Product Specification

To:

Product Name: M101GWT9 R4

Document Issue Date: 2019/03/11

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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2. The information contained herein is presented merely to indicate the characteristics and performance of our products. No responsibility is assumed by IVO for any intellectual property claims or other problems that may result from application based on the module described herein.

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

Revision	Date	Page	Old Description	New Description	Remark
00	2019/03/11	All	--	First issue.	

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1.0 General Descriptions

1.1 Introduction

The M101GWT9 R4 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 WSVGA resolution (1,024 horizontal by 600 vertical pixels array).

1.2 Features

- Supported WSVGA Resolution
- LVDS Interface
- Compatible with RoHS Standard

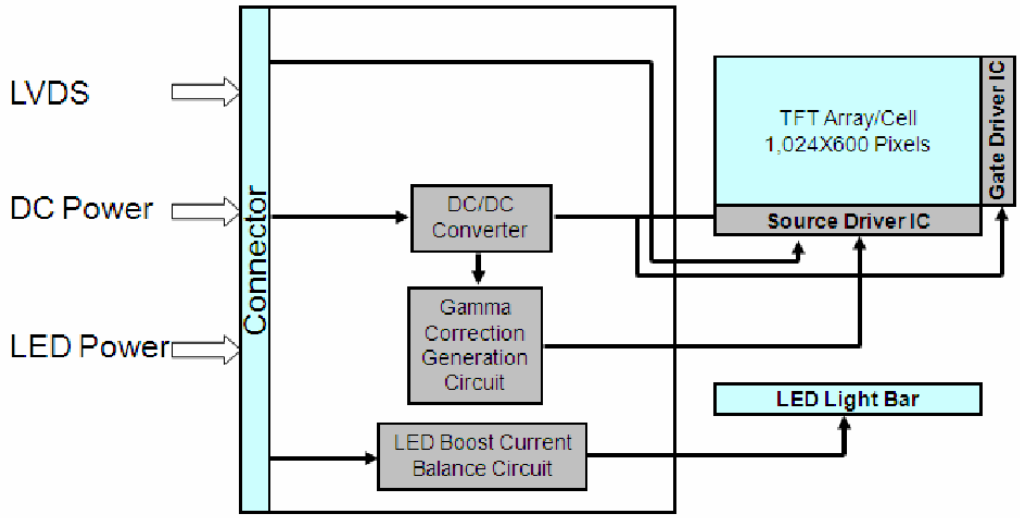
1.3 Product Summary

Items	Specifications	Unit
Screen Diagonal	10.1	inch
Active Area (H x V)	222.72(H) x125.28(V)	mm
Number of Pixels (H x V)	1,024 x 600	-
Pixel Pitch (H x V)	0.2175 x 0.2088	mm
Pixel Arrangement	R.G.B. Vertical Stripe	-
Display Mode	Normally White	-
White Luminance	350 (Typ.)	cd /m^2
Contrast Ratio	500 (Typ.)	-
Response Time	16 (Typ.)	ms
Input Voltage	3.3 (Typ.)	V
Power Consumption	3.78 (max)	W
Weight	220 (max)	g
Outline Dimension (H x V x D)	235. 0 (Typ.) x 143.0(Typ.) x 5.2 (Max.)	mm
Electrical Interface (Logic)	LVDS	-
Support Color	262 K/16.7 M	-
NTSC	45 (Typ.)	%
Viewing Direction	6 O'clock	-
Surface Treatment	Anti-glare+3H	-

1.4 Functional Block Diagram

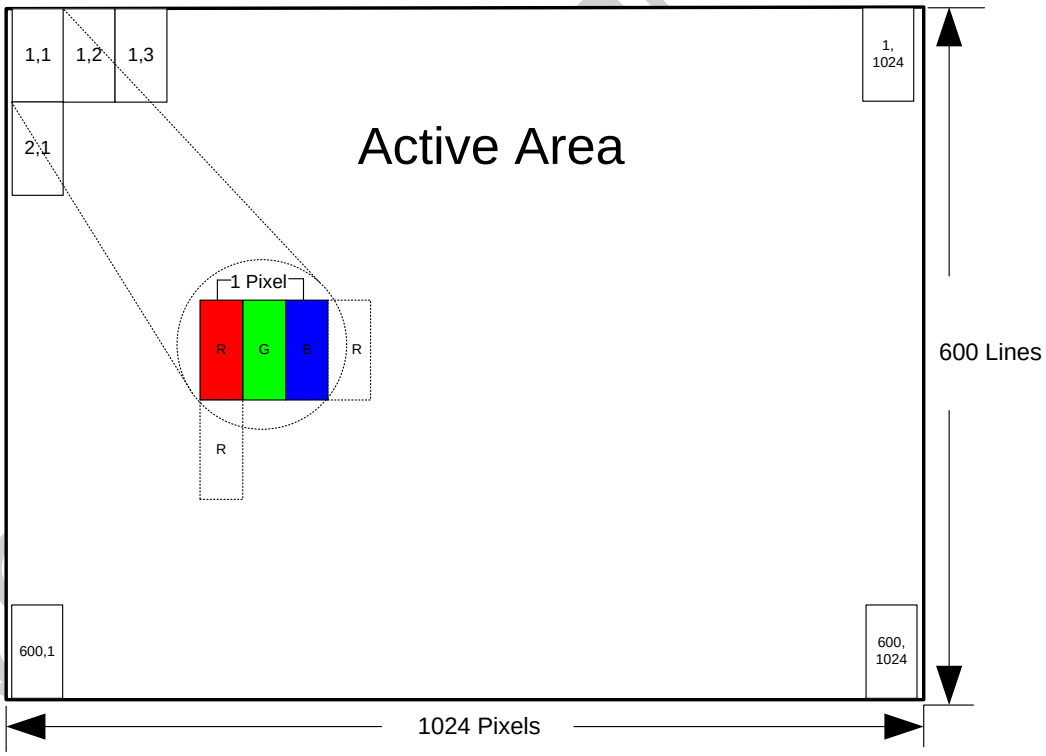
Figure 1 shows the functional block diagram of the LCD module.

Figure 1 Block Diagram



1.5 Pixel Mapping

Figure2 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	3.96	V	(1),(2),(3),(4)
Logic Input Signal Voltage	V_{Signal}	0	3.6	V	
Operating Temperature	T_{gs}	0	50	℃	
Storage Temperature	T_a	-20	60	℃	

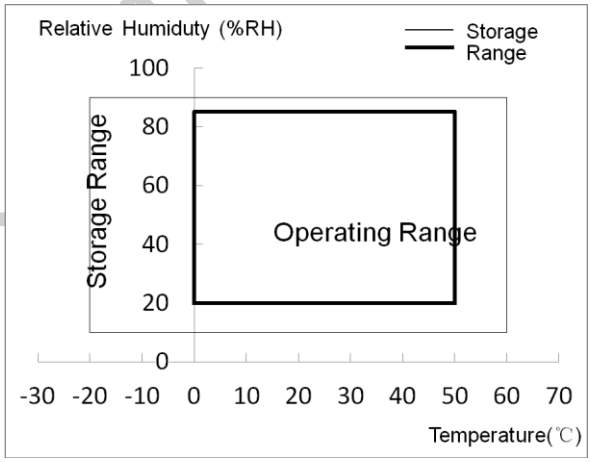
Note (1) All the parameters specified in the table are absolute maximum rating values that may cause faulty operation or unrecoverable damage, if exceeded. It is recommended to follow the typical value.

