
SPECIFICATION

Customer : _____
Model Name: _____ 070AT30H21RH3-26100M030ZN
ERP NO. : _____ 1010700710
Spec Vision: _____ V.3
Date: _____ 2020/12/08

- ☒ Preliminary Specification
☐ Final Specification

Approved by	Comment

Prepared by	Reviewed by	Approved by

Record of Revision

Version	Revise Date	Page	Content	Modified by
V. 1	2020. 10. 16	-	First Issued.	ZT
V. 2	2020. 12. 08	16	更新 PVC 外形	ZT
V. 3	2021. 09. 04	16	取消固定美纹胶	ZT

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规格书参数表

类别	属性	规格	单位
全局属性	产品规格/型号		
	物料适用场景		
	物料名称		
	LCD 尺寸	7.0	inch
	贴合方式		
	外形长度		mm
	外形宽度		mm
	外形厚度		mm
	最低工作温度		℃
	最高工作温度		℃
	最低存储温度		℃
	最高存储温度		℃
	框贴&全贴 胶厂家/规格		
	框贴&全贴 胶厚度		mm
	亮度		cd/m²
显示屏	液晶模组型号	70AT30H21RH3-26100M030ZN	
	显示分辨率	1024X600	pixels
	外形长度（LCM 单体）	164.8	mm
	外形宽度（LCM 单体）	99.9	mm
	外形厚度（LCM 单体）	2.8	mm
	可视面积（A-A）	154.2144X85.92	mm X mm
	亮度（LCM 单体）	250	cd/m²
	色坐标	0.29/0.31	
	色彩饱和度（NTSC）	50	
	色深（Number of Colors）	16.7M	
	接口类型（Interface）	MIPI	
	像素点间距（Pixel Pitch）	0.1506X0.1432	
	液晶厂家	INNOLUX	
	液晶型号	F070A05-601-1024*600	
	显示屏芯片型号	EK79007AD3+EK73217BCGA	
	LED 灯厂家	正东明	
	LED 灯规格型号	ZDM-A0206WC-LB-25	
	显示屏金手指 PIN 数	30	
	对比度	600	
	显示模式	Normally White	
	人眼最佳可视角度	12 o' clock	
	显示响应时间	35	ms
	POL 厂家/厚度	住友/0.17	mm
	POL 规格型号	光片 45° /砂片 45°	
	POL 胶水粘性	中性胶	
	上 POL 表面雾度	2%	
	铁框材质&厚度	镀铝锌 T=0.2	
	上增光（材质厂家&型号&厚度）	康得新 KBB0-100P 0.1	
	下增光（材质厂家&型号&厚度）	康得新 KBB0-100N 0.1	
	扩散片（材质厂家&型号&厚度）	长阳 AJ100 0.1	
	导光板（材质厂家&型号&厚度）	鑫科能 PMMA 0.6	
	反射片（材质厂家&型号&厚度）	长阳 DJX100 0.1	
	*单色屏显示颜色种类	/	
	功耗（TYP）	1.8W	

1. General Specifications

NO.	Item	Specification	Remark
1	Panel Size	7.0 inch(Diagonal)	
2	Resolution	1024 x 3(RGB) x 600	
3	Driver Method	A-Si TFT active matrix	
4	Active Area	154.2144(H) X 85.92(V)mm	
5	Dot Pitch	0.1506(W) x 0.1432(H) mm	
6	Pixel Arrangement	RGB-stripe	
7	Module Size	164.8(W) x 99.9(H) x2.8(D) mm	
8	Display Mode	Normally White	
9	Display Color	16.7M	
10	Viewing Direction	12 O'clock	
	Gray Scale Inversion Direction	6 O'clock	
11	Interface	MIPI 4 lane	
12	Driving IC	EK79007+EK73217	
13	Weight	TBD	g

2. Pin Assignment

No.	Symbol	Function	Remarks
1~2	VLED+	Power for LED backlight (anode)	
3	VGH	Gate on Voltage	
4	VGL	Gate off Voltage	
5	UD	Up/Down selection	
6	LR	Left/right selection	
7~8	VLED-	Power for LED backlight(Cathode)	
9	AVDD	Power for Analog Circuit	
10	GND	Power ground	
11~12	D3+/D3-	MIPI data Positive/Negative signal	
13	GND	Power ground	
14~15	D2+/D2-	MIPI data Positive/Negative signal	
16	GND	Power ground	
17~18	CLK+/CLK-	MIPI clock Positive/Negative signal	
19	GND	Power ground	
20~21	D1+/D1-	MIPI data Positive/Negative signal	
22	GND	Power ground	
23~24	D0+/D0-	MIPI data Positive/Negative signal	
25	GND	Power ground	
26	STBYB	Standby Mode select pin.	
27	RESET	Global reset pin	
28~29	VDD	Power for Digital Circuit ,1.8V	
30	VCOM	Common Voltage	

