Product Specification
AU OPTRONICS CORPORATION

(V) Preliminary Specifications
(   ) Final Specifications

Module	Capacitive Touch air bond with TFT Display Module 1. **One Glass Capacitive Touch Panel** 2. **~8" XGA 4:3 Color TFT-LCD with LED Backlight Design**
Model Name	**B080XAT01.1 (HW:0A)**
Note	*LED Backlight without driving circuit design*

Customer	Date
Checked & Approved by	**Date**

Note: This Specification is subject to change without notice.

Approved by	Date
Prepared by	
Henry CH Chen	2013/03/26

NBBU Marketing Division
AU Optronics corporation

Product Specification
AU OPTRONICS CORPORATION

Contents

Record of Revision

Version and Date	Page	Old description	New Description	Remark
0.1_2013/02/21			First Edition for Customer	
0.2_2013/03/25	5	General Specification	Update Weight	
0.2_2013/03/25	18~23	Signal Electrical Characteristics	Add MIPI special requirement setting	
0.3_2013/03/26	7	Optical Characteristics	Update Color Coordinates	
0.3_2013/03/26	23	Backlight Unit	Update LED characteristics	
0.3_2013/03/26	35~36	Shipping and Package	Add Carton Label and Package	

1. Handling Precautions

1) Be sure to turn off power supply when inserting or disconnecting from input connector.

2) Wipe off water drop immediately. Long contact with water may cause wate mark or dirty ink.

3) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.

4) Since the module with glass elements, it may break or crack if dropped or bumped on hard surface.

5) Since CMOS LSI is used in this module, take care of static electricity and insure human earth when handling.

6) Do not open nor modify the Module Assembly.

7) Do not press the reflector sheet at the back of the module to any directions.

8) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module and touch FPC.

9) After installation of the Touch Integraed TFT Module into an enclosure, do not twist nor bend the Module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the Module from outside. Otherwise the TFT Module may be damaged.

10) Small amount of materials having no flammability grade is used in the module. The module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.

11) Disconnecting power supply before handling this modules, it can prevent electric shock, DO NOT TOUCH the electrode parts, cables, connectors and LED circuit part of module that a LED light bar build in as a light source of back light unit. It can prevent electrostic breakdown.

2. General Description

B080XAT01.1 is a Capacitve Touch air bond with Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel, a driver circuit, and LED backlight system.

The 10 points finge touch device composted of capactive sensor, a driving circuit.

The screen format is intended to support the 4:3 XGA, 768(H) x1024(V) screen and 262k colors (RGB 6-bits data driver) without LED backlight driving circuit. All input signals are MIPI interface compatible.

B080XAT01.1 is designed for a touch and display unit of consumer style or industrial machine.

2.1 General Specification

The following items are characteristics summary on the table at 25 ℃ condition:

Items	Unit	Specifications
Outline Dimension	[mm]	142.00 (H)x 205.00 (V)
Touch Panel Active Area	[mm]	122.21 (H) x 162.14 (V)
Channel	line	20x32
Display Screen Diagonal	[inch]	7.9"
Active Area	[mm]	119.808 (H) x 159.744 (V)
Pixels H x V		768 x 3 (RGB) x 1024
Pixel Pitch	[mm]	0.156 (V) x 3 x 0.052 X (H)
Pixel Format		RGB Island
Type of Touch Sensor		One Glass Capacitive Type of Touch Sensor
Display Mode		AHVA, Normally Black
White Luminance	[cd/m^2]	220
Luminance Uniformity		1.25 max. (5 points)
Contrast Ratio		500 typ.
Response Time	[ms]	25 typ
Display Normal Input Voltage VDD	[Volt]	+3.7 typ.
Touch Normal Input Votage VDD	[Volt]	Max. +3.6 , Min +1.8.
Total Power Consumption	[Watt]	2.4 max.
Weight	[Grams]	150 max.

			Min.	Typ.	Max.
Physical Size (Total Solution)	[mm]	V	204.9	205.0	205.1
		H	141.9	142.0	142.1
		Thickness	---	---	4.15 Panel side 6.1 PCBA side
Electrical Interface			MIPI		
Surface Treatment			Common Glass Surface and <2% Haze		
Touch Border Color			Black		
Touch OGS Strength	[MPa]		>100 (4 point bending ; Weibull Distribution B10)		
Touch OGS DOL	[um]		>10		
Support Color			262K colors (RGB 6-bit)		
Temperature Range Operating Storage (Non-Operating)	[°C] [°C]		0 to +50 -20 to +60		
RoHS Compliance			RoHS Compliance		

2.2 Optical Characteristics

The optical characteristics are measured under stable conditions at 25℃ (Room Temperature) :

Item		Symbol	Conditions	Min.	Typ.	Max.	Unit	Note
White Luminance			Center 5P	185	220	---	cd/m^2	1, 3, 4
Touch Transparency		%		88				3
Viewing Angle		θ_R θ_L	Horizontal (Right) CR = 10 (Left)	---	85 85	---	degree	3, 8
		ψ_H ψ_L	Vertical (Upper) CR = 10 (Lower)	---	85 85	---		
Luminance Uniformity		δ_{5P}	5 Points	---	---	1.25		1, 2, 3
Contrast Ratio		CR		---	500	---		3, 5
Cross talk		%		---	---	4		3, 6
Response Time		T_{RT}	Rising + Falling	---	25	35	msec	3, 7
Color / Chromaticity	Red	Rx	CIE 1931	TBD	TBD	TBD		3
		Ry		TBD	TBD	TBD		

Coordinates								
	Green	Gx		TBD	TBD	TBD		
		Gy		TBD	TBD	TBD		
	Blue	Bx		TBD	TBD	TBD		
		By		TBD	TBD	TBD		
	White	Wx		0.295	0.325	0.355		
		Wy		0.325	0.355	0.385		
NTSC		%		-	50	-		

Note 1: 5 points position (Ref: Active area)
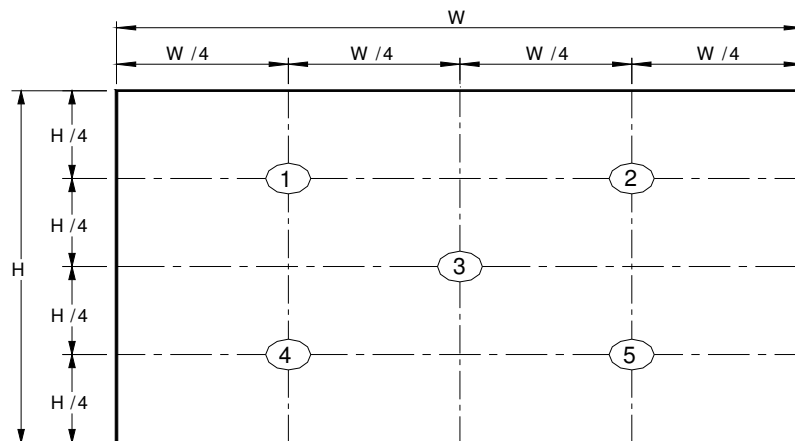
Note 2: The luminance uniformity of 5 points is defined by dividing the maximum luminance values by the minimum test point luminance

$$\delta_{W5} = \frac{\text{Maximum Brightness of five points}}{\text{Minimum Brightness of five points}}$$

Note 3: Measurement method

The LCD module should be stabilized at given temperature for 30 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 30 minutes in a stable, windless and dark room, and it should be measured in the center of screen.

Photo detector

Field=2˚

50 cm

Module

Module

Center of the screen
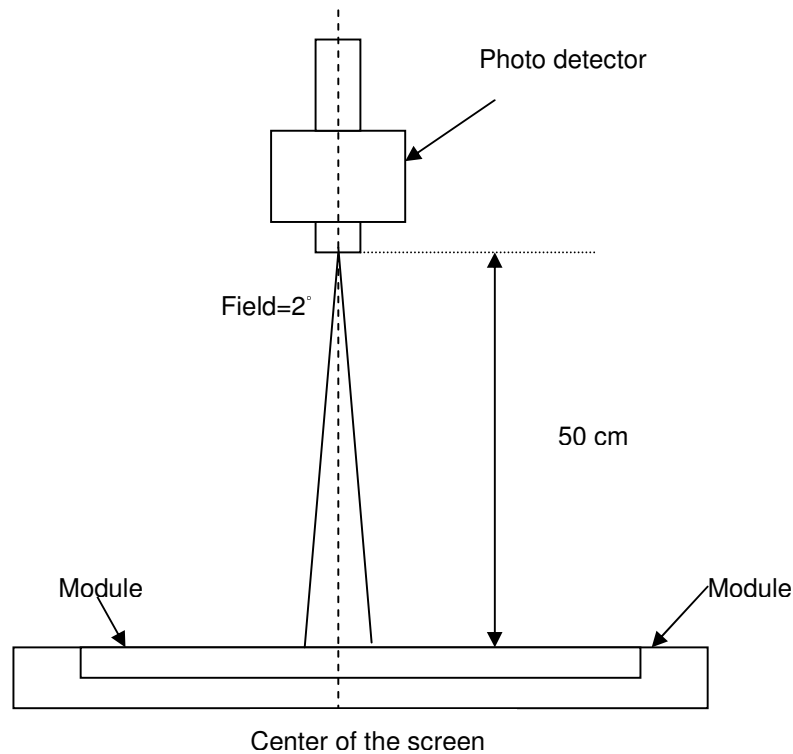
Note 4： Definition of Average Luminance of White (Y_L):

Measure the luminance of gray level 63 at 5 points，Y_L = [L (1)+ L (2)+ L (3)+ L (4)+ L (5)] / 5

L (x) is corresponding to the luminance of the point X at Figure in Note (1).

Note 5： Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "White" state}}{\text{Brightness on the "Black" state}}$$

Note 6： Definition of Cross Talk (CT)

$$CT = |Y_B - Y_A| / Y_A \times 100 \ (\%)$$

Where

Y_A = Luminance of measured location without gray level 0 pattern (cd/m2)

Y_B = Luminance of measured location with gray level 0 pattern (cd/m2)

Active Area

(0, 0)

$Y_{A, U}$ (D/2,W/8)

$Y_{A, L}$ (D/8,W/2)

Gray 32

$Y_{A, R}$ (7D/8,W/2)

$Y_{A, D}$ (D/2,7W/8)

(D,W)

Active Area

(0, 0)

$Y_{B, U}$ (D/2,W/8)

(D/4,W/4)

$Y_{B, L}$ (D/8,W/2)

Gray 0

$Y_{B, R}$ (7D/8,W/2)

(3D/4,3W/4)

$Y_{B, D}$ (D/2,7W/8)

Gray 32

(D,W)
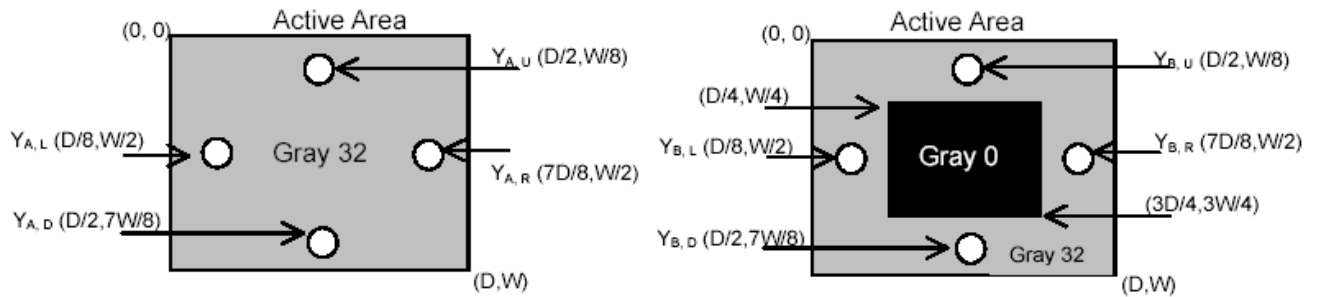
Note 7: Definition of response time:

The output signals of BM-7 or equivalent are measured when the input signals are changed from "Black" to "White" (falling time) and from "White" to "Black" (rising time), respectively. The response time interval between the 10% and 90% of amplitudes. Refer to figure as below.

