



Version: 1.0

Total Page: 28

CUSTOMER APPROVAL SHEET

Company Name

MODEL PA240240A

CUSTOMER Title :

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- APPROVAL FOR SPECIFICATIONS ONLY (Spec. Ver.____)
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- CUSTOMER REMARK :



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Product Specification

1.30" Color AMOLED with On-Cell Touch MODULE

MODEL NAME: PA240240A

< ◆ > Preliminary Specification

< > Final Specification

Note: The content of this specification is subject to change.



Record of Revision

Version	Revise Date	Page	Content
0.0	2016-07-06	1~27	First Draft
1.0	2016-07-26	10	Update Power IC reference circuit.
		11	Update reference layout.



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A. General Specification

1. Physical Specifications

NO	Item	unit	Specification	Remark
1	Screen Size	inch	1.30"	Diagonal
2	Display Resolution	--	240xRGBx240	
3	Outline Dimension	mm	25.68 (H) × 29.84(V) × 1.173(T)	Cell+foam
4	Active Area	mm	23.28 (H)×23.28(V)	
5	Pixel Pitch	um	97	
6	Color Configuration	--	Hyper R.G.B	
7	Color Depth	--	16.7M	
8	NTSC Ratio	%	~ 100	
9	Display Mode	--	AMOLED	
10	Interface	--	Dual SPI	
11	Display IC		W040	
12	Touch IC	--	ITE 7259	On-cell TP



2. Pin Assignment

Main FPC Pin assignment — AMOLED Panel Input/Output Signal Interfac

Main board recommended ZIF connector : 196533-45041-3 / P-Two Industries INC.

#	Pin_name	I/O/P	Description
1	ELVSS	P	AMOLED negative power supply(Power IC need to follow AUO's suggestion)
2	ELVSS	P	AMOLED negative power supply(Power IC need to follow AUO's suggestion)
3	ELVSS	P	AMOLED negative power supply(Power IC need to follow AUO's suggestion)
4	ELVSS	P	AMOLED negative power supply(Power IC need to follow AUO's suggestion)
5	NC	NC	No connection
6	GND	P	Ground
7	VGL	P	Driver IC power connects to capacitor C1
8	NC	NC	No connection
9	C51P	P	Driver IC power connects to capacitor C10
10	C51N	P	Driver IC power connects to capacitor C10
11	VCL	P	Driver IC power connects to capacitor C5
12	C31N	P	Driver IC power connects to capacitor C11
13	C31P	P	Driver IC power connects to capacitor C11
14	AVDD	P	Driver IC power connects to capacitor C6
15	VCI	P	Driver analog power supply(Power IC need to follow AUO's suggestion)
16	C11N	P	Driver IC power connects to capacitor C12
17	C11P	P	Driver IC power connects to capacitor C12
18	GND	P	Ground
19	DVDD	P	Driver IC power connects to capacitor C2
20	VDDIO	P	Power supply for Interface system
21	GND	P	Ground
22	IM0	I	Connects to ground :Dual SPI 3WIRE Connects to VDDIO(1.8V) : Dual SPI 4WIRE
23	IM1	I	Ground
24	GND	P	Ground
25	CSX	I	Chip select (low enable) in SPI I/F & dual SPI I/F
26	SCL	I	A synchronous clock signal in SPI I/F & dual SPI I/F
27	DCX/SDA1	I	Display data / command selection in SPI I/F Serial input signal(SDA1) in dual SPI I/F
28	SDI/SDA0	I/O	Input function :Serial input signal(SDA0) in SPI I/F & dual SPI I/F



29	SDO	O	Serial output signal in SPI I/F & dual SPI I/F
30	RESX	I	Device reset signal (0 : Enable ; 1: Disable)
31	TE	O	Tearing effect output pin to synchronize host to frame writing.
32	SWIRE	O	SWIRE signal for PWR IC control(Power IC need to follow AUO's suggestion)
33	GND	P	Ground
34	VCI	P	Driver analog power supply(Power IC need to follow AUO's suggestion)
35	VREF	P	Driver IC power connects to capacitor C4
36	AVDD	P	Driver IC power connects to capacitor C6
37	VCL	P	Driver IC power connects to capacitor C5
38	ELVSS	P	AMOLED negative power supply connects to capacitor C9
39	ELVDD	P	AMOLED positive power supply connects to capacitor C8
40	VREFN	P	Driver IC power connects to capacitor C7
41	VREFP	P	Driver IC power connects to capacitor C13
42	ELVDD	P	AMOLED positive power supply(Power IC need to follow AUO's suggestion)
43	ELVDD	P	AMOLED positive power supply(Power IC need to follow AUO's suggestion)
44	ELVDD	P	AMOLED positive power supply(Power IC need to follow AUO's suggestion)
45	ELVDD	P	AMOLED positive power supply(Power IC need to follow AUO's suggestion)

TP FPCA pin assignment

#	Pin_name	I/O/P	Description
1	GND	P	Ground
2	NC	--	No Connection
3	AVCC	P	TP Power
4	SDA	I/O	TP I2C data (please preserve pull high resistor 4.7Kohm on host)
5	SCL	I/O	TP I2C clock (please preserve pull high resistor 4.7Kohm on host)
6	INT	O	TP interrupt (please preserve pull high resistor 4.7Kohm on host)
7	RESET_N	I	TP reset
8	GND	P	Ground

Recommended connector: FH34SRJ-8S-0.5SH(50)

3. Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Remark
Digital Power Supply	VDDIO	-0.3	5.5	V	



Analog Power Supply	VCI	-0.3	5.5	V	
ELVDD power Supply	ELVDD	-	5.0	V	
ELVSS power Supply	ELVSS	-5.0	-	V	

Note : If the module exceeds the absolute maximum ratings, it may be damaged permanently. Also, if the module operates with the absolute maximum ratings for a long time, the reliability may drop.

B. DC Characteristics

1. Typical Operating Conditions

Item		Symbol	Min.	Typ.	Max.	Unit	Remark
Digital Power Supply		VDDIO	1.65	1.8	1.95	V	Note1
Analog power Voltage		VCI	3.27	3.3	3.33	V	Note1
ELVDD power Supply		ELVDD	3.27	3.3	3.33	V	Note1
ELVSS power Supply		ELVSS	-3.27	-3.3	-3.33	V	Note1
Input Signal Voltage	H Level	VIH	0.8* VDDIO	-	VDDIO	V	Note1
	L Level	VIL	0	-	0.2* VDDIO	V	
Output Signal Voltage	H Level	VOH	0.8* VDDIO	-	VDDIO	V	Note1
	L Level	VOL	0	-	0.2* VDDIO	V	Note1

Note 1: The operation is guaranteed under the recommended operating conditions only. The operation is not guaranteed if a quick voltage change occurs during the operation. To prevent the noise, a bypass capacitor must be inserted into the line closed to the power pin.

2. Display Current Consumption

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Panel Power		P _{OLED}	ELVDD:3.3V	--	84.5	--	mW	Note1
		I _{OLED}	ELVSS:-3.3V	--	13.1	--	mA	Note1
IC	Normal	P _{VCI}	VCI : 3.3V	--	5.3	--	mW	Note2
		I _{VCI}		--	1.6	--	mA	Note2
		P _{VDDIO}	VDDIO :1.8V	--	2.7	--	mW	Note2
		I _{VDDIO}		--	1.5	--	mA	Note2
	Idle	P _{VCI}	VCI : 3.3V	--	3.6	--	mW	Note3/4



		I_{VCI}		--	1.1	--	mA	Note3/4
		P_{VDDIO}	VDDIO :1.8V	--	1.5	--	mW	Note3/4
		I_{VDDIO}		--	0.8	--	mA	Note3/4
	Sleep	P_{VCI}	VCI : 3.3V	--	--	165	uW	
		I_{VCI}		--	--	50	uA	
		P_{VDDIO}	VDDIO :1.8V	--	--	180	uW	
		I_{VDDIO}		--	--	100	uA	
	Deep Standby	P_{VCI}	VCI : 3.3V	--	--	165	uW	
		I_{VCI}		--	--	50	uA	
		P_{VDDIO}	VDDIO :1.8V	--	--	90	uW	
		I_{VDDIO}		--	--	50	uA	

Note 1: Based on L255 (350nits) full white pattern

Note 2: Based on black pattern. Display frame rate 45Hz command mode.