3. Operation Specifications

3.1. Absolute Maximum Ratings

Voltage (AGND=GND=0V, Ta = 25°C)

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power Voltage	VDD	-0.3	+3.96	V	
	AVDD	-0.5	+14.85	V	
	VGH	-0.3	40	V	
	VGL	-20.0	0.3	V	
	VGH-VGL	12	40.0	V	
Operating Temperature	T _{op}	-20	55	°C	
Storage Temperature	T _{st}	-20	60	°C	

Note: 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 case ,the module may be permanently destroyed.

3.1.1. Typical Operation Range

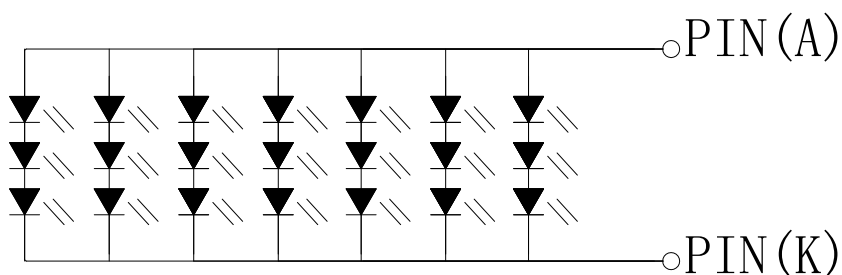
Item	Symbol	values			Unit
		Min.	Typ.	Max.	
Power Voltage	VDD	1.7	1.8	1.9	V
	AVDD	11.8	12	12.2	V
	VGH	15	16	18	V
	VGL	-10	-8	-7	V
Input signal voltage	VCOM	4.2	4.4	4.6	V
Input logic high voltage	V _{IH}	0.7 V _{DD}	-	V _{DD}	V
Input logic low voltage	V _{IL}	0	-	0.3 V _{DD}	V

3.1.2. Current Consumption

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Current for Driver	I _{GH}	-	0.7	2.5	mA	V _{GH} =16V
	I _{GL}	-	0.7	2.5	mA	V _{GL} =-8V
	I _{VDD}	-	15	25	mA	V _{DD} =1.8V
	I _{AVDD}	-	25	35	mA	A _{VDD} =12V

