Product Specification

Customer: _____

Model Name: BR070JIH1826-E3 V.10

Date: 2021/10/14

Version: 1.0

■ **Preliminary Specification**

□ **Final Specification**

For Customer's Acceptance

Approved by	Comment

Approved by	Reviewed by	Prepared by

Approved by	Reviewed by	Prepared by

Contents

1. Record of Revision

Version	Revise Date	Content	Editor
1.0	2021/10/14	First Release.	

2 General Specifications

Feature		Spec
Characteristics	LCD Size	6.95 inch
	Display Format	600 (RGB) ×1024
	Interface	4Line MIPI
	Color Depth	16.7M
	Technology type	a-Si
	Display Spec.	IPS
	Display Mode	Normally Black
	Driver IC	OTA7290B-C
	Surface Treatment	Anti-Glare
	Viewing Direction	ALL
	Gray Viewing Direction	Free
Mechanical	LCM (W x H x D) (mm)	163.34*95.1*2.6
	Active Area(mm)	152.37*89.28
	With /Without TSP	Without TP
	Weight (g)	TBD
	LED Numbers	18 LEDs

Note 1: Viewing direction is following the data which measured by optics equipment.
Note 2: Requirements on Environmental Protection: RoHS
Note 3: LCM weight tolerance: +/- 5%

3 Input/Output Terminals

Pin No	Symbol	I/O	Function	
1~3	LED-A	P	Power for LED backlight (Anode)	
4	NC		Not Connect	
5~8	LED-K	P	Power for LED backlight (Cathode)	
9~10	GND	P	Ground	
11	MIPI_2P	I	Data input	
12	MIPI_2N	I	Data input	
13	GND	P	Ground	
14	MIPI_1P	I	Data input	
15	MIPI_1N	I	Data input	
16	GND	P	Ground	
17	CLK-P	I	Clock Input.	
18	CLK-N	I	Clock Input.	
19	GND	P	Ground	
20	MIPI_0P	I	Data input	
21	MIPI_0N	I	Data input	
22	GND	P	Ground	
23	MIPI_3P	I	Data input	
24	MIPI_3N	I	Data input	
25	GND	P	Ground	
26	VDDI	P	Power supply for digital circuit.	
27	RES	I	Global reset pin.	
28	GND	P	Ground	
29	VDDI	P	Power supply for digital circuit.	
30	VDD	P	Power supply for analog circuit.	
31	VDD	P	Power supply for analog circuit.	

I: input, O: output,   P: Power

4 Absolute Maximum Ratings

Item	Symbol	MIN	MAX	Unit	Remark
Supply Voltage	V_{dd}	-0.3	+3.6	V	
Analog Supply Voltage, AVDD	V_{AVDD}	-0.3	+15.0	V	
Operating Temperature	T_{OPR}	-20	60	℃	
Storage Temperature	T_{STG}	-30	80	℃	

The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings exceeded, the characteristics of the module may not be recovered, or in an extreme case, the module may be permanently destroyed.

5 Electrical Characteristics

5.1 Operating conditions:

(TA = 25° C, GND = 0V)

Parameter	Symbol	Min	Typ.	Max	Unit	Remark
Power Voltage	VDD	3.0	3.3	3.5	V	
	VDDI	1.4	1.5	1.6	V	
Input logic high voltage	V_{IH}	0.8VDDI	-	VDDI	V	
Input logic low voltage	V_{IL}	0	-	0.2VDDI	V	

5.2 Driving Backlight

Item	Symbol	MIN	TYP	MAX	Unit	Remark
LED current	I_F	110	120	150	mA	
Power Consumption		1.0	1.2	1.5	mW	
LED Voltage	V_F	9.0	9.3	9.9	V	Note 1
LED Life Time	W_{BL}	-	30000	-	Hr	Note 2,3