Note 3: Based on black pattern. Display frame rate 15Hz command mode.

Note 4: VCI Current must be < 3mA at idle mode

3. TP Typical Operating Conditions

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
TP Power	AVCC	2.6	3.1	3.6	V	

4. Touch Panel Current Consumption

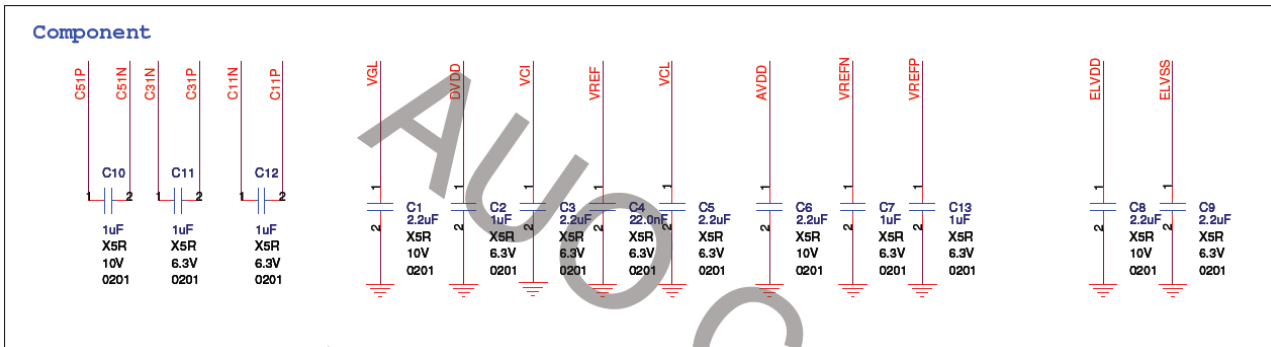
Mode	Symbol	Condition	min	Typ.	Max	Unit
Active (1 finger)	I_{TP_AVCC}	AVCC=3.1V Report Rate: 100Hz Idle scan rate: 20Hz		1.5		mA
Normal Operation (Idle Mode)	I_{TP_AVCC}			0.08		mA
Sensor Sleep (Deep sleep)	I_{TP_AVCC}				2	μ A μ A



5. Recommend Connector & Application Circuit

IMO :

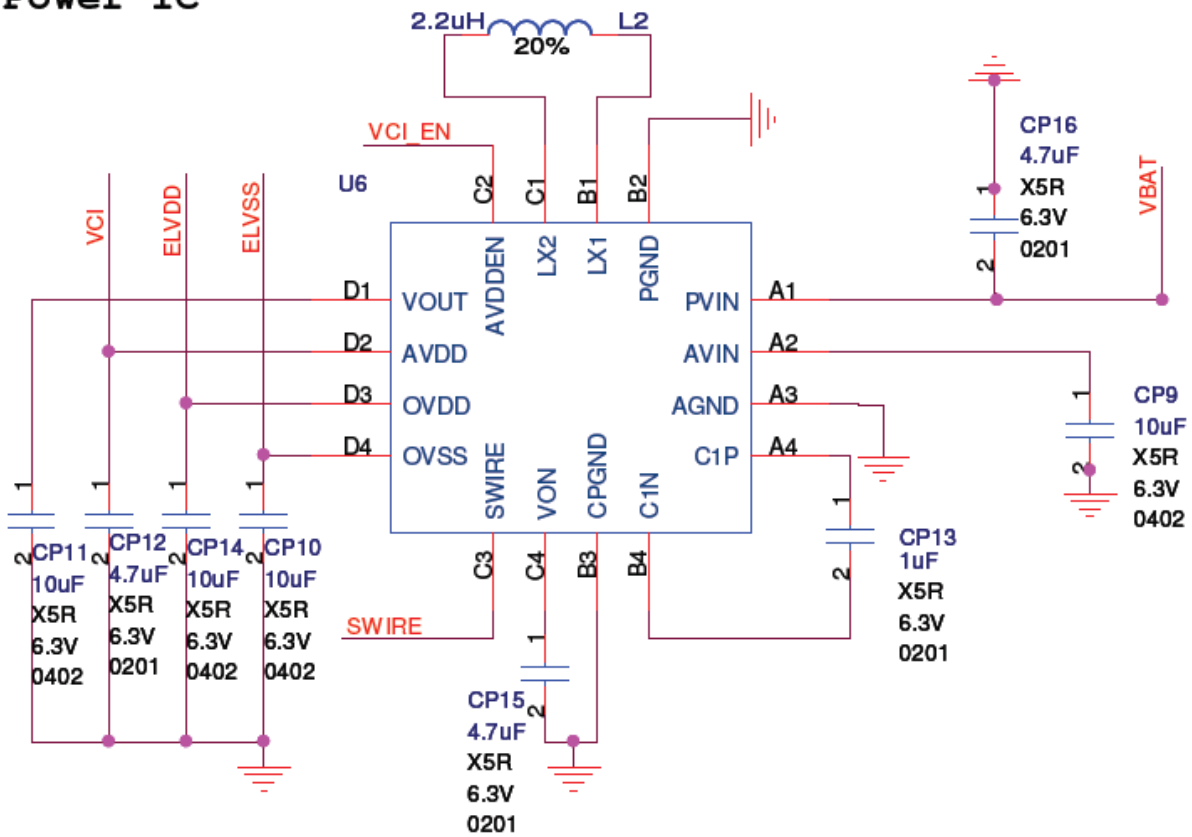
1. 3 Wire SPI : Ground
2. 4 Wire SPI : VDDIO



No	Capacitor	Capacitance	Rated Voltage	P.S.
1	C10	1uF	10V	C51P/C51N
2	C11	1uF	6.3V	C31P/C31N
3	C12	1uF	6.3V	C11P/C11N
4	C1	2.2uF	10V	VGL/GND
5	C2	1uF	6.3V	DVDD/GND
6	C3	2.2uF	6.3V	VCI/GND
7	C4	22nF	6.3V	VREF/GND
8	C5	2.2uF	6.3V	VCL/GND
9	C6	2.2uF	10V	AVDD/GND
10	C7	1uF	6.3V	VREFN/GND
11	C13	1uF	6.3V	VREFP/GND
12	C8	2.2uF	10V	ELVDD/GND
13	C9	2.2uF	6.3V	ELVSS/GND



