Tentative Product Specification

To:

Product Name: M101GW4G R0

Document Issue Date: 2020/07/14

Customer	InfoVision Optoelectronics
SIGNATURE Please return 1 copy for your confirmation with your signature and comments.	**SIGNATURE** **REVIEWED BY CQM** **PREPARED BY FAE**

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FQ-7-30-0-009-03D

Revision	Date	Page	Revised Content/Summary	Remark
00	2020/07/14	--	First issued.	

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1.0 General Descriptions

1.1 Introduction

The M101GW4G R0 is a Color Active Matrix Liquid Crystal Display with a back light system. The matrix uses a-Si Thin Film Transistor as a switching device. This TFT LCD has a 10.1 inch diagonally measured active display area with WUXGA resolution (1,200 horizontal by 1,920 vertical pixels array).

1.2 Features

- Supported WUXGA Resolution
- MIPI Interface
- Wide View Angle
- Compatible with RoHS Standard

1.3 Product Summary

Items		Specifications	Unit
Screen Diagonal		10.1	inch
Active Area (H x V)		135.36×216.576	mm
Number of Pixels (H x V)		1,200×1,920	-
Pixel Pitch (H x V)		0.1128X0.1128	mm
Pixel Arrangement		R.G.B. Vertical Stripe	-
Display Mode		Normally Black	-
White Luminance		(350) (Typ.)	cd /m^2
Contrast Ratio		(1,000) (Typ.)	-
Response Time		(30) (Typ.)	ms
Input Voltage		3.3 (Typ.)	V
Power Consumption		TBD(Max.)@TBD Pattern ,FV=60Hz	W
Weight		(155) (Max.)	g
Outline Dimension (H x V x D)	Without PCB	(147.78) (Typ.) ×(232.01) (Typ.) × (2.63) (Max.)	mm
	With PCB	(147.78) (Typ.) × (232.01) (Typ.) × (4.80) (Max.)	
Electrical Interface (Logic)		MIPI	-
Support Color		16.7 M(8bit)	-
NTSC		(67) (Typ.)	%
Surface Treatment		Anti-glare	-

1.4 Functional Block Diagram

Figure 1 shows the functional block diagram of the LCD module.

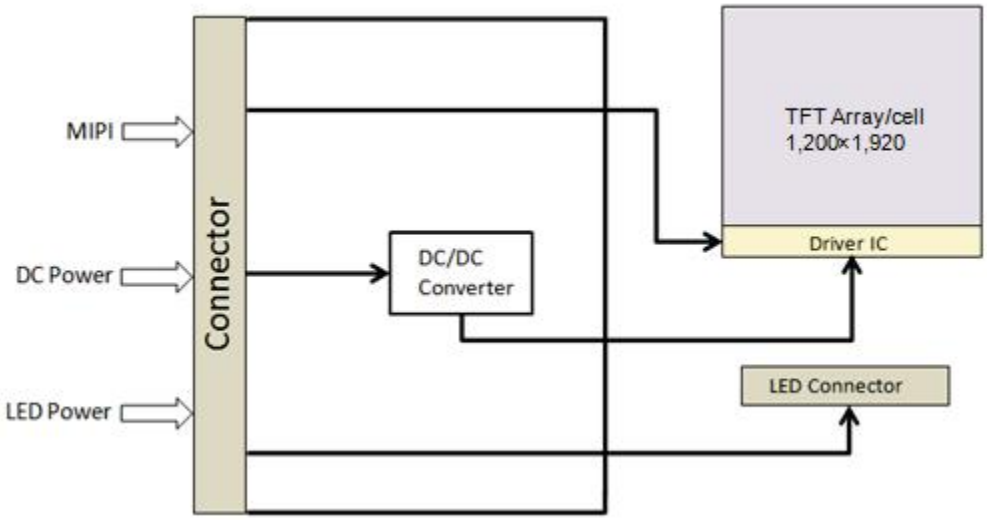

Figure 1 Block Diagram

1.5 Pixel Mapping

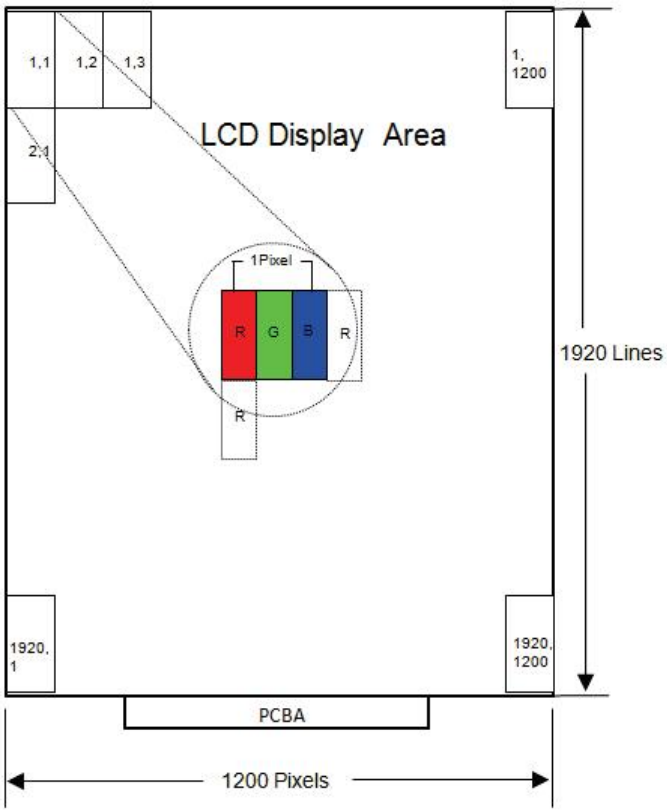

Figure 2 Pixel Mapping

2.0 Absolute Maximum Ratings

Table 1 Electrical & Environment Absolute Rating

Item	Symbol	Min.	Max.	Unit	Note
Logic Supply Voltage	V_{DD}	(-0.3)	(5.0)	V	(1),(2),(3),(4)
Logic Input Signal Voltage	V_{Signal}	(-0.3)	(2.1)	V	
Operating Temperature	T_{gs}	0	60	ć	
Storage Temperature	T_a	-20	60	ć	

Note (1) All the parameters specified in the table are absolute maximum rating values that may cause faulty operation or unrecoverable damage, if exceeded. It is recommended to follow the typical value.

Note (2) All the contents of electro-optical specifications and display fineness are guaranteed under Normal Conditions. All the display fineness should be inspected under normal conditions. Normal conditions are defined as follow: Temperature: 25ć, Humidity: 55± 10%RH.

Note (3) Unpredictable results may occur when it was used in extreme conditions. T_a= Ambient Temperature, T_{gs}= Glass Surface Temperature. All the display fineness should be inspected under normal conditions.

