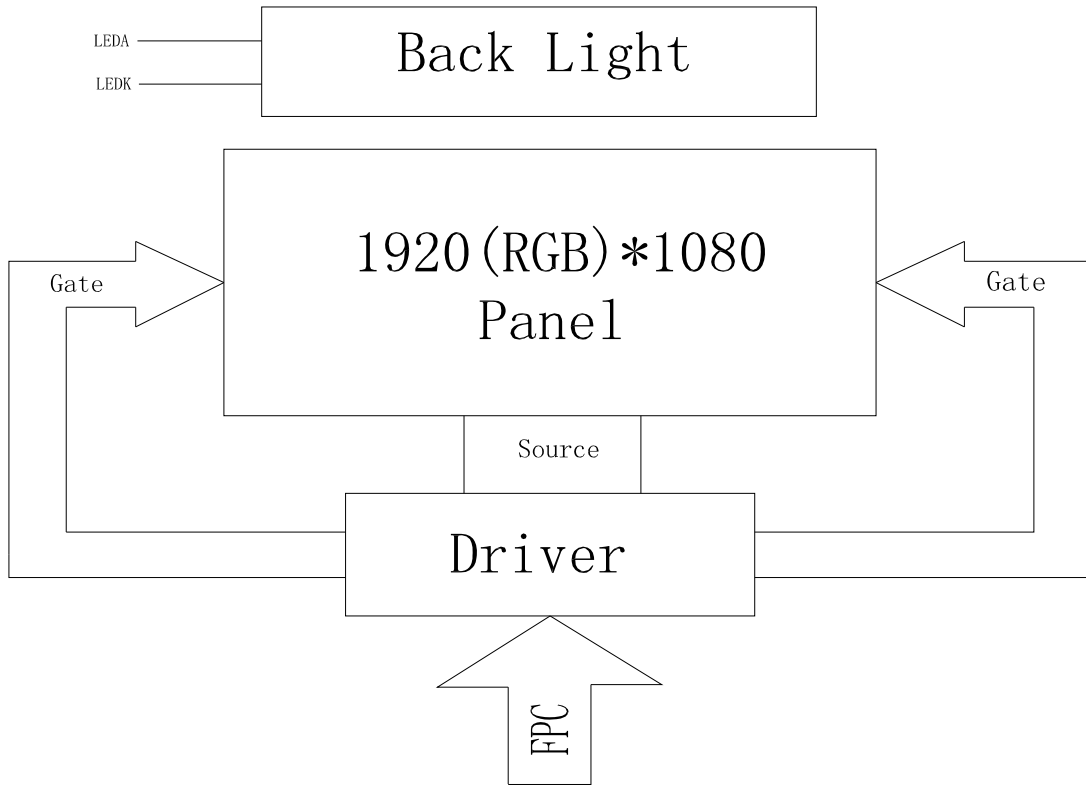
General Information	Items	Specification	Unit	Note
		Main Panel		
	Display area(AA)	148.32(H) *83.43(V) (6.7inch)	mm	-
	CTP area(AA)	149.52(H) *84.63(V)		
	Driver element	TFT active matrix	-	-
	Display colors	65K/262K/16.7M	colors	-
	Number of pixels	1920(RGB)*1080	dots	-
	TFT Pixel arrangement	RGB vertical stripe	-	-
	Pixel pitch	0.07725(H) x 0.07725 (V)	mm	-
	Viewing angle	ALL	o'clock	-
	LCM Driver IC	N/A	-	-
	CTP Driver IC	GT911	-	-
	Display mode	Transmissive/Normally Black	-	-
	Touch and LCM Bonding Technology	Tape Bonding	-	-
	Operating temperature	-20~+70	°C	-
	Storage temperature	-30~+80	°C	-

*** Mechanical Information**

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)		161.12		mm	-
	Vertical(V)		97.68		mm	-
	Depth(D)		7.12		mm	-
Weight			TBD		g	-



1. Block Diagram



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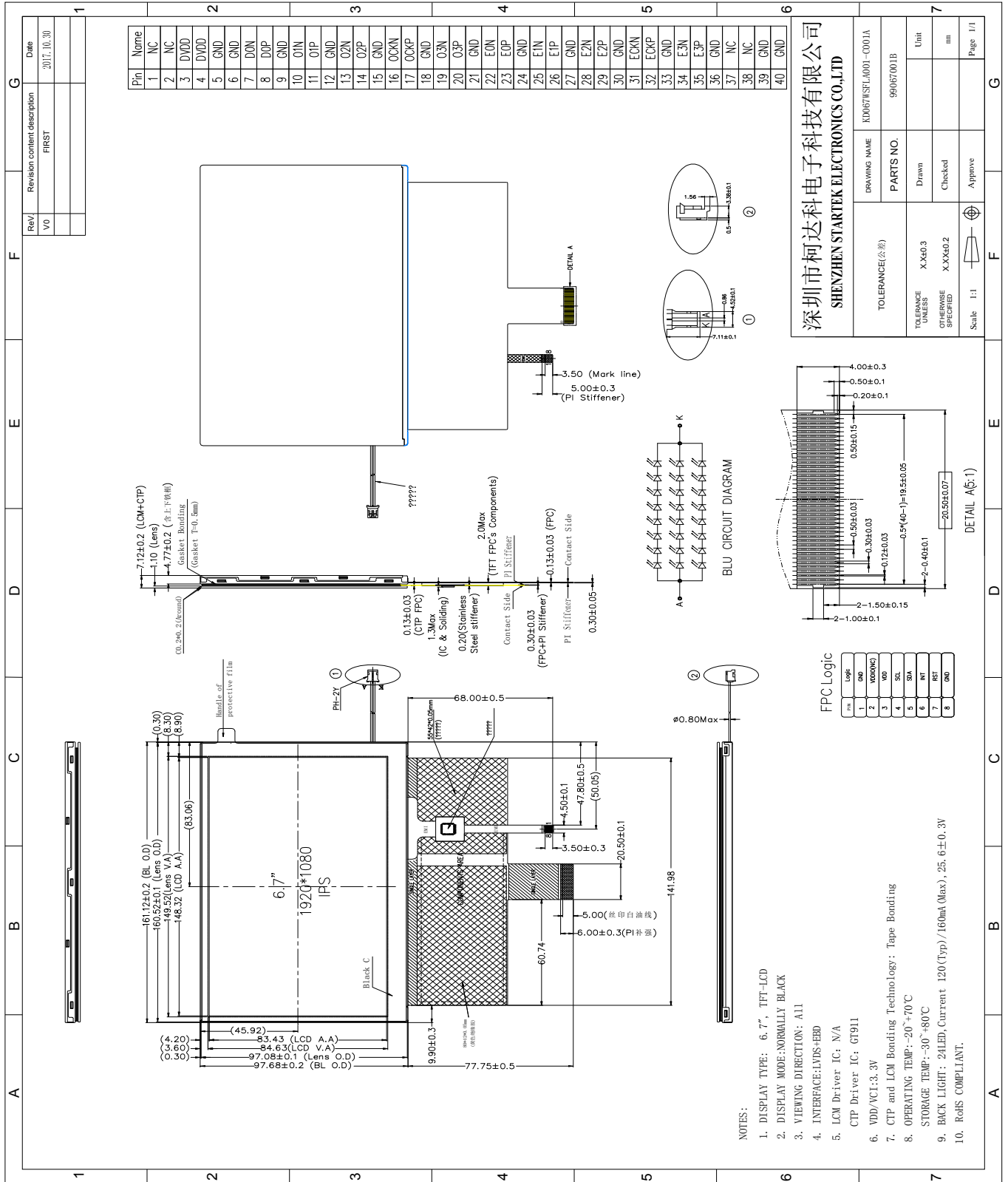
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2. Outline dimension