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: 25℃, 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 than 39℃, 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.

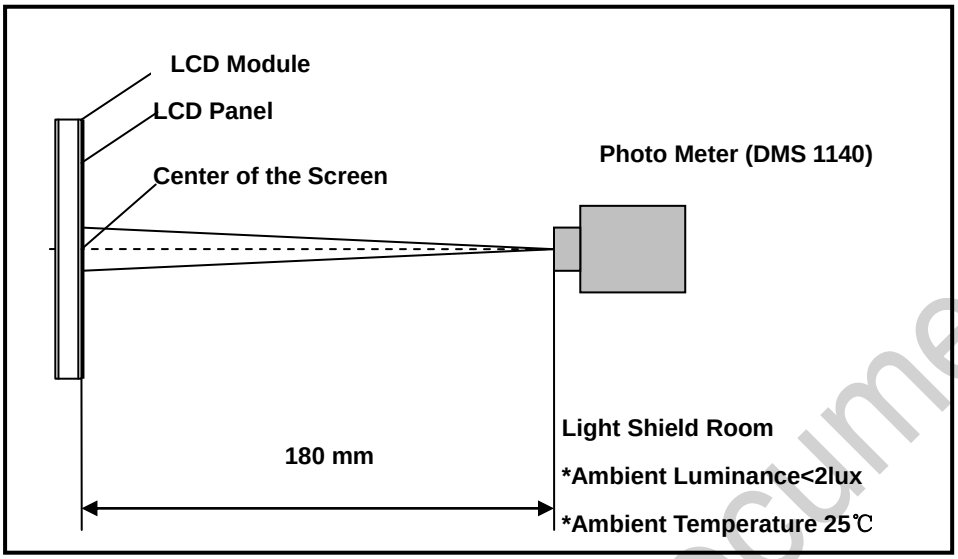
Table 2 Optical Characteristics

Item	Conditions		Min.	Typ.	Max.	Unit	Note
Viewing Angle （CR>10）	Horizontal	θ_{x+}	60	70	-	degree	(1),(2),(3),(4)(8)
		θ_{x-}	60	70	-		
	Vertical	θ_{y+}	60	70	-		
		θ_{y-}	60	70	-		
Contrast Ratio	Center		400	500	-	-	(1),(2),(4),(8) θx=θy=0°
Response Time	Rising + Falling		-	16	25	ms	(1),(2),(5),(8) θx=θy=0°
Color Chromaticity (CIE1931)	Red x		Typ. -0.03	0.584	Typ. +0.03	-	(1),(2),(3),(8) θx=θy=0°
	Red y			0.354		-	
	Green x			0.334		-	
	Green y			0.570		-	
	Blue x			0.155		-	
	Blue y			0.126		-	
	White x		0.255	0.305	0.355	-	
	White y		0.275	0.325	0.375	-	
NTSC	-		42	45	-	%	(1),(2),(3),(8) θx=θy=0°
White Luminance	Center point		300	350	-	cd/m^2	(1),(2),(6),(8) θx=θy=0°
Luminance Uniformity	9 Points		75	80	-	%	(1),(2),(7),(8) θx=θy=0°

Note (1) Measurement Setup:

The LCD module should be stabilized at given ambient temperature (25℃) 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



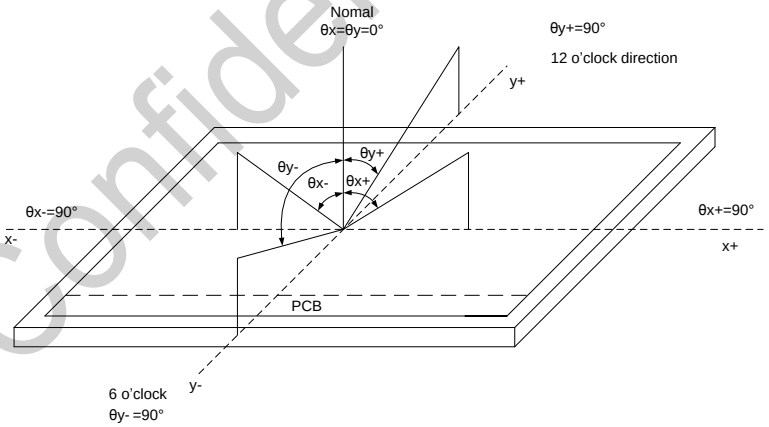
Note (2) The LED input parameter setting as:

I_LED: 80mA

PWM_LED: Duty 100 %

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:

6bit: Contrast Ratio (CR) = L63 / L0

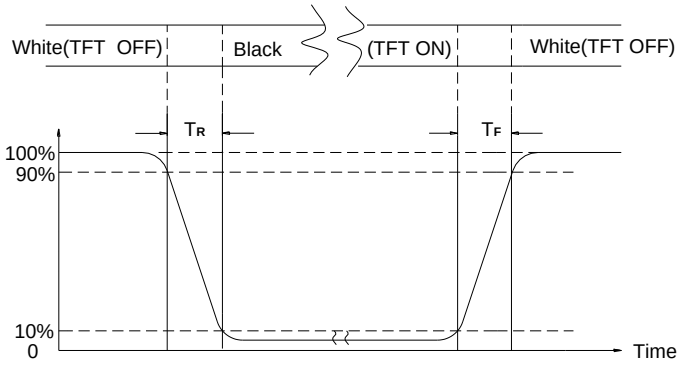
L63: Luminance of gray level 63, L0: Luminance of gray level 0

8bit: Contrast Ratio (CR) = L255 / L0

L255: Luminance of gray level 255, L0: Luminance of gray level 0

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

Figure 6 Definition of Response Time



Note (6) Definition of Luminance White

Measure the luminance of gray level 63 (Ref.: Active Area)

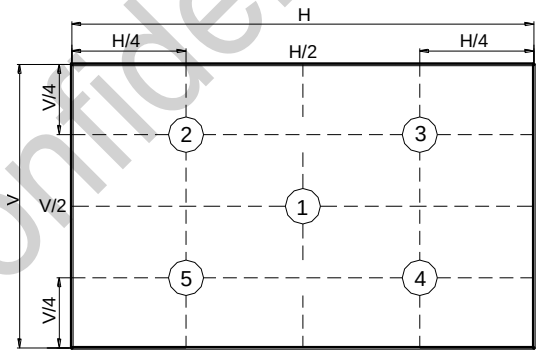
Display Luminance=L1

Measure the luminance of gray level 255 (Ref.: Active Area)

Display Luminance=L1

H—Active Area Width, V—Active Area Height, L—Luminance

Figure 7 Measurement Locations Of 5 Points



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

6bit: Measure the luminance of gray level 63 at 9 points.

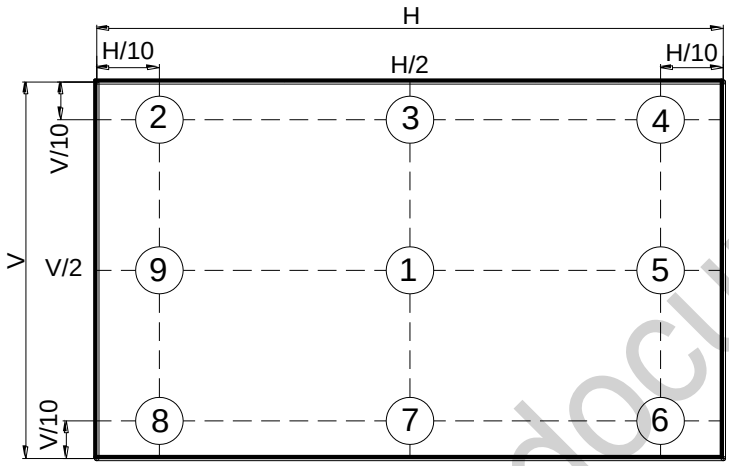
Luminance Uniformity= Min.(L1, L2, ... L9) / Max.(L1, L2, ... L9)

8bit: Measure the luminance of gray level 255 at 9 points.