Note (4) Temperature and relative humidity range are shown in the figure below. Wet bulb temperature should be lower than38.3ć, and no condensation of water. Besides, protect the module from static electricity

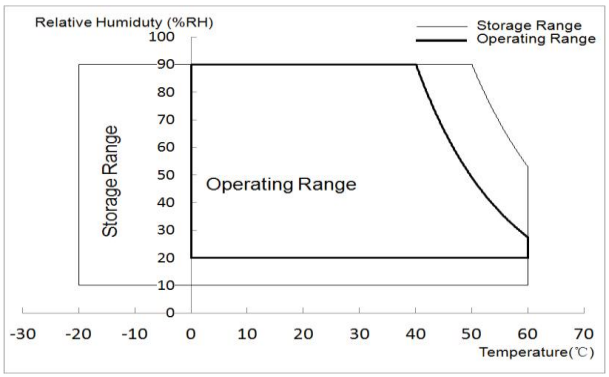

Figure 3 Absolute Ratings of Environment of the LCD Module

3.0 Optical Characteristics

The optical characteristics are measured under stable conditions as following notes.

Table 2 Optical Characteristics

Item	Conditions		Min.	Typ.	Max.	Unit	Note
Viewing Angle ∧CR≥10∨	Horizontal	θ_{x+}	(80)	(85)	-	degree	(1),(2),(3),(4),(8)
		θ_{x-}	(80)	(85)	-		
	Vertical	θ_{y+}	(80)	(85)	-		
		θ_{y-}	(80)	(85)	-		
Contrast Ratio	Center		(800)	(1,000)	-	-	(1),(2),(4),(8) θx=θy=0°
Response Time	Rising + Falling		-	(30)	(35)	ms	(1),(2),(5),(8) θx=θy=0°
Color Chromaticity (CIE1931)	Red x		Typ. -0.03	(0.643)	Typ. +0.03	-	(1),(2),(3),(8) θx=θy=0°
	Red y			(0.351)		-	
	Green x			(0.299)		-	
	Green y			(0.589)		-	
	Blue x			(0.151)		-	
	Blue y			(0.061)		-	
	White x			(0.307)		-	
	White y			(0.344)		-	
NTSC	-		(TBD)	(67)	-	%	(1),(2),(3),(8) θx=θy=0°
White Luminance	Center		(300)	(350)	-	cd/m^2	(1),(2),(6),(8) θx=θy=0°
Luminance Uniformity	9 Points		(75)	-	-	%	(1),(2),(7),(8) θx=θy=0°

Note (1) Measurement Setup:

The LCD module should be stabilized at given ambient temperature (25ć) for 30 minutes to avoid abrupt temperature changing during measuring. In order to stabilize the luminance, the measurement should be executed after lighting backlight for 30 minutes in the windless room.

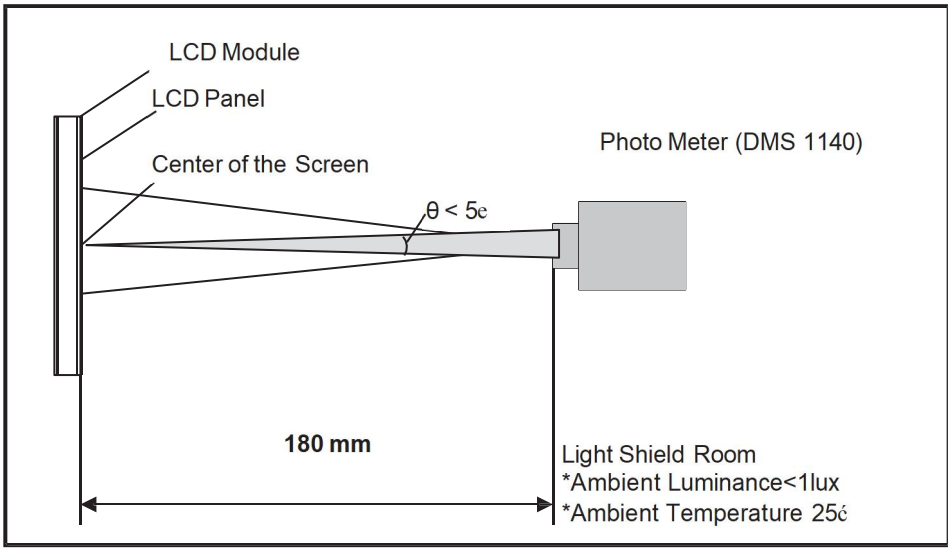

Figure 4 Measurement Setup

Note (2) The LED input parameter setting as:

I_{LED}: (84)mA

Note (3) Definition of Viewing Angle

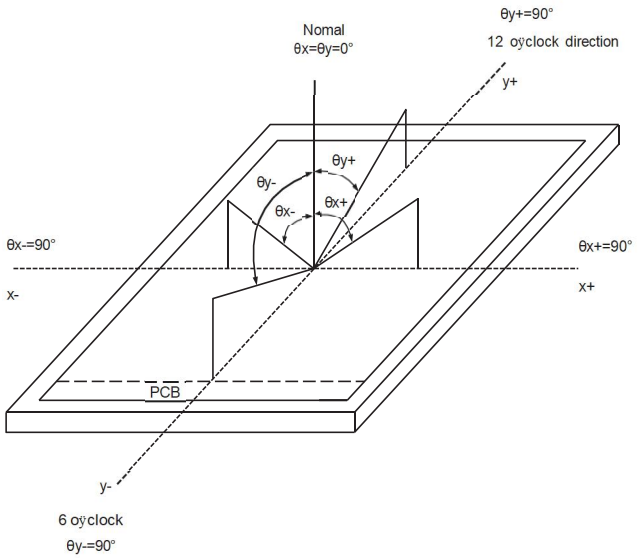

Figure 5 Definition of Viewing Angle

Note (4) Definition of Contrast Ratio (CR)

The contrast ratio can be calculated by the following expression:

Contrast Ratio (CR) = The luminance of White pattern/ The luminance of Black pattern

Note (5) Definition of Response Time (T_R, T_F)

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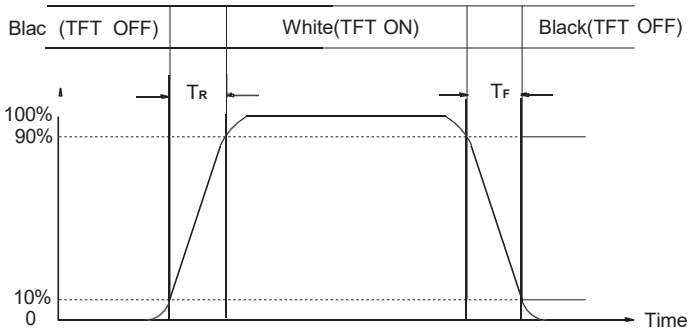


Figure 6 Definition of Response Time

Note (6) Definition of Luminance of White

Measure the luminance of White pattern (Ref.: Active Area)

Display Luminance=L1δcenter pointε

Note (7) Definition of Luminance Uniformity (Ref.: Active Area)

Measure the luminance of White pattern at 9points.