Note 1 : There are 3Groups*6=18   LED

Note 2 : Ta = 25℃

Note 3 : Brightess to be decreased to 50% of the initial value

# 6 Interface Timing

6.1 MIPI Interface DC Characteristic

MIPI Characteristics for High Speed Receiver						
Single-endedl input low voltage	V_{ILHS}	-40	-	-	mV	
Single-endedl input high voltage	V_{IHHS}	-	-	460	mV	
Common-mode voltage	V_{CMRXDC}	155	-	330	mV	
Differential input impedance	Z_{ID}	80	100	125	ohm	
Differential input high threshold	V_{IDTH}	-	-	70	mV	
Differential input low threshold	V_{IDTL}	70	-	-	mV	
MIPI Characteristics for Low Power Mode						
Pad signal voltage range	V_I	-50	-	1350	mV	
Ground shift	V_{GNDSH}	-50	-	50	mV	
Output low level	V_{OL}	-150	-	150	mV	
Output high level	V_{OH}	1.1	1.2	1.3	V	
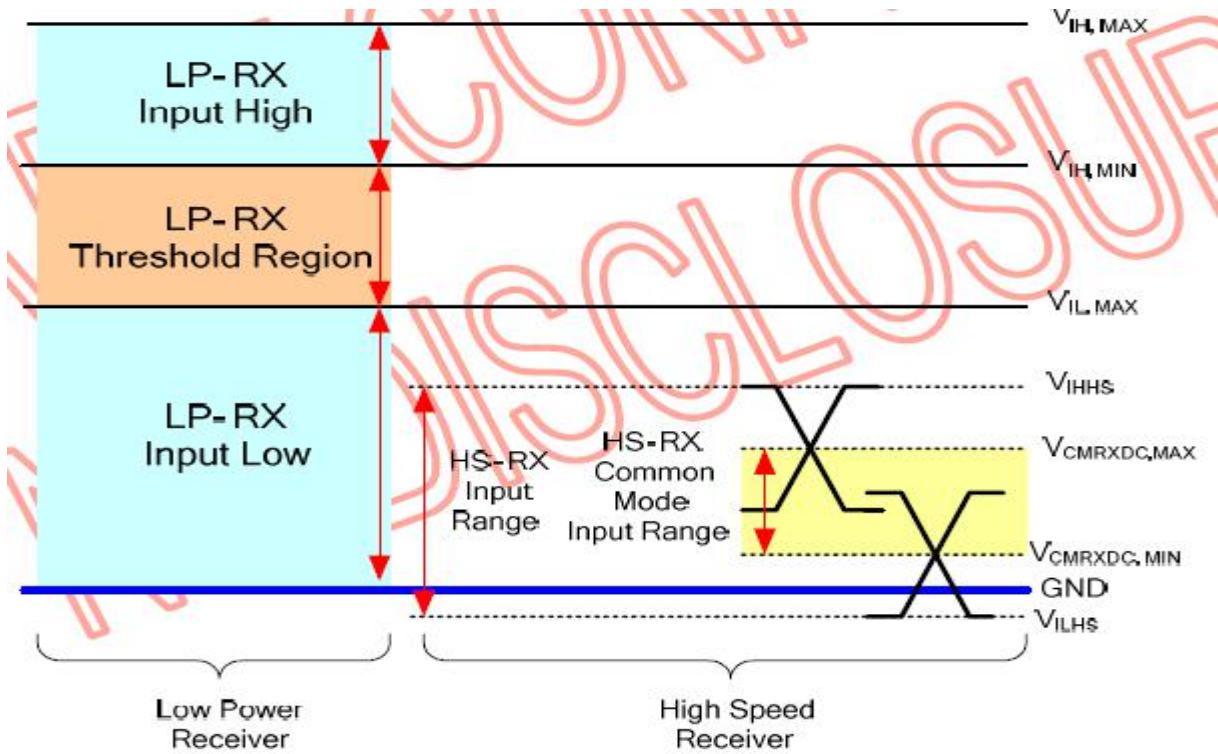
6.2 MIPI AC Characteristic

6.2.1 LP Transmitter AC Specification

Parameter	Symbol	Min	Typ	Max	Units
15%-85% rise time and fall time	T_{RLP} / T_{FLP}	-	-	25	ns
Pulse width of the LP exclusive-OR clock	$T_{LP-PULSE-TX}$	50	-	-	ns
Period of the LP exclusive-OR clock	$T_{LP-PER-TX}$	100	-	-	ns