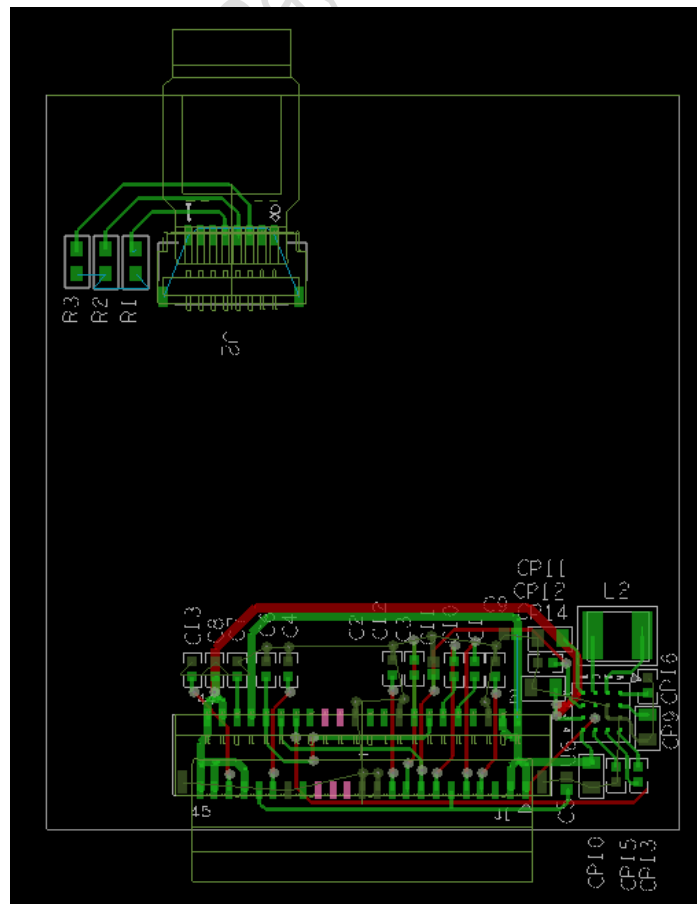
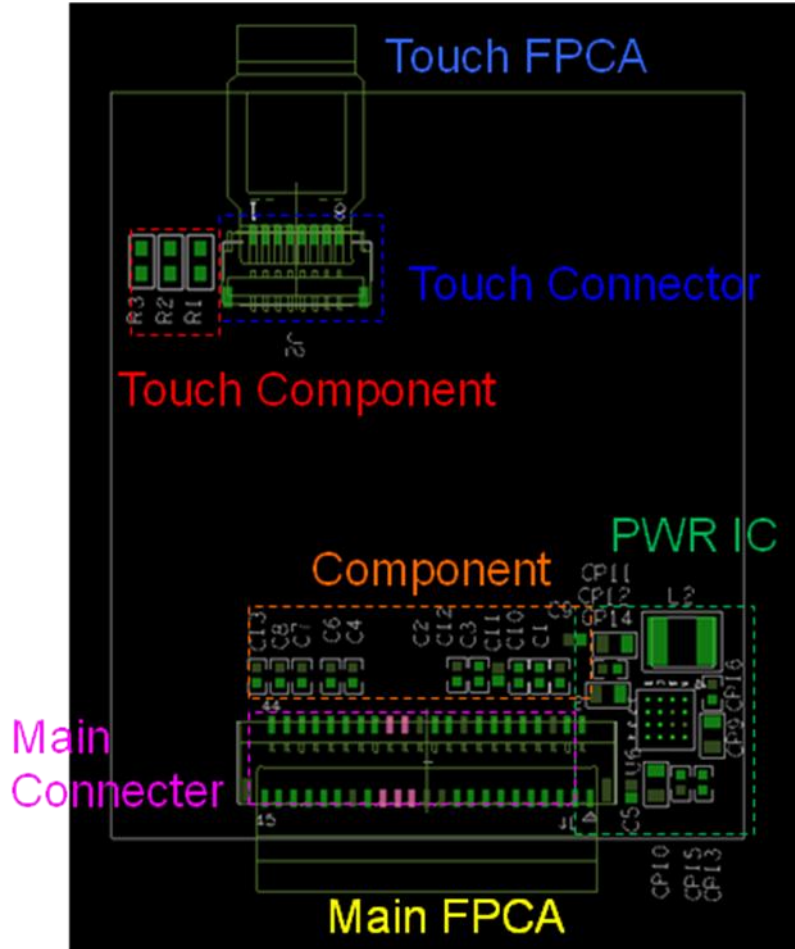
Power IC



No	Item	Reference	Value	Recommend Part number
1	Power IC	U6	RT4730	RT4730,Richtek
2	Inductor	L2	2.2uH	DFE2520MPT-2R2M=P2,Murata
3	Capacator	CP9	10uF,6.3V	
4	Capacator	CP10	10uF,6.3V	
5	Capacator	CP11	10uF,6.3V	
6	Capacator	CP12	4.7uF,6.3V	
7	Capacator	CP13	1uF,6.3V	
8	Capacator	CP14	10uF,6.3V	
9	Capacator	CP15	4.7uF,6.3V	
10	Capacator	CP16	4.7uF,6.3V	



6. Reference Layout



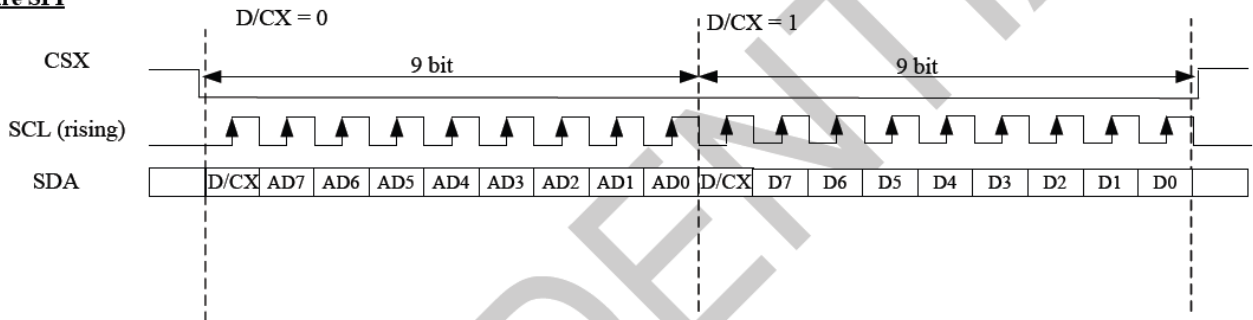


C. AC Characteristics

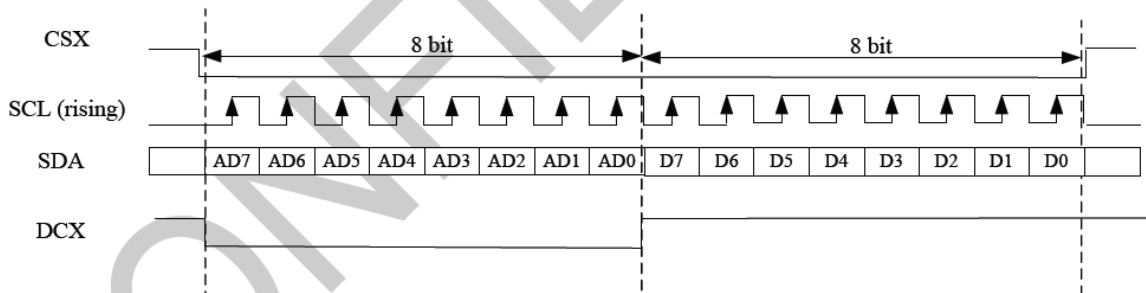
1. SPI & dual SPI Interface Characteristics