Luminance Uniformity= Min.(L1, L2,L3,L4,L9) / Max.(L1, L2,L3,L4,L9) H—Active Area Width, V—Active Area Height, L—Luminance

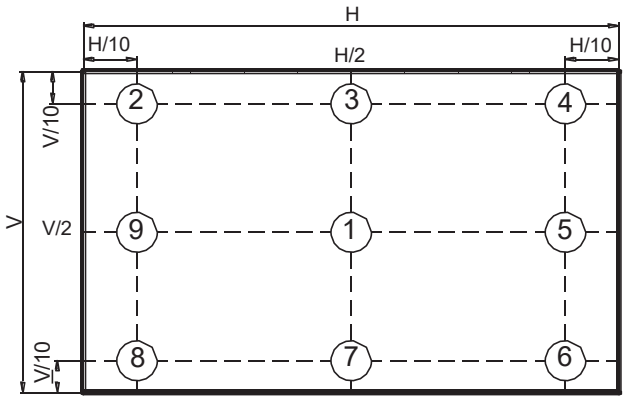


Figure 7 Measurement Locations of 9 Points

Note (8) All optical data are based on IVO given system & nominal parameter & testing machine in this document.

4.0 Electrical Characteristics

4.1 Interface Connector

Table 3 Signal Connector Type

Item	Description
Manufacturer / Type	IPEX/ 20655-045E-01

Table 4 Signal Connector Pin Assignment

Pin No.	Symbol	Description	Remarks
1	GND	Ground	-
2	NC	No Connection	-
3	VDD_3.3V	Power Supply 3.3V(Typ)	-
4	VDD_3.3V	Power Supply 3.3V(Typ)	-
5	VDD_3.3V	Power Supply 3.3V(Typ)	-
6	NC	No Connection	-
7	GND	Ground	-
8	GND	Ground	-
9	GND	Ground	-
10	D0+	MIPI differential data input(D0P)	-
11	GND	Ground	-
12	D0-	MIPI differential data input(D0N)	-
13	GND	Ground	-
14	D1+	MIPI differential data input(D1P)	-
15	GND	Ground	-
16	D1-	MIPI differential data input(D1N)	-
17	GND	Ground	-
18	CLK+	MIPI differential clock input(CLKP)	-
19	GND	Ground	-
20	CLK-	MIPI differential clock input(CLKN)	-
21	GND	Ground	-
22	D2+	MIPI differential data input(D2P)	-
23	GND	Ground	-
24	D2-	MIPI differential data input(D2N)	-
25	GND	Ground	-
26	D3+	MIPI differential data input(D3P)	-
27	GND	Ground	-
28	D3-	MIPI differential data input(D3N)	-
29	GND	Ground	-

30	NC	No Connection	-
31	RST(GRB)	High voltage range،1.44V~1.8V, Low voltage range،0V~0.36V	-
32	NC	No Connection	-
33	NC	No Connection	-
34	NC	No Connection	-
35	NC	No Connection	
36	NC	No Connection	
37	NC	No Connection	
38	LEDK	Cathode for LED	
39	LEDK	Cathode for LED	
40	LEDK	Cathode for LED	
41	NC	No Connection	
42	LEDA	Anode for LED	
43	LEDA	Anode for LED	
44	LEDA	Anode for LED	
45	NC	No Connection	

4.2 Signal Electrical Characteristics

4.2.1 Reset Input Timing

Table 5 Reset timing

Parameter	Symbol	Conditions	Spec			Unit
			Min	Typ	Max	
Reset low pulse width	Trst	-	(20)	-	-	μs

Figure 8 Reset timing

Note (1) When RESETB of the reset pin equals to Low, it will be in the condition of reset. When it is in the condition of reset, it will make the device recover the initial set.

Note (2) However, in order to avoid the reset noise reset. there is a mechanism to judge about whether the reset is needed or not.

4.2.2 MIPI DC Characteristics are as follows

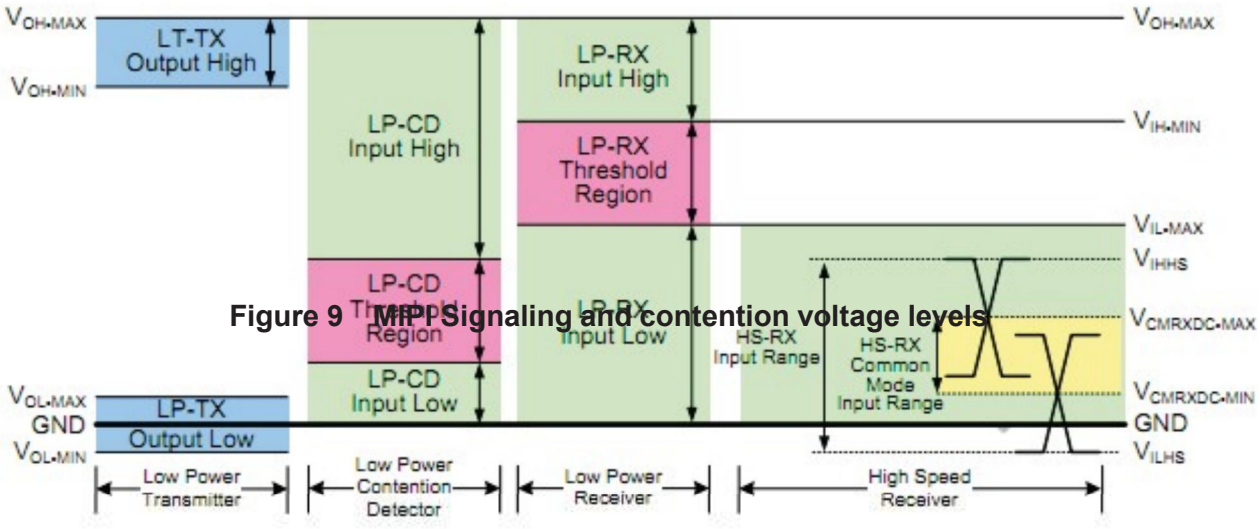


Figure 9 MIPI Signaling and contention voltage levels

Table 6 MIPI DC Characteristics for MIPI LP mode

Parameter	Symbol	Min.	Typ.	Max.	Unit
Logic 1 Output Voltage	VOH	(1.1)	(1.2)	(1.3)	V
Logic 0 Output Voltage	VOL	(-50)	-	(50)	mV
Logic 1 Input Voltage	VIH	(880)	-	-	mV
Logic 0 Input Voltage	VIL	(0)	-	(550)	mV
Common-mode Voltage HS Receive Mode	VCMRX(DC)	(70)	-	(330)	mV
Differential Input High Threshold	VIDTH	-	-	(70)	mV
Differential Input Low Threshold	VIDTL	(-70)	-	-	mV
Single-ended Input High Voltage	VIHHS	-	-	(460)	mV
Single-ended Input Low Voltage	VILHS	(-40)	-	-	mV
Differential Input Impedance	ZID	(80)	(100)	(125)	Ohm
HS transmit different voltage (VDP-VDN)	⎩VOD⎩	(140)	(200)	(270)	mV