Luminance Uniformity= Min.(L1, L2, ... L9) / Max.(L1, L2, ... L9)

H—Active Area Width, V—Active Area Height, L—Luminance

Figure 8 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

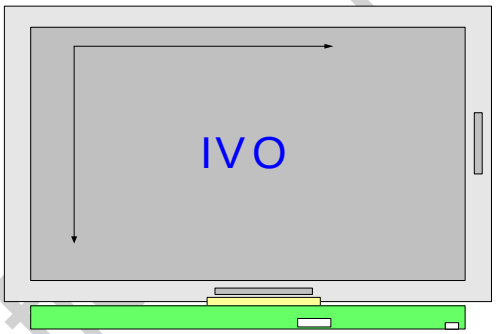
Item	Description
Manufacturer / Type	Starconn:300E40-0010RA-G3-D
Mating Receptacle / Type (Reference)	Starconn:111B40-1211TA-G3

Table 4 Signal Connector Pin Assignment

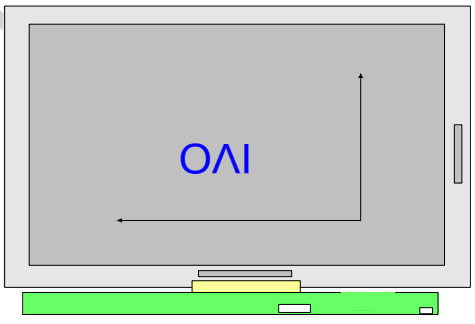
Pin No.	Symbol	Description	Remarks
1	BIST	LCD Panel Self Test Enable	H:Enable
2	VCC 3.3V	power supply(3.3V typ)	-
3	VCC 3.3V	power supply(3.3V typ)	-
4	V_EDID 3.3V	DDC 3.3V power	-
5	NC	No connection(reserve for CMO test)	-
6	CLK_EDID	DDC clock	-
7	Data_EDID	DDC data	-
8	Rxin0 -	LVDS differential data input	-
9	Rxin0 +	LVDS differential data input	-
10	VSS	Ground	-
11	Rxin1 -	LVDS differential data input	-
12	Rxin1 +	LVDS differential data input	-
13	VSS	Ground	-
14	Rxin2 -	LVDS differential data input	-
15	Rxin2 +	LVDS differential data input	-
16	VSS	Ground	-
17	RxCLK -	LVDS differential clock input	-
18	RxCLK +	LVDS differential clock input	-
19	VSS	Ground	-
20	Rxin3 -	LVDS differential clock input	-
21	Rxin3+	LVDS differential clock input	-
22	VSS	Ground	-
23	SEL68	6/8 bits LVDS data input selection	H:8bit L/Floating:6bit
24	REV	Reverse Scan selection	(1)
25	VSS	Ground	-
26	NC	No connection(Reserve)	-

27	NC	No connection(Reserve)	-
28	VSS	Ground	-
29	NC	No connection(Reserve)	-
30	NC	No connection(Reserve)	-
31	LED_GND	LED Ground	-
32	LED_GND	LED Ground	-
33	LED_GND	LED Ground	-
34	NC	No connection(Reserve)	-
35	LED_PWM	PWM control signal of LED converter	-
36	LED - EN	Enable control signal of LED converter	-
37	NC	No connection(Reserve)	-
38	LED_VCCS	LED power supply (4.5V~21V)	-
39	LED_VCCS	LED power supply (4.5V~21V)	-
40	LED_VCCS	LED power supply (4.5V~21V)	-

(1) REV = LOW/NC



REV = High



4.2 Signal Electrical Characteristics

4.2.1 Signal Electrical Characteristics For LVDS Receiver

The built-in LVDS receiver is compatible with (ANSI/TIA/TIA-644) standard.

Table 5 LVDS Receiver Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Differential Input High Threshold	Vth	-	-	+100	mV	V_{CM}=+1.2V
Differential Input Low Threshold	Vtl	-100	-	-	mV	V_{CM}=+1.2V
Magnitude Differential Input Voltage	$\|V_{ID}\|$	200	-	600	mV	-
Common Mode Voltage	V_{CM}	1.0	1.2	1.4	V	V_{th}-V_{tl}=200mV
Common Mode Voltage Offset	ΔV_{CM}	-50	-	+50	mV	V_{th}-V_{tl}=200mV

Note (1) Input signals shall be low or Hi- resistance state when VDD is off.

Note (2) All electrical characteristics for LVDS signal are defined and shall be measured at the interface connector of LCD.

