



Colour TFT Display Module

Product Specification
Part No. SCX0900255GGU01
9.0" WVGA TFT with PCAP

For more information, please visit www.andersdx.com
or email info@andersdx.com

Version 1.0

CTP Module Specification
PRELIMINARY
 ITEM NO.: SCX0900255GGU01

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Customer Companies	QA Approval	QA Check	R&D Approval	R&D Check
	<i>pretty</i>	<i>Seven</i>	<i>Gromer</i>	<i>Terry</i>
Approved by	Version:	Issued Date:	Sheet Code:	Total Pages:
	1	12/JAN/16'		24

3. GENERAL SPECIFICATIONS

Parameter	Specifications	Unit
Screen Size	9 (diagonal)	inch
Display Format	800(H) x (R,G,B) x 480(V)	dot
LCD Active Area	198(H) x 111.696(V)	mm
Sensor Active Area	201(H) x 114.7(V)	mm
Pixel Pitch	0.2475 (H) x 0.2327 (V)	mm
Pixel Configuration	Stripe	
Outline Dimension	224.9(W) x 136.8(H) x 13.9 (D)	mm
Back-light	LED	
Surface treatment	Clear	
Display mode	Normally white	
Weight	TBD	g
LCM model number	FG0900B1DSSWBG01	
View Angle direction	6 o'clock	
Our components and processes are compliant to RoHS standard		

4. ABSOLUTE MAXIMUM RATINGS

VSS=0V

Parameter	Symbol	MIN.	MAX.	Unit	Remark
Power supply voltage	V _{CC}	-0.3	5.0	V	
Logic input voltage	V _I	-0.3	V _{CC} +0.3	V	
Power supply voltage	V _{DD}	-0.3	6.0	V	
Operating temperature	T _{OP}	-20	70	°C	
Storage temperature	T _{ST}	-30	80	°C	
Humidity	Operation	20%~90% relative humidity			T _a ≤40°C
	Non Operation	10%~90% relative humidity			T _a ≤40°C

5. ELECTRICAL CHARACTERISTICS

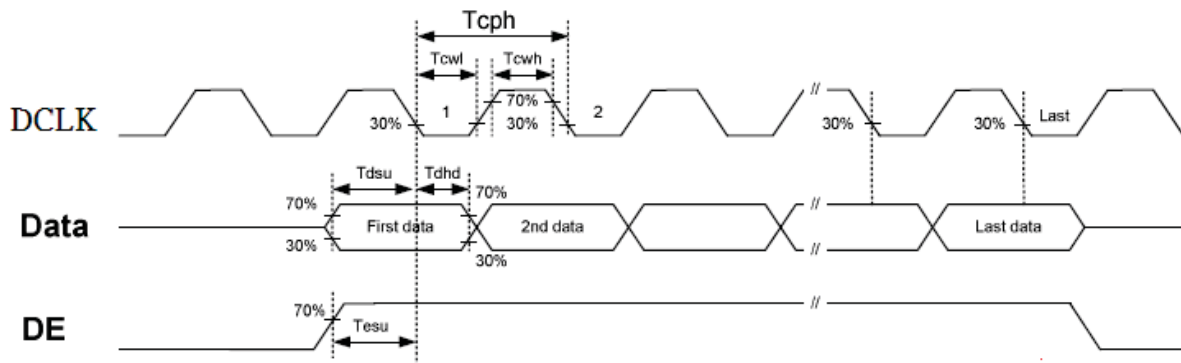
 VSS=0V, f_V=60Hz, f_{CLK}=33.3MHz, T_a=25°C

Parameter	Symbol	MIN.	Typ.	MAX.	Unit	Remark
Power Supply voltage for LCD	V _{CC}	+3.0	+3.3	+3.6	V	
Power Supply Current for LCD	I _{CC}		150	200	mA	V _{CC} =3.3V
Power Supply voltage for LED	V _{DD}	4.8	5	5.5	V	
Power Supply Current for LED	I _{DD}	--	1200	1600	mA	V _{DD} =5V
Ripple voltage	V _{RF}	-	-	100	mV _{P-P}	
"H" level logical input voltage	V _{IH}	0.7V _{CC}	--	V _{CC}	V	
"L" level logical input voltage	V _{IL}	0	--	0.3V _{CC}	V	
ADJ frequency		18K	20K	22K	Hz	
ADJ input voltage	V _{IH}	3.0	-	3.3	V	
	V _{IL}	0	-	0.3	V	
LED life time		20000	--	--	Hr	Note 1

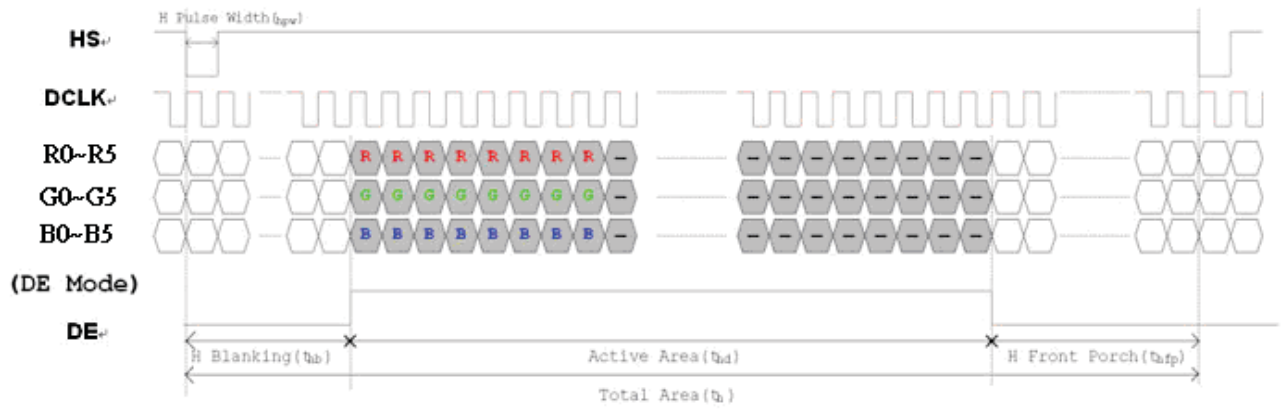
Note 1: The "LED life time" is defined as the brightness decrease to 50% original brightness that the ambient temperature is at 25°C.