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3. Input terminal Pin Assignment

3.1 TFT

NO.	SYMBOL	DISCRIPTION	I/O
1	NC	-	-
2	NC	-	-
3	DVDD	Supply voltage (3.3V).	P
4	DVDD	Supply voltage (3.3V).	P
5	GND	Ground.	P
6	GND	Ground.	P
7	D0N	- LVDS differential data input	I
8	D0P	+ LVDS differential data input	I
9	GND	Ground.	P
10	D1N	- LVDS differential data input	I
11	D1P	+ LVDS differential data input	I
12	GND	Ground.	P
13	D2N	- LVDS differential data input	I
14	D2P	+ LVDS differential data input	I
15	GND	Ground.	P
16	OCKN	- LVDS differential clock input	I
17	OCKP	+ LVDS differential clock input	I
18	GND	Ground.	P
19	D3N	LVDS differential data input	I
20	D3P	+ LVDS differential data input	I
21	GND	Ground.	P
22	E0N	- LVDS1 differential data input	I
23	E0P	+ LVDS1 differential data input	I
24	GND	Ground.	P

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25	E1N	- LVDS1 differential data input	I
26	E1P	+ LVDS1 differential data input	I
27	GND	Ground.	P
28	E2N	- LVDS1 differential data input	I
29	E2P	+ LVDS1 differential data input	I
30	GND	Ground.	P
31	ECKN	- LVDS1 differential clock input	I
32	ECKP	+ LVDS1 differential clock input	I
33	GND	Ground.	P
34	E3N	- LVDS1 differential data input	I
35	E3P	+ LVDS1 differential data input	I
36	GND	Ground.	P
37	NC	-	-
38	NC	-	-
39	GND	Ground.	P
40	GND	Ground.	P

3.2 CTP

NO.	SYMBOL	DISCRIPTION	I/O
1	GND	Ground.	P
2	VDDIO	I/O power supply voltage.	P
3	VDD	Supply voltage.	P
4	SCL	I2C clock input.	I
5	SDA	I2C data input and output	I/O
6	INT	External interrupt to the host.	I
7	RST	External Reset, Low is active.	I
8	GND	Ground.	P

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4. LCD Optical Characteristics

4.1 Optical specification

Item	Symbol	Condition	Min.	Typ.	Max.	Unit.	Note
Contrast Ratio	CR	$\Theta=0$	--	TBD	--		2
Response time	Rising	Normal viewing angle	--	--	--	msec	3
	Falling						
Color gamut	S(%)		--	TBD	--	%	
Color Filter Chromaticity	White	W_X	0.2764	0.3164	0.3564		
		W_Y	0.3120	0.3520	0.3920		
	Red	R_X	0.5509	0.5909	0.6309		
		R_Y	0.2885	0.3285	0.3685		
	Green	G_X	0.2920	0.3320	0.3720		
		G_Y	0.4914	0.5314	0.5714		
	Blue	B_X	0.1185	0.1585	0.1985		
		B_Y	0.1172	0.1572	0.1972		
Viewing angle	Hor.	Θ_L	--	80	--		
		Θ_R	--	80	--		
	Ver.	Θ_U	--	80	--		
		Θ_D	--	80	--		
Option View Direction	ALL						



5. Electrical Characteristics

5.1 Absolute Maximum Rating (Ta=25 VSS=0V)

Characteristics	Symbol	Min.	Max.	Unit
Digital Supply Voltage	DVDD	-0.3	4.0	V
Operating temperature	T _{OP}	-20	+70	°C
Storage temperature	T _{ST}	-30	+80	°C

NOTE: If the absolute maximum rating of even is one of the above parameters is exceeded even momentarily, the quality of the product may be degraded. Absolute maximum ratings, therefore, specify the values exceeding which the product may be physically damaged. Be sure to use the product within the range of the absolute maximum ratings.