"White"   "Black"   "White"

Signal(Relative value)

100%
90%

10%
0%

Tr

Tf
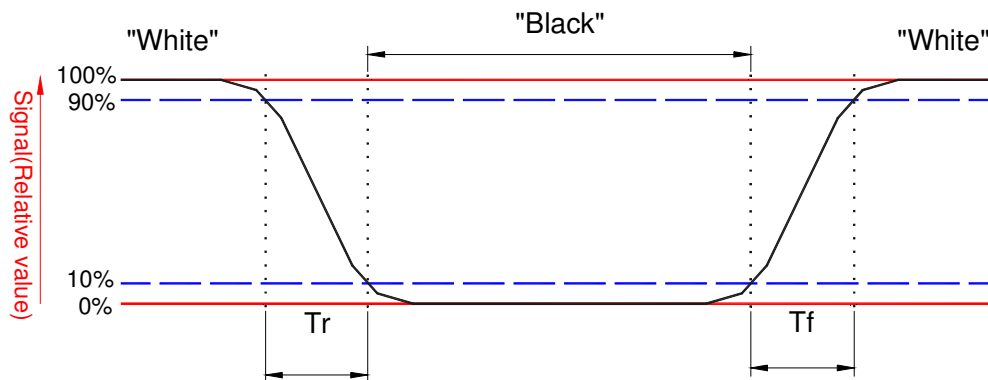
Note 8. Definition of viewing angle

Viewing angle is the measurement of contrast ratio $\geqq 10$, at the screen center, over a 180° horizontal and 180° vertical range (off-normal viewing angles). The 180° viewing angle range is broken down as follows; 90° (θ) horizontal left and right and 90° (Φ) vertical, high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated about its center to develop the desired measurement viewing angle.
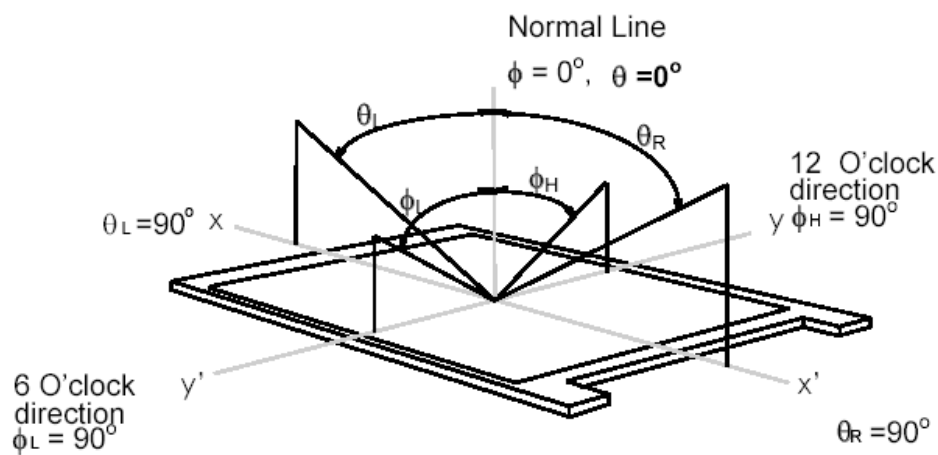
3. Functional Block Diagram

The following diagram shows the functional block of the ~8" inches wide Color TFT/LCD

Base Panel Block Diagram
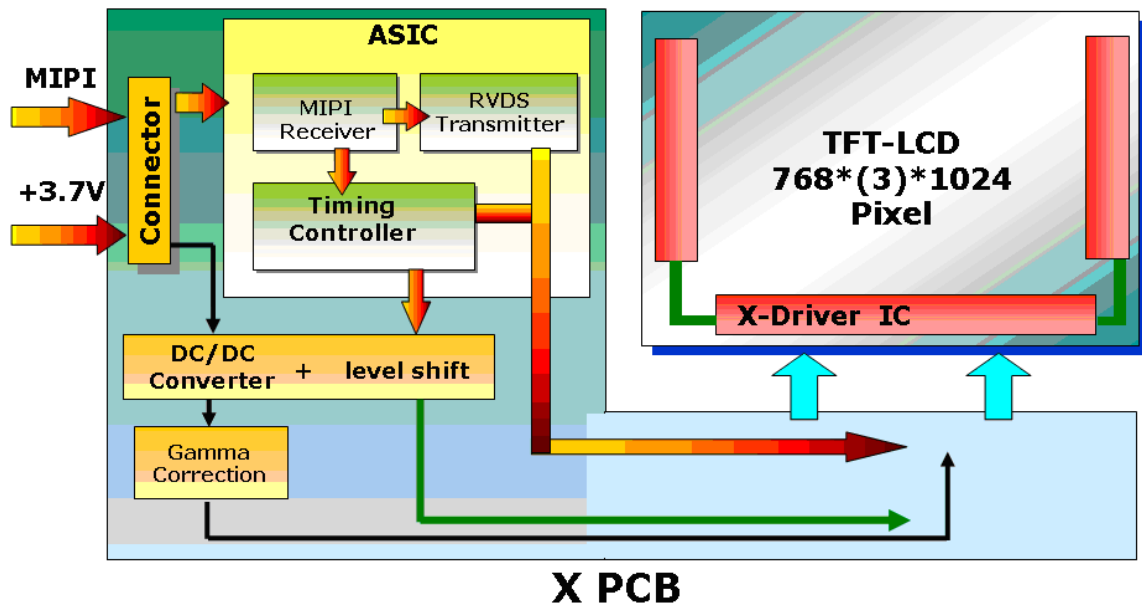
Touch Block Diagram
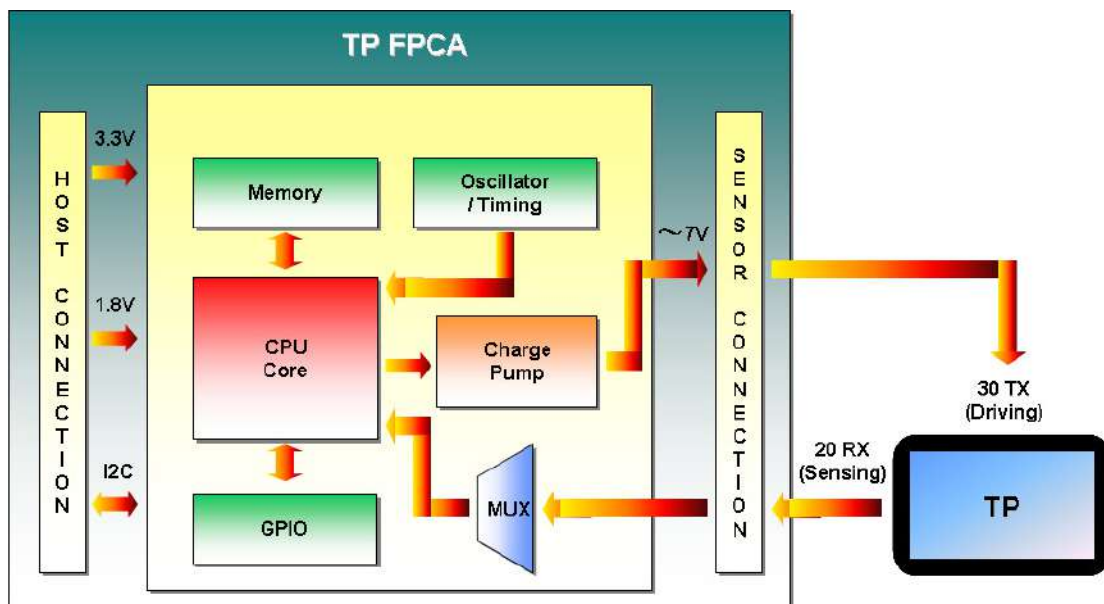
4. Absolute Maximum Ratings

An absolute maximum rating of the module is as following:

4.1 Absolute Ratings of TFT LCD Module

Item	Symbol	Min	Max	Unit	Conditions
Logic/LCD Drive Voltage	Vin	-0.3	+4.0	[Volt]	Note 1,2

4.2 Absolute Ratings of Touch Sensor

Item	Symbol	Min	Max	Unit	Conditions
Touch Sensor Power Voltage	Vin		3.6	[Volt]	

4.3 Absolute Ratings of Environment

Item	Symbol	Min	Max	Unit	Conditions
Operating Temperature	TOP	0	50	[^{o}C]	Note 4
Operation Humidity	HOP	5	95	[%RH]	Note 4
Storage Temperature	TST	-20	+60	[^{o}C]	Note 4
Storage Humidity	HST	5	95	[%RH]	Note 4

Note 1: At Ta (25℃)

Note 2: Permanent damage to the device may occur if exceed maximum values
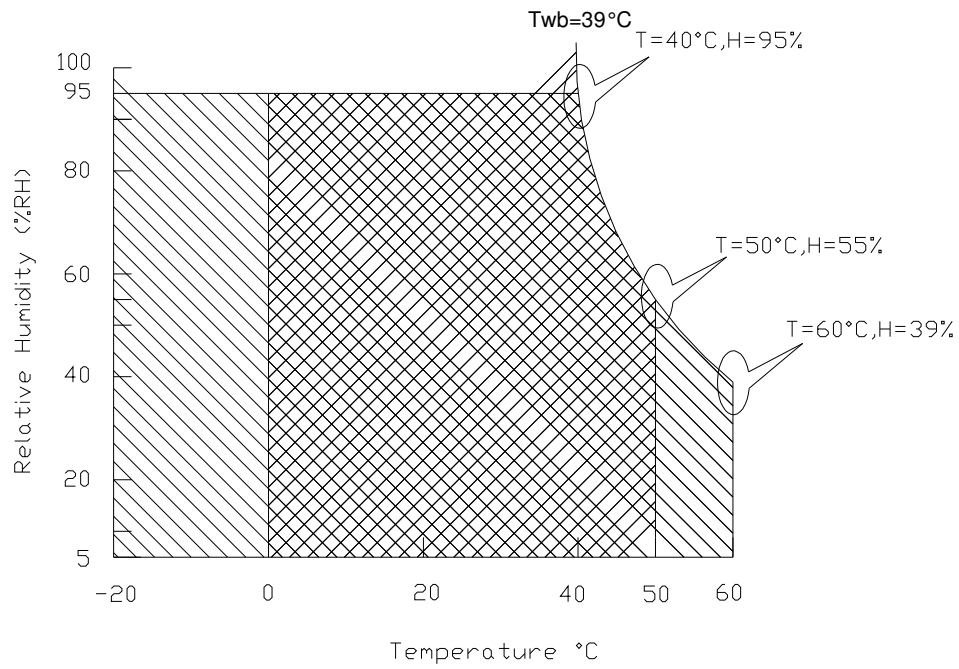
Note 3: LED specification refer to section 5.2

Note 4: For quality performance, please refer to AUO IIS (Incoming Inspection Standard).