LP_Clk = EXOR(D0P,D0N)
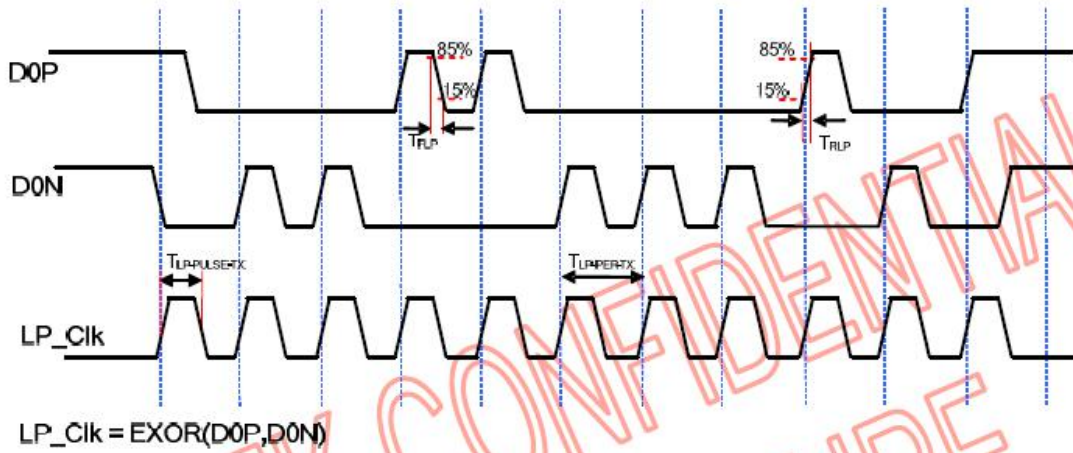
6.2.4 High Speed Clock Transmission

(VDD= 2.7V to 3.6V, AVDD= 7V to 10V, GND=AGND= 0V, TA= -20 to +85°C)

Parameter	Symbol	Min	Typ	Max	Units
UI instantaneous	UI_{INST}	1.0	-	12.5	ns
Data to Clock Setup Time	T_{SETUP}	0.3	-	-	UI_{INST}
Data to Clock Hold Time	T_{HOLD}	0.3	-	-	UI_{INST}
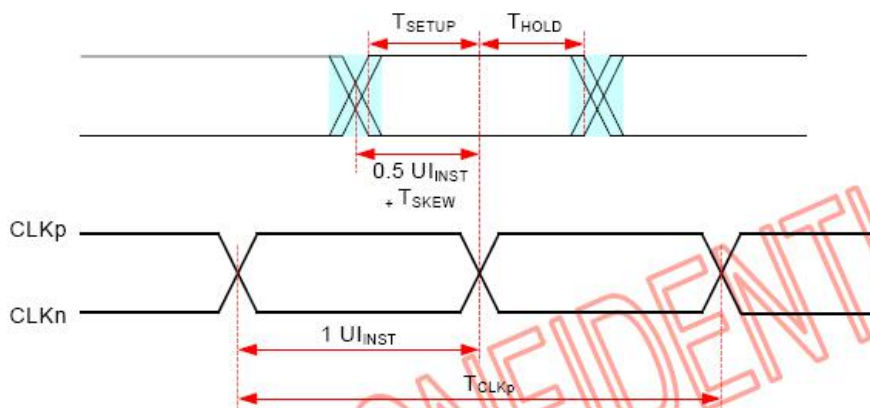
6.2.5 High Speed Data Transmission in Bursts

Parameter	Symbol	Min	Typ	Max	Units
Time to drive LP-00 to prepare for HS transmission	$T_{HS-PREPARE}$	40+4UI	-	85+6UI	ns
Time from start of tHS-TRAIL or tCLK-TRAIL period to start of LP-11 state	T_{EOT}	-	-	105+12UI	ns
Time to enable Data Lane receiver line termination measured from when Dn cross VIL,MAX	$T_{HS-TERM-EN}$	-	-	35+4UI	ns
Time to drive flipped differential state after last payload data bit of a HS transmission burst	$T_{HS-TRAIL}$	60+4UI	-	-	ns
Time-out at RX to ignore transition period of EoT	$T_{HS-SKIP}$	40	-	55+4UI	ns
Time to drive LP-11 after HS burst	$T_{HS-EXIT}$	100	-	-	ns
Length of any Low-Power state period	T_{LPX}	50	-	-	ns
Sync sequence period	$T_{HS-SYNC}$	-	8UI	-	ns
Minimum lead HS-0 drive period before the Sync sequence	$T_{HS-ZERO}$	105+6UI	-	-	ns