Write Cycle in SPI I/F

3-wire SPI

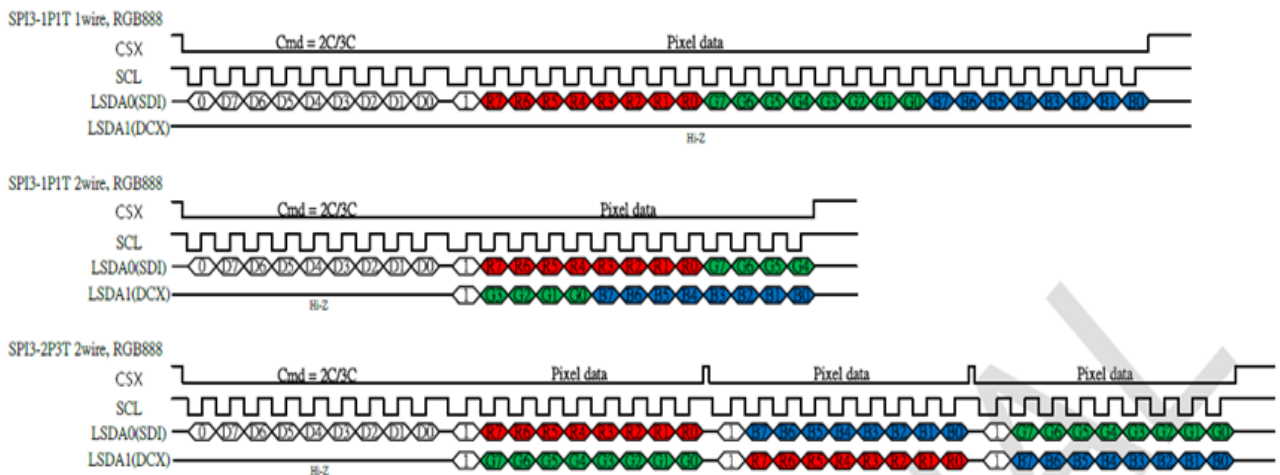


4-wire SPI



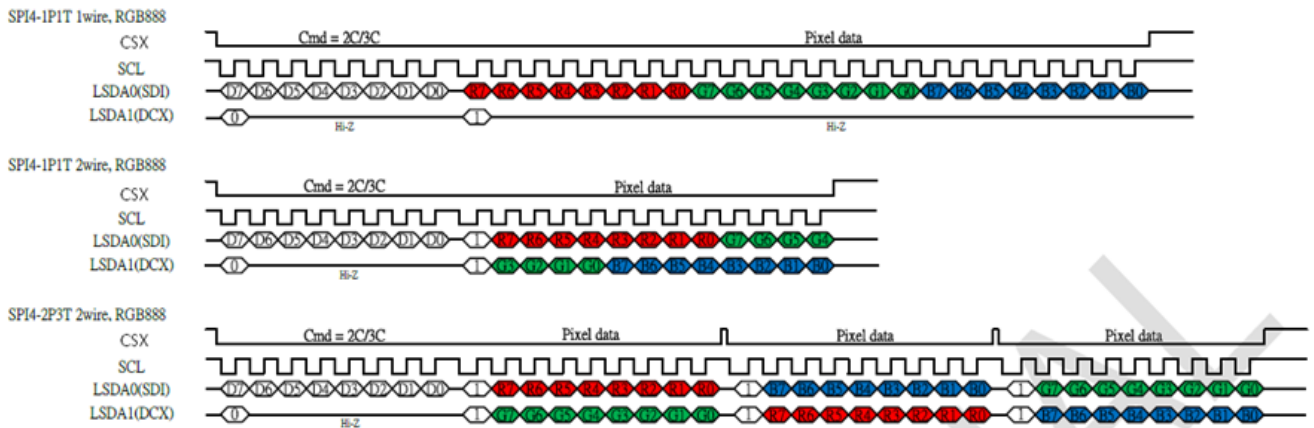
Write Cycle in dual SPI I/F

DUAL SPI via SPI3 interface :



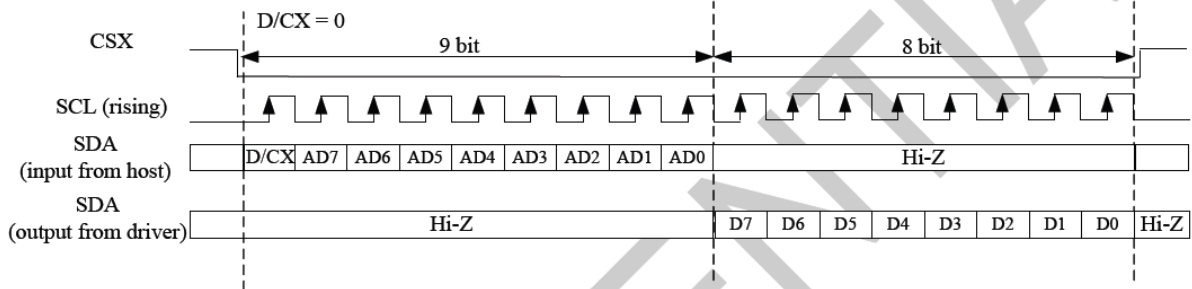


DUAL SPI via SPI4 interface :