Operating Range   Storage Range

5. Electrical Characteristics

## 5.1 TFT LCD Module

5.1.1 Power Specification

Input power specifications are as follows;

The power specification are measured under 25℃ and frame frenquency under 60Hz

Symble	Parameter	Min	Typ	Max	Units	Note
VDD	Logic/LCD Drive Voltage	3.4	3.7	4.3	[Volt]	
PDD	VDD Power		0.7	0.8	[Watt]	Note 1
IDD	IDD Current		190	217	[mA]	Note 1
IRush	Inrush Current			1500	[mA]	Note 2
VDDrp	Allowable Logic/LCD Drive Ripple Voltage			100	[mV] p-p	

Note 1 : Maximum Measurement Condition：White Pattern at 3.7V driving voltage. ($P_{max}=V_{3.7} \times I_{white}$)

Note 2：Measure Condition

Vin rising time
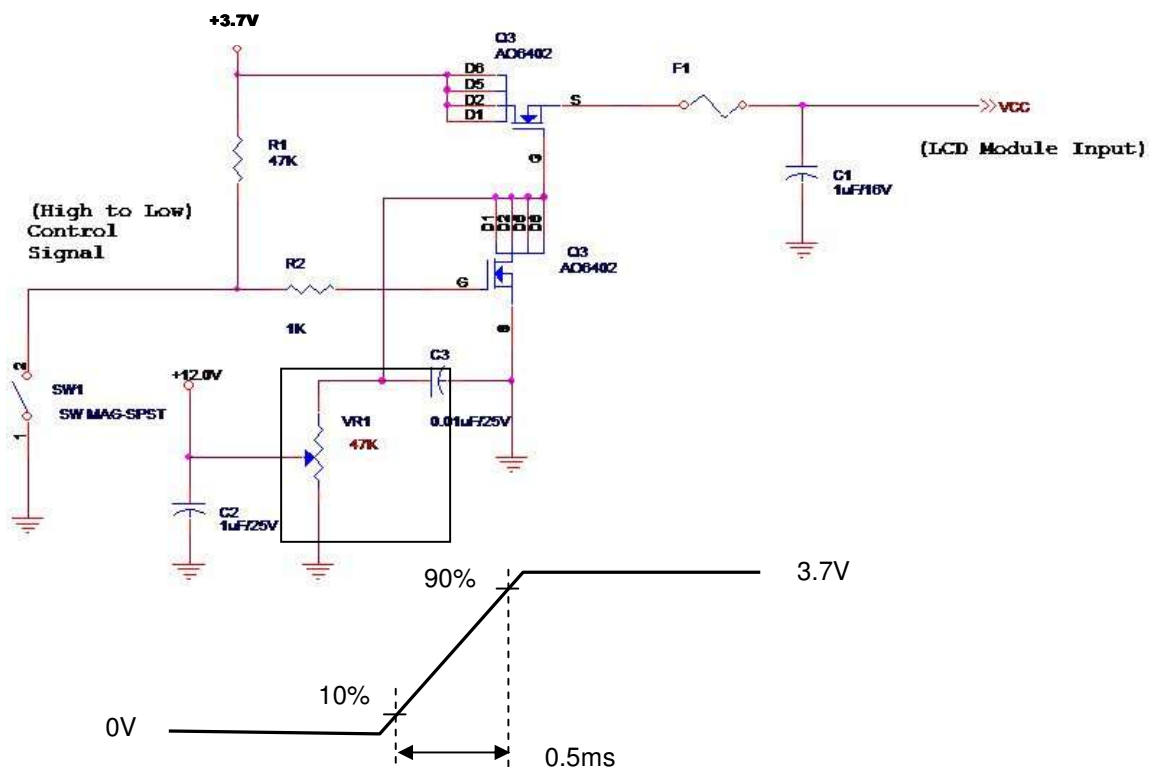
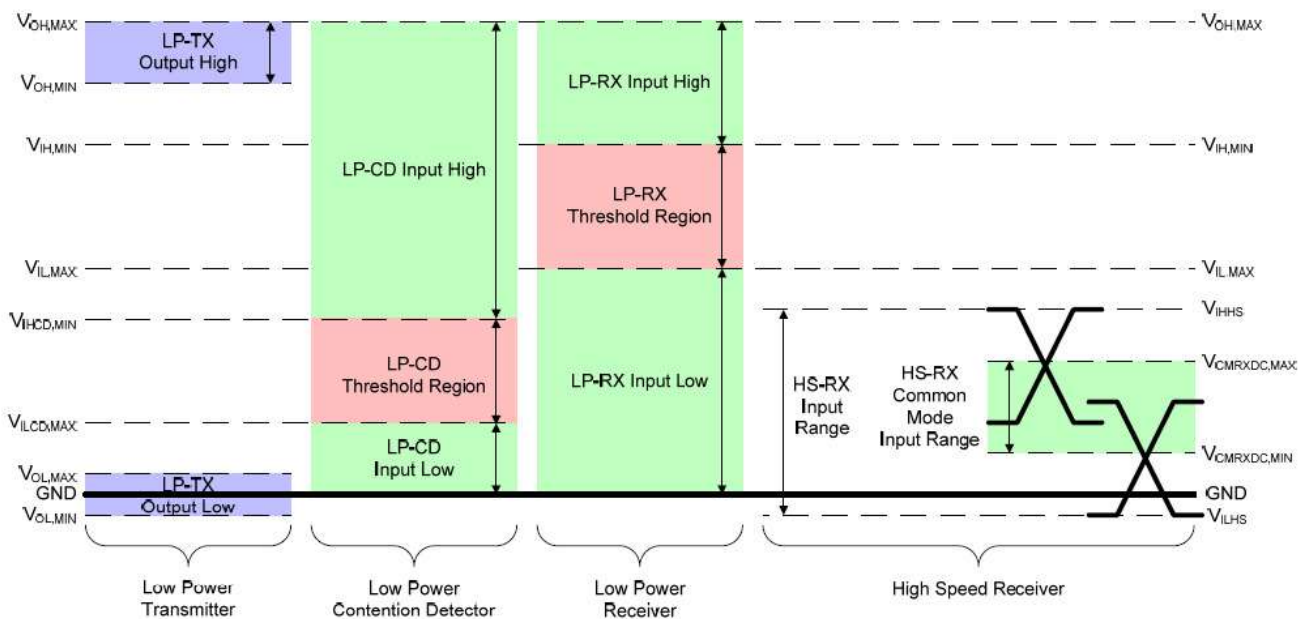### 5.1.2 Signal Electrical Characteristics

Input signals shall be low or High-impedance state when VDD is off.

MIPI DC/AC Characteristics are as follows:

MIPI Receiver Differential Input (DC Characteristics)					
Symbol	Parameter	Min	Typ	Max	Unit
BR_{MIPI}	Input data bit rate	-	513	560	Mbps
V_{IDTH}	Differential input high threshold (HS Rx mode)	-	-	70	mV
V_{IDTL}	Differential input low threshold (HS Rx mode)	-70	-	-	mV
V_{IHHS}	Single-end input high voltage (HS Rx mode)	-	-	460	mV
V_{ILHS}	Single-end input low voltage (HS Rx mode)	-40	-	-	mV
Z_{ID}	Differential input impedance	80	100	125	Ω
V_{IHLP}	Logic 1 input voltage (LP Rx mode)	880	-	-	mV
V_{ILLP}	Logic 0 input voltage (LP Rx mode)	-	-	550	mV
V_{HYST}	Input hysteresis	25	-	-	V
V_{IHCD}	Logic 1 contention threshold	450	-	-	mV
V_{ILCD}	Logic 0 contention threshold	-	-	200	mV

MIPI Receiver Input AC Electrical Characteristics						
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$\Delta V_{CMRX(HF)}$	Common-mode interference beyond 450MHz		-	-	100	mV
$\Delta V_{CMRX(LF)}$	Common-mode interference 50MHz ~ 450MHz		-50	-	50	mV
C_{CM}	Common-mode termination		-	-	60	pF

HS RX Scheme
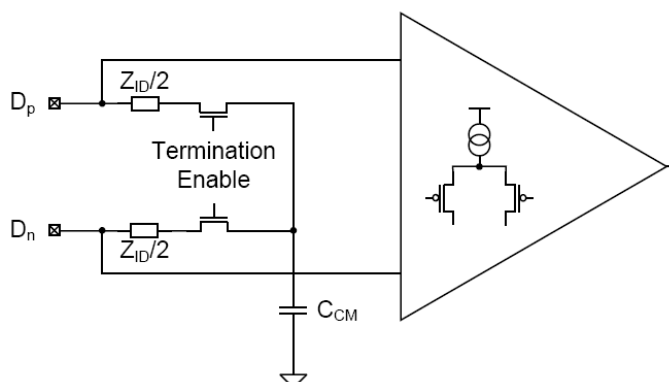
LP Receiver AC Specifications						
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
e_{SPIKE}	Input pulse rejection				300	V · ps
T_{MIN-RX}	Minimum pulse width response		20		-	ns
V_{INT}	Peak interference amplitude				200	mV
f_{INT}	Interference frequency		450			MHz

Input Glitch Rejection of Low-Power Receivers

Line Levels
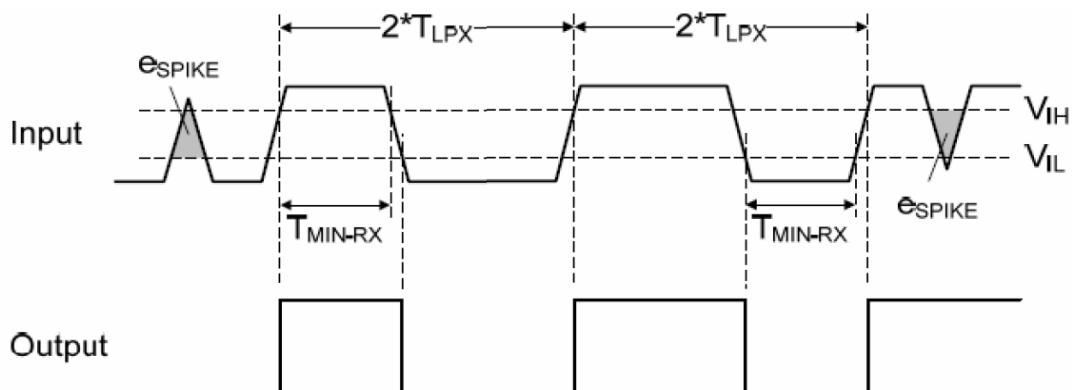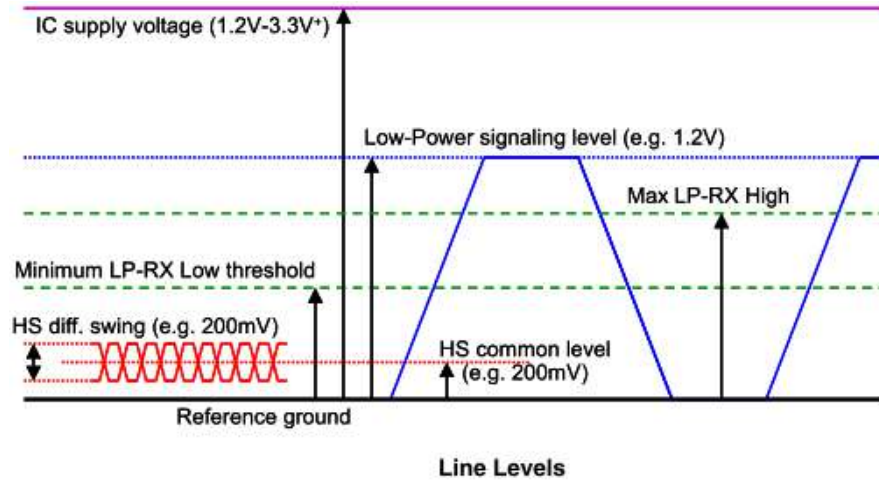
MIPI Special Requirement:

Resolution：768 x 3 x 1024, Frame rate：60Hz, 6 bit, RGB6-6-6 Loosely, 4 Lane

1. HS Mode

To decode LP command correctly, MIPI clock lane should be in HS-Mode. If the escape mode entry procedure is followed-up by the entry command for Low-Power Data Transmission, data can be communicated by the protocol at low speed, while the lane remains in Low-Power mode. Data is self-clocked by the applied bit-encoding and does not rely on the clock lane.