6. INTERFACE SPECIFICATIONS
6.1 AC Electrical Characteristics

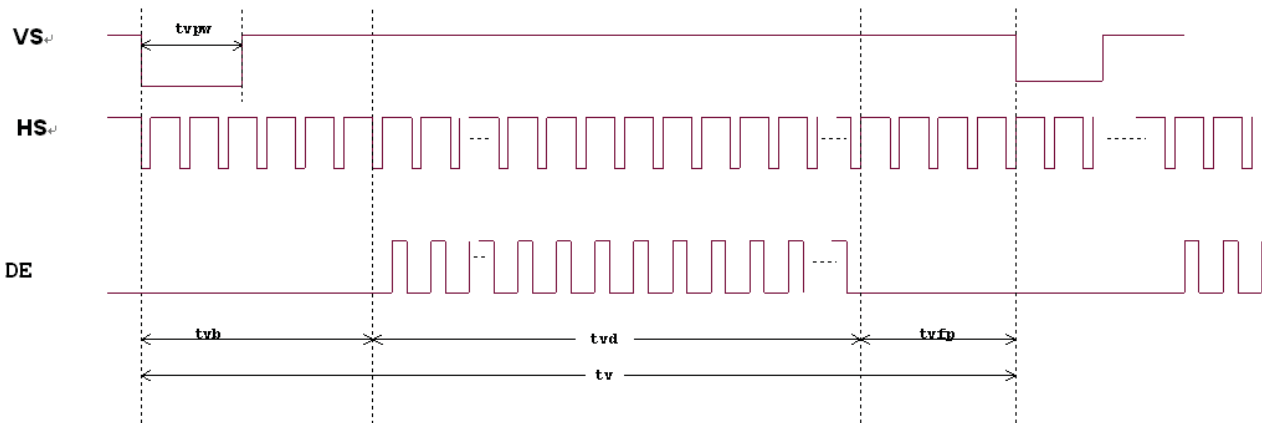
Item	Symbol	Value			Unit	Remark
		Min.	Typ.	Max.		
Data setup time	Tdsu	8	-	-	ns	
Data hole time	Tdhd	8	-	-	ns	
DE setup time	Tesu	8	-	-	ns	
DE hole time	Tehd	8	-	-	ns	
VCC Power On Slew rate	TPOR	-	-	20	ms	From 0 to 90% DVDD
DCLK cycle time	Tcph	20	-	-	ns	
DCLK pulse duty	Tcwh	40	50	60	%	



6.2 Data Input Format



Horizontal input timing diagram



Vertical input timing diagram

Note : HS, VS signal is for reference only

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6.3 Timing Characteristics

Item	Symbol	Value			Unit	Remark
		Min.	Typ.	Max.		
Horizontal Display Area	thd	-	800	-	DCLK	
DCLK Frequency	fclk	26.4	33.3	40	MHz	
One Horizontal Line	th	862	1056	1200	DCLK	
HS pulse width	thpw	1	-	4	DCLK	
HS Blanking	thb	46	46	46	DCLK	
HS Front Porch	thfp	16	210	354	DCLK	

Item	Symbol	Value			Unit	Remark
		Min.	Typ.	Max.		
Vertical Display Area	tvd	-	480	-	TH	
VS period time	tv	510	525	650	TH	
VS pulse width	tvpw	1	-	20	TH	
VS Blanking	tvb	23	23	23	TH	
VS Front Porch	tvfp	7	22	147	TH	

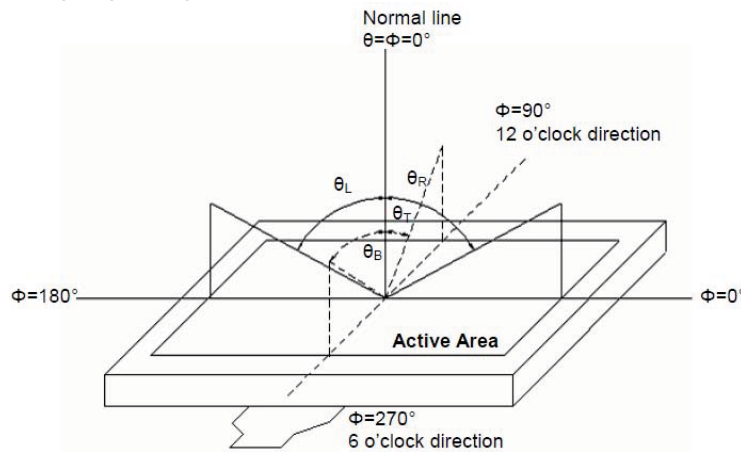
7. OPTICAL CHARACTERISTIC

Item	Symbol	Condition	Values			Unit	Remark
			Min.	Typ.	Max.		
Viewing angle (Center CR≥10)	θ_L	$\Phi=180^\circ$ (9 o'clock)	60	70	-	degree	Note 1
	θ_R	$\Phi=0^\circ$ (3 o'clock)	60	70	-		
	θ_T	$\Phi=90^\circ$ (12 o'clock)	40	50	-		
	θ_B	$\Phi=270^\circ$ (6 o'clock)	60	70	-		
Response time	TON	Normal $\theta=\Phi=0^\circ$	-	10	20	msec	Note 3
	TOFF		-	15	30	msec	Note 3
Contrast ratio	CR		400	500	-	-	Note 4
Color chromaticity	Xw		0.26	0.31	0.36	-	Note 2
	Yw		0.28	0.33	0.38	-	Note 5 Note 6
Luminance(Center point)	L		340	420	-	cd/m ²	Note 6
Uniformity	Yu		70	75	-	%	Note 7
Image sticking	tis		2 hours			2	Sec

Test Conditions:

- VDD=5V,ADJ=3.3V, the ambient temperature is 25°C
- The test systems refer to Note 2.

Note 1: Definition of viewing angle range

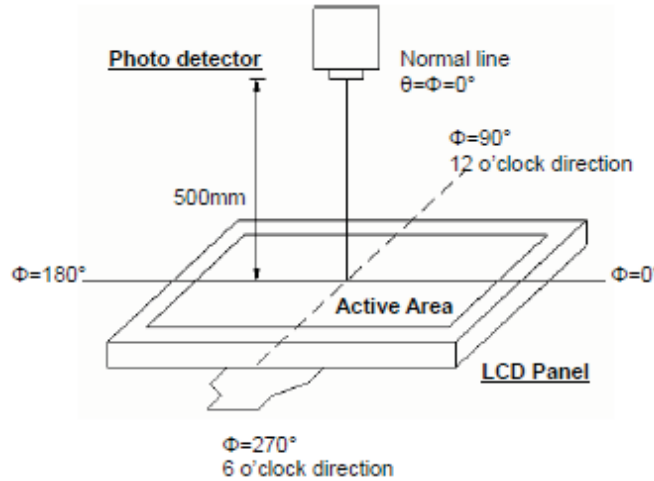


Definition of viewing angle

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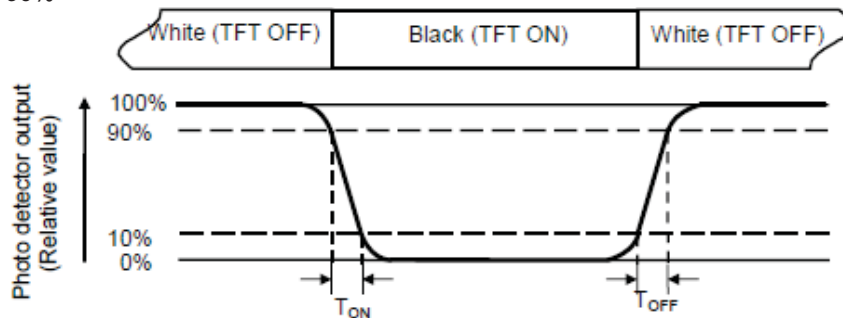
Note 2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 30 minutes operation, the optical properties are measured at the center point of the LCD screen. (measured by BM-7A/Field of view: 1° /Distance: 500mm.)