Figure 9 Voltage Definitions

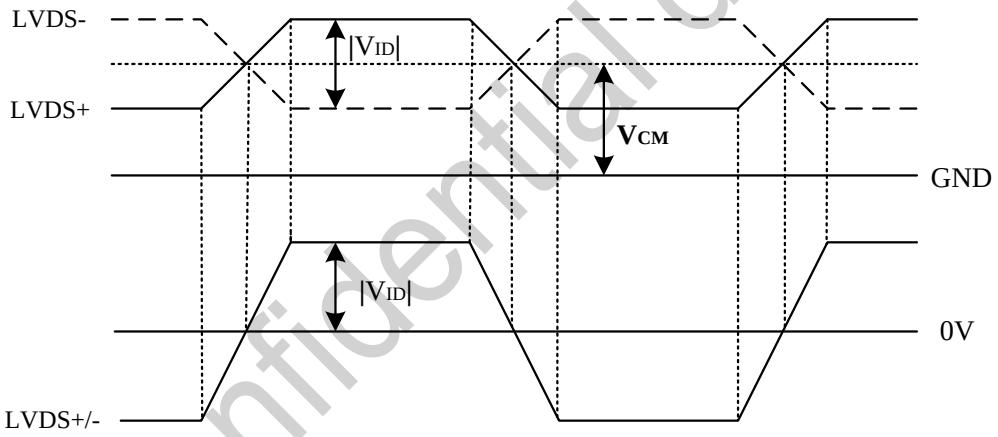


Figure 10 Measurement System

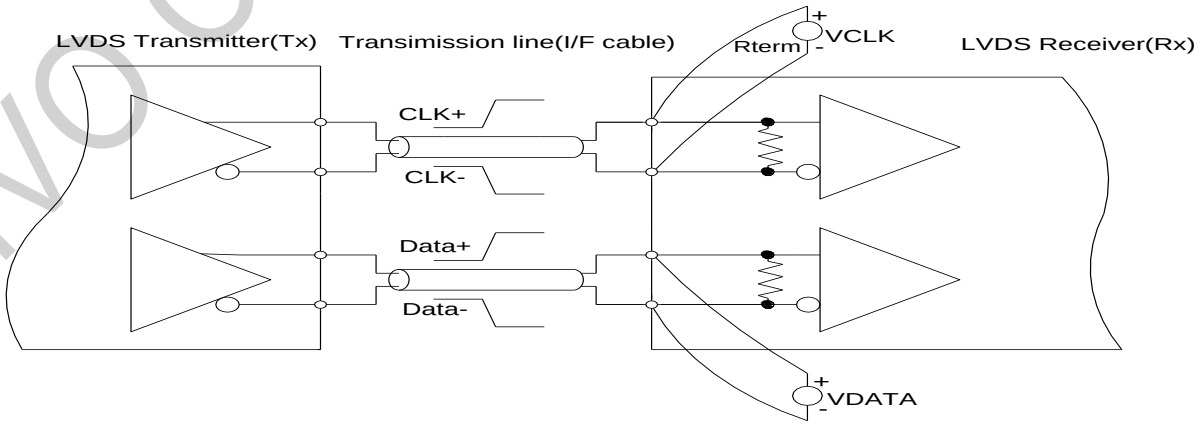
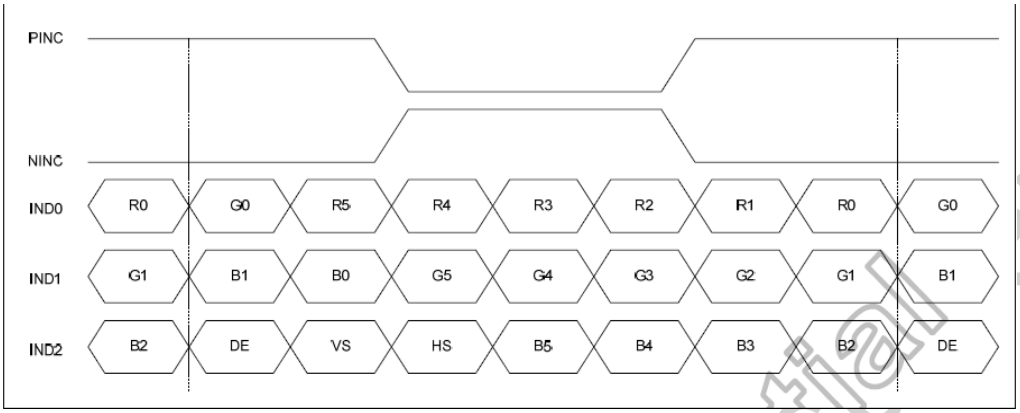
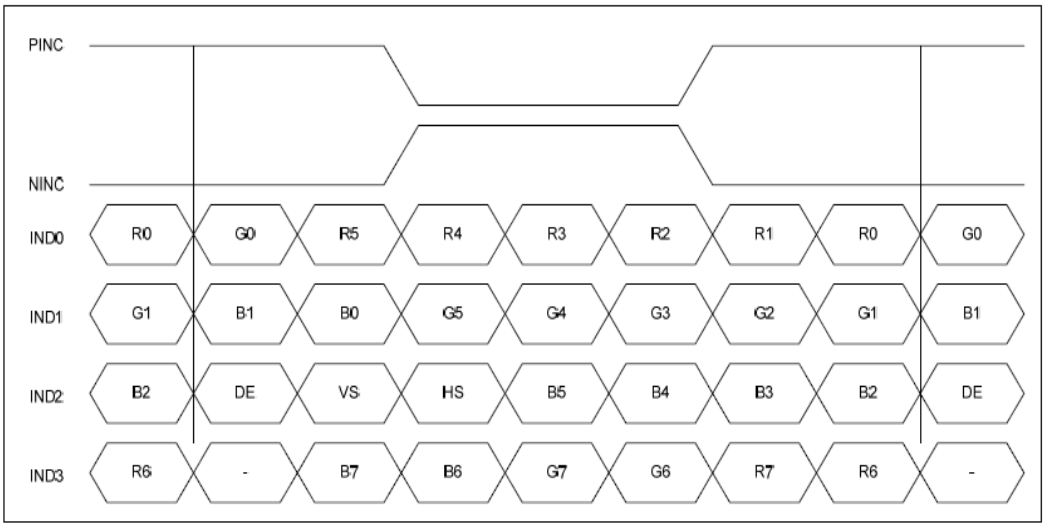