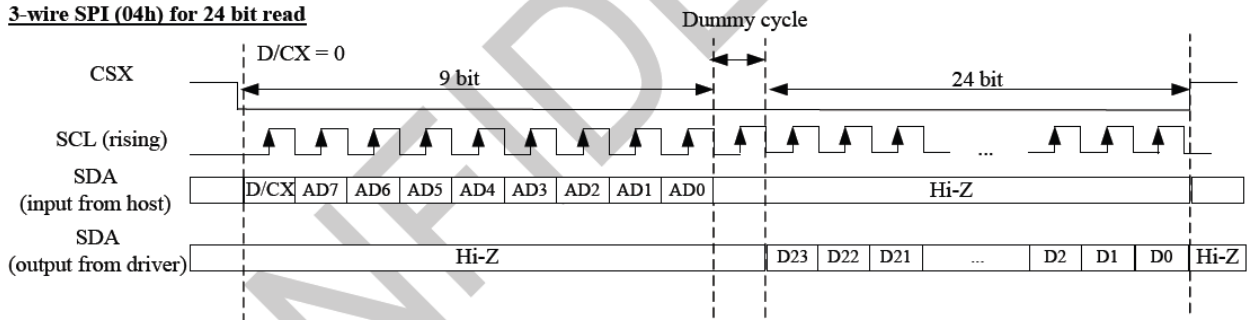


Read Cycle in SPI I/F

3-wire SPI (0Ah/0B/0Ch/0Dh/0Eh/0Fh/DAh/DBh/DCh) for 8 bit read

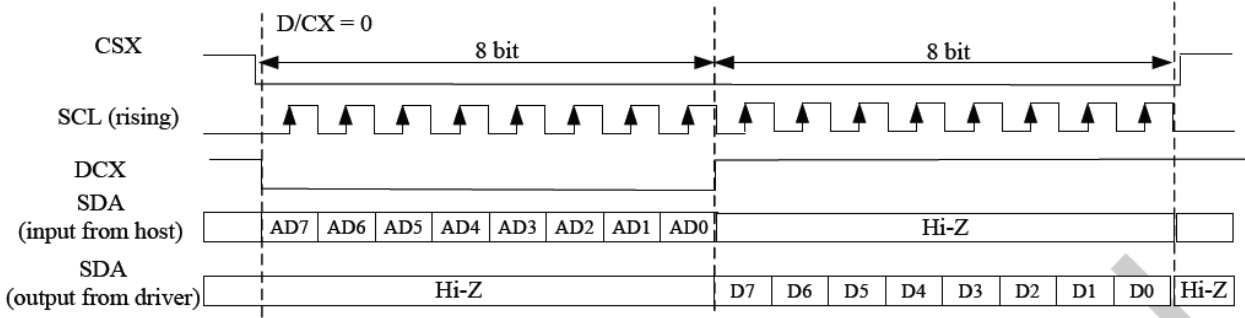


3-wire SPI (04h) for 24 bit read

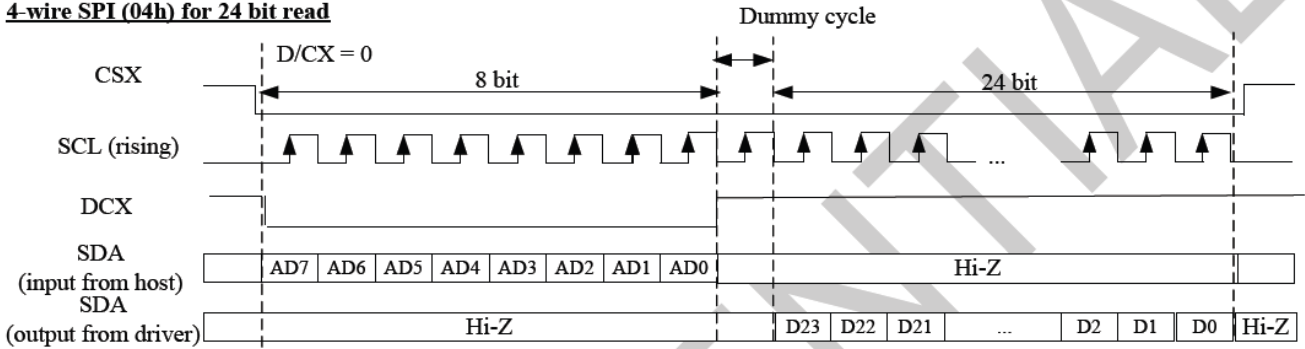




4-wire SPI (0Ah/0B/0Ch/0Dh/0Eh/0Fh/DAh/DBh/DCh) for 8 bit read

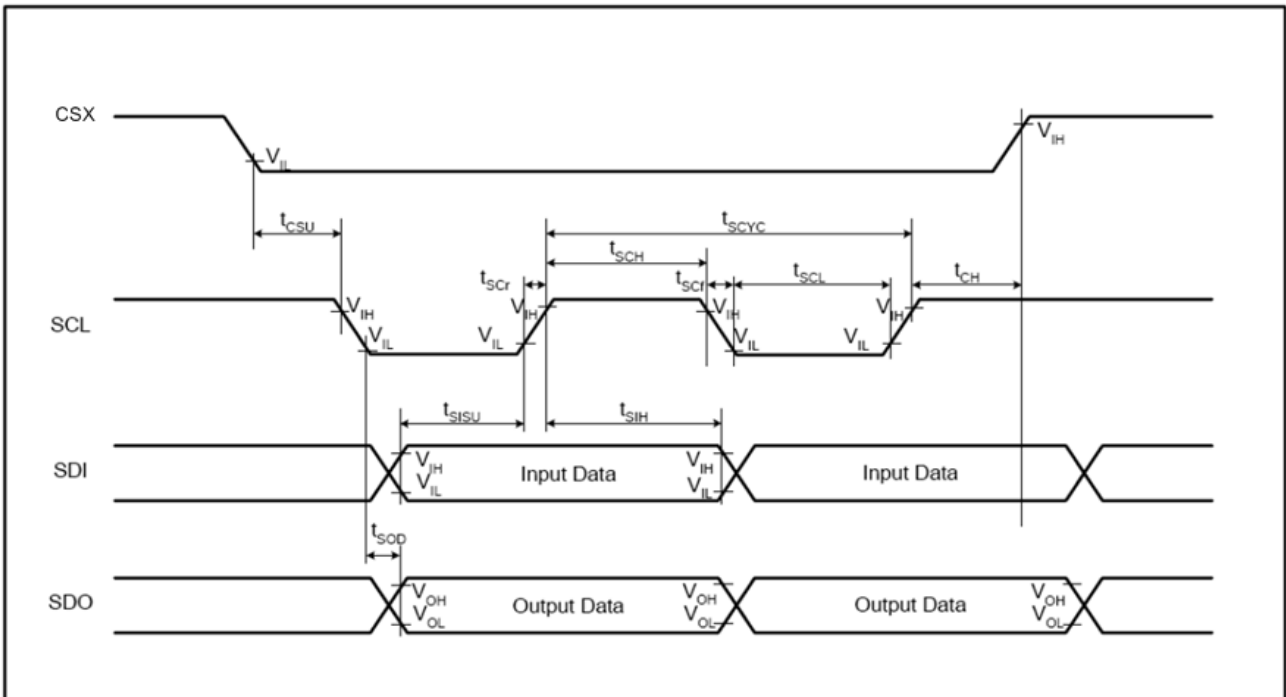


4-wire SPI (04h) for 24 bit read



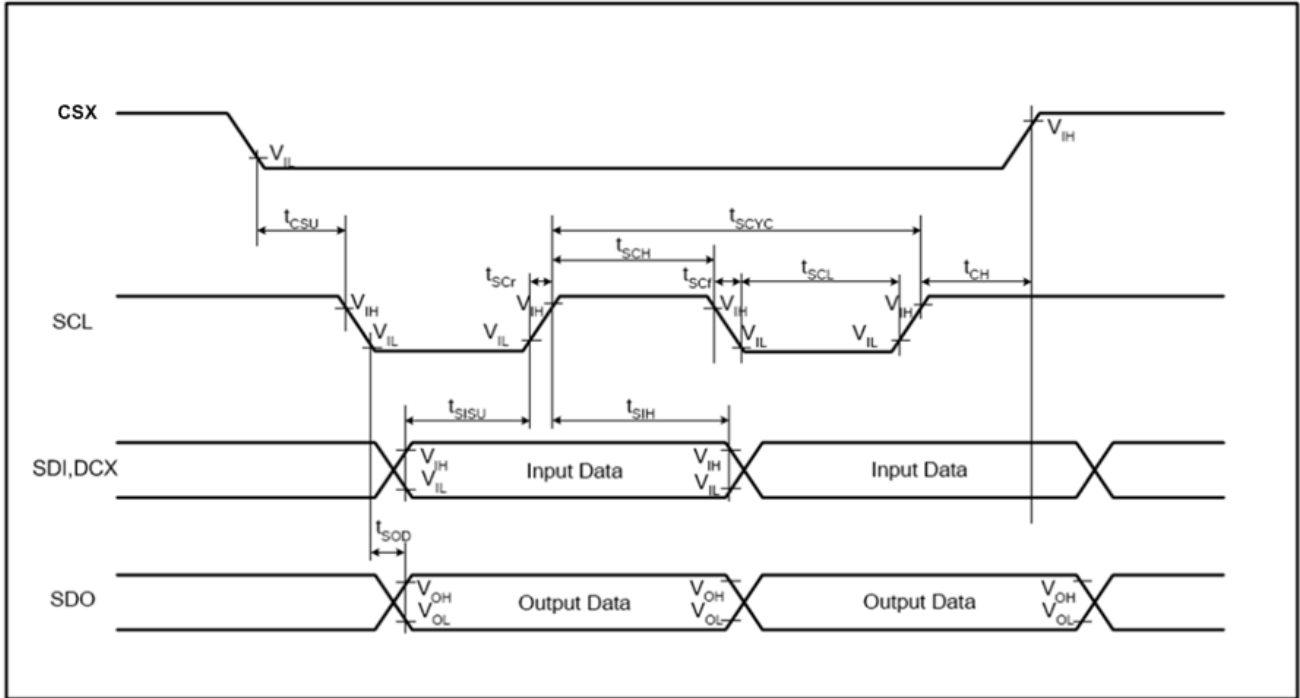
Serial Interface Characteristics

3-Wire SPI Serial Interface Characteristics





4-Wire SPI Serial Interface Characteristics

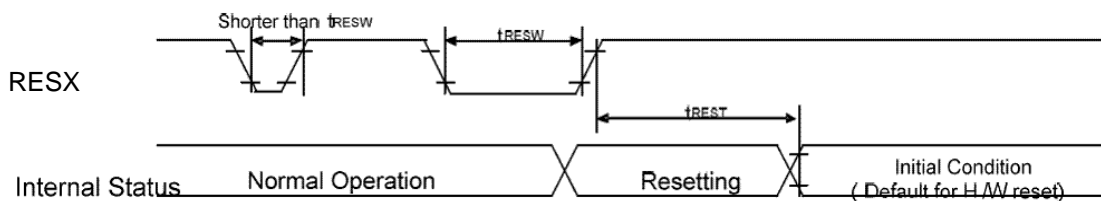


Signal	Symbol	Parameter	MIN	MAX	Unit	Description
SCL	T _{SCYC}	Clock cycle (Write)	20		ns	-
	T _{SCYC}	Clock cycle (Read)	300		ns	
	T _{SCH}	Clock "H" pulse width (Write)	9		ns	
	T _{SCH}	Clock "H" pulse width (Read)	140		ns	
	T _{SCL}	Clock "L" pulse width (Write)	9		ns	
	T _{SCL}	Clock "L" pulse width (Read)	140		ns	
	T _{SCr}	Clock rise time		2	ns	
	T _{SCf}	Clock fall time		2	ns	
CSX	T _{CSU}	Chip select setup time	10		ns	-
	T _{CH}	Chip select hold time	10		ns	
SDI (SDA)	T _{SISU}	Data input setup time	5		ns	-
	T _{SIH}	Data input hold time	5		ns	
SDO (SDA)	T _{SOD}	Data output setup time		120	ns	-
	T _{SOH}	Data output hold time	5		ns	

Note: Logic high and low levels are specified as 20% and 80% of VDDIO for Input signals. Note: Ta = -30 to 70 °C, VDDIO=1.65V to 3.3V, VCI=2.7V to 3.6V, GND=0V

2. Display RESET Timing Characteristics

Reset input timing





Timing Parameters

Symbol	Parameter	Related Pins	MIN	TYP	MAX	Note	Unit
t_{RESW}	*1) Reset low pulse width	RESX	10	-	-	-	μs
t_{REST}	*2) Reset complete time	-	-	-	5	When reset applied during Sleep in mode	ms
		-	-	-	120	When reset applied during Sleep out mode	ms

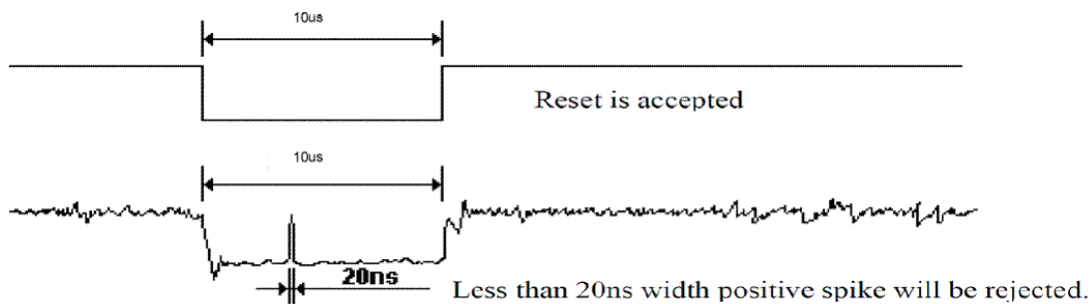
Note 1. Spike due to an electrostatic discharge on RESX line does not cause irregular system reset according to the table below.