Note 3: Definition of Response time

The response time is defined as the LCD optical switching time interval between "White" state and "Black" state. Rise time (TON) is the time between photo detector output intensity changed from 90% to 10%. And fall time (TOFF) is the time between photo detector output intensity changed from 10% to 90%



Note 4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the Black" state}}$$

Note 5: Definition of color chromaticity (CIE1931) Color coordinates measured at center point of LCD.

Note 6: Measure at the center area of the panel.

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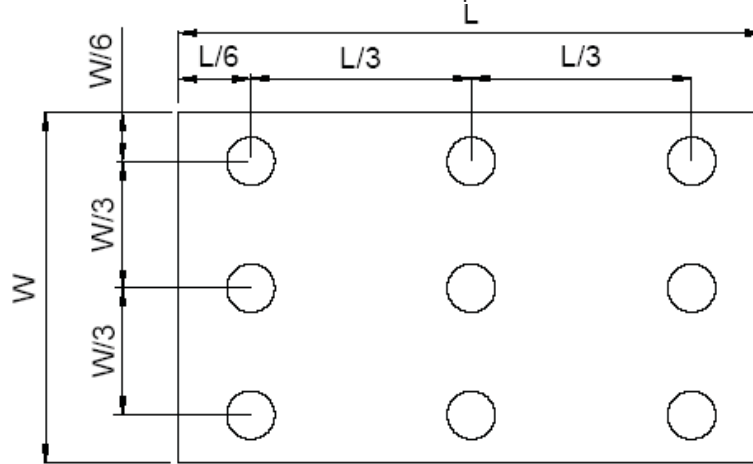
Note 7: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas. Every measuring point is placed at the center of each measuring area.

$$\text{Luminance Uniformity (Yu)} = \frac{B_{min}}{B_{max}}$$

Bmax: The measured maximum luminance of all measurement position

Bmin: The measured minimum luminance of all measurement position

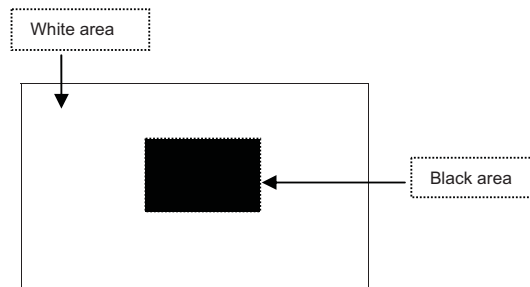


L : Active area length W : Active area width

Note 8: Definition of Image sticking (tis):

Continuously display the test pattern shown in the figure below for 2 hours. Then display a completely white screen. The previous image shall not persist more than 2 sec at 25 °C

Image sticking pattern



8. PIN ASSIGNMENT

8.1 Pin Function

Pin No.	Symbol	I/O	Function	Remark
1	Vss	P	Power Ground	
2	Vss	P	Power Ground	
3	ADJ	I	PWM Brightness control for LED B/L	
4	VDD	P	Power Supply for LED Driver circuit	
5	VDD	P	Power Supply for LED Driver circuit	
6	VDD	P	Power Supply for LED Driver circuit	
7	Vcc	P	Power Supply for Digital Circuit	
8	Vcc	P	Power Supply for Digital Circuit	
9	DE	I	Data Enable	
10	Vss	P	Power Ground	
11	Vss	P	Power Ground	
12	Vss	P	Power Ground	
13	B5	I	Blue Data 5 (MSB)	
14	B4	I	Blue Data 4	
15	B3	I	Blue Data 3	
16	Vss	P	Power Ground	
17	B2	I	Blue Data 2	
18	B1	I	Blue Data 1	
19	B0	I	Blue Data 0 (LSB)	
20	Vss	P	Power Ground	
21	G5	I	Green Data 5 (MSB)	
22	G4	I	Green Data 4	
23	G3	I	Green Data 3	
24	Vss	I	Power Ground	
25	G2	I	Green Data 2	
26	G1	I	Green Data 1	
27	G0	I	Green Data 0 (LSB)	
28	Vss	P	Power Ground	
29	R5	I	Red Data 5 (MSB)	
30	R4	I	Red Data 4	
31	R3	I	Red Data 3	
32	Vss	P	Power Ground	
33	R2	I	Red Data 2	
34	R1	I	Red Data 1	
35	R0	I	Red Data 0 (LSB)	
36	Vss	P	Power Ground	
37	Vss	P	Power Ground	
38	DCLK	I	Clock Signals ; Latch Data at the Falling Edge	
39	Vss	P	Power Ground	
40	Vss	P	Power Ground	

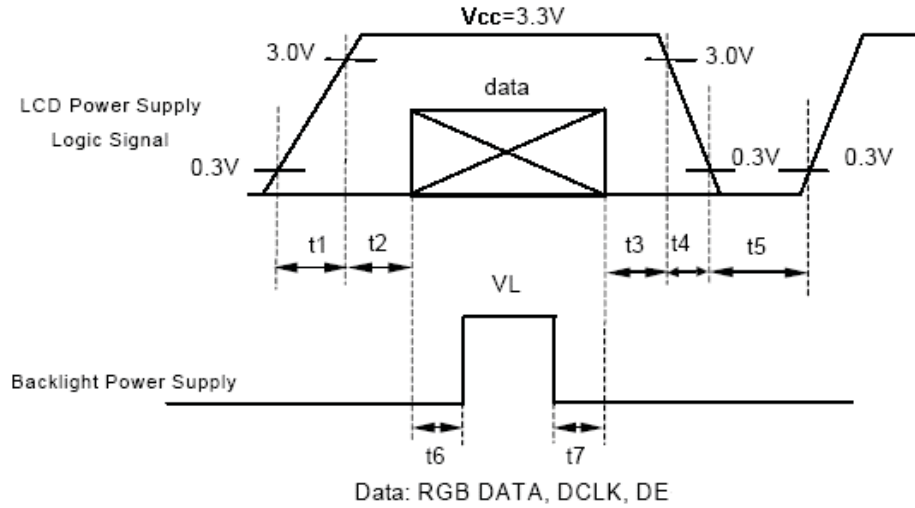
I: input, O: output, P: Power

Note1 : ADJ is brightness control Pin. The larger of the pulse duty is, the higher of the brightness.