Figure 11 Data Mapping

Single 6 bit LVDS input



Single 8 bit LVDS input

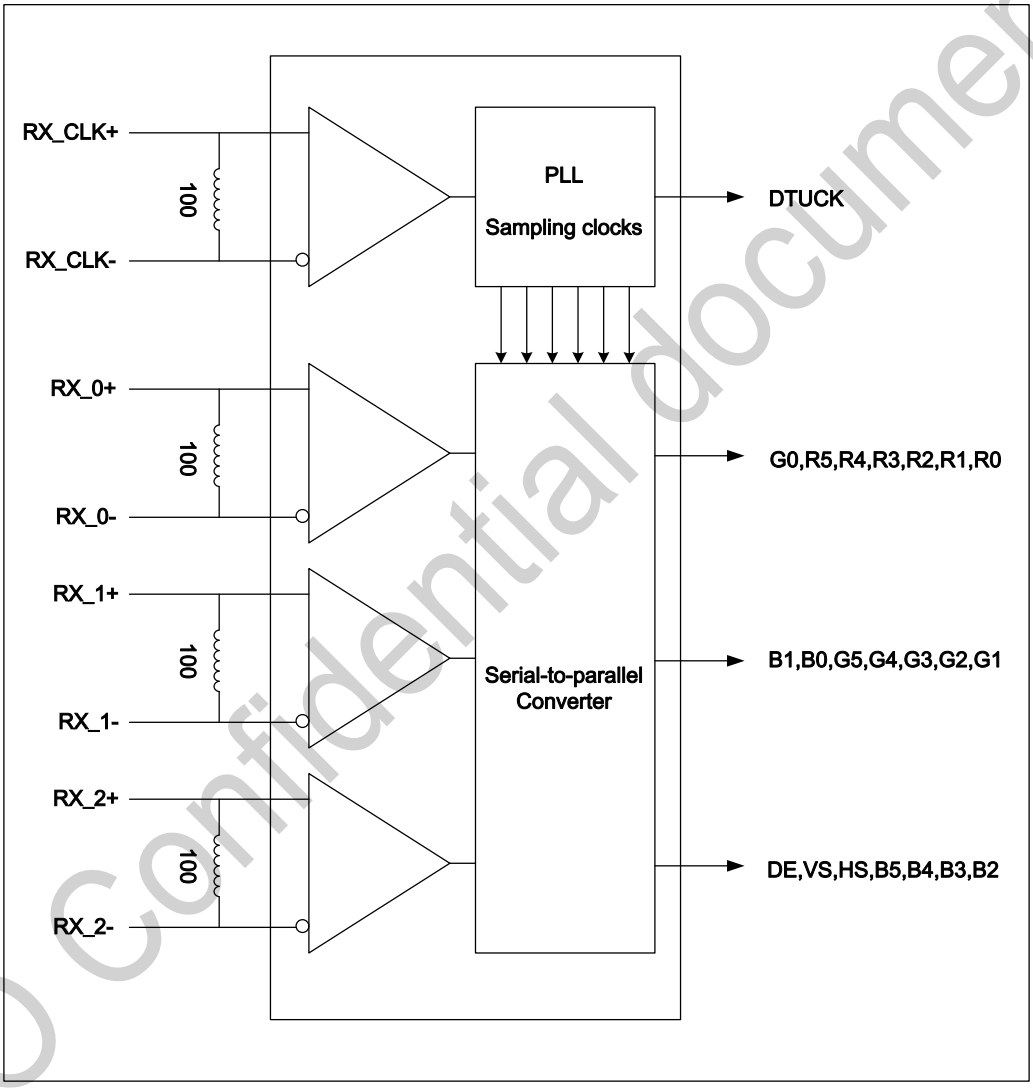


4.2.2 LVDS Receiver Internal Circuit

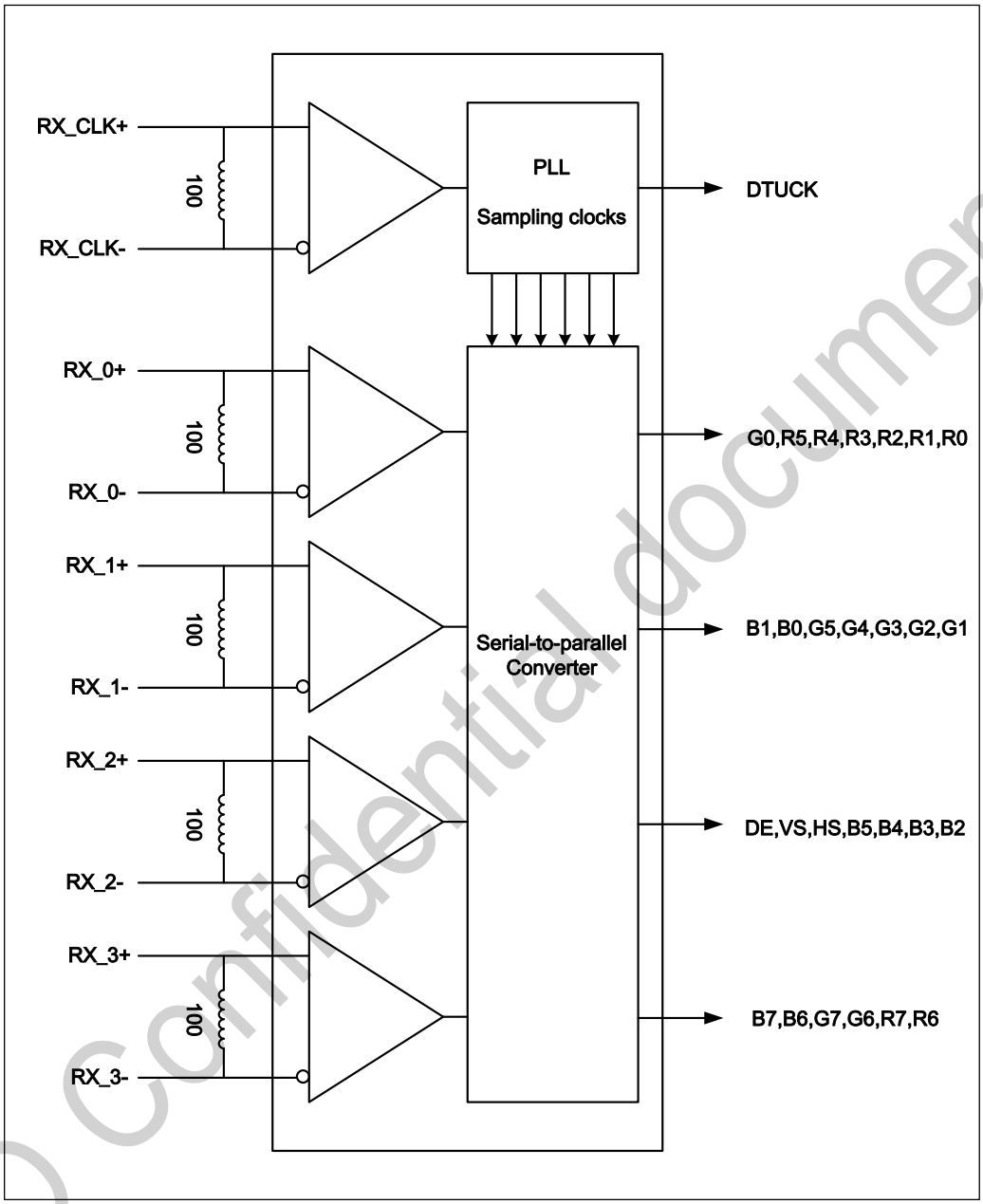
Figure 12 shows the internal block diagram of the LVDS receiver. This LCD module equips termination resistors for LVDS link.

Figure 12 LVDS Receiver Internal Circuit

6bit



8bit



4.3 Interface Timings

Table 6 Interface Timings

Parameter	Symbol	Min.	Typ.	Max.	Unit
LVDS Clock Frequency	Fclk	45	51.2	57	MHz
H Total Time	HT	1,324	1,344	1,364	Clocks
H Active Time	HA	1,024	1,024	1,024	Clocks
V Total Time	VT	625	635	645	Lines
V Active Time	VA	600	600	600	Lines
Frame Rate	FV	55	60	65	Hz

Note: HT*VT*FV≤57MHz

4.4 Input Power Specifications

Input power specifications are as follows.

Table 7 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	Black Pattern	I_{DD}	-	-	0.22	A	(1),(3)
VDD Power Consumption	Black Pattern	P_{DD}	-	-	0.726	W	
Rush Current		I_{Rush}	-	-	1.5	A	(1),(4)
Allowable Logic/LCD Drive Ripple Voltage		V_{VDD-RP}	-	-	200	mV	(1)
LED Power Supply							
LED Input Voltage		V_{LED}	4.5	12	21	V	(1),(2)
LED Power Consumption		P_{LED}	-	-	3.05	W	(1),(5)
LED Forward Voltage		V_F	2.95	3.2	3.55	V	(1),(2)
LED Forward Current		I_F	-	20	-	mA	
PWM Signal Voltage	High	V_{PWM}	2.3	-	5.5	V	
	Low		0	-	0.5		
LED Enable Voltage	High	V_{LED_EN}	2.3	-	5.5	V	
	Low		0	-	0.5		
Input PWM Frequency		F_{PWM}	190	-	2,000	Hz	(1),(2),(6)
Duty Ratio		PWM	5	-	100	%	(1),(7)
LED Life Time		LT	30,000	-	-	Hours	(1),(8)

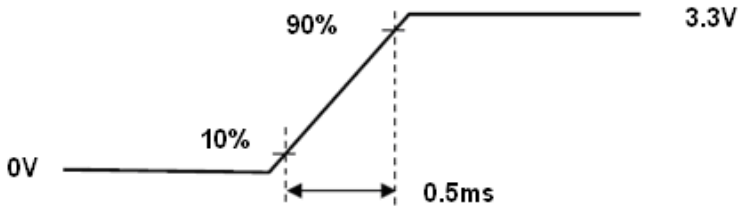
Note (1) All of the specifications are guaranteed under normal conditions. Normal conditions are defined as follow: Temperature: 25℃, Humidity: 55± 10%RH.

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 black 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 13 V_{DD} Rising Time



Note (5) The power consumption of LED Driver are under the V_{LED} = 12.0V, Dimming of Max luminance.

Note (6) Although acceptable range as defined, the dimming ratio is not effective at all conditions. The PWM frequency should be fixed and stable for more consistent luminance control at any specific level desired.

Note (7) The operation of LED Driver below minimum dimming ratio may cause flickering or reliability issue.

Note (8) 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.