2. Support Payload ≧ 2 Bytes

The TCON cannot support long package with payload size is less than 2 Bytes.

3. 500Mbps ≦ MIPI bit rate ≦ 560M bps

Due to keep RVDS (Tcon output) frequency to 100MHz (Original setting) and GOA timing.

The MIPI bit rate must keep 500Mbps ~ 560Mbps (Nominal：513Mbps)

(MIPI Operation frequency = 250MHz ~ 280MHz (Nominal：256.5Mbps)).

MIPI special requirement MIPI bit rate setting：

Non-Burst Transmission with Sync Start and End mode

AUO resolution setting the real bit rate as below：

1140 x 948 x 60 x18 / 4 = 291.8 Mbps

Please increase the data bit rate to 513Mbps. You can insert the null packet to increase the bit rate on Non-burst with sync mode as below：

Insert Null packet in the middle of the RGB data and HFP.
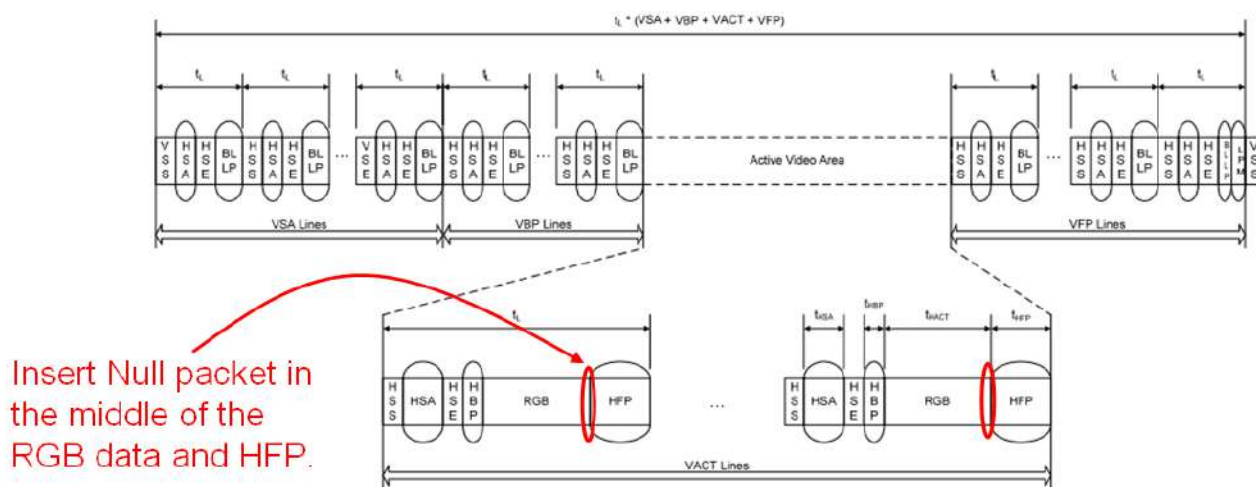
Non-Burst Transmission with Sync Start and End mode

Must keep the timing setting follow AUO spec.

Burst Transmission mode

AUO resolution setting the real bit rate as below：
1140 x 948 x 60 x18 / 4 = 291.8 Mbps

Please increase the data bit rate to 513Mbps. You can increase BLLP length to increase the bit rate on Burst mode as below：
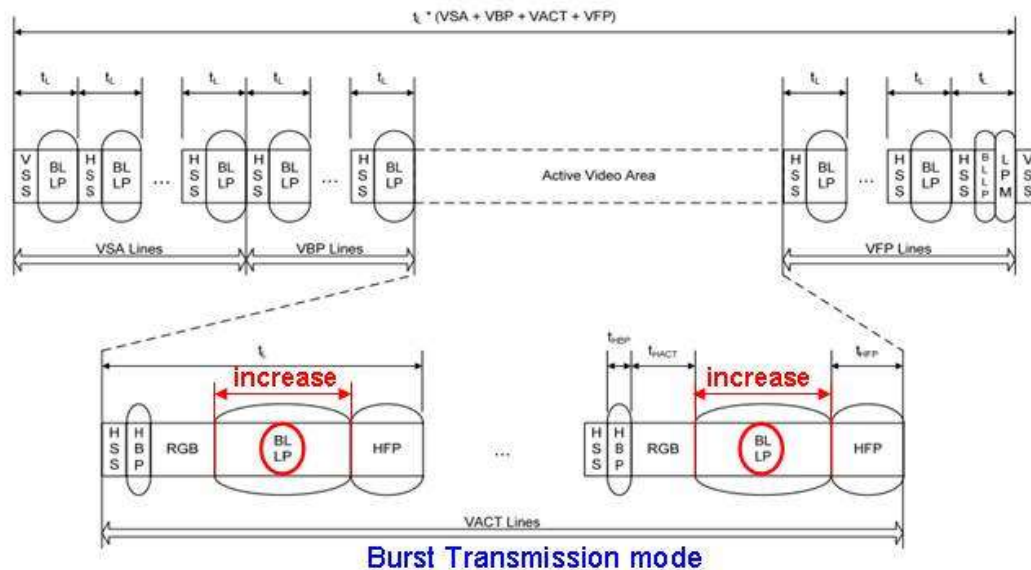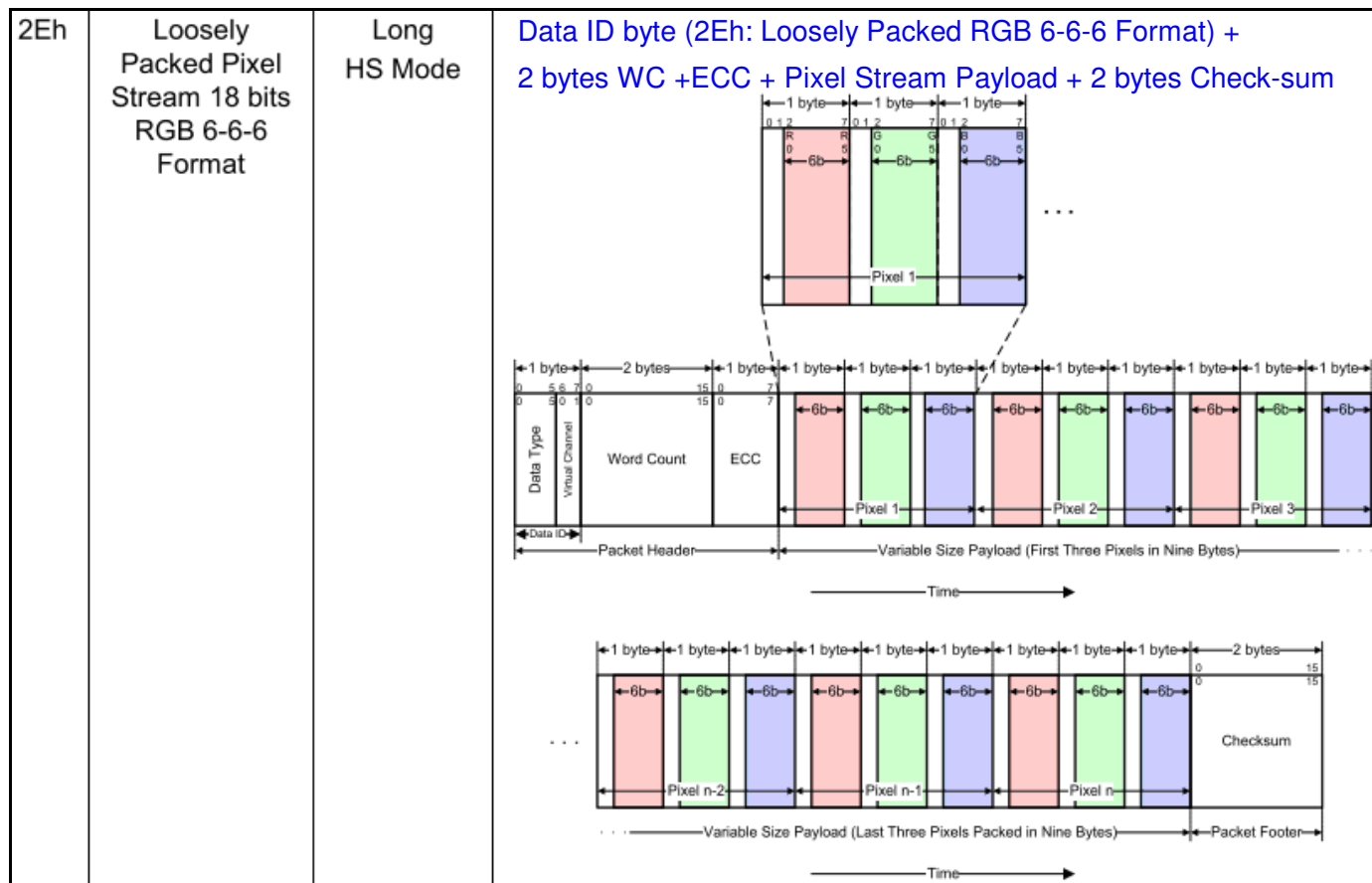

Burst Transmission mode

Must keep the timing setting follow AUO spec.

MIPI format recommend

2Eh	Loosely Packed Pixel Stream 18 bits RGB 6-6-6 Format	Long HS Mode	Data ID byte (2Eh: Loosely Packed RGB 6-6-6 Format) + 2 bytes WC +ECC + Pixel Stream Payload + 2 bytes Check-sum

MIPI Display ON Command

Command
- DCS Short Write

Ex . Power ON command

0x0602 = 0x1005 (Short packet, Data ID = 0x05)

0x0604 = 0x0000 (WC1,WC0=0 for DSC short write)

0x0610 = 0x0029 (Data1= 0,DCS Command)

0x0600 = 0x0001 (Start transfer)

Hex	Description	Packet Type
11h	Exit Sleep Mode	Short LP Mode
28h	Set Display Off	Short LP Mode
29h	Set Display On	Short LP Mode

*This format only for TOSHIBA bridge IC

MIPI command code

Hex	Description	Packet Type	Packet Structure and Detailed Descriptions
00h	NOP	Short LP Mode	Data ID byte (05h: DCS Short Write, no parameter) + 00h (Dcs Command: NOP) + 00h + ECC NOP Packet
28h	Set Display Off	Short LP Mode	Data ID byte (05h: DCS Short Write, no parameter) + 28h (Dcs Command: NOP) + 00h + ECC Same as "Shut Down Peripheral" command
29h	Set Display On	Short LP Mode	Data ID byte (05h: DCS Short Write, no parameter) + 29h (Dcs Command: NOP) + 00h + ECC Same as "Turn On Peripheral" command

Other MIPI command

Hex	Vsync Start	Packet Type	Packet Structure and Detailed Descriptions
01h	Hsync Start	Short HS Mode	Data ID byte (01h: Vsync Start) + 00h + 00h + ECC This event represents the start of the VSA (Vertical Sync Area) and also implies the HSS (Hsync Start) event for the first line of the VSA.
21h	Null Packet	Short HS Mode	Data ID byte (21h: Hsync Start) + 00h + 00h + ECC This event represents the start of the HAS (Horizontal Sync Area)
09h	Null Packet	Long HS Mode	Data ID byte (09h: Null Packet) + 2 bytes WC + ECC + Null Payload + 2 bytes Check-sum This packet is for keeping the data lanes in high speed mode while sending dummy data.
19h	Blanking Packet	Long HS Mode	Data ID byte (19h: Blanking Packet) + 2 bytes WC + ECC + Blanking Payload + 2 bytes Check-sum This packet is used to convey blanking timing information in a long packet. And this represents a period between active scan lines of a video mode display, where traditional display timing is provided from host processor to display module.