4.3 AC Characteristics

4.3.1 MIPI AC Characteristics

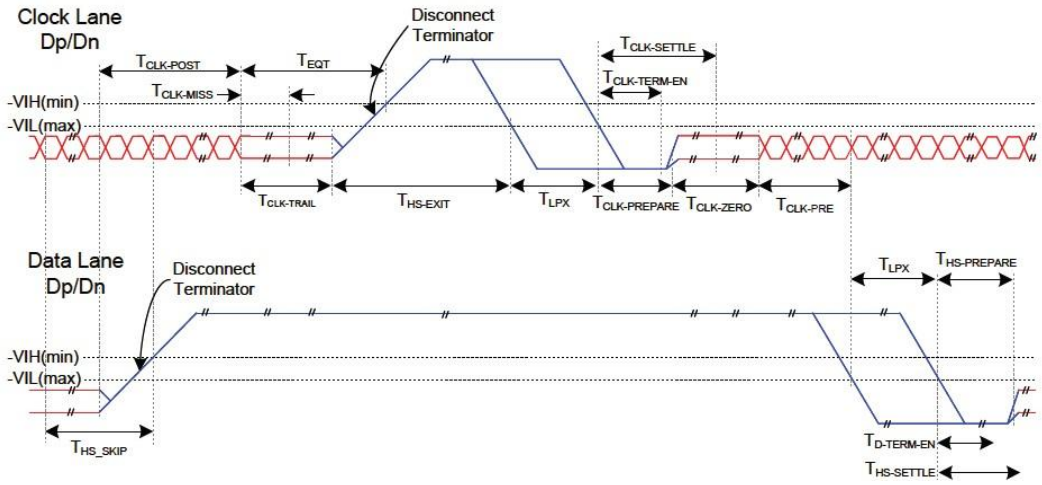


Figure 10 Switch the clock lane between clock transmission and low-power mode

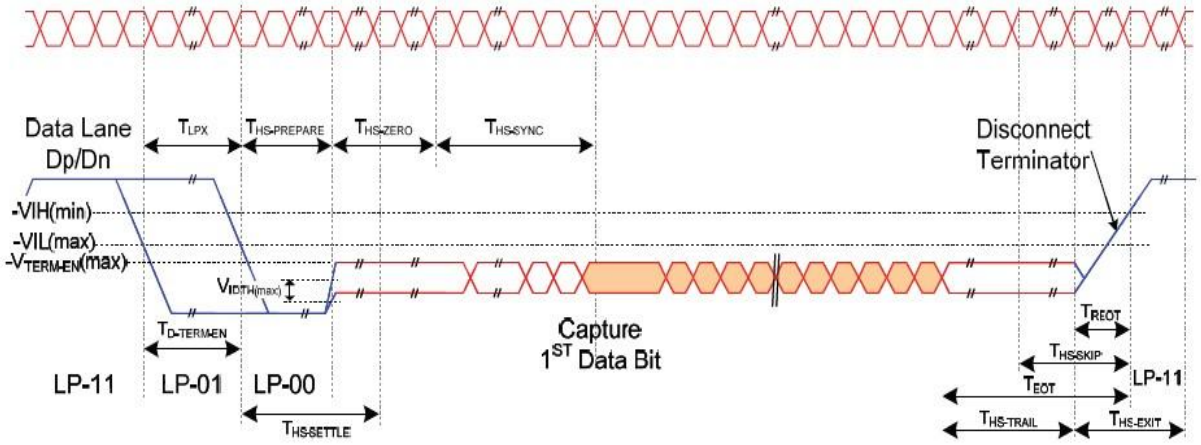


Figure 11 Timing of high-speed data transmission in bursts

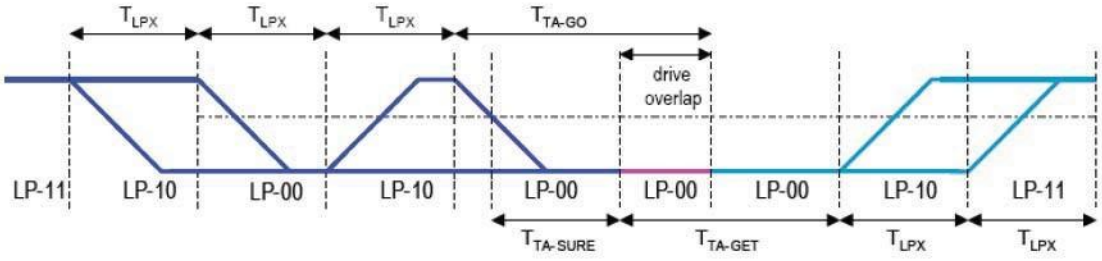


Figure 12 Turnaround Procedure

Table 7 MIPI AC Characteristics

Parameter	Description	Spec			Unit
		Min	Typ	Max	
T_{REOT}	30%-85% rise time and fall time	-	-	35	ns
$T_{CLK-MISS}$	Timeout for receiver to detect absence of Clock transitions and disable the Clock Lane HS-RX.	-	-	60	ns
$T_{CLK-POST}$*1	Time that the transmitter continues to send HS clock after the last associated Data Lane has transitioned to LP Mode. Interval is defined as the period from the end of THS-TRAIL to the beginning of $T_{CLK.TAL}$	60ns+52*UI (For DCS)	-	-	ns
$T_{CLK-POE}$	Time that the HS clock shall be driven by the transmitter prior to any associated Data Lane beginning the transition from LP to HS mode.	8	-	-	ns
$T_{CLK-SETTLE}$	Time interval during which the HS receiver shall ignore any Clock Lane HS transitions, starting from the beginning of $T_{CLK-PREs}$	95		300	ns
$T_{CLK-TERM-N}$	Time for the Clock Lane receiver to enable the HS line termination, starting from the time point when Dn crosses $V_{IL.Max.}$	Time for Dn to reach $V_{TERM-EN}$	-	38	ns
$T_{HS-SETTLE}$	Time interval during which the HS receiver shall ignore any Data Lane HS transitons, starting from the beginning of $T_{HSPREPARE.}$	85ns+6*UI	-	145NS+10*UI	ns
T_{EOT}	Time from start of $T_{HS-TRAIL}$ or $T_{CLk-TRAIL}$ period to start of LP-11 state	-	-	105NS+48*UI	ns
$T_{HS-EXIT}$(1)	Time to drive LP-11 after HS burst	100	-	-	ns
$T_{HS-PREAPRE}$	Time to drive LP-00 to prepare for HS transmission	40ns+4*UI	-	85ns*UI	ns
$T_{HS-PREPARE}$ + T_{HSZERO}	$T_{HS-PREPAR}$ +Time to drive HS-0 before the Sync sequence	145ns+10*UI	-	-	ns
$T_{HS-SKIP}$	Time-out at RX to ignore transition period of EoT	40	-	55ns+5*UI	ns
$T_{HS-TRAIL}$	Time to drive flipped differential state after last payload data bit of a HS transmission burst	60+48*UI	-	-	ns
T_{LPX}	Length of any Low-Power state period	50	-	-	ns
Ratio T_{LPX}	Ratio of $T_{LPX(MASTER)}$/$T_{LPS(SLAVE)}$ between Master and Slave side	2/3	-	3/2	ns
T_{TA-GET}	Time to drive LP-00 by new TX	5*T_{LPX}			ns
T_{TA-GO}	Time to drive LP-00 after Turnaround Request	4*T_{LPX}			ns
$T_{TA-SIRE}$	Time-out before new TX side starts driving	T_{LPX}	-	2* T_{UPX}	ns

Note(1)For image transimission

Tclk-post min value=164 when MIPI max frequency per lane=0.53Gbps.

Tclk-post min value=112 when MIPI max frequency per lane=1Gbps.