5.2 DC Electrical Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Note
Digital Supply Voltage	DVDD	3.0	3.3	3.6	V	
Digital Supply current	IDD	--	TBD	--	mA	
Level input voltage	V _{IH}	0.7V _{DD}	-	V _{DD}	V	
	V _{IL}	GND	-	0.3V _{DD}	V	
Level output voltage	V _{OH}	0.8V _{DD}	-	V _{DD}	V	
	V _{OL}	GND	-	0.2V _{DD}	V	

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5.3 LED Backlight Characteristics

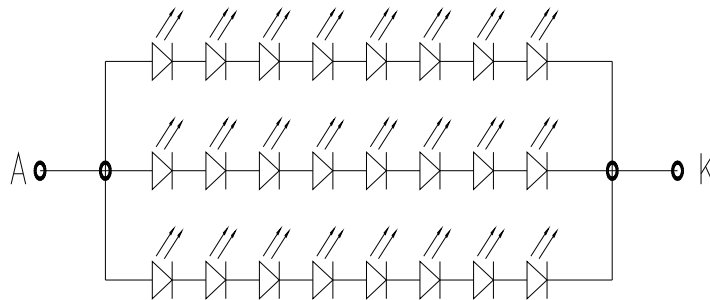
The back-light system is edge-lighting type with 24 chips White LED

Item	Symbol	Min.	Typ.	Max.	Unit	Note
Forward Current	I_F	--	120	160	mA	
Forward Voltage	V_F	--	25.6	--	V	
LCM Luminance	L_V	--	650	700	cd/m ²	Note3
LED life time	Hr	50000	--	--	Hour	Note1,2
Uniformity	AVg	80	--	--	%	Note3

Note (1) LED life time (Hr) can be defined as the time in which it continues to operate under the condition:

$T_a=25\pm 3\text{ }^\circ\text{C}$, typical IL value indicated in the above table until the brightness becomes less than 50%.

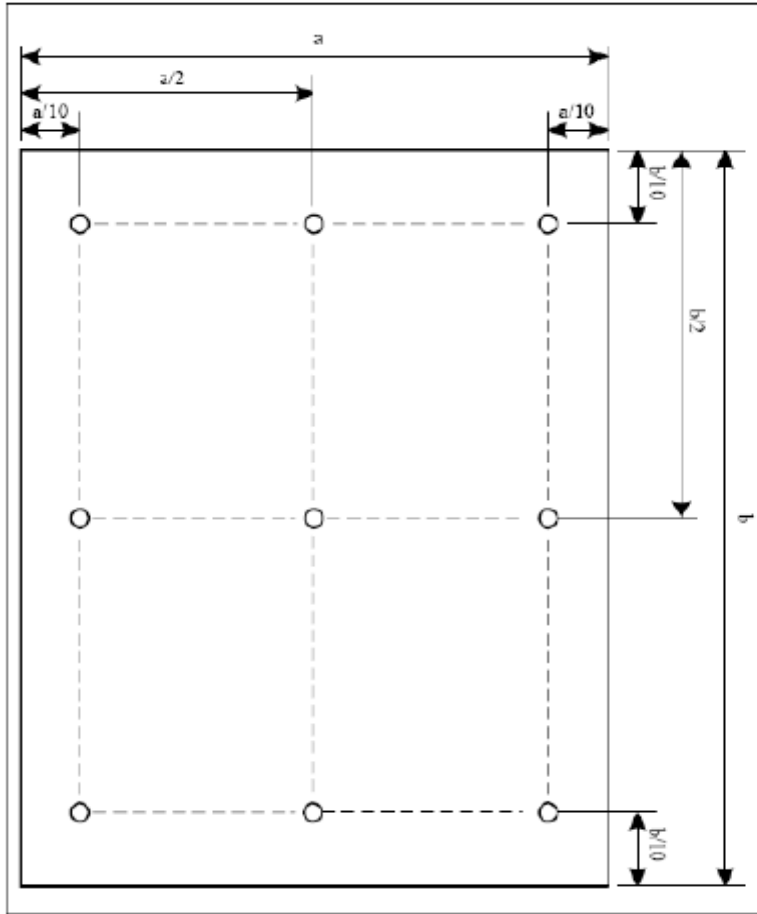
Note (2) The "LED life time" is defined as the module brightness decrease to 50% original brightness at $T_a=25\text{ }^\circ\text{C}$ and $I_L=120\text{mA}$. The LED lifetime could be decreased if operating I_L is larger than 120mA. The constant current driving method is suggested.



BLU CIRCUIT DIAGRAM



NOTE 3: Luminance Uniformity of these 9 points is defined as below:



$$\text{Uniformity} = \frac{\text{minimum luminance in 9 points (1-9)}}{\text{maximum luminance in 9 points (1-9)}}$$

$$\text{Luminance} = \frac{\text{Total Luminance of 9 points}}{9}$$

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6. CTP Specification

6.1 Electrical Characteristics

6.1.1 Absolute Maximum Rating

Item	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	VDD	2.66	3.47	V	--
Operating temperature	T _{OP}	-20	+70	°C	--
Storage temperature	T _{ST}	-30	+80	°C	--

6.1.2 DC Electrical Characteristics (Ta=25°C)

(Ambient temperature:25°C, AVDD=2.8V, VDDIO=1.8V or VDDIO=AVDD)

Item	Min.	Typ.	Max.	Unit	Note
Normal mode operating current	--	8	14.5	mA	
Green mode operating current	--	3.3	--	mA	
Sleep mode operating current	70	--	120	µA	
Doze mode operating current	--	0.78	--	mA	
Digital Input low voltage/VIL	-0.3	--	0.25*VDDIO	V	
Digital Input high voltage/VIH	0.75*VDDIO	--	VDDIO+0.3	V	
Digital Output low voltage/VOL	--		0.15*VDDIO	V	
Digital Output high voltage/VOH	0.85*VDDIO			V	

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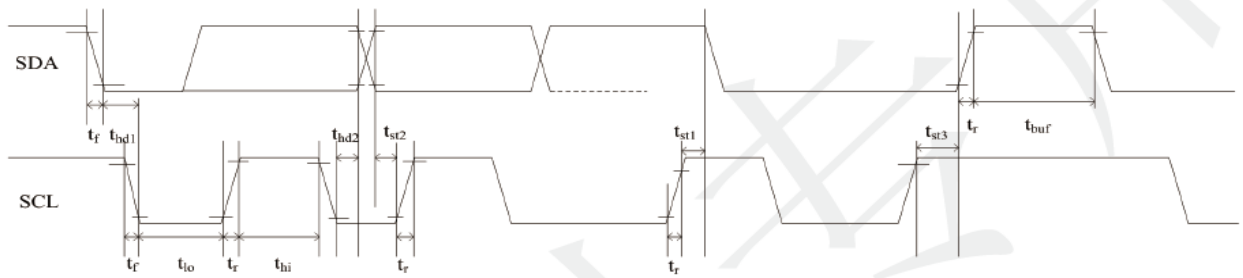
6.1.3 AC Characteristics