Note2 : ADJ signal is 0~3.3V.Operation frequency is 20KHz

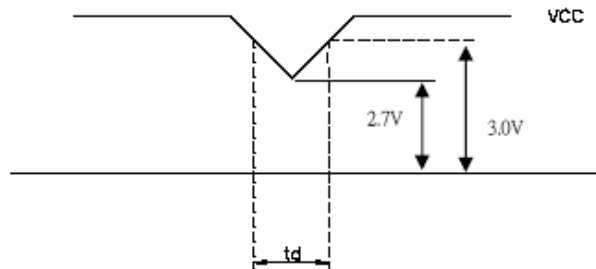
8.2 Power ON/OFF Sequence

$t1 \leq 10\text{ms}$; $1 \text{ sec} \leq t5$
 $50\text{ms} \leq t2$; $200\text{ms} \leq t6$
 $0 < t3 \leq 50\text{ms}$; $200\text{ms} \leq t7$
 $0 < t4 \leq 10\text{ms}$

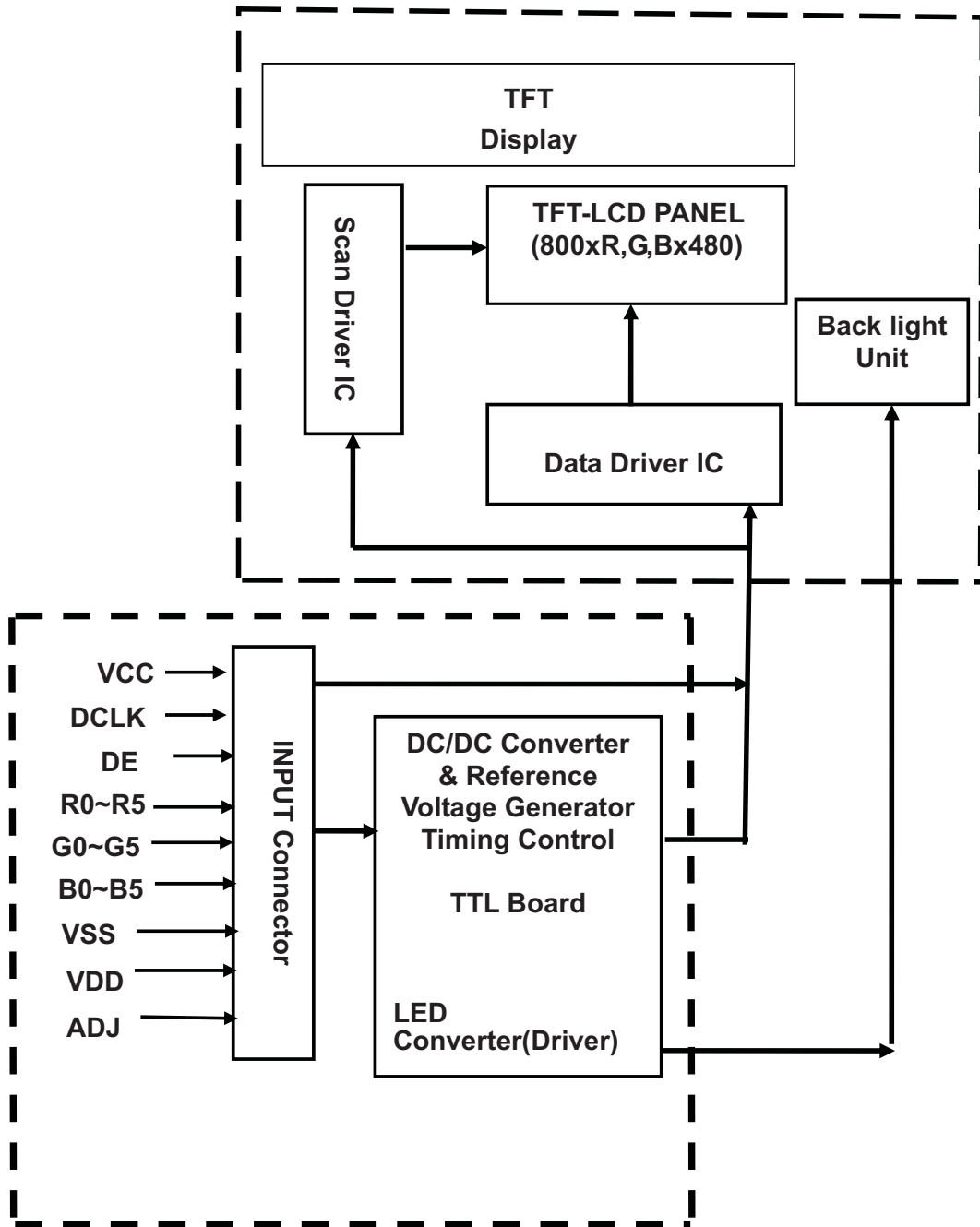


VCC-dip condition :

- (1) $2.7 \text{ V} \leq V_{CC} < 3.0\text{V}$, $t_d \leq 10 \text{ ms}$
- (2) $V_{CC} > 3.0\text{V}$, VCC-dip condition should be the same with VCC-turn-on condition .

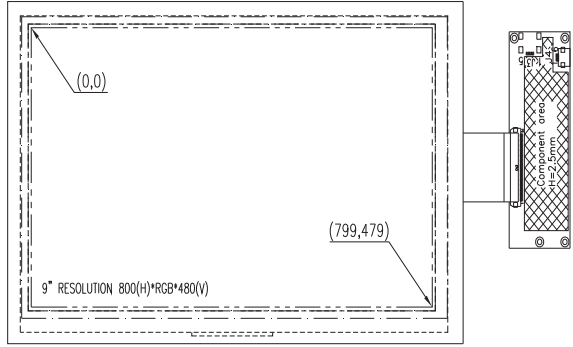


9. BLOCK DIAGRAM

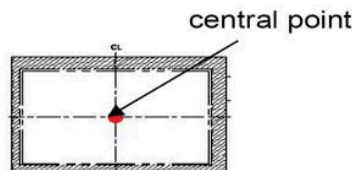


10. CTP GENERAL SPECIFICATIONS

10.1 CTP main feature

Item	Specification	Unit
Type	Transparent type projected capacitive touch panel	
Input mode	Human's finger	
Finger	5	
Interface	I ² C	
Response time	10	ms
Report rate	100	Hz
(X,Y) position		
Point hitting life time	1,000,000 times min.	Note 1
FW	TBD	

Note: Use 8 mm diameter silicon rubber/force 3N to knock on the central point twice per second (no-operating), function pass after test.



10.2 ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Typ.	Max.	Unit
3.3V Supply voltage	VDD	-0.3	-	3.6	V

10.3 DC characteristics

VDD=3.3V+/-5%, GND=0V,

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	VDD	3.1	3.3	3.5	
TTL Input High Voltage	VIH_TTL	2	-	VDD+0.3	V
TTL Input Low Voltage	VIL_TTL	-0.3	-	0.8	mA
TTL Output High Voltage	VOH_TTL	0.9 *OVDD	-		uA
TTL Output Low Voltage	VOL_TTL		-	0.45	V
TTL Output High Current	IOH_TTL	-4			
TTL Output Low Voltage	IOL_TTL		-	4	V

NOTES:

- Parameter applies to following pins:
GPIO [3:0], I²C *_*, UART *_*, INT and RESET#.