4.3.2 MIPI Data-Clock Timing

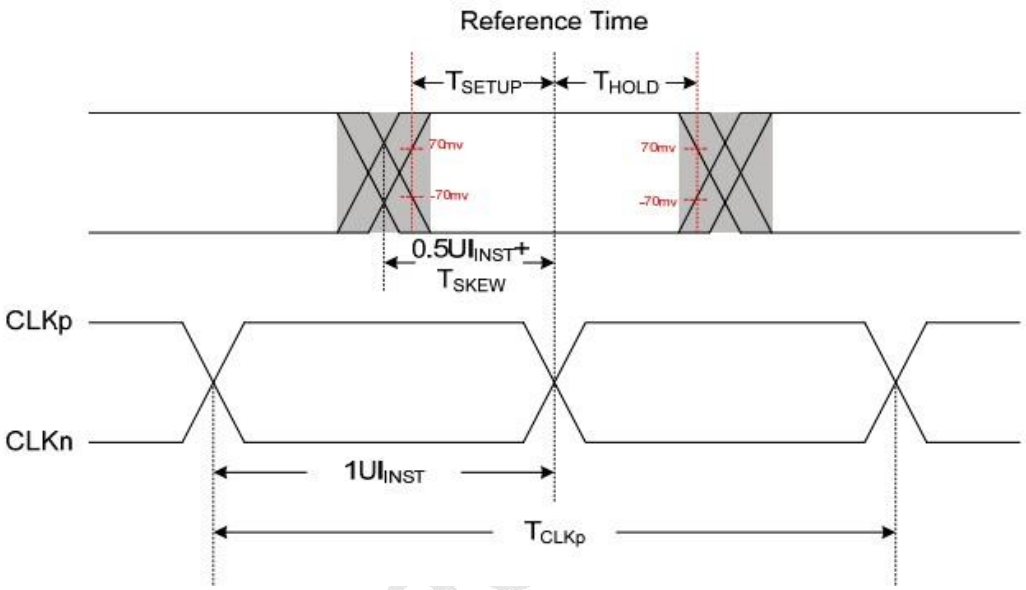


Figure 13 MIPI Data-Clock Timing Definitions Table 8 MIPI Data-Clock Timing Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
UI Instantaneous	UI_{INST}	(1)	-	(12.5)	ns	(1)
Data to Clock Setup Time	T_{SETUP}(RX)	(0.15)	-	-	UI_{INST}	
Clock to Data Hold Time	T_{HOLD}(RX)	(0.15)	-	-	UI_{INST}	

Note (1) This value (12.5ns) corresponds to a minimum 80 Mbps data rate

Table 9 MIPI Data-Clock Timing Specifications

Parameter	Symbol	Min	Typ.	Max.	Unit
Clock Frequency	Fclk	-	(156)	-	MHz
Horizontal Total	Tht	-	(1,340)	-	Pixels
Horizontal Active Time	Tha	-	1,200)	-	Pixels
Horizontal Synchronization	Ths	-	(24)	-	Pixels
Horizontal Back Porch	Thb	-	(80)	-	Pixels
Horizontal Front Porch	Thf	-	(60)	-	Pixels

Vertical Total Time	Tvt	-	(1,944)	-	Lines
Vertical Active Time	Tva	-	(1,920)	-	Lines
Vertical Synchronization	Tvc	-	(2)		Lines
Vertical Back Porch	Tvb	-	(10)		Lines
Vertical Front Porch	Tvf	-	(14)	-	Lines
Frame Rate	Fv	-	(60)	-	Hz

Note1:Htotal*Vtotal*Frame Rate = Fclk

4.4 Input Power Specifications

Input power specifications are as follows.

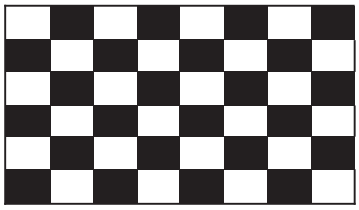
Table 9 Input Power Specifications

Parameter		Symbol	Min.	Typ.	Max.	Unit	Note
System Power Supply							
LCD Drive Voltage (Logic)		V_{DD}	(3.0)	(3.3)	(3.6)	V	(1),(2)
VDD Current	Mosaic Pattern	I_{DD}	-	-	TBD	A	(1),(2),(3)
VDD Power Consumption	Mosaic Pattern	P_{DD}	-	-	TBD	W	
Logic Input Signal High Level Voltage		V_{IH}	(1.44)	-	(1.8)	V	
Logic Input Signal Low Level Voltage		V_{IL}	(0)	-	(0.36)	V	
Rush Current		I_{Rush}	-	-	(1.5)	A	(1),(4)
LED Power Supply							
LED Input Voltage		V_{LED}	(27)	-	(32)	V	(1),(2)
LED Power Consumption		P_{LED}	-	-	(2.55)	W	(1),(6)
LED Forward Voltage		V_F	(5.4)	-	(6)	V	(1),(2)
LED Forward Current		I_F	-	(21)	-	mA	
LED Life Time		LT	(22,000)	-	-	Hours	(1),(5)

Note (1) All of the specifications are guaranteed under normal conditions. Normal conditions are defined as follow: Temperature: 25ć, Humidity: 55± 10%RH.

Note (2) All of the absolute maximum ratings specified in the table, if exceeded, may cause faulty operation or unrecoverable damage. It is recommended to follow the typical value.

Note (3) The specified V_{DD} current and power consumption are measured under the V_{DD} = 3.3 V, F_V = 60 Hz condition and Mosaic Pattern.



Note (4) The figures below is the measuring condition of V_{DD}. Rush current can be measured when T_{RUSH} is 0.5 ms.

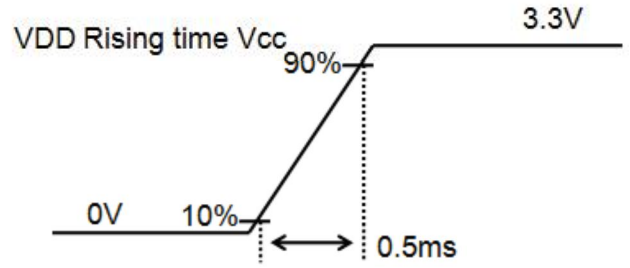
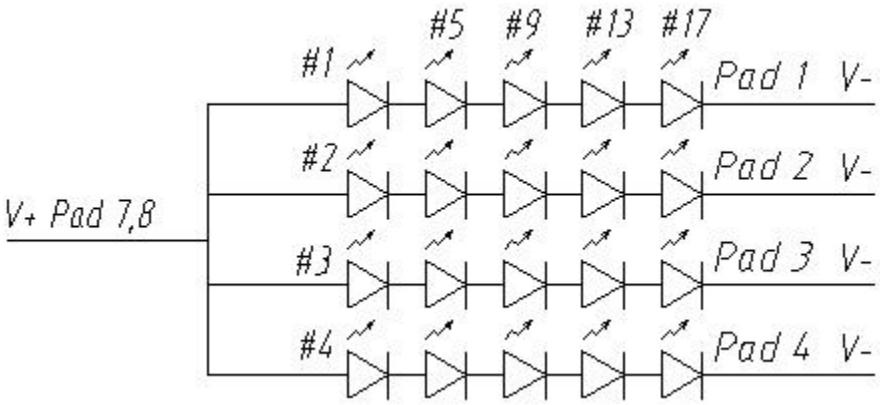


Figure 14 V_{DD} Rising Time

Note (5) The life time is determined as the sum of the lighting time till the luminance of LCD at the typical LED current reducing to 50% of the minimum value under normal operating condition.