Hex	Vsync Start	Packet Type	Packet Structure and Detailed Descriptions
08h	End of Transmission Packet	Short HS Mode	Data ID byte (08h: End of Transmission Packet) + 0Fh + 0Fh + ECC This packet is used for indicating the end of a HS transmission to the data link layer. As a result detection of the end of HS transmission may be decoupled from physical layer characteristics.

22h	Shut Down Peripheral Command	Short LP Mode	Data ID byte (22h: Shut Down Peripheral Command) + 00h + 00h + ECC This packet is a short packet command that turns off the display in a video mode display module for power saving.
32h	Turn On Peripheral Command	Short LP Mode	Data ID byte (32h: Turn On Peripheral Command) + 00h + 00h + ECC This packet is a short packet command that turns on the display in a video mode display module for normal display operation.

5.2 Touch Sensor

Items	Symbol	Specifications			Unit	Notes
		Min.	Typ.	Max.		
Touch Panel Power Supply	VDD	1.8	---	3.6	V	
Touch Panel Power Supply Current	VDDi	---	15	---	mA	Active mode

5.3 Backlight Unit

5.2.1 LED characteristics

Parameter	Symbol	Min	Typ	Max	Units	Condition
Backlight Power Consumption	PLED	-	-	1.54	[Watt]	(Ta=25℃)
LED Life-Time	N/A	10000	-	-	Hour	(Ta=25℃) Note1.
LED Forward Voltage	VF	2.9	3.2	3.5	[Volt]	(Ta=25℃)
LED Forward Voltage of every LED string	VF-string	11.6	12.8	14	[Volt]	(Ta=25℃) Note2.
LED Forward Current	IF	-	22	-	[mA]	(Ta=25℃)

Note 1. The LED life-time define as the estimated time to 50% degradation of initial luminous.

Note 2. LED Q'ty=20ea, 4SX5P

6. Signal Interface Characteristic

6.1 Pixel Format Image

Following figure shows the relationship of the input signals and LCD pixel format.
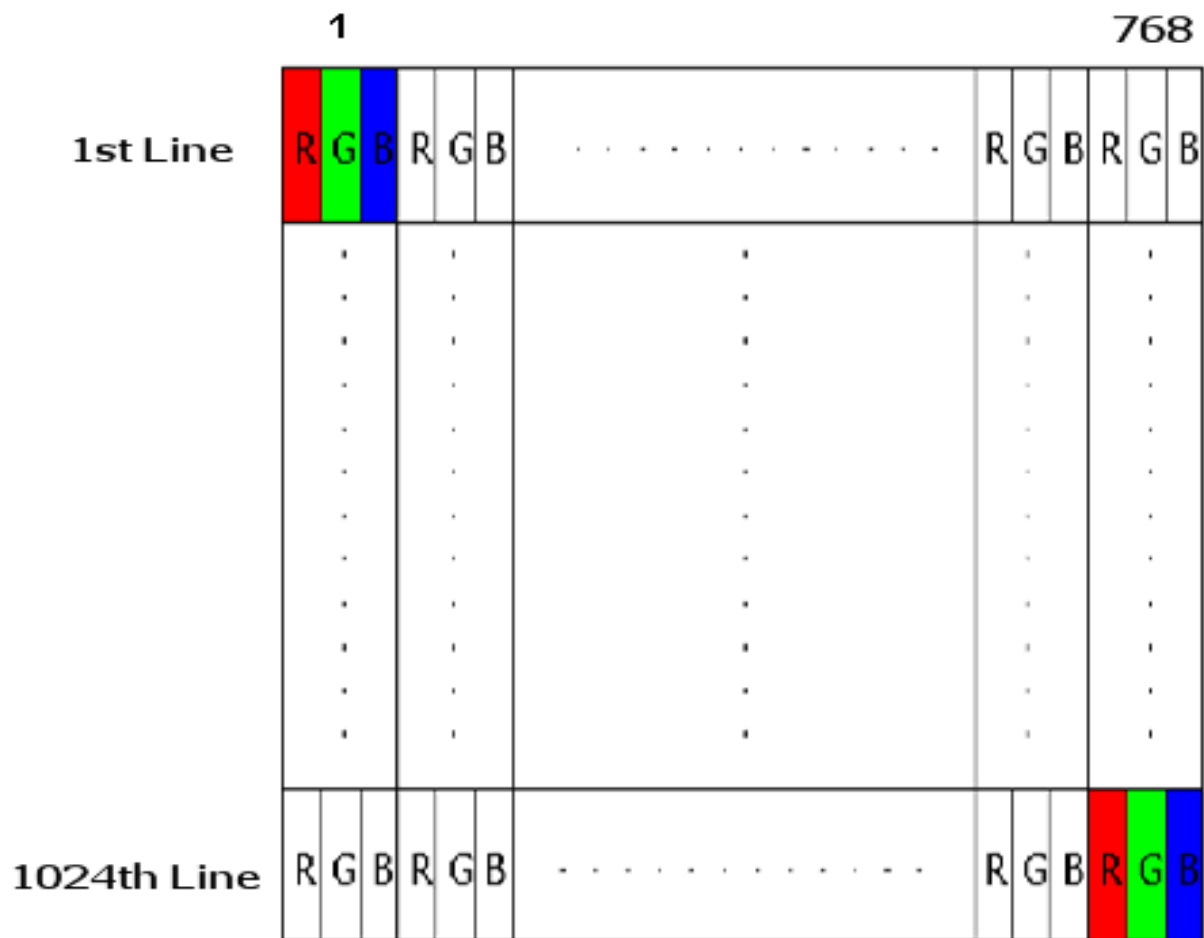
6.2 Integration Interface Requirement

6.2.1 Display MIPI Connector Description

Physical interface is described as for the connector on module.

These connectors are capable of accommodating the following signals and will be following components.

Connector Name / Designation	For Signal Connector
Manufacturer	HIROSE
Type / Part Number	FH35W-35S-0.3SHW(50)

6.2.2 Display MIPI Pin Assignment

MIPI is a differential signal technology for LCD interface and high speed data transfer device.

Pin No		
1	AGING	AGING for BIST mode (allow3.2~3.7V) (AUO use only)
2	NC	No connection
3	VDD	Panel power 3.7V
4	VDD	Panel power 3.7V
5	VDD	Panel power 3.7V
6	RST_MLC_L	Mipi T-con Reset ((allow3.2~3.7V))
7	GND	Ground
8	MIPI_D3N	Negative Mipi Differential Data INPUT pair 3
9	MIPI_D3P	Positive Mipi Differential Data INPUT pair 3
10	GND	Ground
11	MIPI_D2N	Negative Mipi Differential Data INPUT pair 2
12	MIPI_D2P	Positive Mipi Differential Data INPUT pair 2
13	GND	Ground
14	MIPI_D1N	Negative Mipi Differential Data INPUT pair 1
15	MIPI_D1P	Positive Mipi Differential Data INPUT pair 1
16	GND	Ground
17	MIPI_D0N	Negative Mipi Differential Data INPUT pair 0
18	MIPI_D0P	Positive Mipi Differential Data INPUT pair 0
19	GND	Ground
20	MIPI_CN	Negative Mipi Differential Clock INPUT
21	MIPI_CP	Positive Mipi Differential Clock INPUT
22	GND	Ground
23	FB_1	LED Feedback PIN 1
24	FB_2	LED Feedback PIN 2
25	FB_3	LED Feedback PIN 3
26	FB_4	LED Feedback PIN 4
27	FB_5	LED Feedback PIN 5
28	FB_6	LED Feedback PIN 6 (Reserve)
29	NC	No connection
30	VLED	LED power
31	VLED	LED power
32	VLED	LED power
33	NC	No connection
34	PCLK	I2C CLK (AUO use only)
35	PDATA	I2C DATA (AUO use only)

RECOMMENDED PCB MOUNTING PATTERN
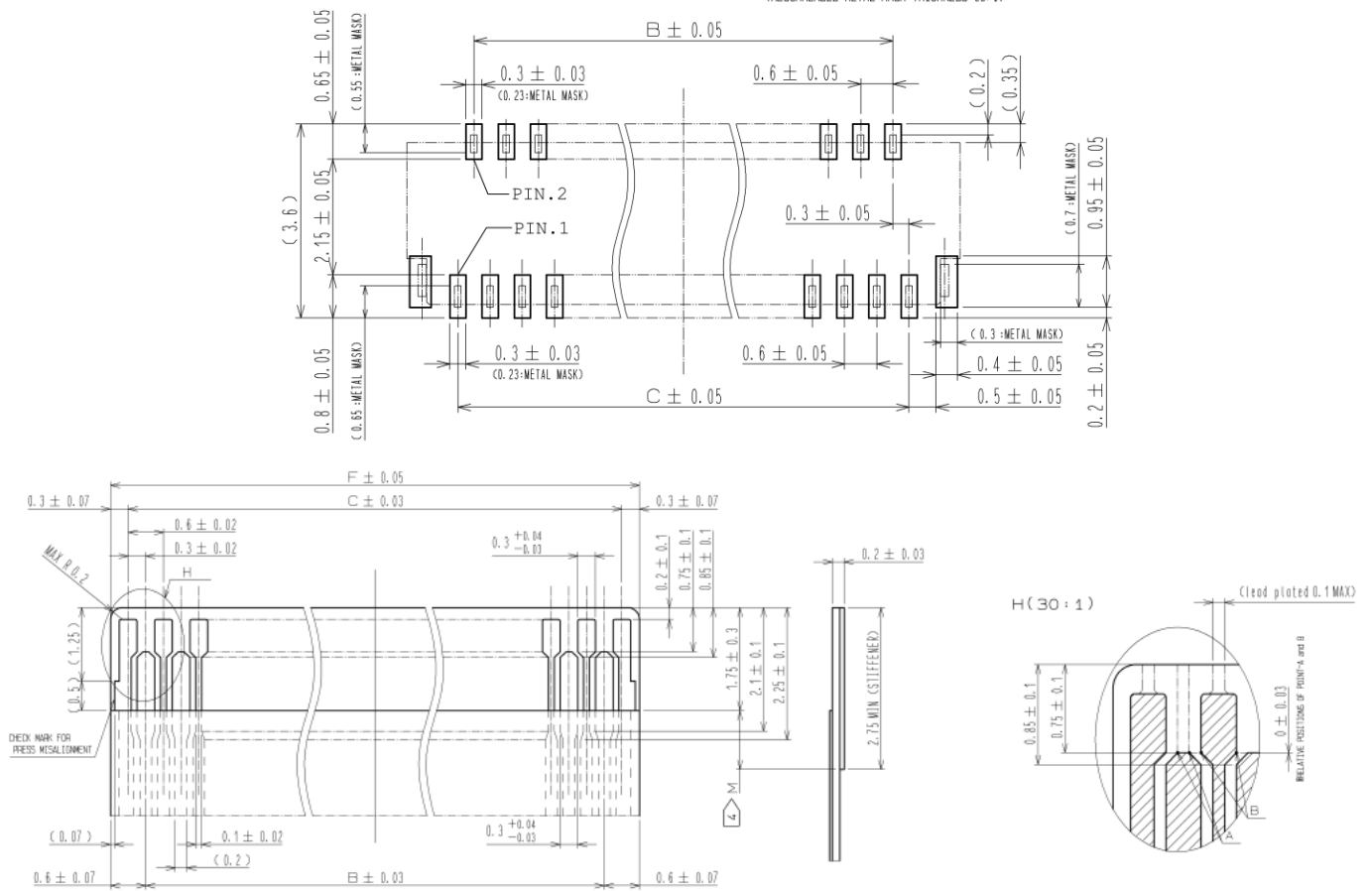
6.2.3 LED Connector Description

Connector Name / Designation	For Signal Connector
Manufacturer	STARCONN
Type / Part Number	112G10-000001-A2-R

6.2.4 LED Connector Description

Pin No		
1	VOUT	LED Output
2	VOUT	LED Output
3	VOUT	LED Output
4	GND	Ground
5	FB1	LED Feedback PIN 1
6	FB2	LED Feedback PIN 2
7	FB3	LED Feedback PIN 3
8	FB4	LED Feedback PIN 4
9	FB5	LED Feedback PIN 5
10	FB6	LED Feedback PIN 6 (Reserve)
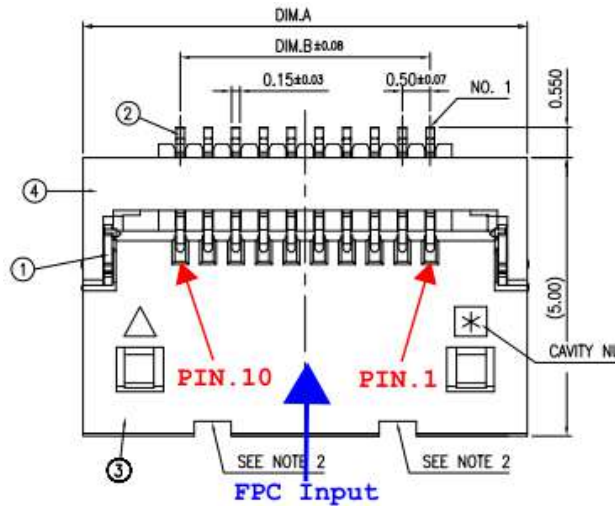
6.2.5 Touch I2C Connector Description

Physical FPC is described at below

These connectors are capable of accommodating the following signals and will be following components.