Note:
1. The minimum value depends on the bit rate. Implementations should ensure proper operation for all the supported bit rates.
2. UI means Unit Interval, equal to one half HS clock period on the Clock Lane.
3. T_{LPX} is an internal state machine timing reference. Externally measured values may differ slightly from the specified values due to asymmetrical rise and fall times.
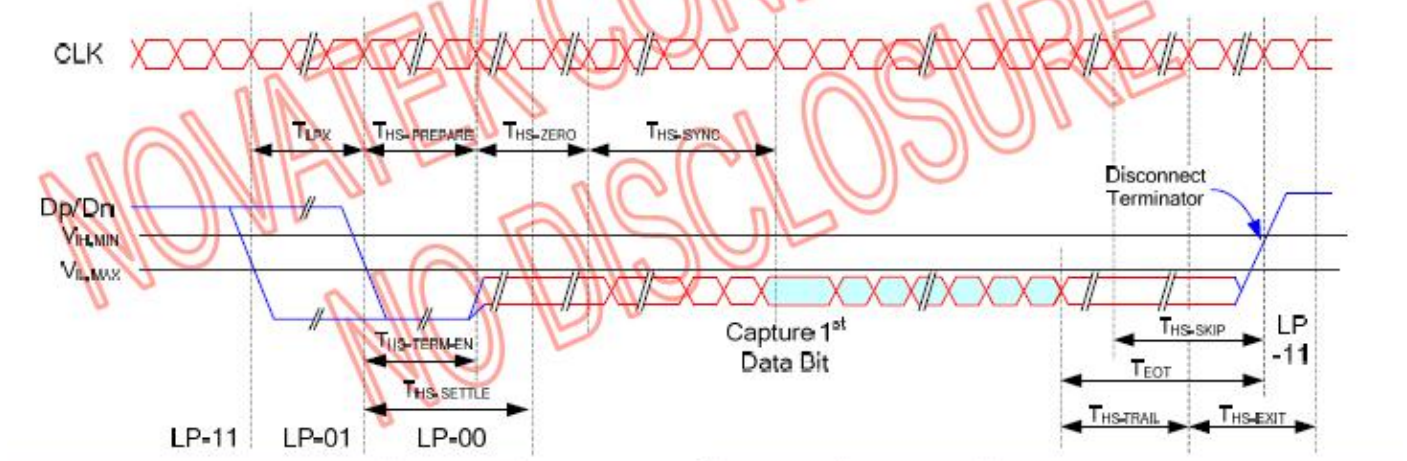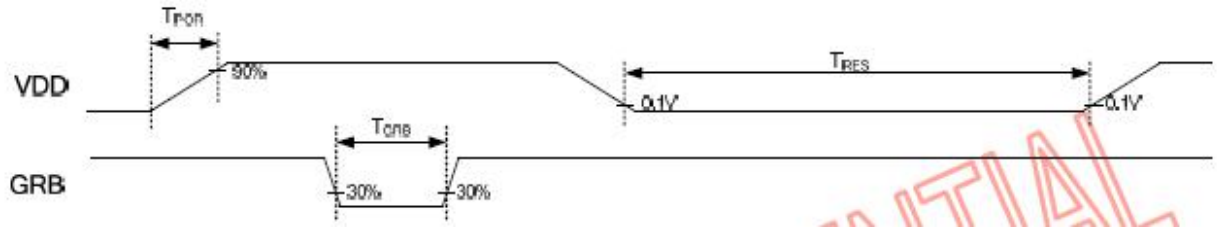
6.3 Reset Timing:

VDD/GRB AC characteristic

(VDD= 2.7V to 3.6V, AVDD= 7V to 10V, GND=AGND= 0V, TA= -20 to +85°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
VDD power source slew time	T_{POR}	-	-	20	ms	From 0V to 90% VDD
GRB active pulse width	T_{GRB}	1	-	-	ms	VDD = 3.3V
VDD resettle time	T_{RES}	1	-	-	s	