Note (6) Definition of VLED and PLED

$V_{LED} = V_F \times 5$, $I_{LED} = I_F \times 4$, $PLED = V_{LED} \times I_{LED}$



4.5 Power ON/OFF Sequence

Interface signals are also shown in the chart. Signals from any system shall be Hi- resistance state or low level when VDD voltage is off.

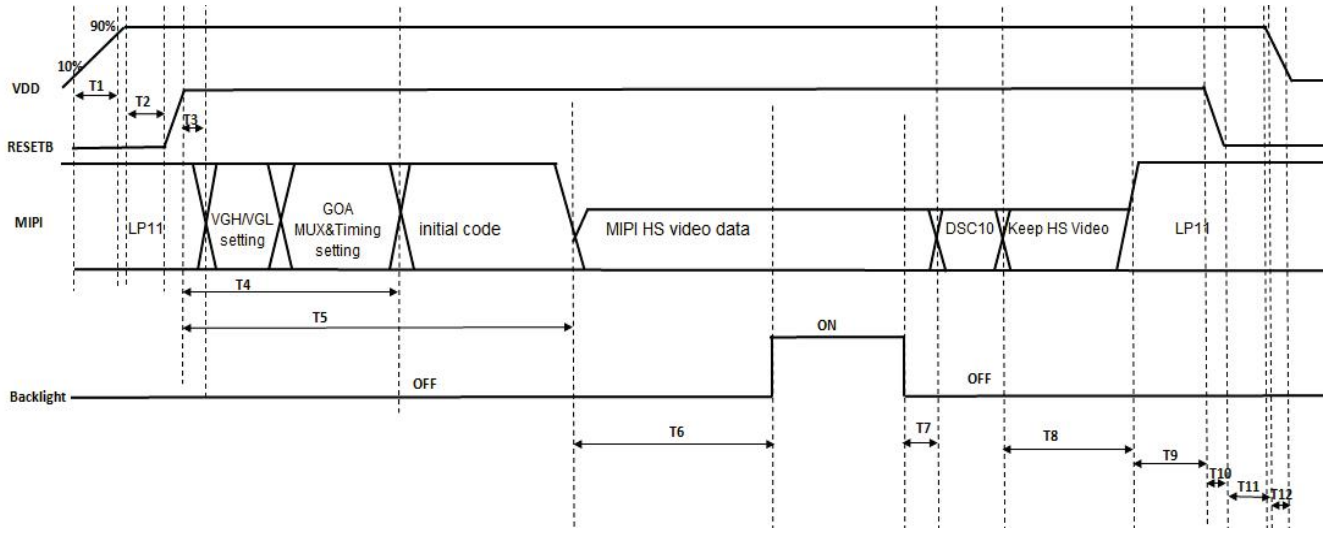
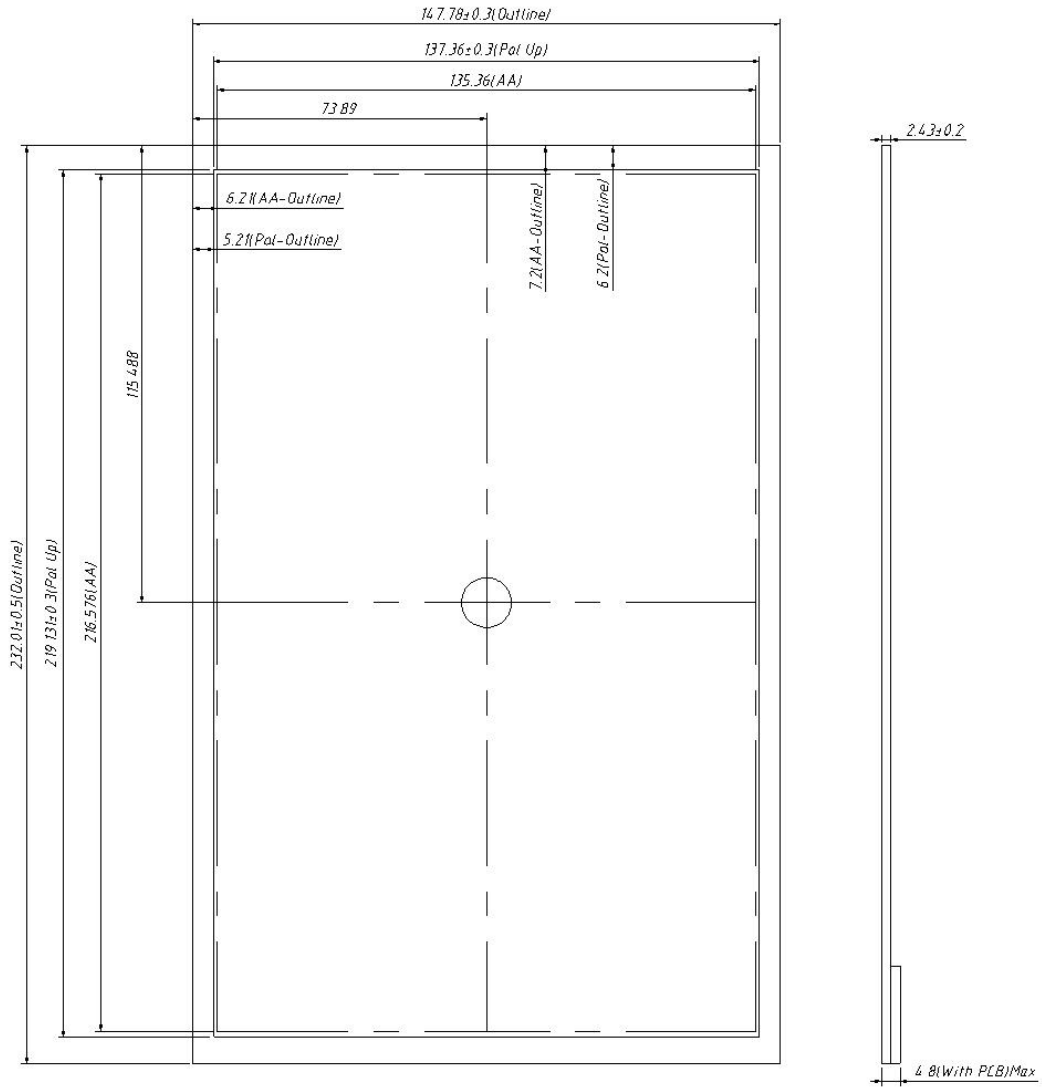