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 14 Power Sequence

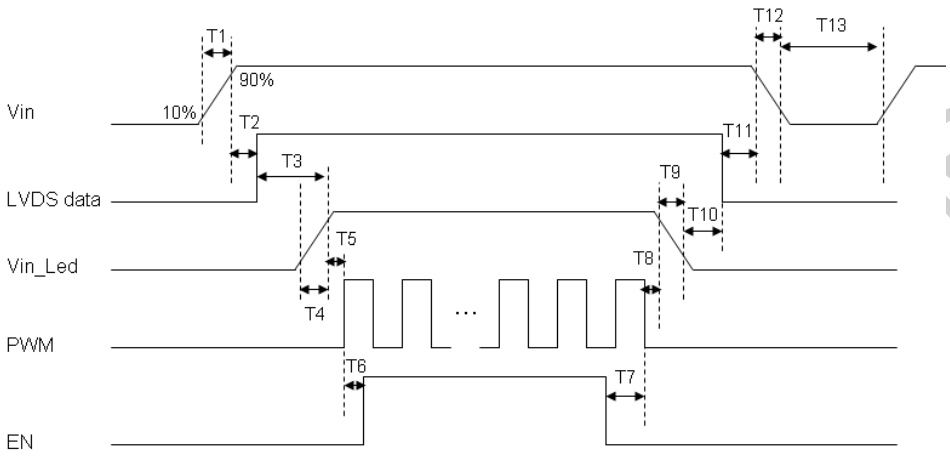


Table 8 Power Sequencing Requirements

Parameter	Symbol	Min.	Typ.	Max.	Unit
VIN Rise Time	T1	0.5	-	10	ms
VIN Good to Signal Valid	T2	10	-	90	ms
Signal Valid to Backlight On	T3	200	-	-	ms
Backlight Power On Time	T4	0.5	-	-	ms
Backlight VDD Good to System PWM On	T5	10	-	-	ms
System PWM ON to Backlight Enable ON	T6	10	-	-	ms
Backlight Enable Off to System PWM Off	T7	0	-	-	ms
System PWM Off to B/L Power Disable	T8	10	-	-	ms
Backlight Power Off Time	T9	1	10	30	ms
Backlight Off to Signal Disable	T10	200	-	-	ms
Signal Disable to Power Down	T11	0	-	50	ms
VIN Fall Time	T12	1	10	30	ms
Power Off	T13	500	-	-	ms

5.0 Mechanical Characteristics

5.1 Outline Drawing

Figure 15 Reference Outline Drawing (Front Side)

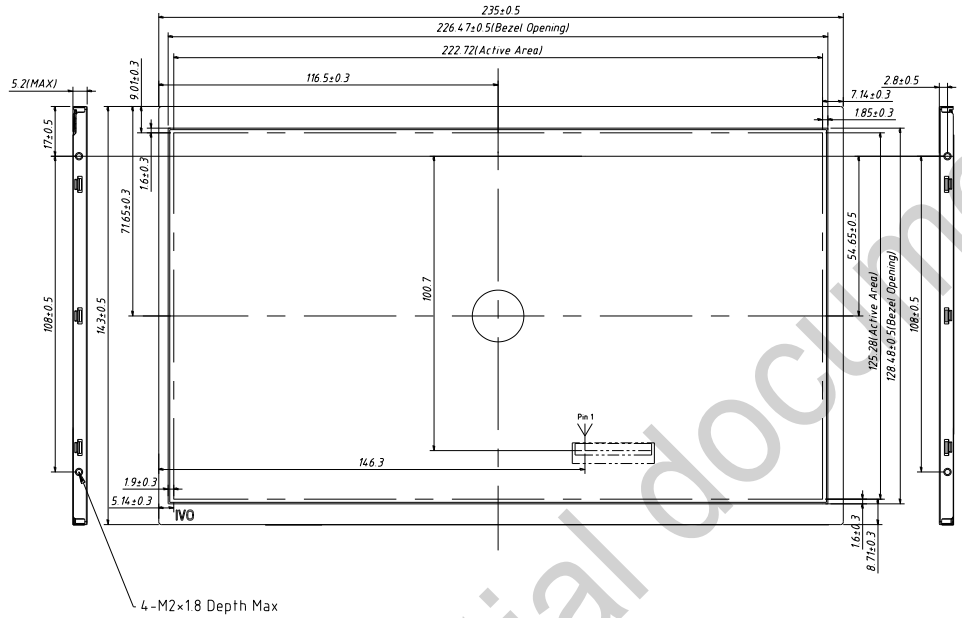
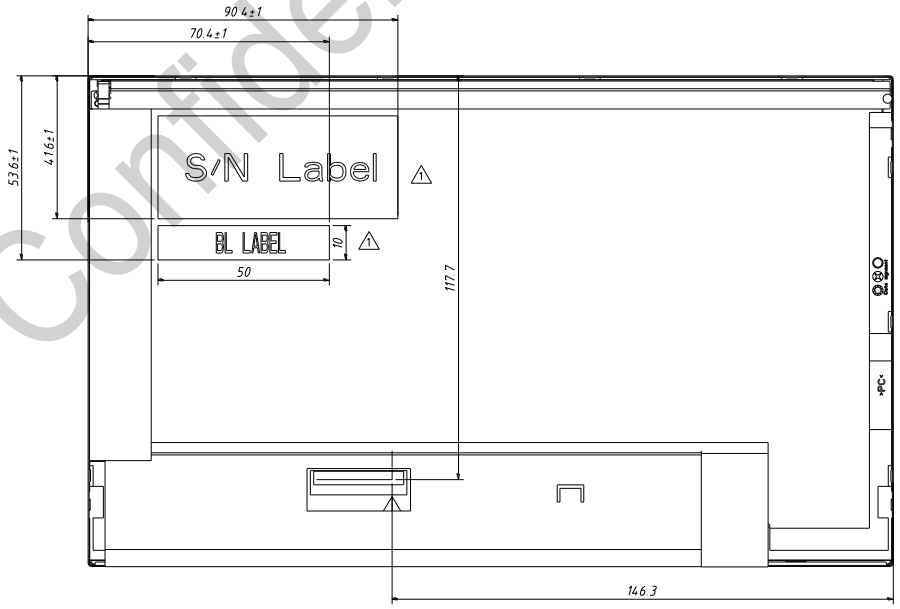


Figure 16 Reference Outline Drawing (Back Side)

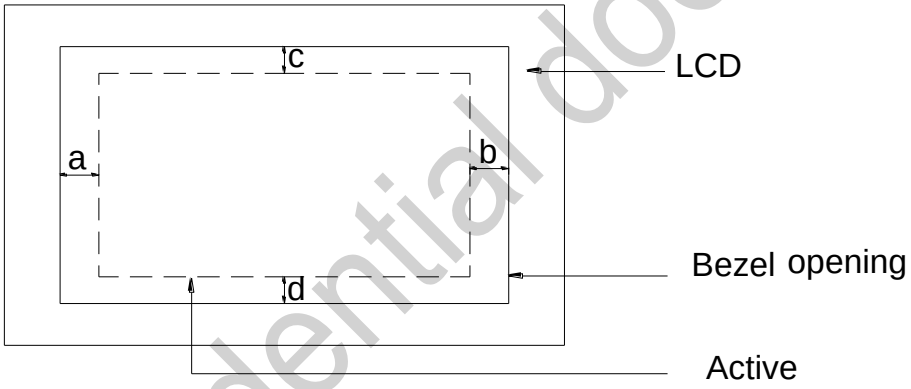


5.2 Dimension Specifications

Table 9 Module Dimension Specifications

Item	Min.	Typ.	Max.	Unit
Width	234.5	235	235.5	mm
Height	142.5	143	143.5	mm
Thickness	4.6	4.9	5.2	mm
Weight	-	-	220	g
BM: | a-b | & | c-d |	-	-	≤1.0	mm

Figure 17 BM Area



6.0 Reliability Conditions

Table 9 Reliability Condition

Item		Package	Test Conditions		Note
High Temperature/High Humidity Operating Test		Module	T_{gs}=50℃, 85%RH, 240 hours		(1),(2),(3),(4)
Low Temperature Operating Test		Module	T_a=0℃, 240 hours		
High Temperature Storage Test		Module	T_a=60℃, 240 hours		(1),(3),(4)
Low Temperature Storage Test		Module	T_a=-20℃, 240 hours		
Shock Non-operating Test		Module	240G,2ms, 1time for ±x, ±y, ±z 6 directions		(1),(3),(5)
Vibration Non-operating Test		Module	1.5G , 10~500~10 Hz , x、y、z each axis/1hour.		
ESD Test	Operating	Module	Contact	±8 KV, 150pF(330Ohm)	(1),(2),(6)
			Air	±15 KV, 150pF(330Ohm)	
	Non-operating		Contact	±10 KV, 150pF(330Ohm)	(1),(6)
			Air	±20 KV, 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.