RESX Pulse	Action
Shorter than $5\mu s$	Invalid Reset
Longer than $10\mu s$	Valid Reset
Between $5\mu s$ and $10\mu s$	Reset Initialigation Precedure

Note 2. During the resetting period, the display will be blanked (The display is entering blanking sequence, which maximum time is 120 ms, when Reset Starts in Sleep Out –mode. The display remains the blank state in Sleep In –mode) and then return to Default condition for H/W reset.

Note 3. During Reset Complete Time, data in OTP will be latched to internal register during this period. This loading is done every time when there is H/W reset complete time (t_{REST}) within 5ms after a rising edge of RESX.

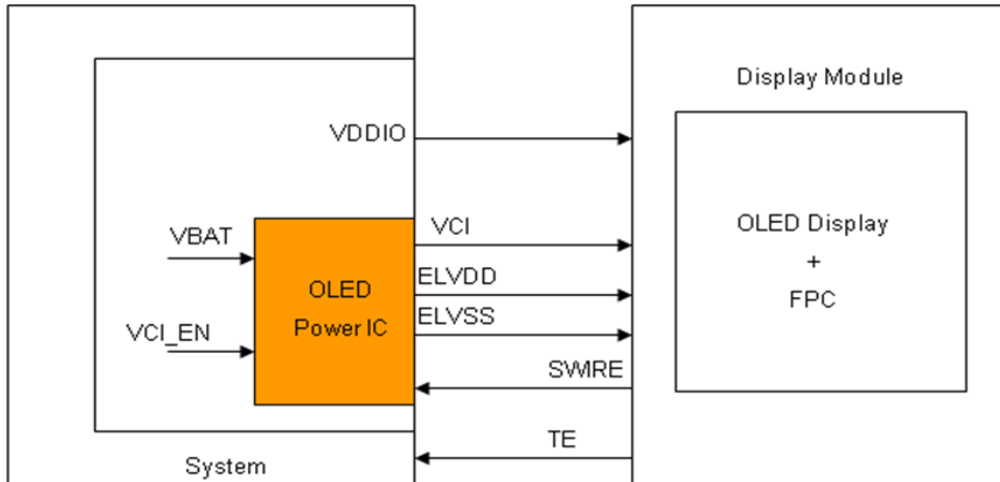
Note 4. Spike Rejection also applies during a valid reset pulse as shown below:



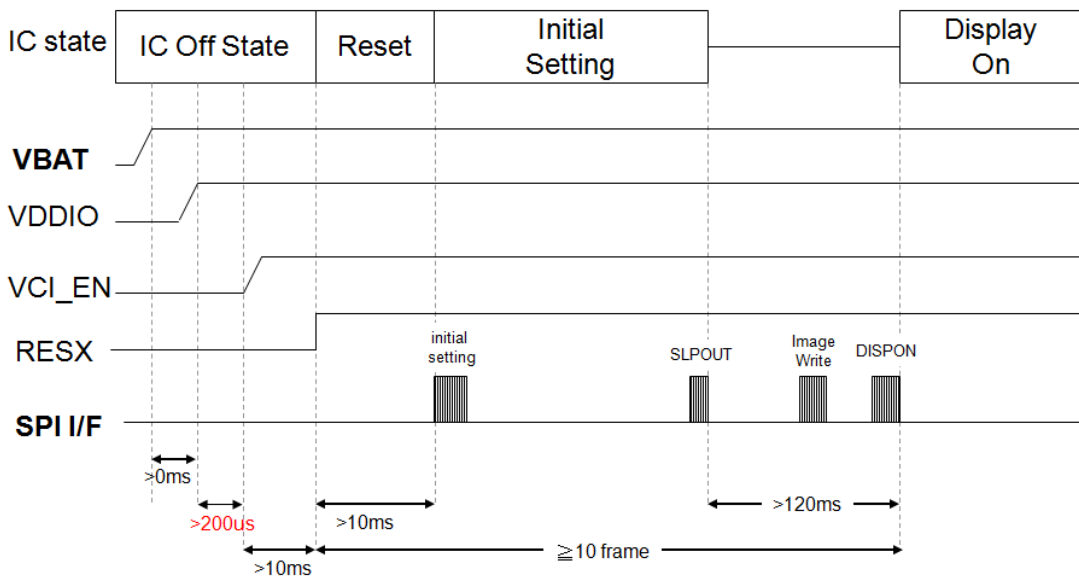
Note 5. It is necessary to wait 5msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120msec.



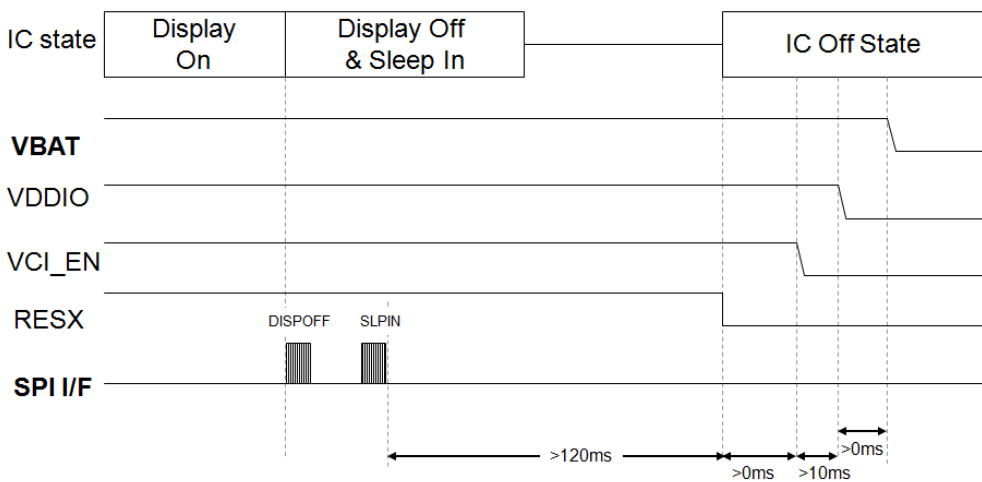
Power Structure



Power on sequence



Power off sequence





3. Touch Panel Timing Characteristics

I2C timing

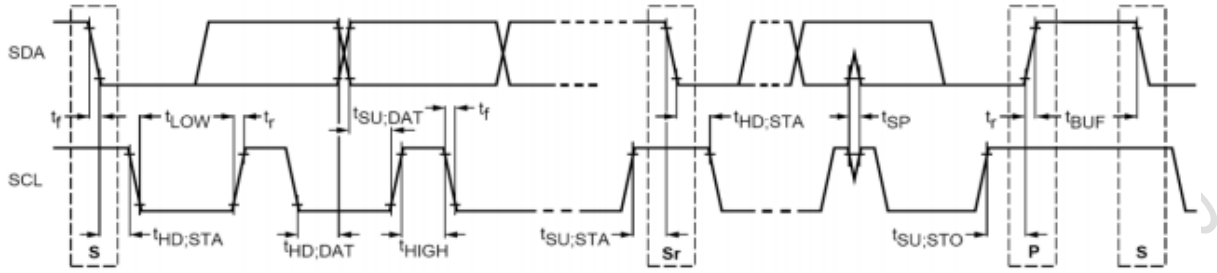
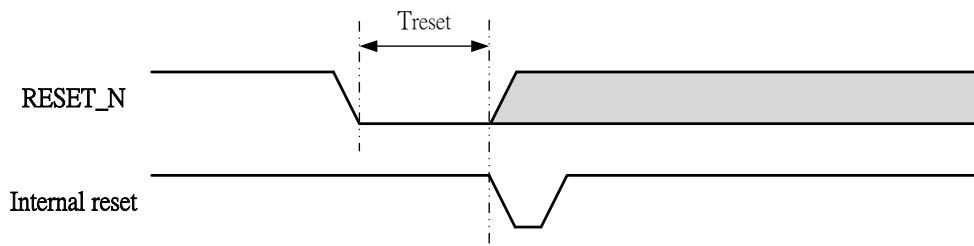