Figure 15 Power On Sequence

Parameter	Symbol	Unit	Min.	Typ.	Max.
VDD Rise Time (10% to 90%)	T1	ms	(0.5)	-	(10)
VDD to Reset	T2	ms	(10)	-	-
Reset Good to start code timing	T3	ms	(6)	-	-
Reset Good to Finish GOA MUX and Timing setting	T4	ms	-	-	(60)
Reset Good to start sent MIPI HS video data	T5	ms	(120)	-	-
MIPI HS video data to Backlight Power On	T6	ms	(150)	-	-
Backlight Power Off to MIPI DSC10	T7	ms	(0.5)	-	-
Keep HS Video	T8	ms	(100)	-	-
MIPI off to RESETB	T9	ms	(0.5)		
RESETB Fall time	T10	ms	(0.5)	-	-
RESETB off to VDD	T11	ms	(0.5)		
VDD Fall Time (90% to10%)	T12	ms	(0.5)	-	(10)

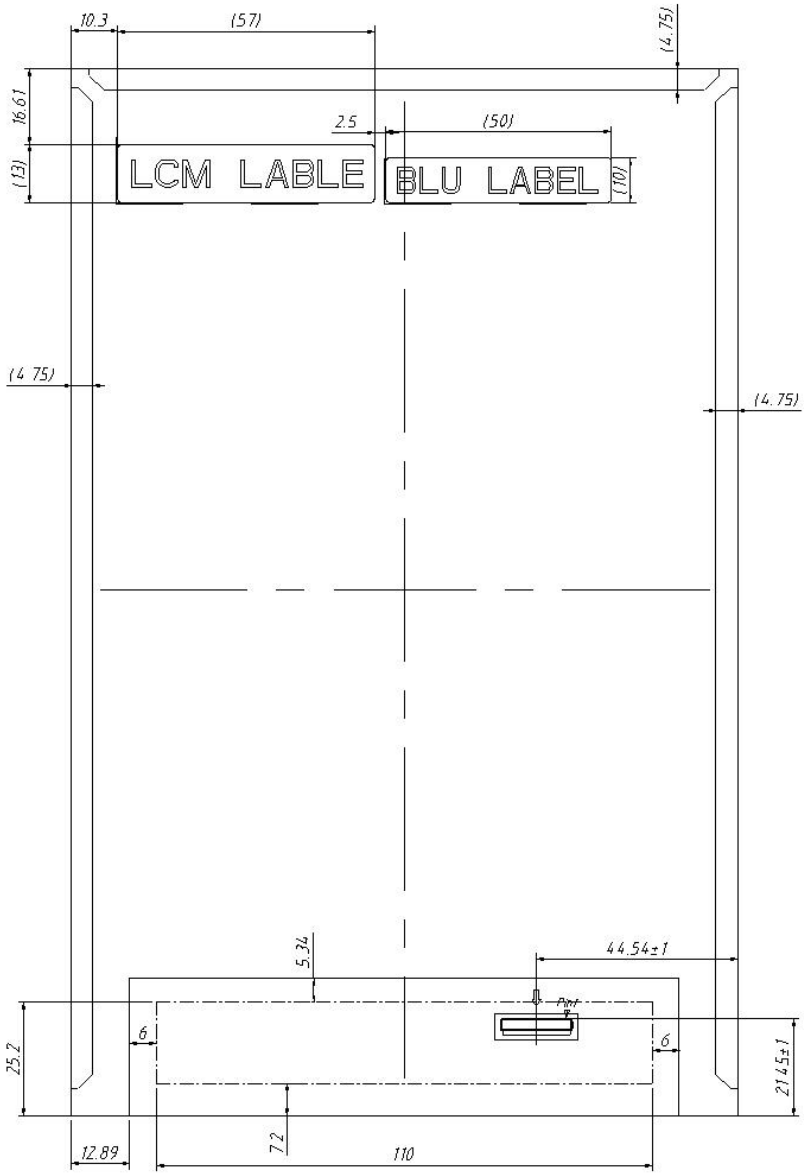
5.0 Mechanical Characteristics

5.1 Outline Drawing



Unit:mm

Figure 16 Reference Outline Drawing (Front Side)



Unit:mm

Figure 17 Reference Outline Drawing (Back Side)

Note:

1. Polarizer should be higher than the display surface and all components.
2. Unnoted tolerance ±0.5mm;
3. Dimensions with brackets only for reference

5.2 Dimension Specifications

Table 11 Module Dimension Specifications

Item		Min.	Typ.	Max.	Unit
Width		(147.48)	(147.78)	(148.08)	mm
Height		(231.51)	(232.01)	(232.51)	mm
Thickness	Without PCBA	(2.23)	(2.43)	(2.63)	mm
	With PCBA	-	-	(4.80)	mm
Weight		-	-	(155)	g

Note: Outline dimension measure instrument: Vernier Caliper.

6.0 Reliability Conditions

Table 12 Reliability Condition

Item		Package	Test Conditions		Note
High Temperature/High Humidity Operating Test		Module	T_{gs}=40ć, 90%RH, 300 hours		(1),(2),(3),(4)
High Temperature Operating Test		Module	T_{gs}=60ć,300 hours		
Low Temperature Operating Test		Module	T_a=0ć, 300 hours		
High Temperature Storage Test		Module	T_a=60ć, 300 hours		
Low Temperature Storage Test		Module	T_a= -20ć, 300 hours		
Shock Non-operating Test		Module	Test method: Non-Operation Acceleration: 220 G , Half sine wave Active time: 2 ms Pulse: X,Y,Z one time for each side		(1),(3),(5)
Vibration Non-operating Test		Module	Test method: Non-Operation Acceleration: 1.5 G Frequency: 10 - 500Hz Random Sweep: 30 Minutes each Axis (X, Y, Z)		
ESD Test	Operating	Module	Contact	±8KV, (150pF,330Ohm)	(1),(2),(6)
			Air	±15KV, (150pF,330Ohm)	
	Non-Operating	Module	Contact	±10KV, (150pF,330Ohm)	
			Air	±20KV, (150pF,330Ohm)	

Note (1) A sample can only have one test. Outward appearance, image quality and optical data can only be checked at normal conditions according to the IVO document before reliable test. Only check the function of the module after reliability test.

Note (2) The setting of electrical parameters should follow the typical value before reliability test.

Note (3) During the test, it is unaccepted to have condensate water remains. Besides, protect the module from static electricity.

Note (4) The sample must be released for 24 hours under normal conditions before judging. Furthermore, all the judgment must be made under normal conditions. Normal conditions are defined as follow: Temperature: 25ć, Humidity: 55± 10%RH. T_a= Ambient Temperature, T_{gs}= Glass Surface Temperature.

Note (5) The module should be fixed firmly in order to avoid twisting and bending.

Note (6) It could be regarded as pass, when the module recovers from function fault caused by ESD after a while.