Connector Name / Designation	For Signal Connector
Manufacturer	Panasonic
Type / Part Number	FPC connector Y5BW(AYF530865)

6.2.6 Touch I2C Pin Assignment

Pin	Signal Name	Description
1	VCC3.3	Power
2	SCL	I2C Clock
3	SDA	I2C Data
4	INT	Interrupt
5	Reset	Reset
6	IOVCC	IOVCC Connected to External or Internal 1.8V to 3.6V Voltage Supply for Digital IO Circuits
7	GND	Ground
8	GND	Ground

6.3 MIPI Interface Timing

6.3.1 Timing Characteristics
Basically, interface timings should match the 768 x 1024 /60Hz manufacturing guide line timing.
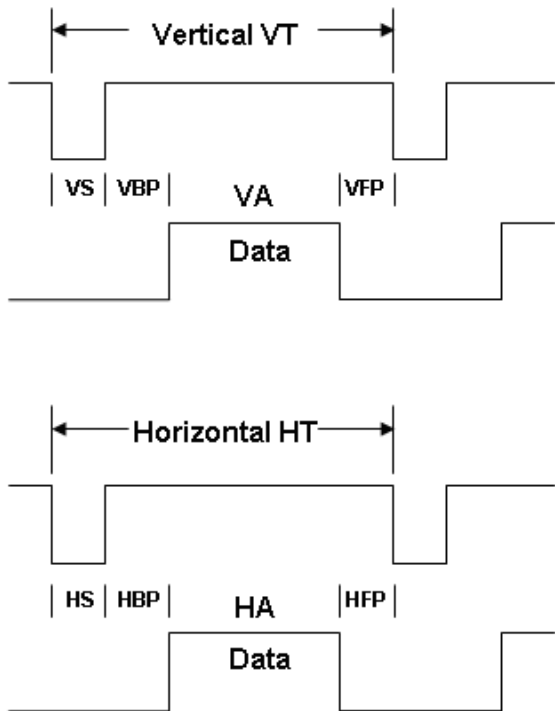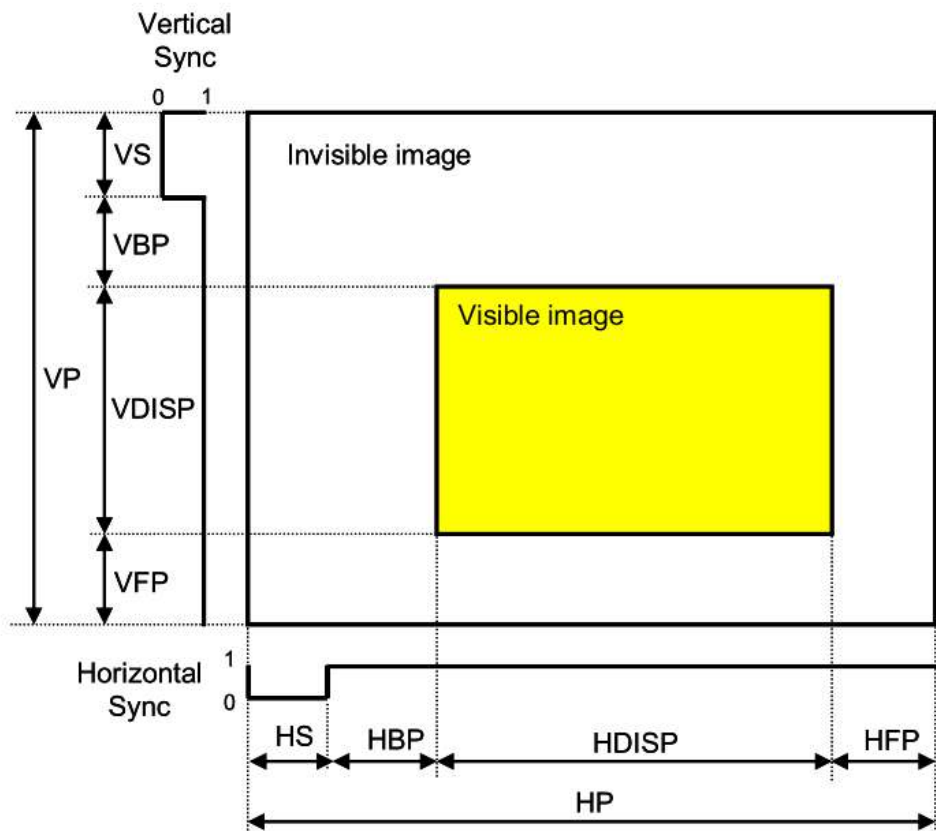
Vertical Total	VT (tv)	1140	line
Vertical Front-Porch	VFP (tvfp)	36	line
Vertical Active	VA (tvd)	1024	line
Vertical Sync	VS (tvw)	50	line
Vertical Back-Porch	VBP (tvbp)	30	line
Horizontal Total	HT (th)	948	clk(pixel)
Horizontal Front-Porch	HFP (thfp)	60	clk(pixel)
Horizontal Active	HA (thd)	768	clk(pixel)
Horizontal Sync	HS (thw)	64	clk(pixel)
Horizontal Back-Porch	HBP (thbp)	56	clk(pixel)
Pixel Frequency	CLK (fc)	64.8	MHz

6.4 Power ON/OFF Sequence

Power on/off sequence is as follows. Interface signals and LED on/off sequence are also shown in the chart.

Power ON Sequence

System Initialize and Power-On Sequence

System Initialize and Power On Sequence

Step	Host Processor	Peripheral (TCON)
1	Assert Reset	Reset State
2	De-Assert Reset	Start to load TCON parameter via serial EEPROM mounted on Display module
3	Wait for (T1) ms (min. required (T1) time is 5 ms)	Initializes MIPI-DSI slave and interface immediately after related parameter loading operation finished (< 3.3 ms)
4	Enable High-Speed Clock (NOTE)	De-asserts DSI protocol layer reset
5	Wait for (T2) ms (min. required (T2) time is 50 ms)	Start Pattern Generator (Panel-BIST) after all parameter loading are completed
6	Sends "Turn On" or "Display On" Command	–
7	Transmit Normal Frame	Stops Panel BIST operation and normal operation begins when valid Vsync (from mipi-interface) received

NOTE: Host should maintain its high-speed clock to guarantee continuous clock behavior on the Clock Lane
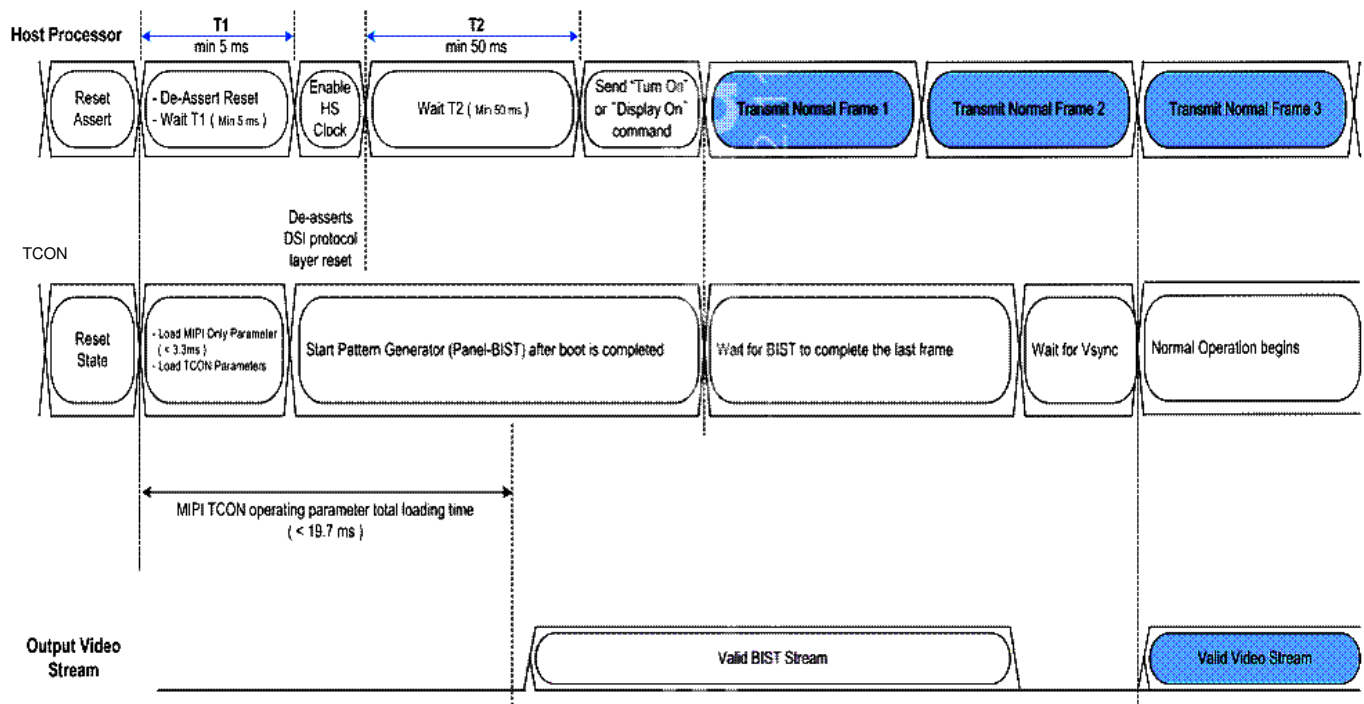
Power OFF Sequence