7 Optical Characteristics

Items		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing angles		θ_T	Center CR≥10	80	89	-	Degree.	Note2
		θ_B		80	89	-		
		θ_L		80	89	-		
		θ_R		80	89	-		
Contrast Ratio		CR	Θ =0	600	800	-	-	Note1, Note3
Response Time		T_{ON}	25°C	-	13	20	ms	Note1, Note4
		T_{OFF}		-	15	25		
Chromaticity	White	X_W	Backlight is on		TBD		-	Note1, Note5
		Y_W			TBD		-	
	Red	X_R			TBD		-	
		Y_R			TBD		-	
	Green	X_G			TBD		-	
		Y_G			TBD		-	
	Blue	X_B			TBD		-	
		Y_B			TBD		-	
Uniformity		U		80	-	-	%	Note1, Note6
NTSC					50		%	Note5
Luminance		L		280	300			Note1, Note7

Test Conditions:
1. IF= 20mA(one channel),the ambient temperature is 25°C.
2. The test systems refer to Note 1 and Note 2.

Note 1: Definition of optical measurement system.
The optical characteristics should be measured in dark room. After 5 minutes operation, the optical Properties are measured at the center point of the LCD screen. All input terminals LCD panel must be ground when measuring the center area of the panel.

Item	Photo detector	Field
Contrast Ratio	BM-7A	1°
Luminance		
Chromaticity		
Lum Uniformity		
Response Time	SR-3A	2°
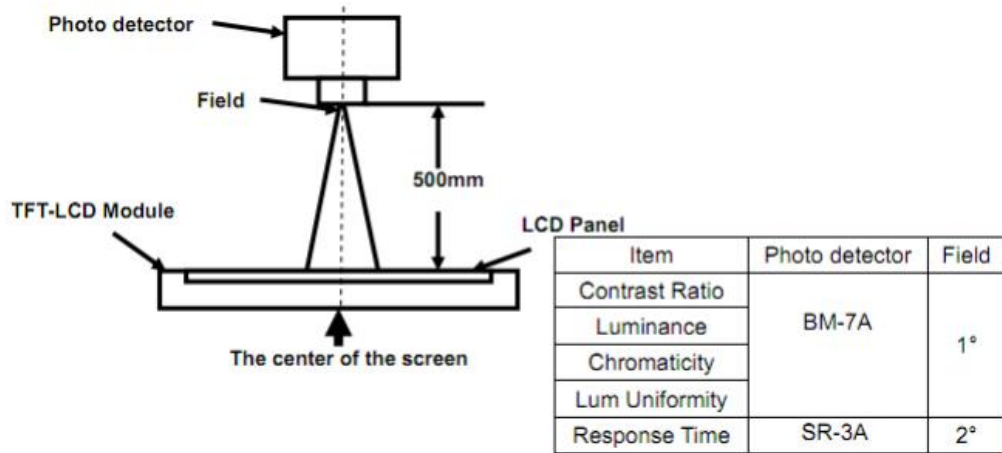
Note 2: Definition of viewing angle range and measurement system.
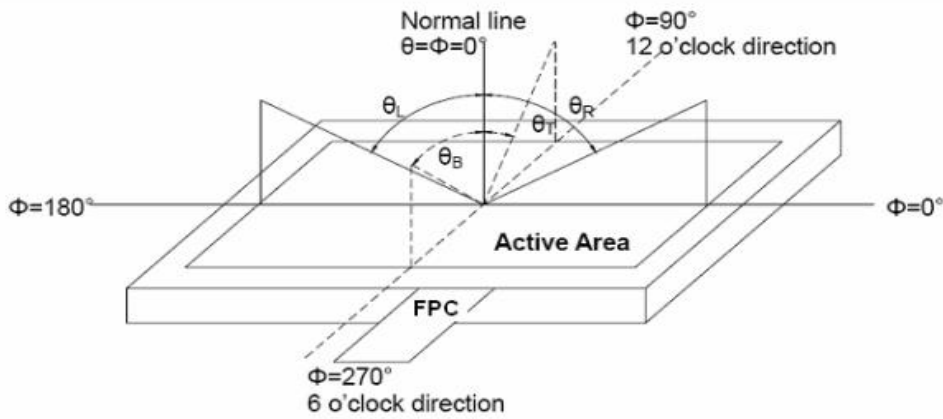Viewing angle is measured at the center point of the LCD by CONOSCOPE (ergo-80).