(Ambient temperature:25°C, AVDD=2.8V, VDDIO=1.8V)

Parameter	Min	Typ	Max	Unit
OSC oscillation frequency	59	60	61	MHZ
I/O output rise time,low to high	-	14	-	ns
I/O output rfall time,high to low	-	14	-	ns

6.2 I2C Timing

GT911 provides a standard I2C interface for SCL and SDA to communicate with the host. GT911 always serves as slave device in the system with all communication being initialized by the host. It is strongly recommended that transmission rate be kept at or below 400Kbps. The I2C timing is shown below:



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Test condition 1: 1.8V host interface voltage, 400Kbps transmission rate, 2K pull-up resistor

Parameter	Symbol	Min.	Max.	Unit
SCL low period	t_{lo}	1.3	-	us
SCL high period	t_{hi}	0.6	-	us
SCL setup time for Start condition	t_{st1}	0.6	-	us
SCL setup time for Stop condition	t_{st3}	0.6	-	us
SCL hold time for Start condition	t_{hd1}	0.6	-	us
SDA setup time	t_{st2}	0.1	-	us
SDA hold time	t_{hd2}	0	-	us

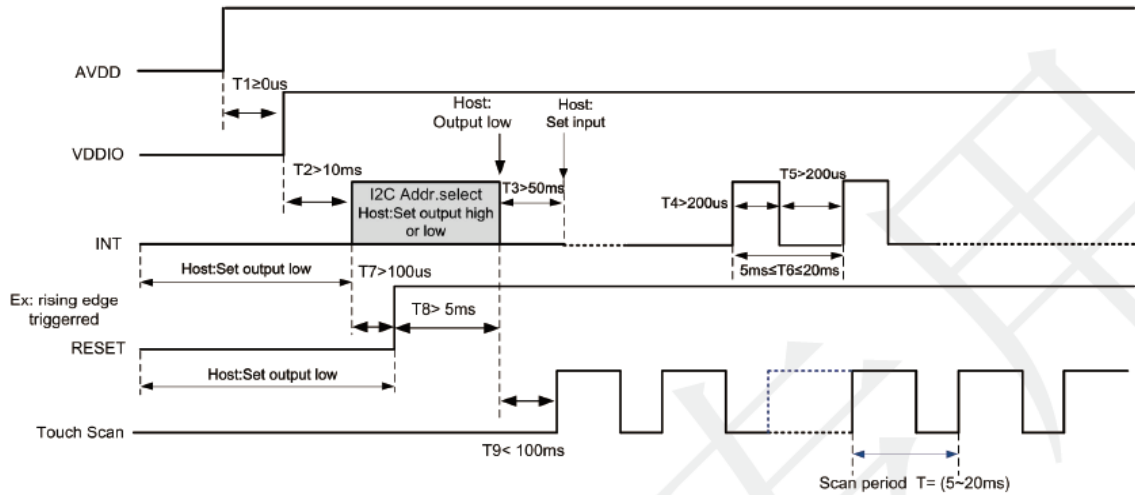
Test condition 2: 3.3V host interface voltage, 400Kbps transmission rate, 2K pull-up resistor

Parameter	Symbol	Min.	Max.	Unit
SCL low period	t_{lo}	1.3	-	us
SCL high period	t_{hi}	0.6	-	us
SCL setup time for Start condition	t_{st1}	0.6	-	us
SCL setup time for Stop condition	t_{st3}	0.6	-	us
SCL hold time for Start condition	t_{hd1}	0.6	-	us
SDA setup time	t_{st2}	0.1	-	us
SDA hold time	t_{hd2}	0	-	us

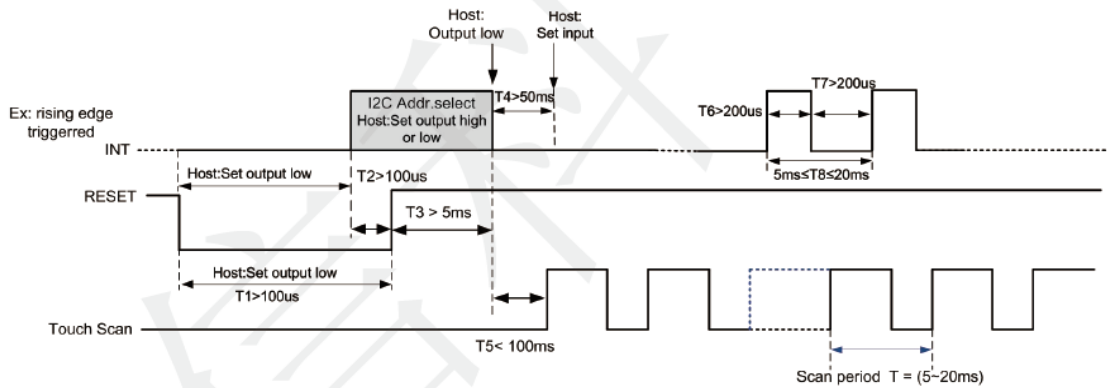
GT911 supports two I2C slave addresses: 0xBA/0xBB and 0x28/0x29. The host can select the address by changing the status of Reset and INT pins during the power-on initialization phase. See the diagram below for configuration methods and timings:



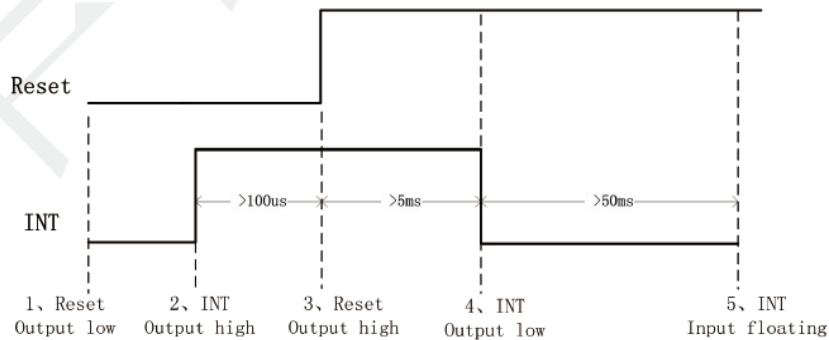
Power-on Timing:



Timing for host resetting GT911:



Timing for setting slave address to 0x28/0x29:



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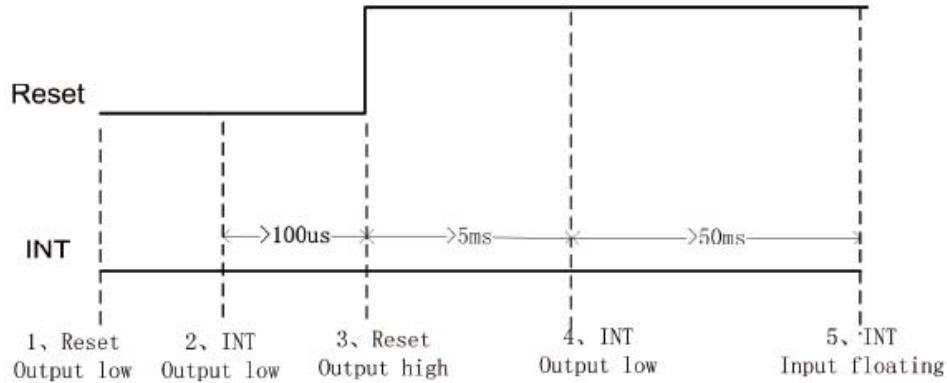
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Timing for setting slave address to 0xBA/0xBB:



a) Data Transmission

(For example: device address is 0xBA/0xBB)

Communication is always initiated by the host. Valid Start condition is signaled by pulling SDA line from “high” to “low” when SCL line is “high”. Data flow or address is transmitted after the Start condition.

All slave devices connected to I²C bus should detect the 8-bit address issued after Start condition and send the correct ACK. After receiving matching address, GT911 acknowledges by configuring SDA line as output port and pulling SDA line low during the ninth SCL cycle. When receiving unmatched address, namely, not 0XBA or 0XBB, GT911 will stay in an idle state.

For data bytes on SDA, each of 9 serial bits will be sent on nine SCL cycles. Each data byte consists of 8 valid data bits and one ACK or NACK bit sent by the recipient. The data transmission is valid when SCL line is “high”.

When communication is completed, the host will issue the STOP condition. Stop condition implies the transition of SDA line from “low” to “high” when SCL line is “high”.

b) Writing Data to GT911

(For example: device address is 0xBA/0xBB)



Timing for Write Operation

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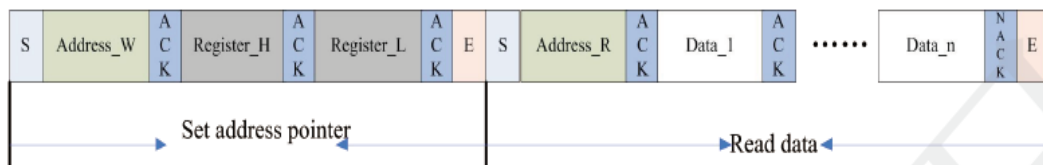
The diagram above displays the timing sequence of the host writing data onto GT911. First, the host issues a Start condition. Then, the host sends 0XBA (address bits and R/W bit; R/W bit as 0 indicates Write operation) to the slave device.

After receiving ACK, the host sends the 16-bit register address (where writing starts) and the 8-bit data bytes (to be written onto the register).

The location of the register address pointer will automatically add 1 after every Write Operation. Therefore, when the host needs to perform Write Operations on a group of registers of continuous addresses, it is able to write continuously. The Write Operation is terminated when the host issues the Stop condition.

c) Reading Data from GT911

(For example: device address is 0xBA/0xBB)



Timing for Read Operation

The diagram above is the timing sequence of the host reading data from GT911. First, the host issues a Start condition and sends 0XBA (address bits and R/W bit; R/W bit as 0 indicates Write operation) to the slave device.

After receiving ACK, the host sends the 16-bit register address (where reading starts) to the slave device. Then the host sets register addresses which need to be read.

Also after receiving ACK, the host issues the Start condition once again and sends 0XBB (Read Operation). After receiving ACK, the host starts to read data.

GT911 also supports continuous Read Operation and, by default, reads data continuously. Whenever receiving a byte of data, the host sends an ACK signal indicating successful reception. After receiving the last byte of data, the host sends a NACK signal followed by a STOP condition which terminates communication.

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7. AC Characteristic

TBD

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8. LCD Module Out-Going Quality Level

8.1 VISUAL & FUNCTION INSPECTION STANDARD

8.1.1 Inspection conditions

Inspection performed under the following conditions is recommended.