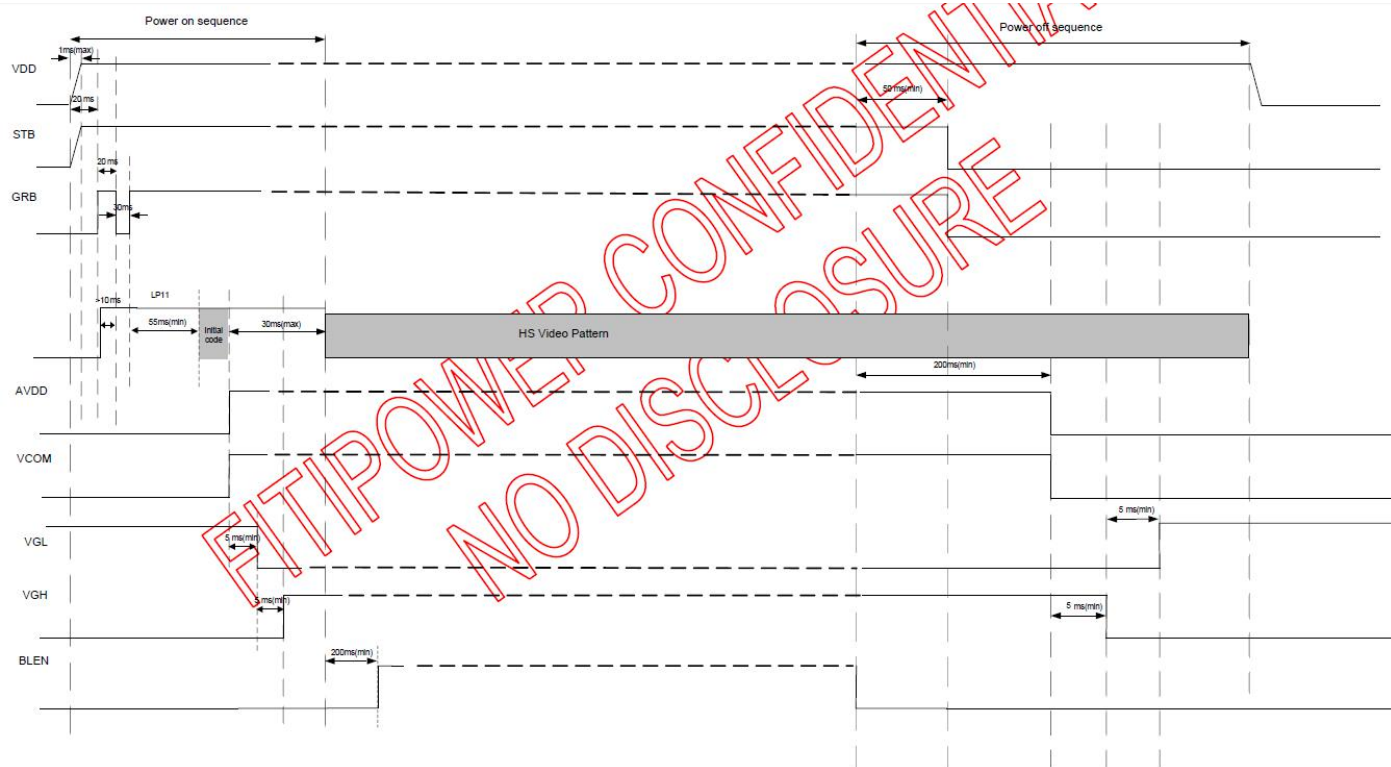
3.1.3. Backlight Driving Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage of white LED backlight	V _L	8.7	9.6	10.5	V
Current for LED backlight	I _L	-	140	-	mA
Luminance (on the module surface ,BM-7)		200	250	-	cd/m ²
LED life time	-	30000	-	-	Hr



电路原理图：
(I_f=140mA. V_f=9.6V)