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10.4. I²C addresses issue

For kernel version beyond 2.6.35, address 0x04-0x07 and address above 0x78 are reserved (defined in `kernel/drivers/i2c/i2c-core.c`). We use 0x5c as default I²C slave address which is defined in firmware.

```
#define SIS_SLAVE_ADDR 0x5c
```

I²C touch data format (5 touch per package):

byte 0	byte 1	byte 2
Length field	Length field	Report ID

byte 3	byte 4	byte 5	byte 6	byte 7	byte 8
Status1	Contact ID1	X1	X1	Y1	Y1

byte 9	byte 10	byte 11	byte 12	byte 13	byte 14
Status2	Contact ID2	X2	X2	Y2	Y2

byte 15	byte 16	byte 17	byte 18	byte 19	byte 20
Status3	Contact ID3	X3	X3	Y3	Y3

byte 21	byte 22	byte 23	byte 24	byte 25	byte 26
Status4	Contact ID4	X4	X4	Y4	Y4

byte 27	byte 28	byte 29	byte 30	byte 31	byte 32
Status5	Contact ID5	X5	X5	Y5	Y5

byte 33	byte 34	byte 35
Actual Count	CRC	CRC

Lengthfield: byte count of the package
 ReportID: 0x01
 Status Nth: the touch status of Nth finger-touch
 Contact ID Nth: the touch ID of Nth finger-touch
 X Nth: X position of Nth finger-touch
 Y Nth: Y position of Nth finger-touch
 Actual count: total touch numbers
 CRC: CRC check

10.5 Power On/Off Sequence

The 3.3V needs to be stable before the reset signal is activated and reaching 2V at least 5ms.
 If the reset signal is controlled by GPIO, the designer has to make sure that the power sequence is following SiS's recommendation as showing in Figure 10.5

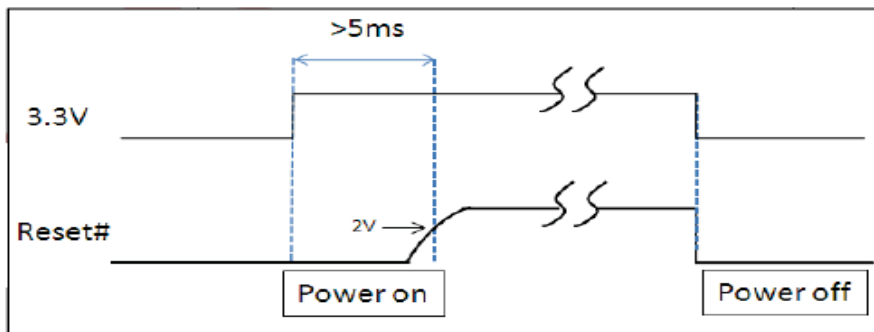


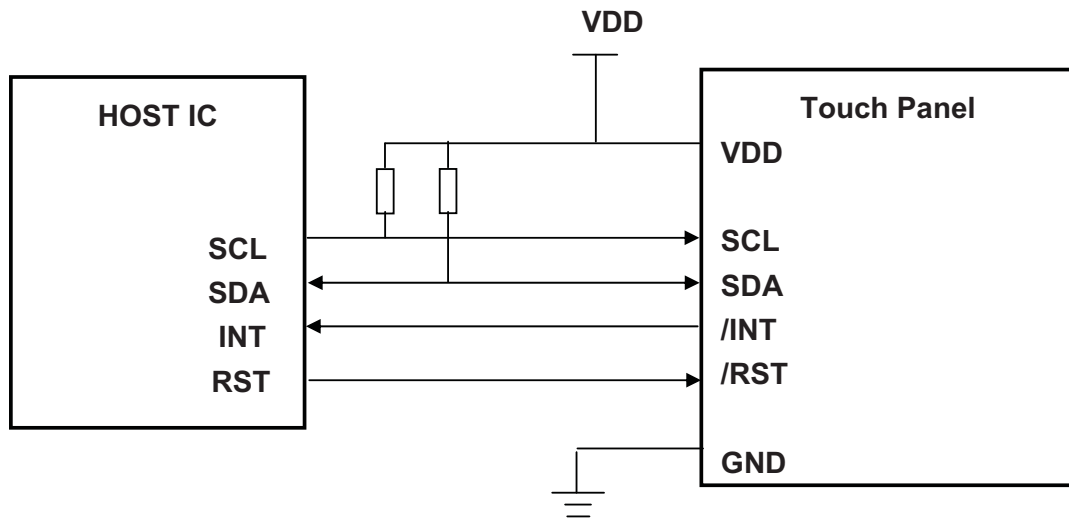
Figure 10.5 Power On/Off Sequence

10.6 PIN CONNECTIONS

10.6.1 "J4" PIN FUNCTION

No.	Name	I/O	Description
1	VDD	P	Power; VDD=3.3V
2	SCL	I	I ² C clock input
3	SDA	I/O	I ² C data signal
4	/INT	O	Indicate coordinate data ready
5	/RESET	I	Reset, Active low
6	GND	P	Ground

10.7 BLOCK DIAGRAM



- Note :
1. Use appropriate resistor value during high speed SCL clock.
Recommend resistor: 1K Ohm.
 2. To reduce the noise from the power, we suggest you use the independent power for the touch panel (VDD)

11. QUALITY ASSURANCE

11.1 Test Condition

11.1.1 Temperature and Humidity(Ambient Temperature)

Temperature : 25 ± 5°C
 Humidity : 65 ± 5%

11.1.2 Operation

Unless specified otherwise, test will be conducted under function state.

11.1.3 Container

Unless specified otherwise, vibration test will be conducted to the product itself without putting it in a container.

11.1.4 Test Frequency

In case of related to deterioration such as shock test. It will be conducted only once.

11.1.5 Test Method

NO.	Test item	Test level	Remark
1	High temperature storage test	T=80°C,240H	IEC68-2-2
2	Low temperature storage test	T= -30°C,240H	IEC68-2-1
3	High temperature operation test	T=70°C,240H	IEC68-2-2
4	Low temperature operation test	T=-20°C,240H	IEC68-2-1
5	High temperature and high humidity operation test	T=60°C,90%RH,240H	IEC68-2-3
6	Thermal cycling storage test	-30°C----25°C-----80°C ,50Cycle 30min 5min 30min	IEC68-2-14
7	vibration test	Frequency:10~55HZ Amplitude:1.5mm Sweep time:11min Test period:6Cycles for each direction of X,Y,Z	IEC68-2-6
8	Shock test	100G,6ms,Direction:±X±Y±Z Cycle:3times	IEC68-2-27
9	Drop test	Height: 60cm 1conner, 3edges,6surfaces	IEC68-2-32
10	ESD test	Location: LCM/TP surface Condition:150pf 330Ω Contact +/- 4kV Air +/-8kV Criteria: Class C	IEC61000-4-2