Table 8-1. I2C AC Characteristics

Symbol	Parameter	Min.	Max.	Unit
f_{SCL}	SCL clock frequency	1	400	kHz
$t_{HD:STA}$	Hold time (repeated) START condition After this period, the first clock pulse is generated.	0.6	-	us
t_{LOW}	LOW period of the SCL clock	1.3	-	us
t_{HIGH}	HIGH period of the SCL clock	0.6	-	us
$t_{SU:STA}$	Set-up time for a repeated START condition	0.6	-	us
$t_{HD:DAT}$	Data hold time	0	0.9	us
$t_{SU:DAT}$	Data setup time	100	-	ns
t_r	Rise time of both SDA and SCL signals	$20+0.1C_b$	300	ns
t_f	Fall time of both SDA and SCL signals	$20+0.1C_b$	300	ns
$t_{SU:STO}$	Set-up time for STOP condition	0.6	-	us
t_{BUF}	Bus free time between a STOP and START condition	1.3	-	us
C_b	Capacitive load for each bus line	-	400	pF
V_{nL}	Noise margin at the LOW level for each connected device (including hysteresis)	$0.1V_{DD}$	-	V
V_{nH}	Noise margin at the HIGH level for each connected device (including hysteresis)	$0.2V_{DD}$	-	V
$t_{timeout}$	Cumulative SCL low timeout limit	3	5	ms

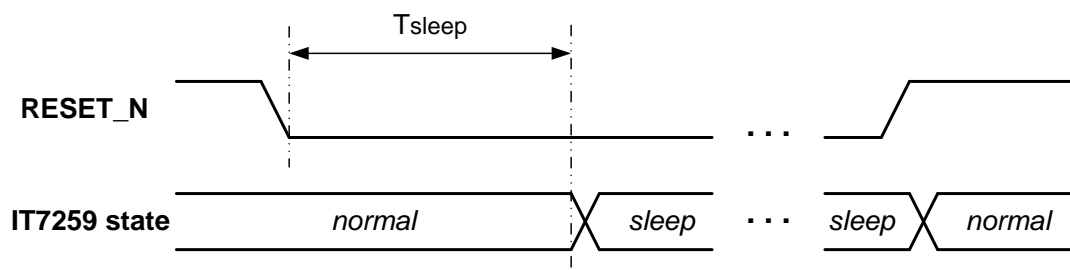
Touch Panel RESET Timing Characteristics

Hardware Reset





Enter Sleep Mode



RESET_N Timing

Symbol	Parameter	Min.	Typ.	Max.	Unit
Treset	Hardware Reset Timing	1	2	-	us
Tsleep	Sleep Mode Timing	1	2	-	ms

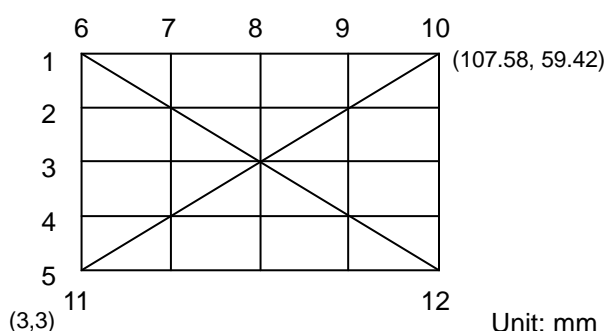
D. Touch Specifications

No.	Item	Spec.	Remark
1	Touch IC	IT7259	ITE
2	Two-Finger	2	
3	Report Rate	100Hz	
4	Performance	Accuracy.	$\leq 2.0\text{mm}$
		Linearity	$\leq 2.0\text{mm}$
5	Wakeup Gesture	TBD	TBD
		TBD	TBD

Note 1: Draw straight lines on the X axis, Y axis and diagonal axis with 6mm diameter copper slug at 50mm/sec drawing speed. And, drawing area is defined as below figure shown, which according to AA area and slig size. Accuracy= $\text{Max}\{ |(y-m_0x-b)/(m_0^2+1)^{0.5}| \}$

$$\text{Linearity} = \text{Max}\{ |(y-m_0'x-b')/(m_0'^2+1)^{0.5}| \}$$

where (x,y)s are the TP IC reported coordinates,



$$Y=m_0X+b \rightarrow \text{Real Line Equation}$$

Real Line

$$Y'=m_0'X'+b' \rightarrow \text{Fitting Line}$$

Fitting line

Reported points to fit a line.



E. Optical Specification

All optical specifications are measured under typical condition. (Note 1)

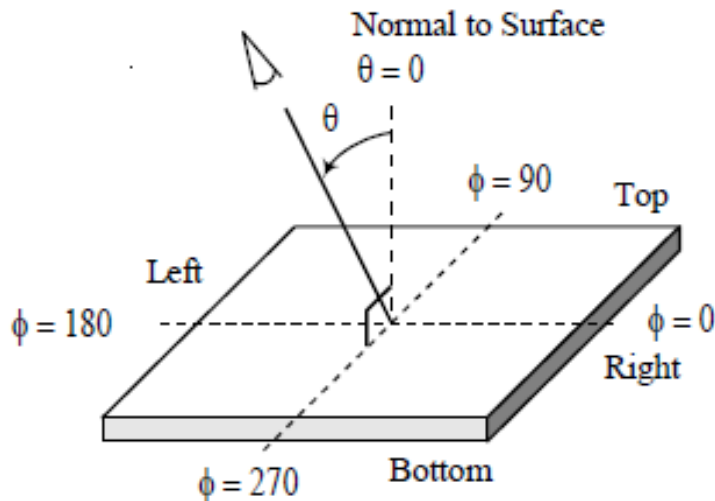
Item		Abbr.	Min.	Typ.	Max.	Unit	Remark
Brightness		Y @ $\theta=0^\circ$	315	350		nits	Note 2
Contrast ratio		@ $\theta=0^\circ$	50000	--	--	--	
Viewing angle (CR > 1600)		Top	80	--	--	Deg.	
		Bottom	80	--	--	Deg.	
		Left	80	--	--	Deg.	
		Right	80	--	--	Deg.	
Chromacity (CIE1931)	Red	x	0.640	0.670	0.700	--	Note 3
		y	0.300	0.330	0.360	--	
	Green	x	0.186	0.236	0.286	--	
		y	0.661	0.711	0.761	--	
	Blue	x	0.090	0.130	0.170	--	
		y	0.025	0.065	0.105	--	
White	x	0.27	0.30	0.33	--		
	y	0.28	0.31	0.34	--		
Uniformity		9 points	80	85	--	%	Note 4
Flicker			--	--	-30	db	Note 5
Crosstalk			--	--	5.0	%	Note 6
Life Time		25 °C	--	50K	--	hrs	Note 7
Gamma		γ	1.9	2.2	2.5		

**Note 1: Typical Condition**

Optical characteristics should be measured at the **center area** of the display with **Konica Minolta CA-310** and at the ambient temperature = $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and in the dark room.

Note 2: Viewing Angle & Contrast Ratio

The optical performance is specified as the driver IC located at $\psi = 270^{\circ}$.



Contrast ratio is calculated with the following formula:

$$\text{Contrast ratio (CR)} = \frac{\text{Photo detector output when OLED is at "White" pattern}}{\text{Photo detector output when OLED is at "Black" pattern}}$$

Note 3: Chromacity

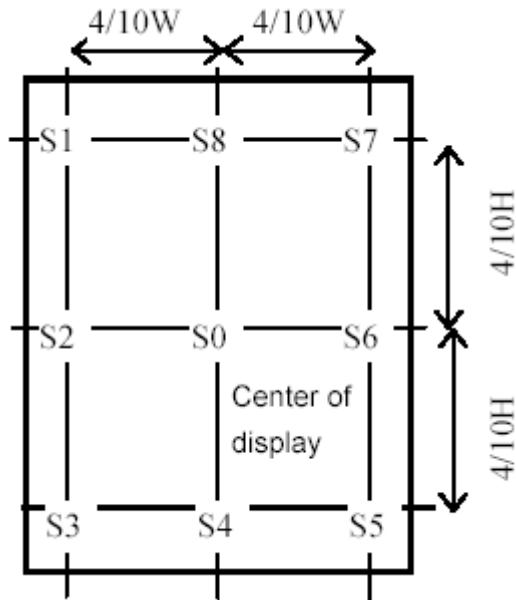
Chromacity of **R, G, B** pattern are measured at Gray Level "**255**".