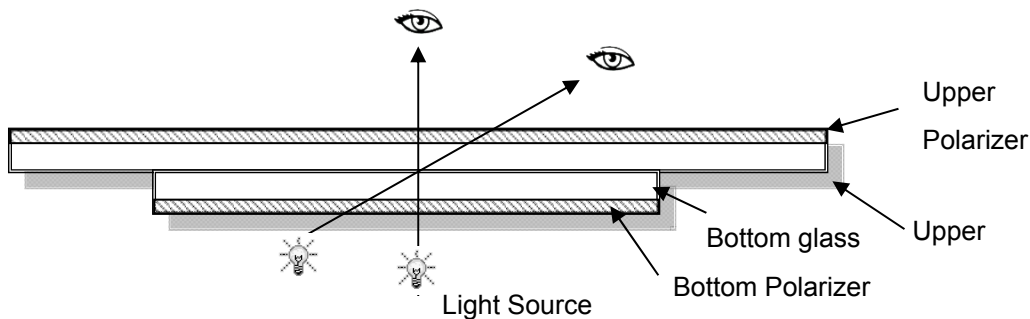
Temperature : 25±5°C

Humidity : 65%±10%RH

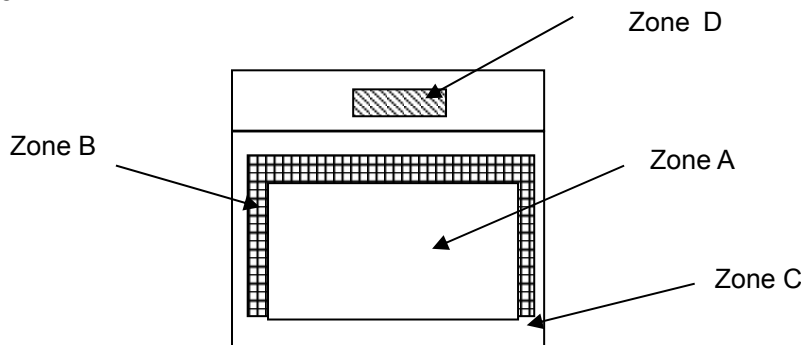
Viewing Angle : Normal viewing Angle.

Illumination: Single fluorescent lamp (300 to 700Lux)

Viewing distance:30-50cm



8.1.2 Definition



Zone A : Effective Viewing Area(Character or Digit can be seen)

Zone B : Viewing Area except Zone A

Zone C Cover (Zone A+Zone B) which can not be seen after assembly by customer .)

Zone D : IC Bonding Area

Note:

As a general rule ,visual defects in Zone C can be ignored when it doesn't effect product function or appearance after assembly by customer

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8.1.3 Sampling Plan

According to GB/T 2828-2003 ; , normal inspection, Class II

AQL:

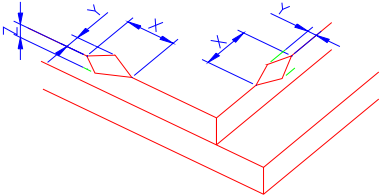
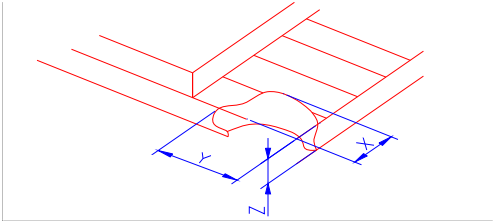
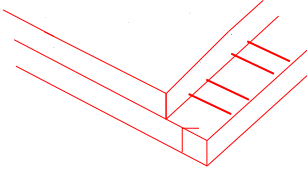
Major defect	Minor defect
0.65	1.5

LCD: Liquid Crystal Display , TP: Touch Panel , LCM: Liquid Crystal Module

No	Items to be inspected	Criteria	Classification of defects
1	Functional defects	1) No display, Open or miss line 2) Display abnormally, Short 3) Backlight no lighting, abnormal lighting. 4) TP no function	Major
2	Missing	Missing component	
3	Outline dimension	Overall outline dimension beyond the drawing is not allowed	
4	Color tone	Color unevenness, refer to limited sample	Minor
5	Spot Line defect	Light dot , Dim spot , Polarizer Bubble ; Polarizer accidented spot.	
6	Soldering appearance	Good soldering , Peeling off is not allowed.	
7	LCD/Polarizer/TP	Black/White spot/line, scratch, crack, etc.	



8.1.4 Criteria (Visual)

Number	Items	Criteria(mm)						
1.0 LCD Crack/Broken NOTE: X: Length Y: Width Z: Height L: Length of ITO, T: Height of LCD	(1) The edge of LCD broken	 <table border="1" data-bbox="756 665 1453 813"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>≤3.0mm</td> <td><Inner border line of the seal</td> <td>≤T</td> </tr> </tbody> </table>	X	Y	Z	≤3.0mm	<Inner border line of the seal	≤T
X	Y	Z						
≤3.0mm	<Inner border line of the seal	≤T						
	(2)LCD corner broken	 <table border="1" data-bbox="815 1122 1394 1220"> <thead> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> </thead> <tbody> <tr> <td>≤3.0mm</td> <td>≤L</td> <td>≤T</td> </tr> </tbody> </table>	X	Y	Z	≤3.0mm	≤L	≤T
X	Y	Z						
≤3.0mm	≤L	≤T						
	(3) LCD crack	 <p style="text-align: center;">Crack Not allowed</p>						



2.0	Spot defect	<p style="text-align: center;">$\Phi=(X+Y)/2$</p>	① light dot (LCD/TP/Polarizer black/white spot , light dot, pinhole, dent, stain)				
	Zone		Acceptable Qty				
	Size (mm)		A	B	C	Ignore	
	$\Phi \leq 0.10$		Ignore				
	$0.10 < \Phi \leq 0.25$		4(distance $\geq 10\text{mm}$)				
$0.25 < \Phi \leq 0.35$		3					
$\Phi > 0.4$		0					
② Dim spot (LCD/TP/Polarizer dim dot, light leakage、 dark spot)							
Zone		Acceptable Qty					
Size (mm)		A	B	C			
$\Phi \leq 0.1$		Ignore					
$0.10 < \Phi \leq 0.25$		4(distance $\geq 10\text{mm}$)					
$0.25 < \Phi \leq 0.35$		3					
$\Phi > 0.4$		0					
③ Polarizer accidented spot							
Zone		Acceptable Qty					
Size (mm)		A	B	C			
$\Phi \leq 0.2$		Ignore					
$0.3 < \Phi \leq 0.5$		3(distance $\geq 10\text{mm}$)					
$\Phi > 0.5$		1					
④ Pixel bad points (light dot, Dim dot, color dot)							
Zone		Acceptable Qty					
Size (mm)		A	B	C			
$\Phi \leq 0.15$		Ignore					
$0.2 < \Phi \leq 0.3$		2(distance $\geq 10\text{mm}$)					
$\Phi > 0.4$		1					
⑤ Polarizer Bubble							
Zone		Acceptable Qty					
Size (mm)		A	B	C			
$\Phi \leq 0.2$		Ignore					
$0.3 < \Phi \leq 0.4$		4(distance $\geq 10\text{ m}$)					
$0.4 < \Phi \leq 0.5$		3					
$\Phi > 0.5$		1					