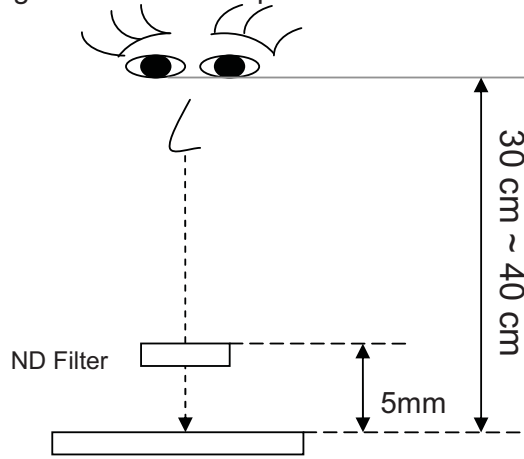
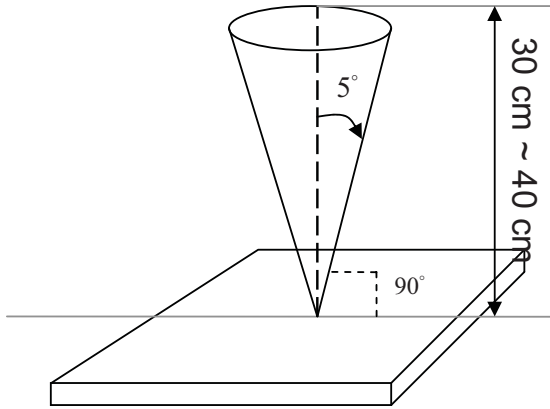
11.2 Inspection condition

11.2.1 Inspection conditions

11.2.1.1 Inspection Distance : 35 ± 5 cm

11.2.1.2 View Angle :

- (1) Inspection that light pervious to the product: $\pm 5^\circ$
- (2) Inspection that light reflects on the product: $\pm 45^\circ$

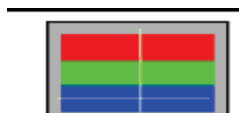


11.2.2 Environment conditions :


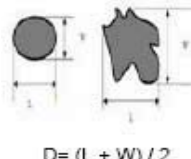
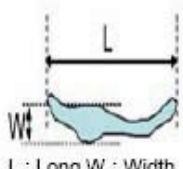
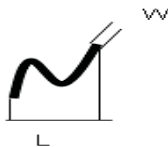
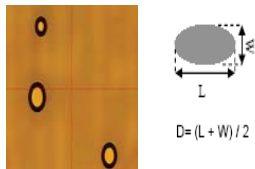
Ambient Temperature :	25±5°C
Ambient Humidity :	30~75%RH
Ambient Illumination	600~800 lux

11.2.3 Inspection Parameters

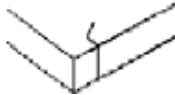
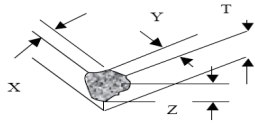
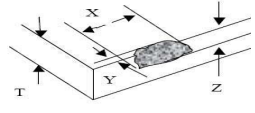
Appearance inspection standard (D: diameter, L: length; W: width, Z: height, T: glass thickness, n: number)

Inspection item	Inspection standard	Description
No image	Prohibited	
Image abnormal	Prohibited	
Bright line	Prohibited	
Mura	It is acceptable that the defect can not be seen with 2% ND filter.	

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Dot	Item	Acceptable Visible area	Total	 <p>One Dot</p> <p>Two adjacent dot</p>
	Bright dot	3		
Dark dot	5	1		
Bright adjacent dots	1		2	
Dark adjacent dots	2	2		
Adjacent dots with a bright dot and a dark dot	2			
Foreign material in dot shape	SPEC (unit: mm)	Acceptable	 <p>$D = (L + W) / 2$</p>	
	$D \leq 0.5$	Ignored		
	$0.5 < D \leq 0.8$, distance > 5	$n \leq 5$		
	$D > 0.8$	0		
Foreign material in line shape	SPEC (unit: mm)	Acceptable	 <p>L : Long W : Width</p>	
	$W \leq 0.05$ and $L \leq 10$	Ignored		
	$0.05 < W \leq 0.1$, $L \leq 10$, distance > 5	$n \leq 5$		
	$W > 0.1$ or $L > 10$	0		
Contamination	It is acceptable if the dirt can be wiped.			
Inspection item	Inspection standard		Description	
Scratch	SPEC (unit: mm)	Acceptable		
	$W \leq 0.05$ and $L \leq 10$	Ignored		
	$0.05 < W \leq 0.08$, $L \leq 10$, distance > 5	$n \leq 5$		
	$0.08 < W \leq 0.1$, $L \leq 10$, distance > 5	$n \leq 3$		
	$W > 0.1$ or $L > 10$	0		
Bubble	SPEC (unit: mm)	Acceptable	 <p>$D = (L + W) / 2$</p>	
	$D \leq 0.3$	Ignored		
	Non visible area	Ignored		
	$0.3 < D \leq 0.5$, distance > 5	$n \leq 5$		
	$D > 0.5$	0		

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Insufficient glue	SPEC (unit: mm)	Acceptable	
	Non visible area	Ignored	
	Visible area	0	
Cover & Sensor Crack	Prohibited		
Sensor angle missing & edge break	SPEC (unit: mm)	Acceptable	
	Damage circuit or effect function	0	
Cover/Sensor angle missing	SPEC (unit: mm)	Acceptable	
	$X \leq 3.0, Y \leq 3.0, Z \leq T$	Ignored	
	$X > 3.0, Y > 3.0, Z > T$	0	
Cover/Sensor edge break	SPEC (unit: mm)	Acceptable	
	$X \leq 3.0, Y \leq 3.0, Z \leq T$	Ignored	
	$X > 3.0, Y > 3.0, Z > T$	0	
Ink	SPEC (unit: mm)	Acceptable	
	word unclear, inverted, mistake, break line	0	
Bubble under protection film	SPEC (unit: mm)	Acceptable	
	NA		
Function	Prohibited		

11.3 Sampling Condition

Unless otherwise agree in written, the sampling inspection shall be applied to the incoming inspection of customer.

Lot size: Quantity of shipment lot per model.

Sampling type: normal inspection, single sampling

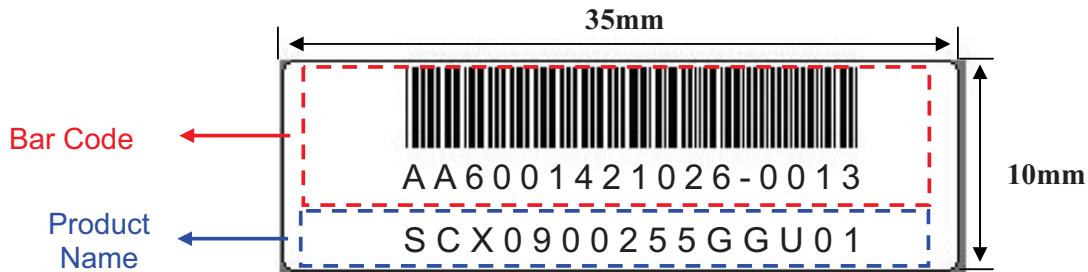
Sampling table: ISO 2859

Inspection level: Level II

Class of defects	Definition		
	Major	AQL 0.65	It is a defect that is likely to result in failure or to reduce materially the usability of the product for the intended function.
Minor	AQL 1.5	It is a defect that will not result in functioning problem with deviation classified.	