Chromacity of **White** pattern are measured at Gray Level "**255**".



Note 4: **Uniformity**

Uniformity under **White(L255)** pattern = $\frac{\text{minimum luminance of 9 points}}{\text{maximum luminance of 9 points}}$



Note 5: **Flicker**

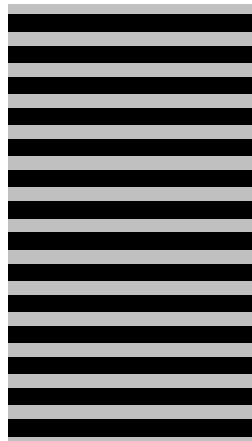
The flicker level is defined using Fast Fourier Transformation (FTT) as follows:

$$Flicker = 20 \log_{10} \left(2 \frac{f_{FFTC}(n)}{f_{FFTC}(0)} \right) + FS(Hz) \quad (dB)$$

where $f_{FFTC}(n)$ is the n th FFT coefficient, and $f_{FFTC}(0)$ is the 0th FFT coefficient which is DC component. $FS(Hz)$ is the flicker sensitivity as a function of frequency.

The flicker level shall be measured with the test pattern in below.

The gray leves of test pattern is 128.

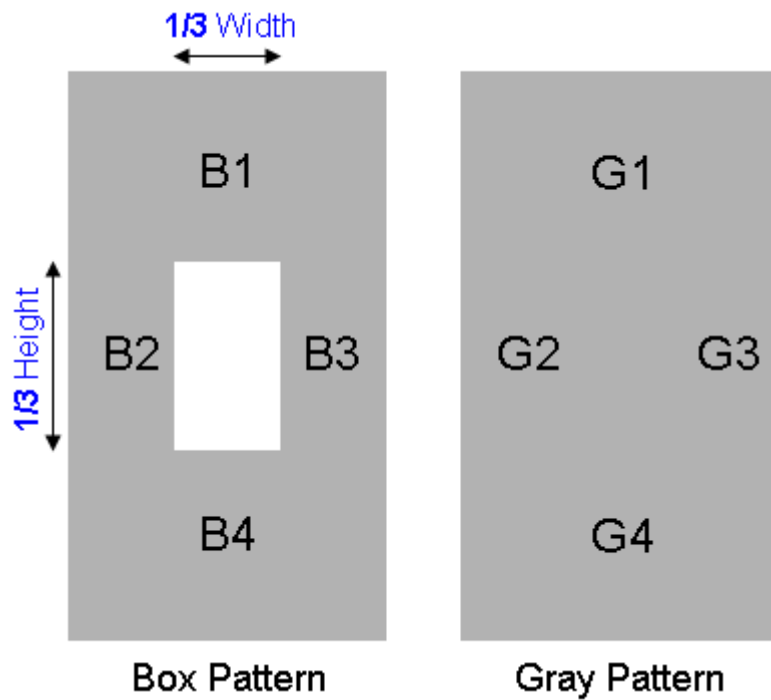


**Note 6: Crosstalk**

Crosstalk shall be calculated by the luminance of **B1~B4** and **G1~G4** in the patterns shown below.

Box Pattern: **L128** gray level background with a **L255** White window in the central area.

Gray Pattern: **L128** gray level background only.



Crosstalk

$$\equiv \text{Maximum: } \left\{ \frac{|B1 - G1|}{G1}, \frac{|B2 - G2|}{G2}, \frac{|B3 - G3|}{G3}, \frac{|B4 - G4|}{G4} \right\} \times 100\%$$

Note 7: Time to 50% Luminance 25°C 30 Loading

Life Time (Typ) : 250 cd/m² 10K hrs , Life Time :170 cd/m² 20K hrs , Life Time :140 cd/m² 30K hrs

Life Time (Typ) : 125 cd/m² 40K hrs . Life Time :100 cd/m² 50K hrs ,



F. Reliability Test Items


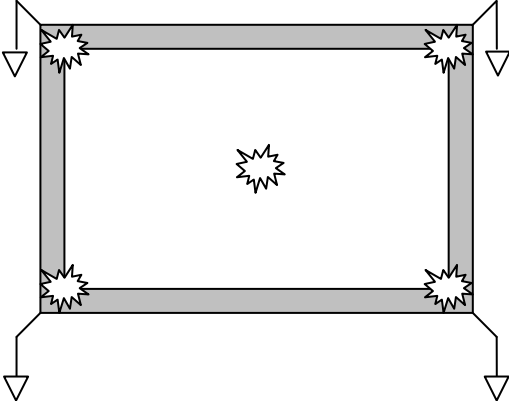
In the standard condition, there should **not** be any display function NG issue occurred during the reliability test and the performance is confirmed after panel is left at room temperature. All the cosmetic specifications are judged only **before** the reliability stress.

No.	Test items	Conditions		Remark
1	High Temperature Storage	T= 70°C	240Hrs	Note 1
2	Low Temperature Storage	T= -30°C	240Hrs	
3	High Temperature Operation	T= 60°C	240Hrs	
4	Low Temperature Operation	T= -20°C	240Hrs	
5	High Temperature & Humidity Operation	T= 60°C . 90% RH	240Hrs	
6	Thermal Shock	-40°C ~ 70°C, 100 cycle, 30min./cycle		Non-operation
7	Electrostatic Discharge	Contact = ± 4 kV, Class B Air = ± 8 kV, Class B		Note 2
8	Vibration (With Carton)	Random vibration: 0.015G ² /Hz from 5~200Hz -6dB/Octave from 200~500Hz		IEC 68-34
9	Drop (With Carton)	Height: 61cm 1 corner,3 edges,6surfaces		

Note 1 : T = Ambient Temperature



Note 2 : All test techniques follow IEC 61000-4-2 standard.

Test Condition			Note
<p>Pattern</p>			
<p>Procedure & Set-up</p>	<p><u>Contact Discharge</u> : 330Ω, 150pF, 1sec, 5 point, 10 times/point <u>Air Discharge</u> : 330Ω, 150pF, 1sec, 5 point, 10 times/point</p> 		
<p>Criteria</p>	<p>Class B – Some performance degradation allowed. No data lost. Self-recoverable hardware failure.</p>		
<p>Others</p>	<ol style="list-style-type: none"> 1. Gun to Panel Distance 2. No SPI command, keep default register settings. 		



G. Precautions

Please pay attention to the following items when you use the OLED Modules(Panel):

1. Do not twist or bend the module(panel) and prevent the unsuitable external force for display during assembly.
2. Adopt measures for good heat radiation. Be sure to use the module(panel) within the specified temperature.
3. Avoid dust or oil mist during assembly.
4. Follow the correct power sequence while operating. Do not apply the invalid signal, otherwise, it will cause improper shut down and damage the module(panel).
5. Less EMI: it will be more safety and less noise.
6. Please operate module(panel) in suitable temperature. The response time & brightness will drift by different temperature.
7. Avoid to display the fixed pattern (exclude the white pattern) in a long period, otherwise, it will cause image sticking.
8. Please be sure to turn-off the power when connecting or disconnecting the circuit.
9. Polarizer scratches easily, please handle it carefully.
10. Display surface never likes dirt or stains.
11. A dew drop may lead to destruction. Please wipe off any moisture before using module(panel).
12. Sudden temperature changes cause condensation, and it will cause polarizer damaged.
13. High temperature and humidity may degrade performance. Please do not expose the module(panel) to the direct sunlight and so on.
14. Acetic acid or chlorine compounds are not friends with AMOLED display module(panel).
15. Static electricity will damage the module(panel), please do not touch the module(panel) without any grounded device.
16. Please avoid any static electricity damage (ESD) during producing and operating.
17. Do not disassemble and reassemble the module(panel) by self.
18. Be careful do not touch the rear side directly.
19. No strong vibration or shock. It will cause module(panel) broken.
20. Storage the modules(panel) in suitable environment with regular packing.
21. Be careful of injury from a broken display module(panel).
22. Please avoid the pressure adding to the surface (front or rear side) of modules(panel), because it will cause the display non-uniformity or other function issue.
23. Touch code is decided by (1) cover lens type, (2) lens lamination parameters, and (3) customers' hardware/software setting. Please be noted if above factors was changed, AUO need new samples to re-adjusted touch code.



H. Packing Information

TBD



I. Outline Dimension