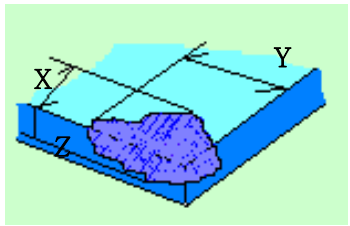


3.0	Line defect (LCD/TP /Polarizer backlight black/white line, scratch, stain)	<table border="1"> <tr> <th rowspan="2">Width(mm)</th> <th rowspan="2">Length(m)</th> <th colspan="3">Acceptable Qty</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> <tr> <td>$\Phi \leq 0.05$</td> <td>Ignore</td> <td colspan="2">Ignore</td> <td rowspan="3">Ignore</td> </tr> <tr> <td>$0.05 < W \leq 0.06$</td> <td>$L \leq 4.0$</td> <td colspan="2">$N \leq 3$</td> </tr> <tr> <td>$0.07 < W \leq 0.08$</td> <td>$L \leq 3.0$</td> <td colspan="2">$N \leq 2$</td> </tr> <tr> <td>$0.08 < W$</td> <td colspan="4">Define as spot defect</td> </tr> </table>	Width(mm)	Length(m)	Acceptable Qty			A	B	C	$\Phi \leq 0.05$	Ignore	Ignore		Ignore	$0.05 < W \leq 0.06$	$L \leq 4.0$	$N \leq 3$		$0.07 < W \leq 0.08$	$L \leq 3.0$	$N \leq 2$		$0.08 < W$	Define as spot defect			
		Width(mm)			Length(m)	Acceptable Qty																						
			A	B		C																						
		$\Phi \leq 0.05$	Ignore	Ignore		Ignore																						
		$0.05 < W \leq 0.06$	$L \leq 4.0$	$N \leq 3$																								
$0.07 < W \leq 0.08$	$L \leq 3.0$	$N \leq 2$																										
$0.08 < W$	Define as spot defect																											
4.0	Electronic Components SMT	Not allow missing parts, solderless connection, cold solder joint, mismatch, The positive and negative polarity opposite																										
5.0	Display color & Brightness	<p>1. Color : Measuring the color coordinates, The measurement standard according to the datasheet or samples.</p> <p>2. Brightness : Measuring the brightness of White screen, The measurement standard according to the datasheet or Samples.</p>																										
6.0	LCD Mura	By 5% ND filter invisible.																										

7.0	CTP Related	CTP Cover sensor accidented black/white spot	<table border="1"> <tr> <th rowspan="2">Size Φ(mm)</th> <th colspan="3">Acceptable Qty</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> <tr> <td>$\Phi \leq 0.1$</td> <td colspan="2">Ignore</td> <td rowspan="3">Ignore</td> </tr> <tr> <td>$0.15 < \Phi \leq 0.25$</td> <td colspan="2">4 (distance ≥ 10mm)</td> </tr> <tr> <td>$0.25 < \Phi \leq 0.35$</td> <td colspan="2">3</td> </tr> <tr> <td>$\Phi > 0.4$</td> <td colspan="2">1</td> <td></td> </tr> </table>	Size Φ (mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.1$	Ignore		Ignore	$0.15 < \Phi \leq 0.25$	4 (distance ≥ 10 mm)		$0.25 < \Phi \leq 0.35$	3		$\Phi > 0.4$	1		
			Size Φ (mm)		Acceptable Qty																			
				A	B	C																		
			$\Phi \leq 0.1$	Ignore		Ignore																		
			$0.15 < \Phi \leq 0.25$	4 (distance ≥ 10 mm)																				
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		CTP Cover scratch	<table border="1"> <tr> <th rowspan="2">Width(mm)</th> <th rowspan="2">Ignore(mm)</th> <th colspan="3">Acceptable Qty</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> <tr> <td>$\Phi \leq 0.05$</td> <td>Ignore</td> <td colspan="3">Ignore</td> </tr> <tr> <td>$0.05 < W \leq 0.06$</td> <td>$L \leq 4.0$</td> <td colspan="3">$N \leq 3$</td> </tr> <tr> <td>$0.07 < W \leq 0.08$</td> <td>$L \leq 3.0$</td> <td colspan="3">$N \leq 2$</td> </tr> <tr> <td>$0.08 < W$</td> <td colspan="4">Define as spot defect</td> </tr> </table>	Width(mm)	Ignore(mm)	Acceptable Qty			A	B	C	$\Phi \leq 0.05$	Ignore	Ignore			$0.05 < W \leq 0.06$	$L \leq 4.0$	$N \leq 3$			$0.07 < W \leq 0.08$	$L \leq 3.0$	$N \leq 2$			$0.08 < W$	Define as spot defect			
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CTP Cover Pinhole/ Lack of ink	<table border="1"> <tr> <th rowspan="2">Zone Size (mm)</th> <th>Acceptable Qty</th> </tr> <tr> <th>C</th> </tr> <tr> <td>$\Phi \leq 0.2$</td> <td>Ignore</td> </tr> <tr> <td>$0.2 < \Phi \leq 0.3$</td> <td>4(distance ≥ 10mm)</td> </tr> <tr> <td>$0.3 < \Phi \leq 0.4$</td> <td>3</td> </tr> <tr> <td>$\Phi > 0.4$</td> <td>0</td> </tr> </table>	Zone Size (mm)	Acceptable Qty	C	$\Phi \leq 0.2$	Ignore	$0.2 < \Phi \leq 0.3$	4(distance ≥ 10 mm)	$0.3 < \Phi \leq 0.4$	3	$\Phi > 0.4$	0																			
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CTP Bonding bubble/ accidented spot	<table border="1"> <tr> <th rowspan="2">Size Φ(mm)</th> <th colspan="2">Acceptable Qty</th> </tr> <tr> <th>A</th> <th>B</th> </tr> <tr> <td>$\Phi \leq 0.1$</td> <td colspan="2">Ignore</td> </tr> <tr> <td>$0.15 < \Phi \leq 0.2$</td> <td colspan="2">3(distance ≥ 10mm)</td> </tr> <tr> <td>$0.2 < \Phi \leq 0.25$</td> <td colspan="2">2</td> </tr> <tr> <td>$\Phi > 0.25$</td> <td colspan="2">0</td> </tr> </table>	Size Φ (mm)	Acceptable Qty		A	B	$\Phi \leq 0.1$	Ignore		$0.15 < \Phi \leq 0.2$	3(distance ≥ 10 mm)		$0.2 < \Phi \leq 0.25$	2		$\Phi > 0.25$	0														
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$0.2 < \Phi \leq 0.25$	2																														
$\Phi > 0.25$	0																														
Assembly deflection	beyond the edge of backlight ≤ 0.2 mm																														
TP cover broken X : length Y : width Z : height	<table border="1"> <tr> <th>X</th> <th>Y</th> <th>Z</th> </tr> <tr> <td>$X \leq 0.5$mm</td> <td>$Y \leq 0.5$mm</td> <td>Z < cover thickness s</td> </tr> </table> <p>* Circuitry broken is not allowed.</p>	X	Y	Z	$X \leq 0.5$ mm	$Y \leq 0.5$ mm	Z < cover thickness s																								
X	Y	Z																													
$X \leq 0.5$ mm	$Y \leq 0.5$ mm	Z < cover thickness s																													