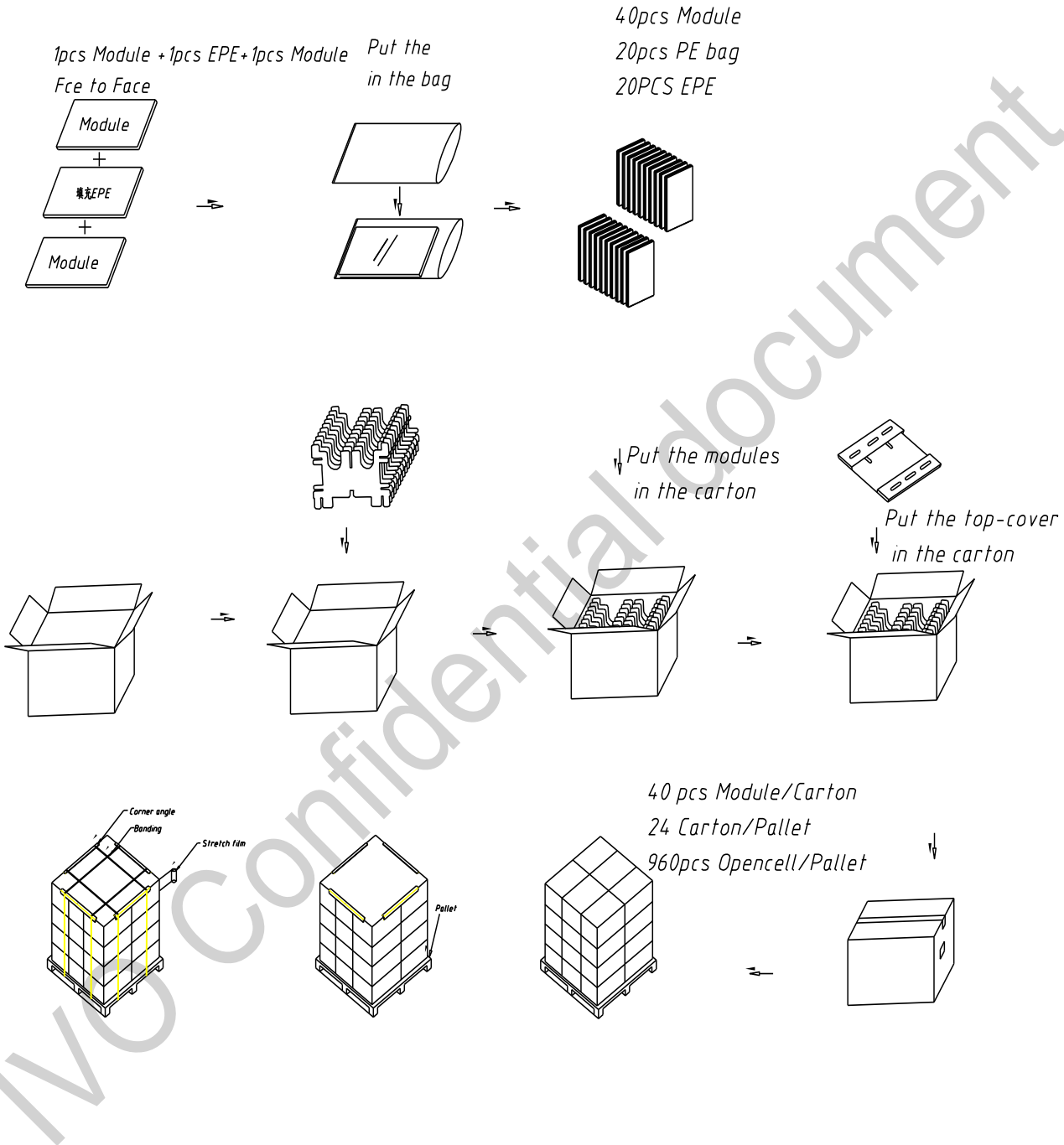
Note (4) The sample must be released for 24 hours under normal conditions before judging. Furthermore, all the judgment must be made under normal conditions. Normal conditions are defined as follow: Temperature: 25℃, Humidity: 55± 10%RH. T_a= Ambient Temperature, T_{gs}= Glass Surface Temperature.

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

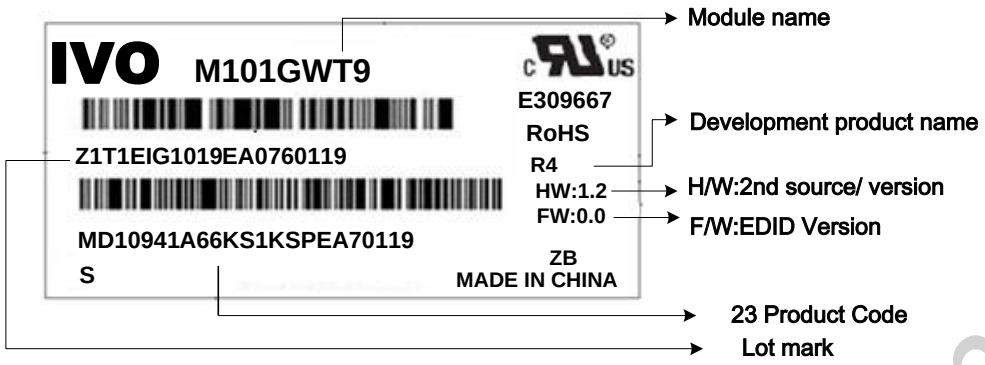
Note (6) It could be regarded as pass, when the module recovers from function fault caused by ESD after resetting.

7.0 Package Specification

Figure 18 Packing Method



8.0 Lot Mark



Note: This picture is only an example.

8.1 20 Lot Mark

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Code 1,2,4,5,6,7,8,9,10,11,16: IVO internal flow control code.
Code 3: Production Location.
Code 12: Production Year.
Code 13: Production Month.
Code 14,15: Production Day.
Code 17,18,19,20: Serial Number.

8.2 23 Product Barcode

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Code 1,2: Manufacture District.
Code 3,4,5,6,7: IVO internal module name.
Code 8,9,10,13,16: IVO internal flow control code.
Code 11,12: Cell location Suzhou, China defined as “KS”.
Code 14 ,15: Module location Kunshan, China defined as “KS”; Yangzhou, China defined as “YZ”; Shenzhen, China defined as “SE”; Zhuhai, China defined as “ZH”; Suzhou, China defined as “SZ”.
Code 17,18,19 : Year, Month, Day refer to Note(1), Note(2) and Note(3).
Note (1) Production Year

Year	2006	2007	2008	2009	2010	2011	2012	2013	.....	2035
Mark	6	7	8	9	A	B	C	D	.....	Z

Note (2) Production Month

Month	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct	Nov.	Dec.
Mark	1	2	3	4	5	6	7	8	9	A	B	C

Note (3) Production Day: 1~V.
Code 20~23: Serial Number.