Fig. 1 Definition of viewing angle

Note 3: Definition of contrast ratio

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

Note 4: Definition of Response time
The response time is defined as the LCD optical switching time interval
Between "White" state and "Black" state.   Rise time (TON) is the time between
Photo detector output intensity changed from 90% to 10%. And fall time (TOFF) is
The time between photo detector output intensity changed from 10% to 90%
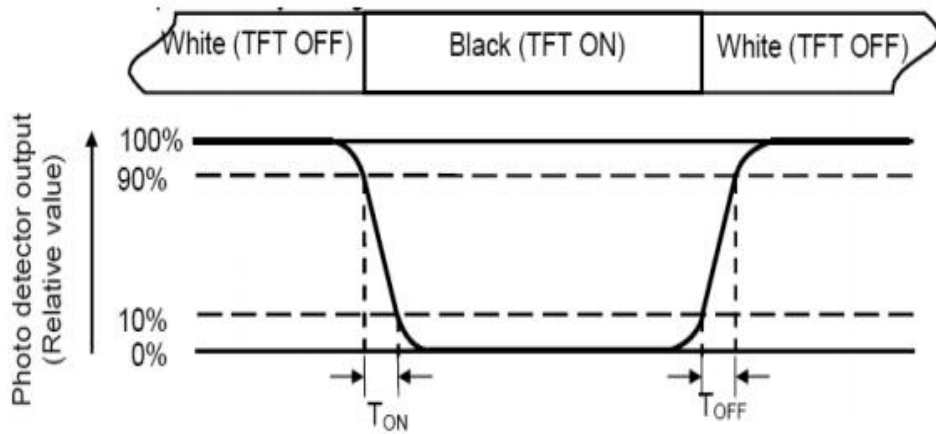
Note 5: Definition of color chromaticity (CIE1931)

     Color coordinates measured at center point of LCD.

Note 6: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the Center of each measuring area

Luminance Uniformity (U) = Lmin/ Lmax X100%

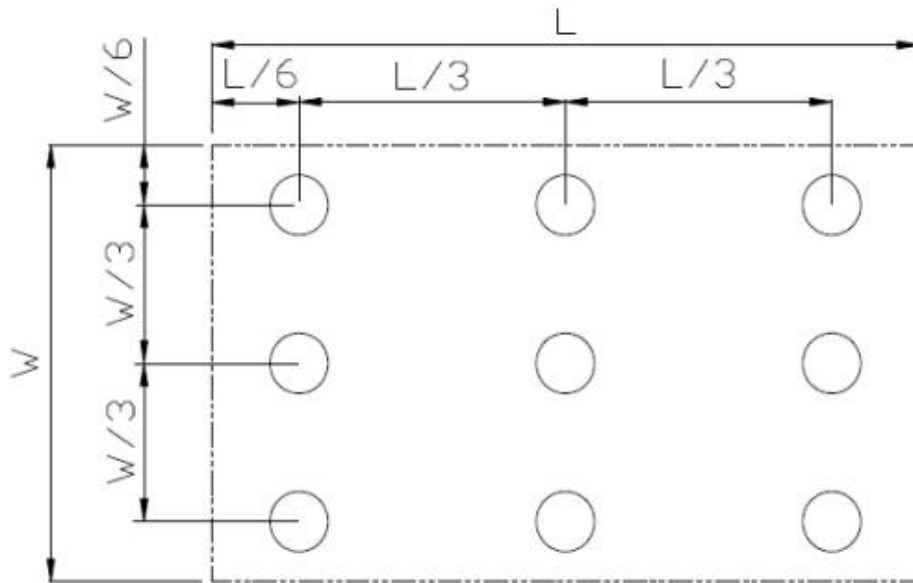L-------Active area length W----- Active area width

Fig. 2 Definition of uniformity

Lmax: The measured maximum luminance of all measurement position.

Lmin: The measured minimum luminance of all measurement position.

Note 7: Definition of Luminance:

Measure the luminance of white state at center point.