			X	Y	Z	
		TP cover broken X : length Y : width Z : height	X≤0.3mm	Y≤0.3mm	Z<LCD thicknes s	
* Circuitry broken is not allowed.						

Criteria (functional items)

Number	Items	Criteria (mm)
1	No display	Not allowed
2	Missing segment	Not allowed
3	Short	Not allowed
4	Backlight no lighting	Not allowed
5	TP no function	Not allowed



9. Reliability Test Result

Item	Condition	Inspection after test
High Temperature Operating	70℃,96H	Inspection after 2~4hours storage at room temperature, the sample shall be free from defects: 1.Air bubble in the LCD; 2.Non-display; 3.Missing segments/line; 4.Glass crack; 5.Current IDD is twice higher than initial value.
Low Temperature Operating	-20℃, 96HR	
High Temperature Storage	80℃, 96HR	
Low Temperature Storage	-30℃, 96HR	
High Temperature & High Humidity Operating	+60℃, 90% RH ,96 hours.	
Thermal Shock (Non-operation)	-20℃,30 min ↔ 70℃,30 min, Change time:5min 20CYC.	
ESD test	C=150pF, R=330,5points/panel Air:±8KV, 5times; Contact:±6KV, 5 times; (Environment: 15℃~35℃, 30%~60%).	
Vibration (Non-operation)	Frequency range:10~55Hz, Stroke:1.5mm Sweep:10Hz~55Hz~10Hz 2 hours for each direction of X.Y.Z. (6 hours for total) (Package condition).	
Box Drop Test	1 Corner 3 Edges 6 faces,80cm(MEDIUM BOX)	

Remark:

- 1.The test samples should be applied to only one test item.
- 2.Sample size for each test item is 5~10pcs.
- 3.For Damp Proof Test, Pure water(Resistance > 10MΩ) should be used.
- 4.In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judged as a good part.
- 5.Failure Judgment Criterion: Basic Specification, Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.

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常备库存
Stock For Sale

长期供货
Long Time supply

支持少量
NO MOQ

品种齐全
In Full Range



10. Cautions and Handling Precautions

10.1 Handling and Operating the Module

(1) When the module is assembled, it should be attached to the system firmly.

Do not warp or twist the module during assembly work.

(2) Protect the module from physical shock or any force. In addition to damage, this may cause improper operation or damage to the module and back-light unit.

(3) Note that polarizer is very fragile and could be easily damaged. Do not press or scratch the surface.

(4) Do not allow drops of water or chemicals to remain on the display surface.

If you have the droplets for a long time, staining and discoloration may occur.

(5) If the surface of the polarizer is dirty, clean it using some absorbent cotton or soft cloth.

(6) The desirable cleaners are water, IPA (Isopropyl Alcohol) or Hexane.

Do not use ketene type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanent damage to the polarizer due to chemical reaction.

(7) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs, or clothes, it must be washed away thoroughly with soap.

(8) Protect the module from static; it may cause damage to the CMOS ICs.

(9) Use finger-stalls with soft gloves in order to keep display clean during the incoming inspection and assembly process.

(10) Do not disassemble the module.

(11) Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.

(12) Pins of I/F connector shall not be touched directly with bare hands.

(13) Do not connect, disconnect the module in the "Power ON" condition.

(14) Power supply should always be turned on/off by the item 6.1 Power On Sequence & 6.2 Power Off Sequence

10.2 Storage and Transportation.

(1) Do not leave the panel in high temperature, and high humidity for a long time.

It is highly recommended to store the module with temperature from 0 to 35 °C and relative humidity of less than 70%

(2) Do not store the TFT-LCD module in direct sunlight.

(3) The module shall be stored in a dark place. When storing the modules for a long time, be sure to adopt effective measures for protecting the modules from strong ultraviolet radiation, sunlight, or fluorescent light.

(4) It is recommended that the modules should be stored under a condition where no condensation is allowed. Formation of dewdrops may cause an abnormal operation or a failure of the module.

In particular, the greatest possible care should be taken to prevent any module from being operated where condensation has occurred inside.

(5) This panel has its circuitry FPC on the bottom side and should be handled carefully in order not to be stressed.

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常备库存
Stock For Sale

长期供货
Long Time supply

支持少量
NO MOQ

品种齐全
In Full Range



11. Packing

---TBD-----

Part. No	KD067WSFLA001-C001A	REV	V1.0	Page 29 of 29
	常备库存 Stock For Sale	长期供货 Long Time supply	支持少量 NO MOQ	品种齐全 In Full Range