7.0 Package Specification

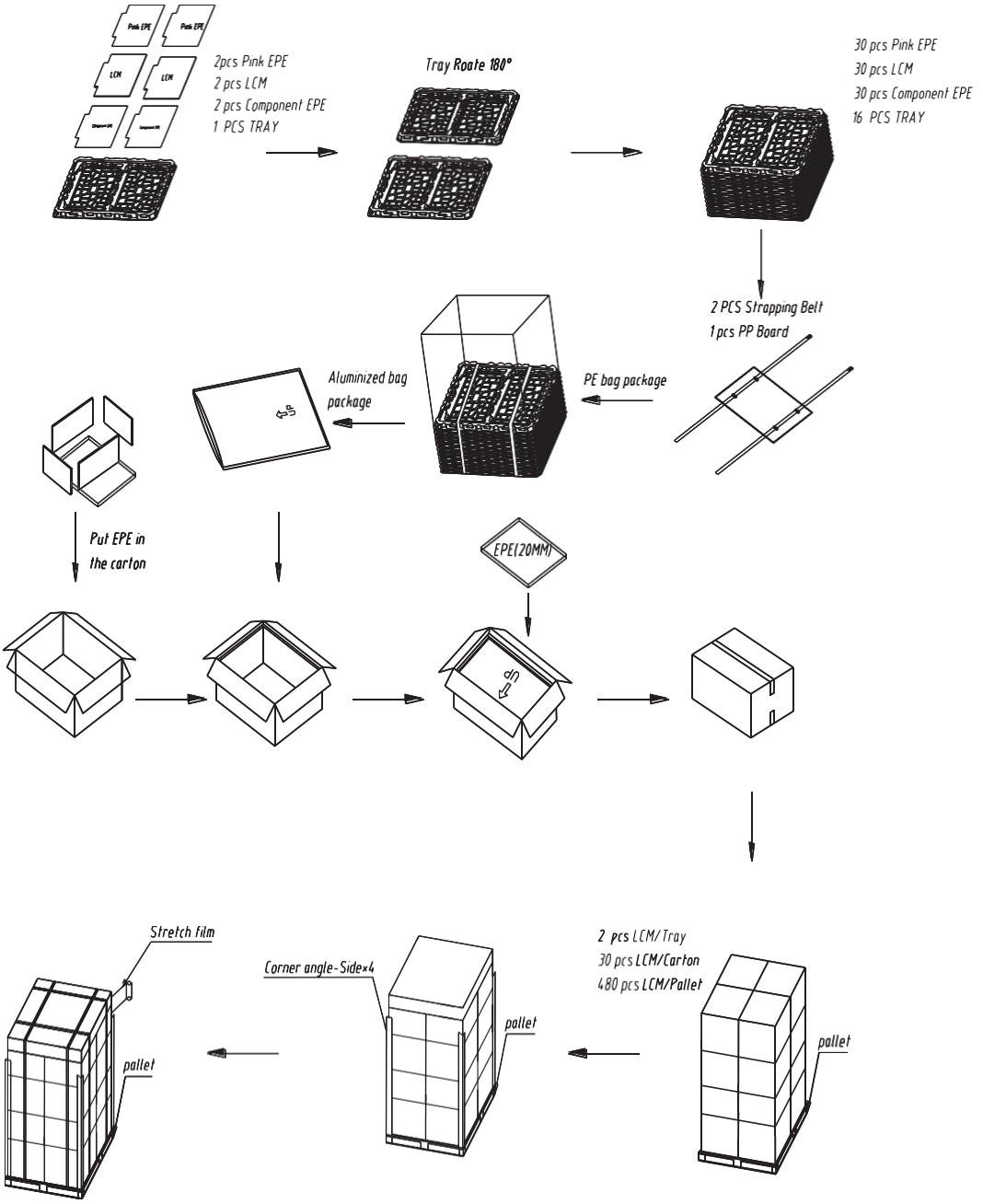


Figure 19 Packing Method

8.0 Lot Mark

TBD

9.0 General Precaution

9.1 Using Restriction

This product is not authorized for using in life supporting systems, aircraft navigation control systems, military systems and any other appliance where performance failure could be life-threatening or lead to be catastrophic.

9.2 Operation Precaution

(1) The LCD product should be operated under normal conditions.

Normal conditions are defined as below:

Temperature: 25ć

Humidity: 55±10%

Display pattern: continually changing pattern (Not stationary)

(2) Brightness and response time depend on the temperature. (It needs more time to reach normal brightness in low temperature.)

(3) It is necessary for you to pay attention to condensation when the ambient temperature drops suddenly. Condensate water would damage the polarizer and electrical contacted parts of the module. Besides, smear or spot will remain after condensate water evaporating.

(4) If the absolute maximum rating value was exceeded, it may damage the module.

(5) Do not adjust the variable resistor located on the module.

(6) Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding may be important to minimize the interference.

(7) Image sticking may occur when the module displayed the same pattern for long time.

(8) Do not connect or disconnect the module in the “power on” condition. Power supply should always be turned on/off by the “power on/off sequence”

(9) Ultra-violet ray filter is necessary for outdoor operation.

9.3 Mounting Precaution

(1) All the operators should be electrically grounded and with Ion-blown equipment turning on when mounting or handling. Dressing finger-stalls out of the gloves is important for keeping the panel clean during the incoming inspection and the process of assembly.

(2) It is unacceptable that the material of cover case contains acetic or chloric. Besides, any other material that could generate corrosive gas or cause circuit break by electro-chemical reaction is not desirable.

(3) The case on which a module is mounted should have sufficient strength so that external force is not transmitted to the module directly.

(4) It is obvious that you should adopt radiation structure to satisfy the temperature specification.

(5) So as to acquire higher luminance, the cable of the power supply should be connected directly with a minimize length.

(6) It should be attached to the system tightly by using all holes for mounting, when the module is

assembled. Be careful not to apply uneven force to the module, especially to the PCB on the back.
(7) A transparent protective film needs to be attached to the surface of the module.
(8) Do not press or scratch the polarizer exposed with anything harder than HB pencil lead. In addition, don't touch the pin exposed with bare hands directly.
(9) Clean the polarizer gently with absorbent cotton or soft cloth when it is dirty.
(10) Wipe off saliva or water droplet as soon as possible. Otherwise, it may cause deformation and fading of color.
(11) Clean the panel gently with soft cloth when it is dirty. Ethanol(C_2H_5OH) is allowed to be used. Ketone (ex. Acetone), Toluene, Ethyl acid, Methyl chloride, etc are not allowed to be used for cleaning the panel, which might react with the polarizer to cause permanent damage
(12) Do not disassemble or modify the module. It may damage sensitive parts in the LCD module, and cause scratches or dust remains. IVO does not warrant the module, if you disassemble or modify the module.

9.4 Handling Precaution

(1) Static electricity will generate between the film and polarizer, when the protection film is peeled off. It should be peeled off slowly and carefully by operators who are electrically grounded and with Ion-blown equipment turning on. Besides, it is recommended to peel off the film from the bonding area.
(2) The protection film is attached to the polarizer with a small amount of glue. When the module with protection film attached is stored for a long time, a little glue may remain after peeling.
(3) If the liquid crystal material leaks from the panel, keep it away from the eyes and mouth. In case of contact with hands, legs or clothes, it must be clean with soap thoroughly.

9.5 Storage Precaution

When storing modules as spares for long time, the following precautions must be executed.
(1) Store them in a dark place. Do not expose to sunlight or fluorescent light. Keep the temperature between 5ć and 35ć at normal humidity.
(2) The polarizer surface should not come in contact with any other object. It is recommended that they be stored in the container in which they were shipped.
(3) It is recommended to use it in a short-time period, after it's unpacked. Otherwise, we would not guarantee the quality.

9.6 Others

When disposing LCD module, obey the local environmental regulations.