System Shut Down and Power Off Sequence

Step	Host Processor	Peripheral (TCON)
1	Back Light Off	Normal operation
2	Wait for (T3) ms (min. required (T3) time is 16.67 ms)	Normal operation
3	Sends "Shut Down" or "Display Off" Command	1) Wait for generated frame is transmitted by RVDS 2) Disable internal clock and wait power off
4	Wait for (T4) ms (min. required (T4) time is 16.67 ms)	–
5	Turn Off HS_CLK	–
6	Power Off	–
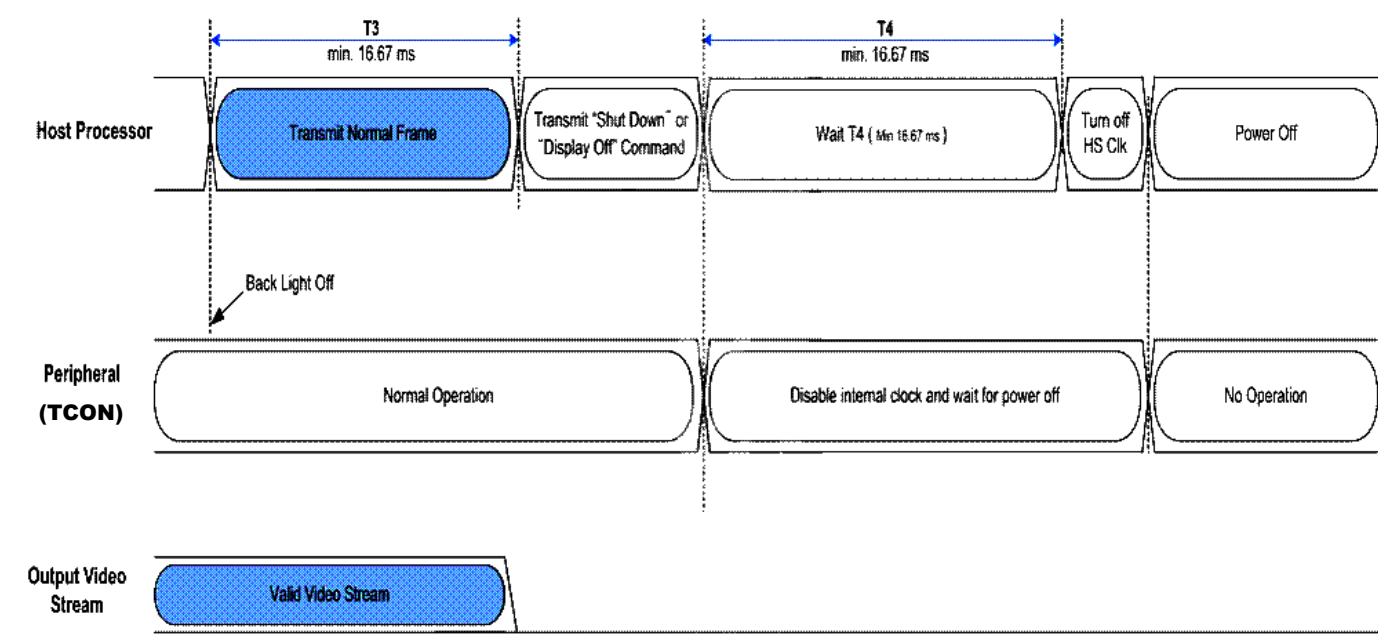
Reset Period

TCON needs at least 3 ms of reset period for internal LDO stabilization.
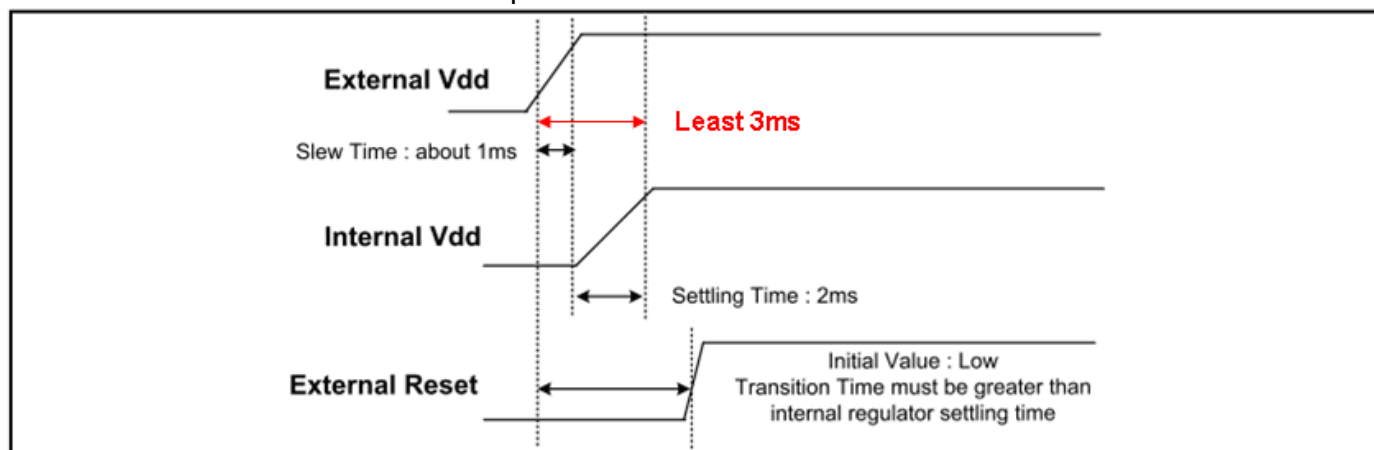
Timing Diagram of Reset Period

MIPI D-PHY Lane State

MIPI D-PHY lane state must be in stop (LP-11) state for proper slave D-PHY initialization. MIPI slave D-PHY analog block would be activated after finishing related parameter loading procecedure.
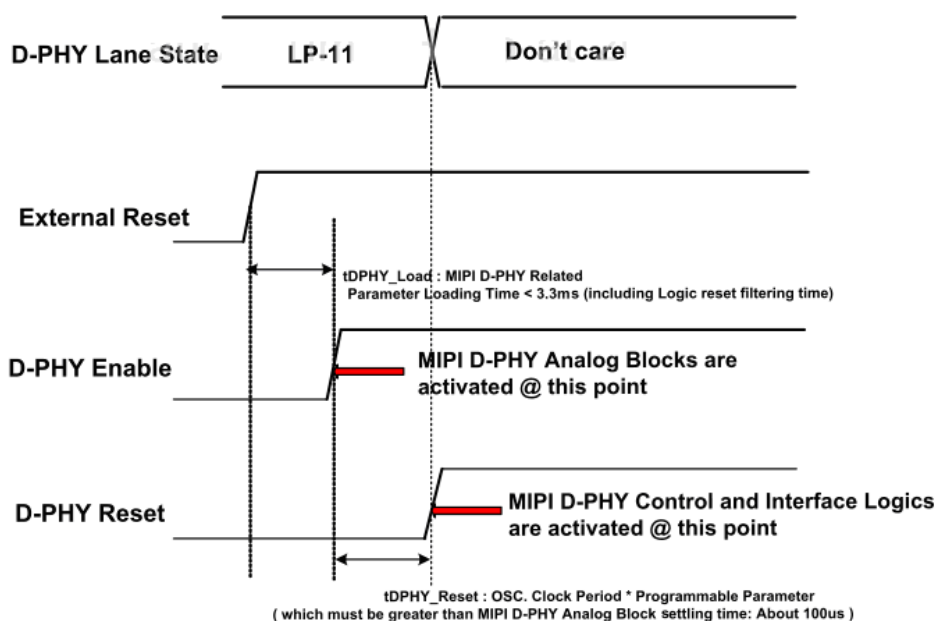
MIPI D-PHY Lane State Timing Diagram

7. Reliability Test

7.1 Vibration Test

Test Spec:

- Test method:　Non-Operation
- Acceleration:　1.5 G
- Frequency:　　10 - 500Hz Random
- Sweep:　　　30 Minutes each Axis (X, Y, Z)

7.2 Shock Test

Test Spec:

- Test method:　Non-Operation
- Acceleration:　220 G , Half sine wave
- Active time:　　2 ms
- Pulse:　　　　X,Y,Z .one time for each side

7.3 Reliability Test

Items	Required Condition	Note
Temperature Humidity Bias	Ta= 40℃, 90%RH, 300h	
High Temperature Operation	Ta= 50℃, Dry, 300h	
Low Temperature Operation	Ta= 0℃, 300h	
High Temperature Storage	Ta= 60℃, 300h	
Low Temperature Storage	Ta= -20℃, 300h	
Thermal Shock Test	Ta=-20℃to 60℃, Duration at 30 min, 100 cycles	
ESD	Contact : ±8 KV Air : ±15 KV	Note 1

Note1: According to EN 61000-4-2 , ESD class B: Some performance degradation allowed. No data lost

.   Self-recoverable. No hardware failures.