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: 25℃

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 between the back light and the inverter 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) Desirable cleaners are IPA (Isopropyl Alcohol) or hexane. Do not use Ketone type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanent damage to the polarizer due to chemical reaction.
(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 5℃ and 35℃ 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.

10.0 EDID format

Address (DEC)	Address (HEX)	Field Name & Comments	Value (HEX)	Value (BIN)	Value (DEC)
0	0	Header	0	0	0
1	1	Header	FF	11111111	255
2	2	Header	FF	11111111	255
3	3	Header	FF	11111111	255
4	4	Header	FF	11111111	255
5	5	Header	FF	11111111	255
6	6	Header	FF	11111111	255
7	7	Header	0	0	0
8	8	manufacture code	26	100110	38
9	9	manufacture code	CF	11001111	207
10	A	Product Code	FB	11111011	251
11	B	Product Code	3	11	3
12	C	LCD module Serial No -(“0” if not used)	0	0	0
13	D	LCD module Serial No -(“0” if not used)	0	0	0
14	E	LCD module Serial No -(“0” if not used)	0	0	0
15	F	LCD module Serial No -(“0” if not used)	0	0	0
16	10	Week of manufacture	0	0	0
17	11	Year of manufacture	18	11000	24
18	12	EDID Structure Ver # = 1	1	1	1
19	13	EDID revision # = 3	4	100	4
20	14	Video I/P definition = Digital I/P (80h)	90	10010000	144
21	15	Max H image size = (Rounded to cm)	16	10110	22
22	16	Max V image size = (Rounded to cm)	0D	1101	13
23	17	Display Gamma	78	1111000	120

24	18	Feature support (no DPMS, Active off, RGB, timing BLK 1)	0A	1010	10
25	19	Red/Green Low bits (RxRy/GxGy)	F5	11110101	245
26	1A	Blue/White Low bits (BxBy/WxWy)	B8	10111000	184
27	1B	Red X Rx	8E	10001110	142
28	1C	Red Y Ry	54	1010100	84
29	1D	Green X Gx	57	1010111	87
30	1E	Green Y Gy	94	10010100	148
31	1F	Blue X Bx	29	101001	41
32	20	Blue Y By	1C	11100	28
33	21	White X Wx	4E	1001110	78
34	22	White Y Wy	54	1010100	84
35	23	Established timings 1 (00h if not used)	0	0	0
36	24	Established timing 2 (00h if not used)	0	0	0
37	25	Manufacturer@39;s timings (00h if not used)	0	0	0
38	26	Standard timing ID1 (01h if not used)	1	1	1
39	27	Standard timing ID1 (01h if not used)	1	1	1
40	28	Standard timing ID2 (01h if not used)	1	1	1
41	29	Standard timing ID2 (01h if not used)	1	1	1
42	2A	Standard timing ID3 (01h if not used)	1	1	1
43	2B	Standard timing ID3 (01h if not used)	1	1	1
44	2C	Standard timing ID4 (01h if not used)	1	1	1
45	2D	Standard timing ID4 (01h if not used)	1	1	1

46	2E	Standard timing ID5 (01h if not used)	1	1	1
47	2F	Standard timing ID5 (01h if not used)	1	1	1
48	30	Standard timing ID6 (01h if not used)	1	1	1
49	31	Standard timing ID6 (01h if not used)	1	1	1
50	32	Standard timing ID7 (01h if not used)	1	1	1
51	33	Standard timing ID7 (01h if not used)	1	1	1
52	34	Standard timing ID8 (01h if not used)	1	1	1
53	35	Standard timing ID8 (01h if not used)	1	1	1
54	36	Pixel Clock LSB	0	0	0
55	37	Pixel Clock HSB	14	10100	20
56	38	Horizontal Active (lower 8 bits)	0	0	0
57	39	Hor blanking (lower 8 bits)	40	1000000	64
58	3A	Horizontal Active/Horizontal blanking (upper4:4 bits)	41	1000001	65
59	3B	Vertcal active(lower 8 bits)	58	1011000	88
60	3C	Vertical blanking(lower 8 bits)	23	100011	35
61	3D	Vertical Active : Vertical Blanking (upper4:4 bits)	20	100000	32
62	3E	Horizontal Sync Offset	20	100000	32
63	3F	Horizontal Sync Pulse Width	76	1110110	118
64	40	Vertical Sync Offset , Sync Width	3A	111010	58
65	41	Horizontal Vertical Sync Offset/Width upper 2 bits	0	0	0
66	42	Horizontal Image Size	DF	11011111	223
67	43	Vertical image Size	7D	1111101	125

68	44	Horizontal Image Size / Vertical image size	0	0	0
69	45	Horizontal Border = (0 for Notebook LCD)	0	0	0
70	46	Vertical Border = (0 for Notebook LCD)	0	0	0
71	47	Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives,	19	11001	25
72	48	Timing Descriptor #2	0	0	0
73	49		0	0	0
74	4A		0	0	0
75	4B		0	0	0
76	4C		0	0	0
77	4D		0	0	0
78	4E		0	0	0
79	4F		0	0	0
80	50		0	0	0
81	51		0	0	0
82	52		0	0	0
83	53		0	0	0
84	54		0	0	0
85	55		0	0	0
86	56		0	0	0
87	57		0	0	0
88	58		0	0	0
89	59		0	0	0
90	5A	Detailed timing/monitor descriptor#3	0	0	0
91	5B	Flag	0	0	0
92	5C	Flag	0	0	0
93	5D	Range limits	FE	11111110	254

94	5E	Flag	0	0	0
95	5F	Min. Vertical Freq	49	1001001	73
96	60	Max. Vertical Freq	6E	1101110	110
97	61	Min. Horizontal Freq	66	1100110	102
98	62	Max.Horizontal Freq	6F	1101111	111
99	63	Max. Pixel Clock Freq	56	1010110	86
100	64		69	1101001	105
101	65		73	1110011	115
102	66		69	1101001	105
103	67		6F	1101111	111
104	68		6E	1101110	110
105	69	New line character indicates end of ASCII string	0A	1010	10
106	6A		20	100000	32
107	6B		20	100000	32
108	6C	Detailed timing/monitor descriptor #4	0	0	0
109	6D		0	0	0
110	6E		0	0	0
111	6F	FE (hex) defines ASCII string	FE	11111110	254
112	70	Flag	0	0	0
113	71	Manufacture P/N	4D	1001101	77
114	72	Manufacture P/N	31	110001	49
115	73	Manufacture P/N	30	110000	48
116	74	Manufacture P/N	31	110001	49
117	75	Manufacture P/N	47	1000111	71
118	76	Manufacture P/N	57	1010111	87
119	77	Manufacture P/N	54	1010100	84
120	78	Manufacture P/N	39	111001	57
121	79	Manufacture P/N	20	100000	32
122	7A	Manufacture P/N	52	1010010	82

123	7B	Manufacture P/N	34	110100	52
124	7C	New line character indicates end of ASCII string	20	100000	32
125	7D		0A	1010	10
126	7E	Extension Flag = 00	0	0	0
127	7F	Checksum	B7	10110111	183