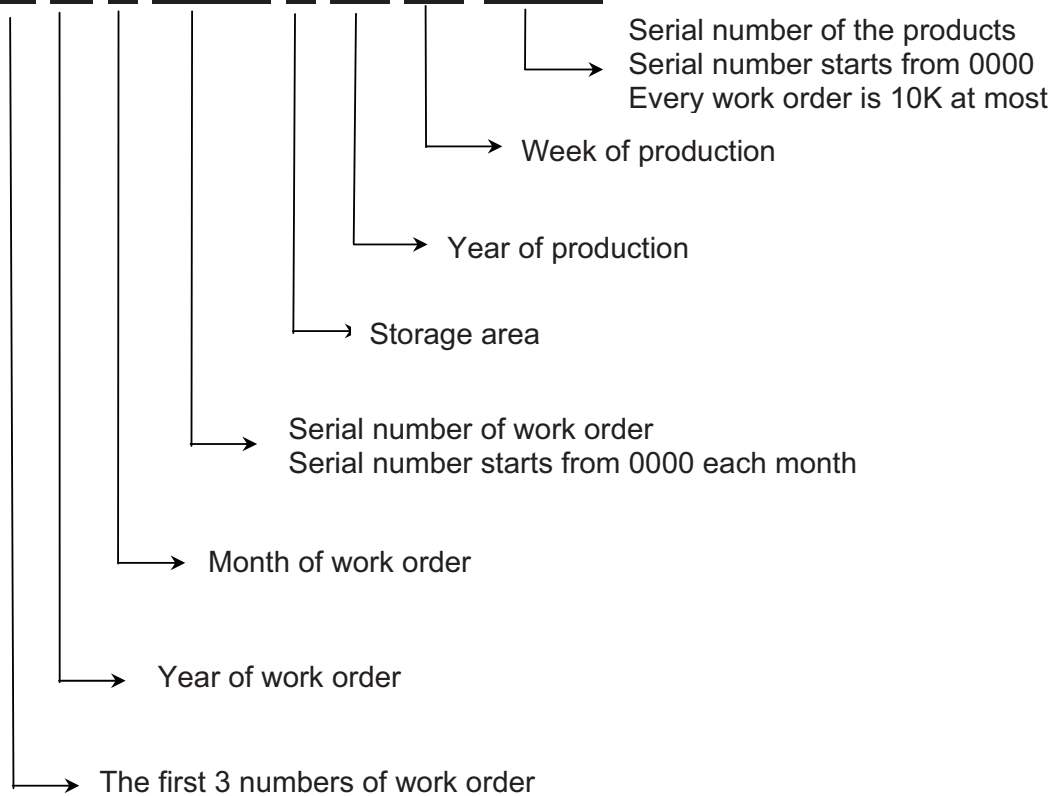
12. LCM PRODUCT LABEL DEFINE

Product Label style:



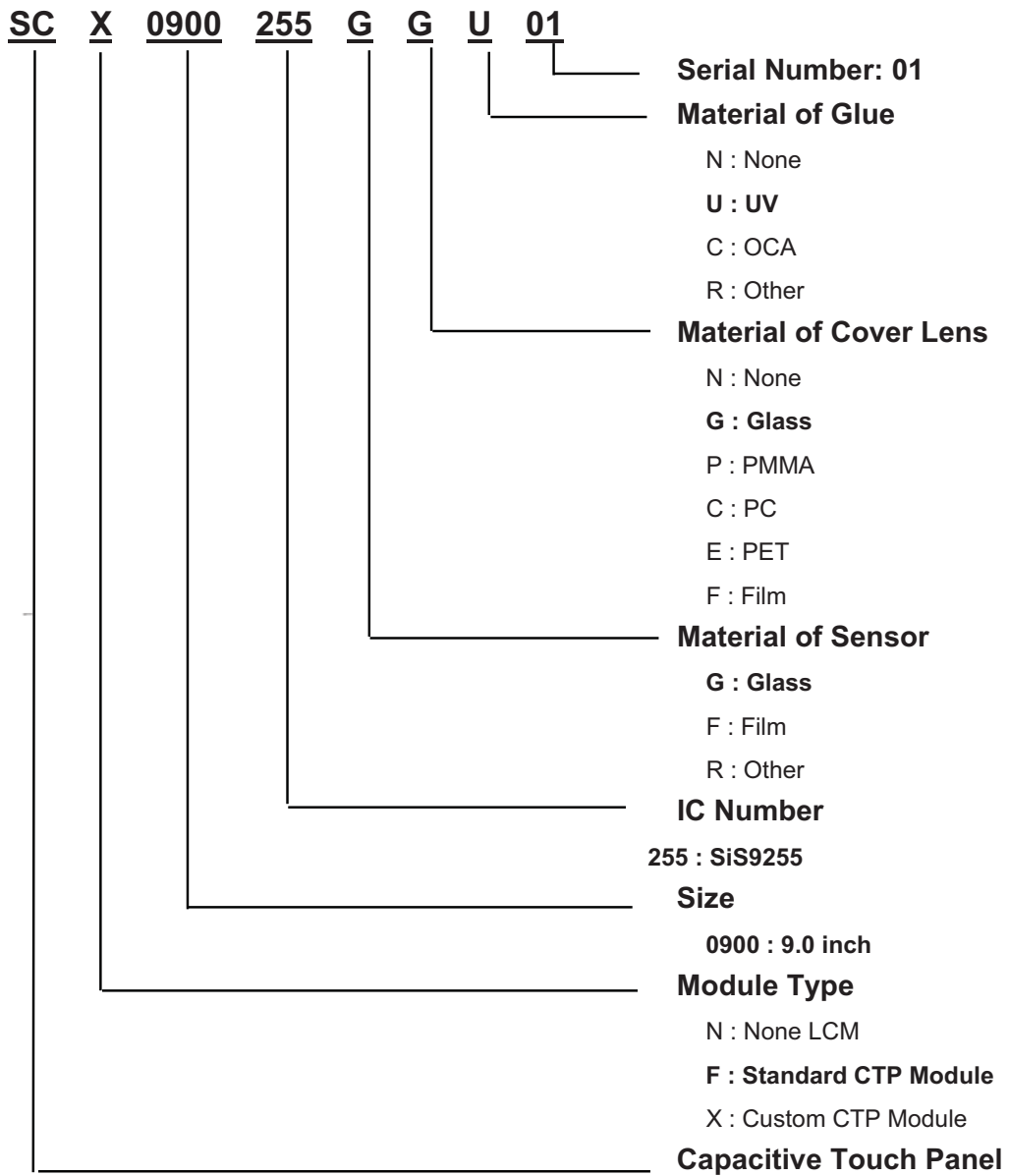
BarCode Define:

A A 6 0014 2 10 26-0013



Confidential Document

Product Name Define:



Confidential Document

13. PRECAUTION FOR USING LCM

1. ASSEMBLY PRECAUTIONS

- (1) You must mount a module using holes arranged in four corners or four sides.
- (2) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
- (3) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
- (4) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
- (5) Do not open the case because inside circuits do not have sufficient strength.
- (6) Please do not take a LCD module to pieces and reconstruct it. Resolving and reconstructing modules may cause them not to work well.
- (7) Please do not touch metal frames with bare hands and soiled gloves. A color change of the metal frames can happen during a long preservation of soiled LCD modules.
- (8) Please pay attention to handling lead wire of backlight so that it is not tugged in connecting with inverter.
- (9) Please excessive force or strain to the panel or tail is prohibited.
- (10) Use clean sacks or glove to prevent fingerprints and/or stains left on the panel. Extra attention and carefulness should be taken while handling the glass edge.
- (11) Avoid touching the viewing area before installation /integration.