Remark: MTBF (Excluding the LED): 30,000 hours with a confidence level 90%

8. Mechanical Characteristics

8.1 Outline Dimension

8.1.1 Standard Front View
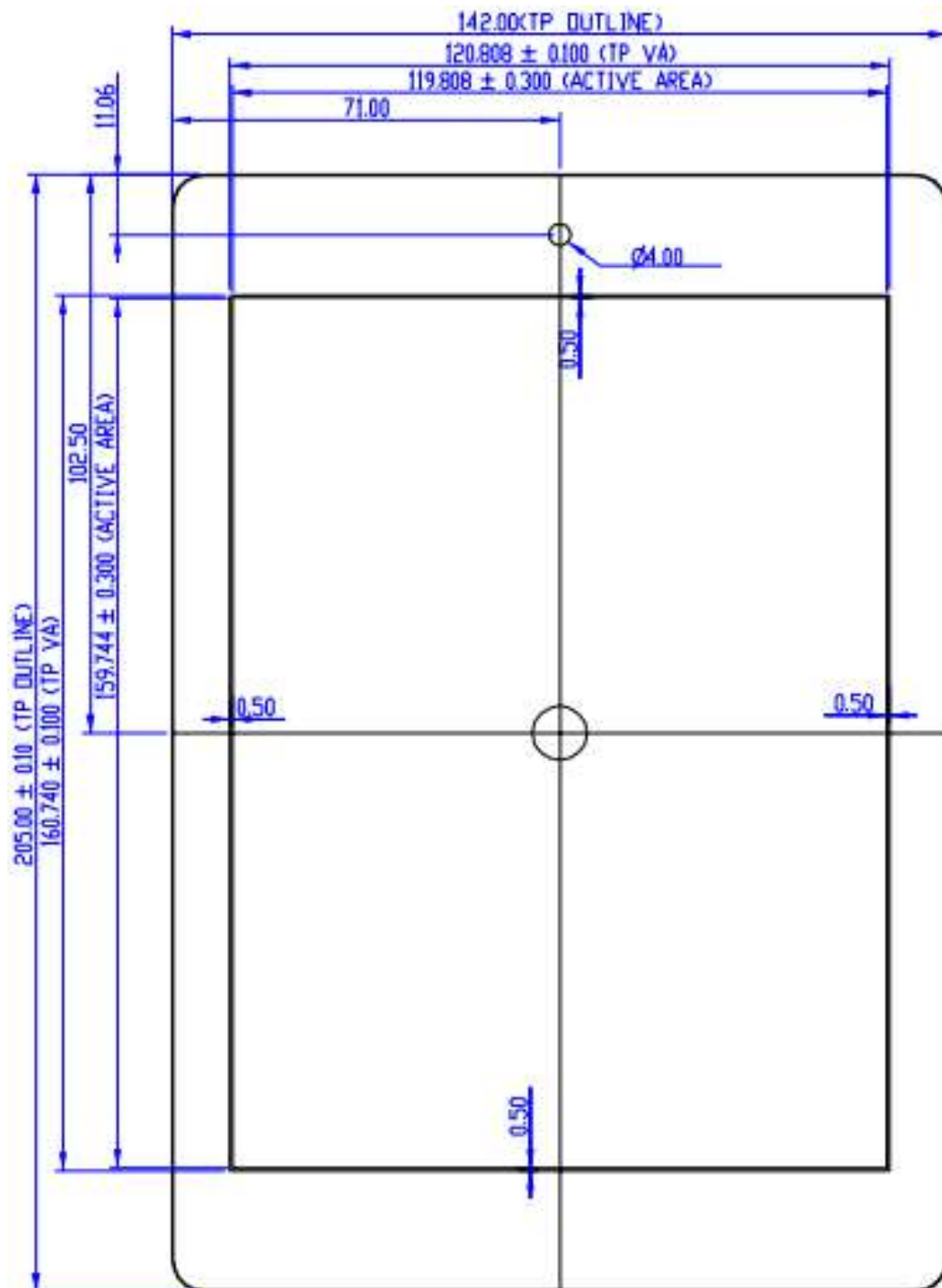
8.1.2 Standard Rear View
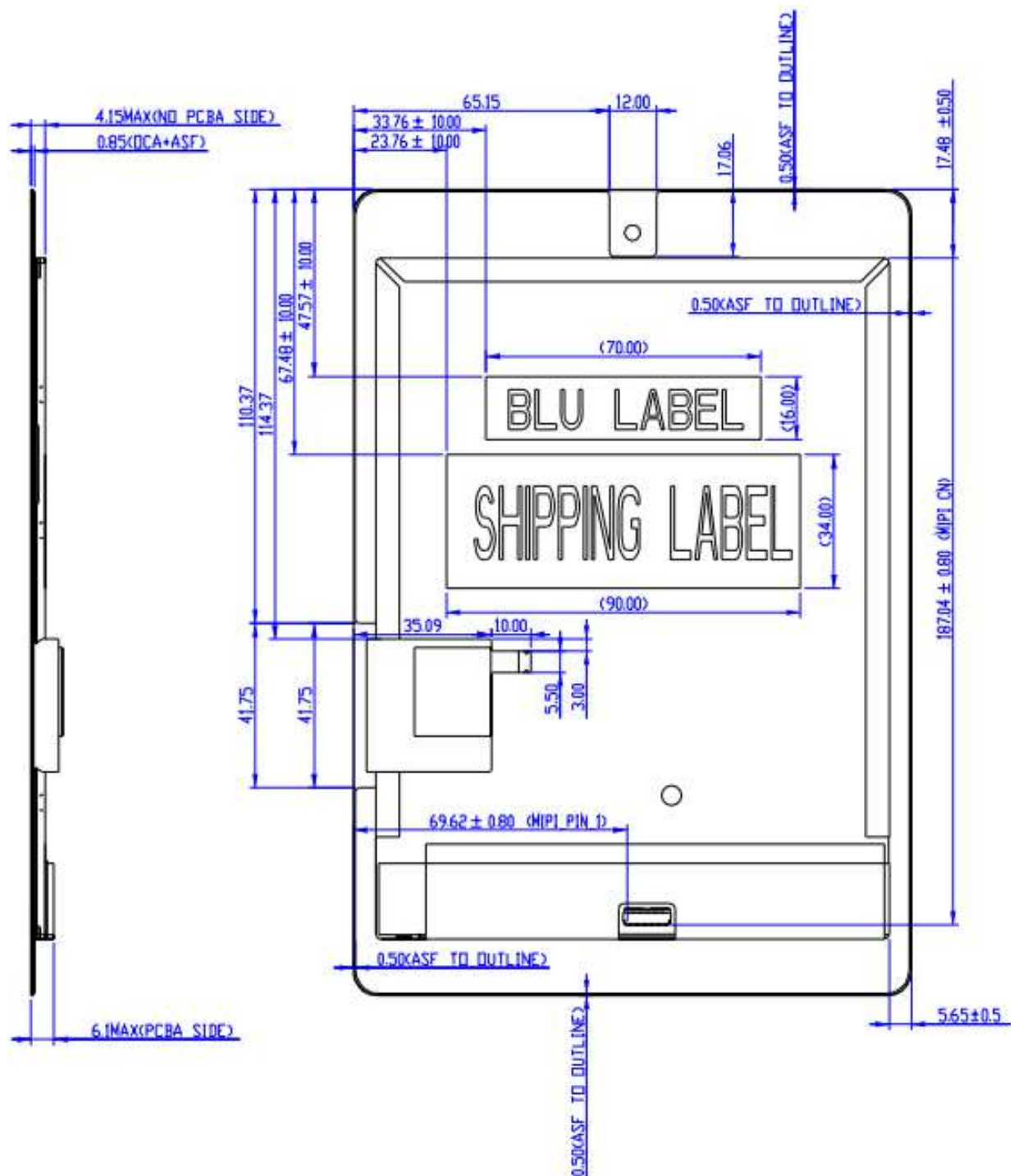
9. Shipping and Package

9.1 Shipping Label Format

Shipping label

* XXXXXXXXXXX-XXXXX B080XAT01.1	Manufactured YY/WW Model No: **B080XAT01.1** AU Optronics Made in China (Z30) **H/W: 0A F/W:1**

c ℞ us E204356   Ⓟb

RoHS

㊉15

Carton Label

AU Optronics QTY : **40** RoHS Ⓟb

MODEL NO : **B080XAT01.1**
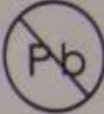
PART NO : **97.XXXXX.XXX**

CUSTOMER NO :

CARTON NO :

Made in China

****ZS0307−0822500037*

9.2 Carton Package
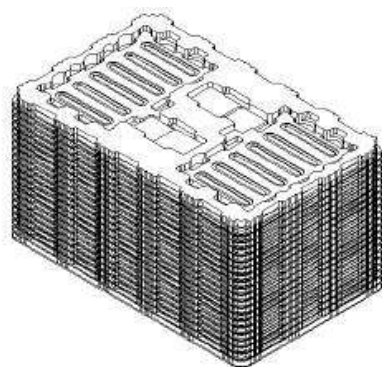
Tray 依上述方式依序堆疊
(TP 共 40 片,最上面第 21 個 tray 是空的)

完成堆疊的 tray 放入靜電袋中,
並使用 tape 封口

EPE cushion 放入紙箱

將包好靜電袋的 tray 整落
放入紙箱中

放入 EPE cushion
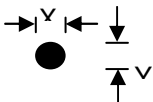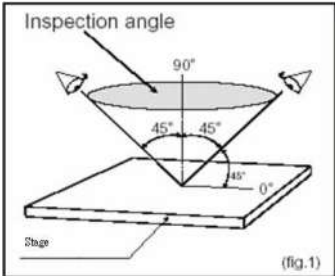
Tape 封紙箱

9.3 Shipping Package of Palletizing Sequence

corner angle

stretch film

LABEL

PET Band

Wooden pallet

10. Appendix

10.1 OGS Device Appendix
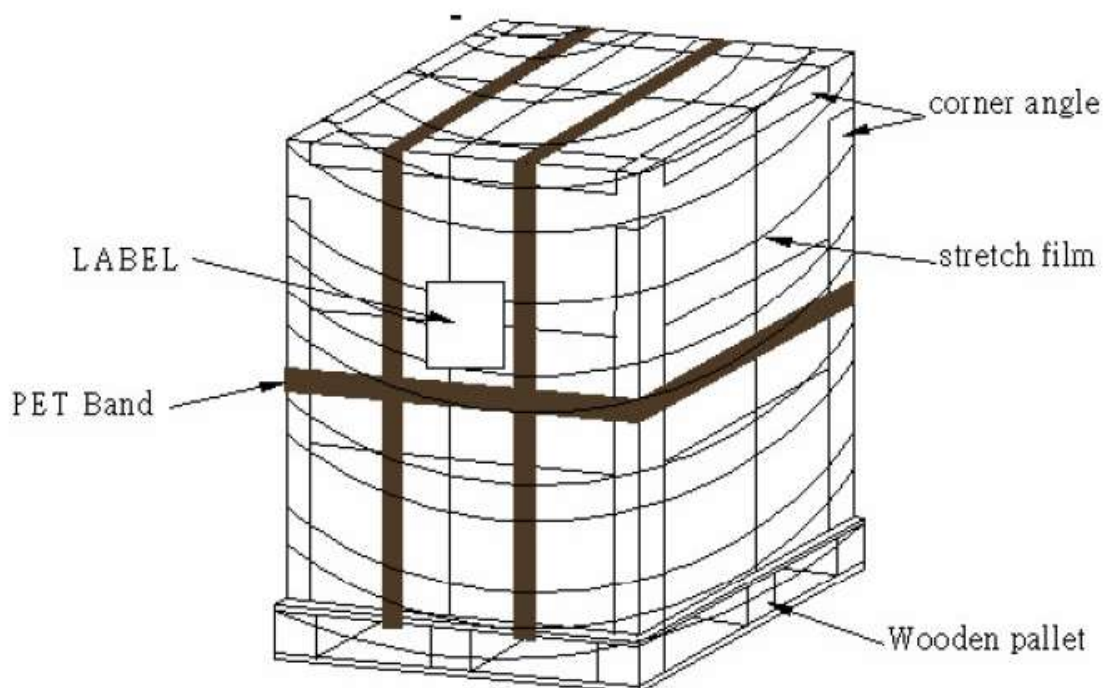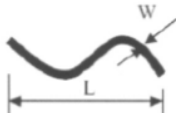
### 10.1.1 OGS Panel Outline and Dimension
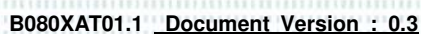
10.1.2 OGS General Specification

Item	Spec	Unit
Thickness	0.7	mm
TP Weight	54 +/- 5.4	g
Input method	Finger	

10.1.3 Cosmetic Specification

| **Defect Item and definition** |
|---|
| 1. Defects count method、number and distance between defects
2. Defects which can be cleaned are not included.
3. Sensor side defects which are not impact electrical function and can't be seen from user-side are not included |
| A. Linear defects scale by the length / width, dot defects scale by diameter

W
L

B. Dot measurement as below diagram. ψ= (x + y) / 2

Y
V |
| Inspection Environment |
| A. The luminance in appearance detecting should be Max 800LUX.

B. The detecting distance should be 30cm +/-5cm/15 sec

C. No other objects and raised appearance on the surface.

D. Be inspected under general daylight lamp.

E. Inspection view-angle:

Inspection angle
90°
45° 45°
45°
0°
Stage
(fig.1) |

Sensor breakage on corner

Corner chip
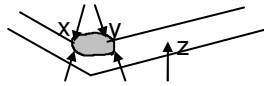
z : Chip depth	y : Chip width	x : Chip length
Z≦T	y≦2 mm	x≦2 mm

-Chip length may not affect Touch Panel product assembly

-May not damage bonding area or ITO circuits

(including traces and alignment mark, not including resistance test mark)

Sensor breakage on edge

Regular chips
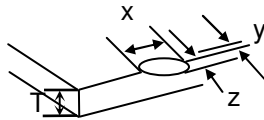
z : Chip depth	y : Chip width	x : Chip length
Z≦0.5 T	y≦2mm	x≦3 mm

-If there are two or more chips, x is the total length of each chip.

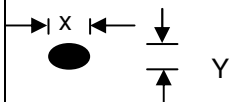| Glass crack, Glass protrusion |
| --- |

Glass crack

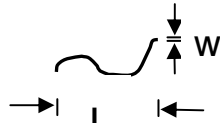-No glass cracks of any kind allowed (including creeping cracks)

Dot shape Defect

$\Psi = (x + y) / 2$

Size	Acceptable Q'TY	Minimum separated distance
ψ≦0.5 mm	Ignore	Ignore
0.5 mm＜ψ≦ 1mm	6	Distance 5 mm over
ψ＞ 1 mm	0	--

Note: Bubble, Flash eye, Particle, Stain, Dirt, Dent, Foreign Material, Inclusion.

Linear shape		

Length (L)	Width (W)	Acceptable Q'TY
L≦10 mm	W≦0.1mm	Ignore
L≦10 mm	0.1mm＜W≦0.3mm	N≦ 5,distance 5 mm over
L≧10 mm	0.3mm＜W	0(不允許)

Scratch		
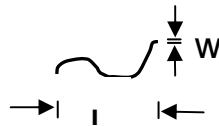
Length (L)	Width (W)	Acceptable Q'TY
L≦12mm	W≦0.3mm	Ignore
L≦30 mm	0.1mm＜W≦0.3mm	N≦ 5,distance 5 mm over
L≧10 mm	0.3mm＜W	0(不允許)