8 Environmental / Reliability Tests

Item	Test Conditions	Remark
High Temperature Storage	Ts = 80℃ 240 hrs	Note 2, Note 4
Low Temperature Storage	Ts = −30℃ 240hrs	Note 2, Note 4
High Temperature Operation	Ta = 70℃ 240hrs	Note 1, Note 4
Low Temperature Operation	Ta = −20℃ 240hrs	Note 1, Note 4
Double 85 test	+85℃, 85%RH 48hrs	Note 4
Operate at High Temperature and Humidity	+60℃, 90%RH 240hrs	Note 4
Thermal Shock	−30℃/30 min ~ +80℃/30 min for a total 100 cycles, Start with cold temperature and end with high temperature	Note 4
Vibration Test	Frequency range:10~55Hz Stroke:1.5mm Sweep:10Hz~55Hz~10Hz 2 hours for each direction of X. Y. Z. (6 hours for total)	
Mechanical Shock	100G 6ms, ±X, ±Y, ±Z 3 times for each direction	
Package Vibration Test	Random Vibration : 0.015G*G/Hz from 5-200HZ, 6dB/Octave from 200 500HZ 2 hours for each direction of X. Y. Z. (6 hours for total)	
Package Drop Test	Height:60 cm 1 corner, 3 edges, 6 surfaces	
Electro Static Discharge	± 2KV, Human Body Mode, 100pF/1500Ω	

Note 1: Ta is the ambient temperature of samples.
Note 2: Ts is the temperature of panel's surface.
Note 3: In the standard condition, there shall be no practical problem that may affect the display function. After the reliability test, the product only guarantees operation, but doesn't guarantee all the cosmetic specification.
Note 4: Before cosmetic and function tests, the product must have enough recovery time, at least 2 hours at room temperature.

9 Mechanical Drawing

NOTES:
1. GENERAL TOLERANCE: ±0.2
2. ( ) REFERENCE DIMENSION
3. RECOMMENDED CUSHION ADHERENT ARAE: TP V. A+1.6mm
4. REQUIREMENTS ON ENVIRONMENTAL PROTECTION: RoHS

6.95"TFT
600(RGB)*1024
ALL VIEW

18LEDs
Backlight Circuit diagram

FPC 弯折出货

VER.	SYMBOL	AMENDMENT	SIGN	DATE
V00.		Frist issue	QXW	2021.10.14

	DRAWN	ME.CHECKED	EE.CHECKED	APPROVED	CUSTOMER'S APPROVAL

TITLE
MODULE SPEC.

深圳市伯朗瀚科技有限公司
Shenzhen Brownopto Technology Co., Ltd。

DRAWING NO.
070JIH1826-E3 V.10

3rd Angle | UNIT | SCALE | FTT
mm | SHEET 1 OF 1

Display Type	TFT
	NORMALLY BLACK,TRANSMISSIVE
Viewing Angle	ALL
LCD Driver IC	OTA7290B-C
Logic Voltage	VDD=3.3V
Operation Temperature	-20℃ TO 60℃
Storage Temperature	-30℃ TO 80℃
Interface	MIPI INTERFACE
Backlight	18-LED WHITE 120mA/~8.4V
Surface luminance	300cd/m²(type)
White X/Y	X:--- Y:---

LCM PIN

1	LED-A
2	LED-A
3	LED-A
4	NC
5	LED-K
6	LED-K
7	LED-K
8	LED-K
9	GND
10	GND
11	D2-P
12	D2-N
13	GND
14	D1-P
15	D1-N
16	GND
17	CLK-P
18	CLK-N
19	GND
20	D0-P
21	D0-N
22	GND
23	D3-P
24	D3-N
25	GND
26	VDDI
27	RES
28	GND
29	VDDI
30	VDD
31	VDD

1 0.Packing

LCM Model	LCM Qty. in the box	Inner Box Size (mm)	Note
070JIH1826-E3 V.10	60 pcs/box	490±5 x 340±5 x 250±5	