2. OPERATING PRECAUTIONS

- (1) Please be sure to turn off the power supply before connecting and disconnecting signal input cable.
- (2) Please do not change variable resistance settings in LCD module. They are adjusted to the most suitable value. If they are changed, it might happen LCD does not satisfy the characteristics specification
- (3) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
- (4) When fixed patterns are displayed for a long time, remnant image is likely to occur.
- (5) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.
- (6) Please consider that LCD backlight takes longer time to become stable of radiation characteristics in low temperature than in room temperature.
- (7) Touch the panel with your finger or stylus only to assure normal operation. Any sharp edged or hard objects are prohibited.
- (8) Operate the panel in a steady environment. Abrupt variation on temperature and humidity may cause malfunction of the panel.

3. ELECTROSTATIC DISCHARGE CONTROL

- (1) The operator should be grounded whenever he/she comes into contact with the module. Never touch any of the conductive parts such the copper leads on the PCB and the interface terminals with any parts of the human body.

- (2) The modules should be kept in antistatic bags or other containers resistant to static for storage.
- (3) Only properly grounded soldering irons should be used.
- (4) If an electric screwdriver is used, it should be well grounded and shielded from commutator sparks.
- (5) The normal static prevention measures should be observed for work clothes and working benches; for the latter conductive (rubber) mat is recommended
- (6) Since dry air is inductive to statics, a relative humidity of 50-60% is recommended.

4. STORAGE PRECAUTIONS

- (1) When you store LCDs and touch panel for a long time, it is recommended to keep the temperature between 0°C-40°C without the exposure of sunlight and to keep the humidity less than 90%RH.
- (2) Please do not leave the LCDs and touch panel in the environment of high humidity and high temperature such as 60°C 90%RH
- (3) Please do not leave the LCDs and touch panel in the environment of low temperature; below -20°C.

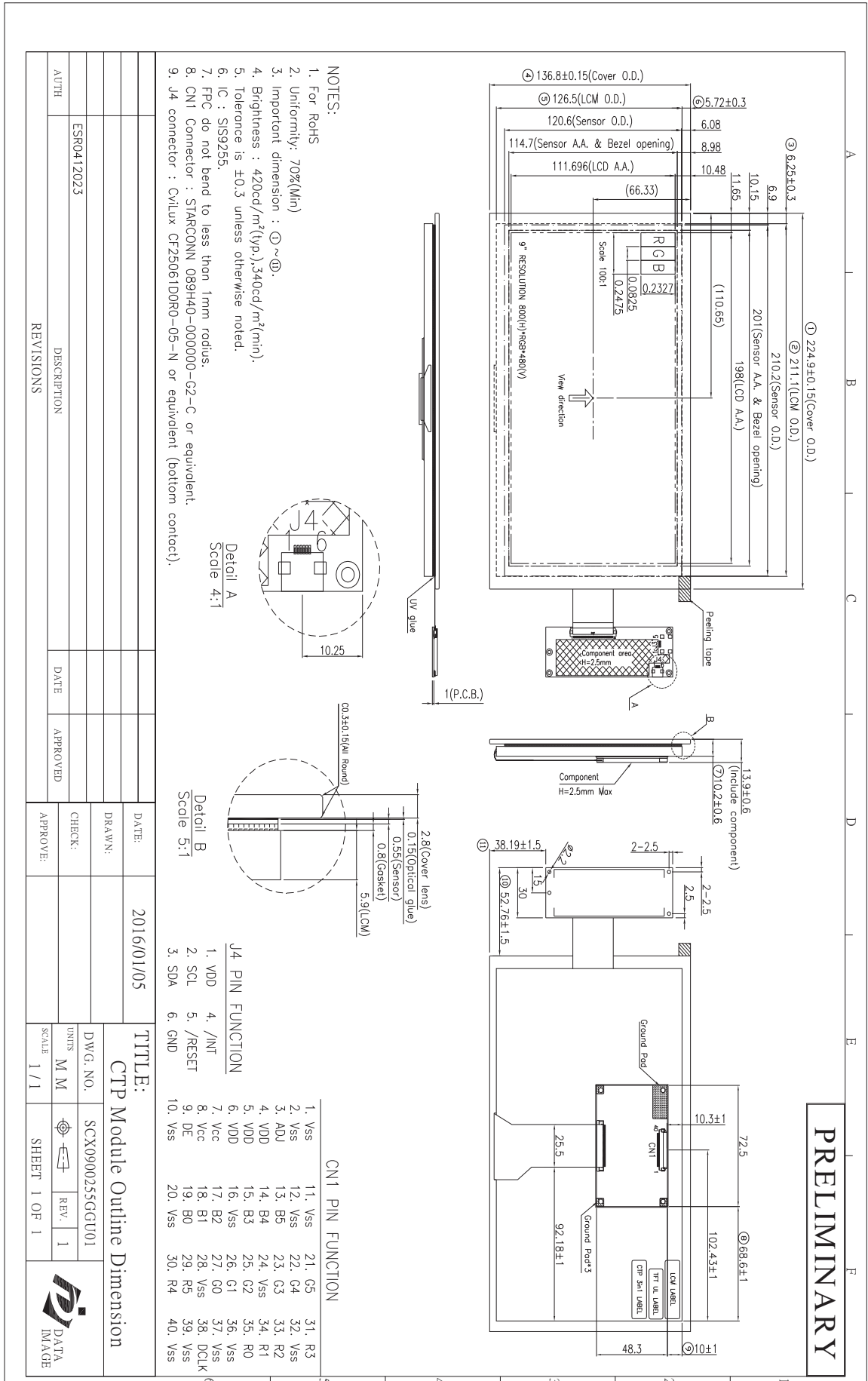
5. OTHERS

- (1) A strong incident light into LCD panel might cause display characteristics' changing inferior because of polarizer film, color filter, and other materials becoming inferior. Please do not expose LCD module direct sunlight and strong UV rays
- (2) Please pay attention to a panel side of LCD module not to contact with other materials in preserving it alone.
- (3) For the packaging box, please pay attention to the followings:
 - a. Please do not pile them up more than 5 boxes. (They are not designed so.) And please do not turn over.
 - b. Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.
 - c. Packing box and inner case for LCDs are made of cardboard. So please pay attention not to get them wet. (Such like keeping them in high humidity or wet place can occur getting them wet.)

6. LIMITED WARRANTY

Unless otherwise agreed between DATA IMAGE and customer, DATA IMAGE will replace or repair any of its LCD and LCM which is found to be defective electrically and visually when inspected in accordance with DATA IMAGE acceptance standards, for a period on one year from date of shipment. Confirmation of such date shall be based on freight documents. The warranty liability of DATA IMAGE is limited to repair and/or replacement on the terms set forth above. DATA IMAGE will not responsible for any subsequent or consequential events.

14. OUTLINE DRAWING



15. PACKAGE INFORMATION

TBD