11.2 Packing assembly drawings
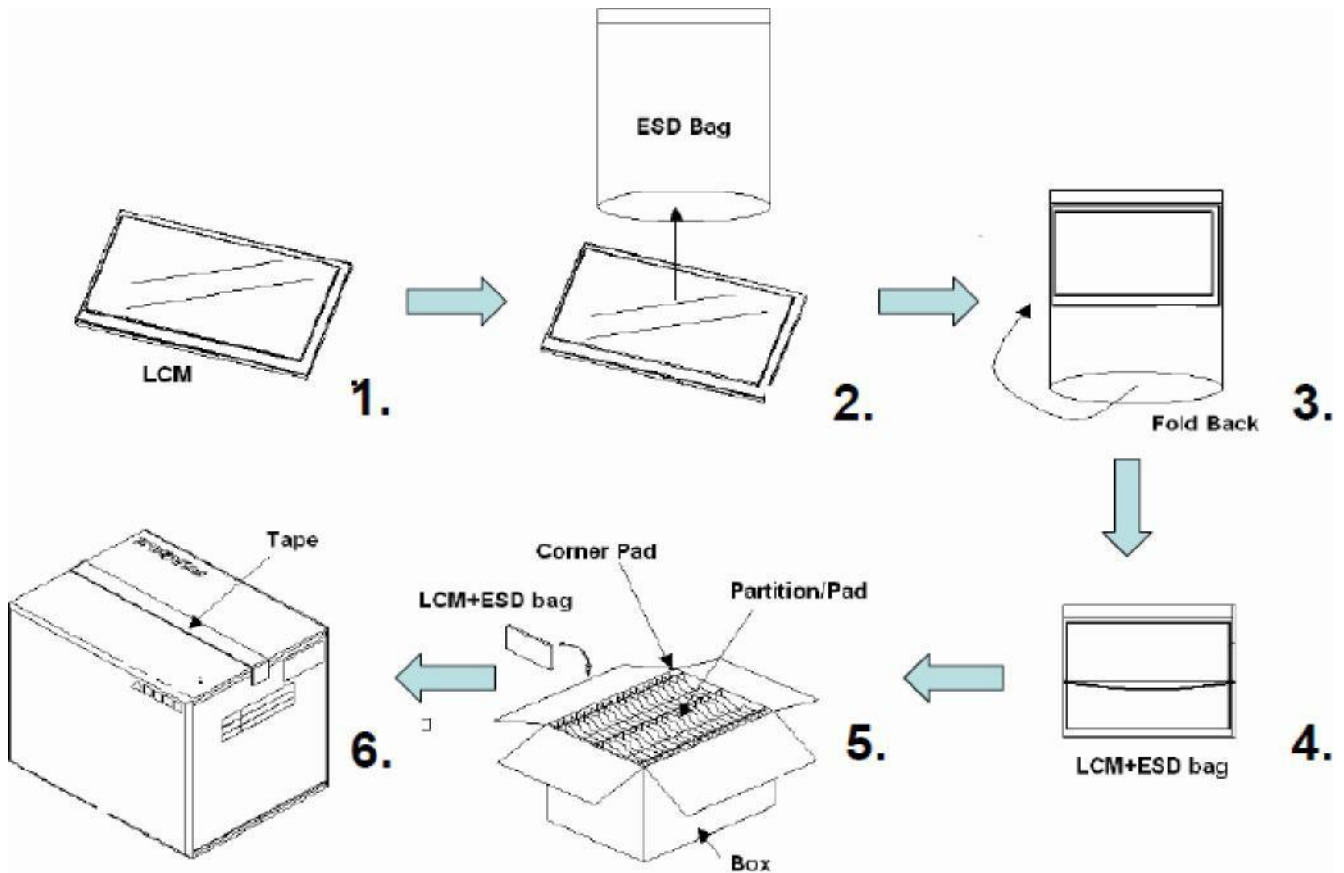
Items	Material	Notice
Box	Corrugated Paper Board	AB Flute
Partition/Pad	Corrugated Paper Board	B Flute
Corner Pad	Corrugated Paper Board	AB Flute
ESD bag	PE	

11. Precautions for Use of LCD modules

11.1 Handling Precautions

11.1.1. The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

11.1.2. If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

11.1.3. Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

11.1.4. The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

11.1.5. If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

- Isopropyl alcohol
- Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

Water ； Ketene ； Aromatic solvents

11.1.6. Do not attempt to disassemble the LCD Module.

11.1.7. If the logic circuit power is off, do not apply the input signals.

11.1.8. To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

11.1.8.1. Be sure to ground the body when handling the LCD Modules.

11.1.8.2. Tools required for assembly, such as soldering irons, must be properly ground.

11.1.8.3. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

11.1.8.4. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

11.2 Storage Precautions

11.2.1. When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.

11.2.2. The LCD modules should be stored under the storage temperature range If the LCD modules will be stored   for a long time, the recommend condition is:

Temperature : 0℃ ～ 40℃   Relatively humidity: ≤80%

11.2.3.   The LCD modules should be stored in the room without acid, alkali and harmful gas.

11.3 Transportation Precautions

The LCD modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.