3.2. Power Sequence

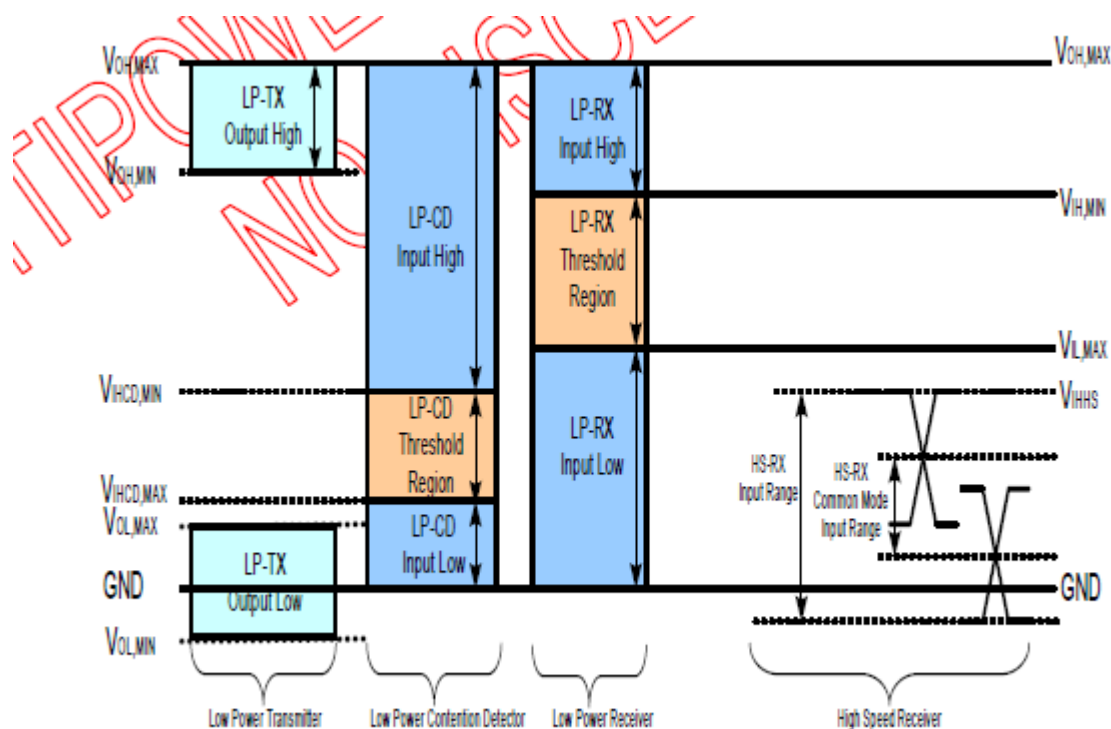


3.3. Timing Characteristics

3.3.1. MIPI DC Electrical Characteristics

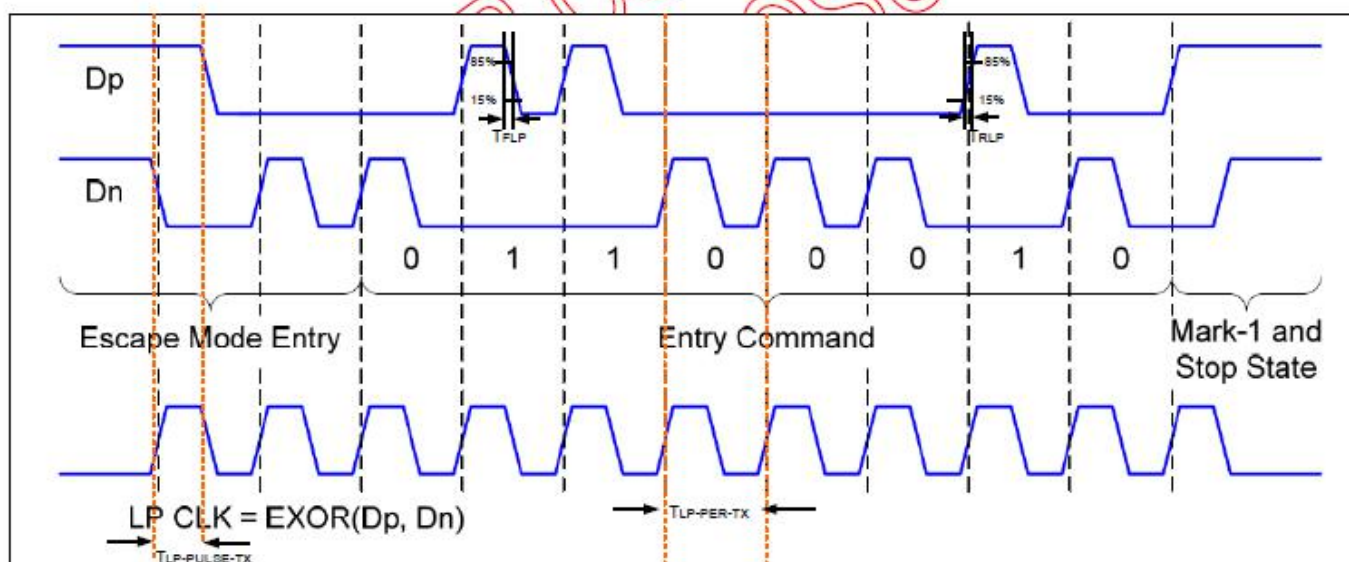
(VDD=VDD_IF=1.8V, AVDD=8 to 13.5V, GND=AGND=GND_IF=0V, TA=-20°C to 70°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
MIPI Characteristics for High Speed Receiver					
Single-ended input low voltage	VILHS	-40	-	-	mV
Single-ended input high voltage	VIHHS	-	-	460	mV
Common-mode voltage	VCDRXDC	70	-	330	mV
Differential input impedance	ZID		100		ohm
HS transmit differential voltage(VOD=VDP-VDN)	VOD	140	200	250	mV
MIPI Characteristics for Low Power Mode					
Pad signal voltage range	VI	-50		1350	mV
Ground shift	VGNDSH	-50	-	50	mV
Logic 0 input threshold	VIL	0	-	550	mV
Logic 1 input threshold	VIH	880	-	1350	mV
Input hysteresis	VHYST	25	-	-	mV
Output low level	VOL	-50	-	50	mV
Output high level	VOH	1.1	1.2	1.3	V
Output impedance of Low Power Transmitter	ZOLP	80	100	125	ohm
Logic 0 contention threshold	VILCD,MAX	-	-	200	mV
Logic 0 contention threshold	VIHCD,MIN	450	-	-	mV



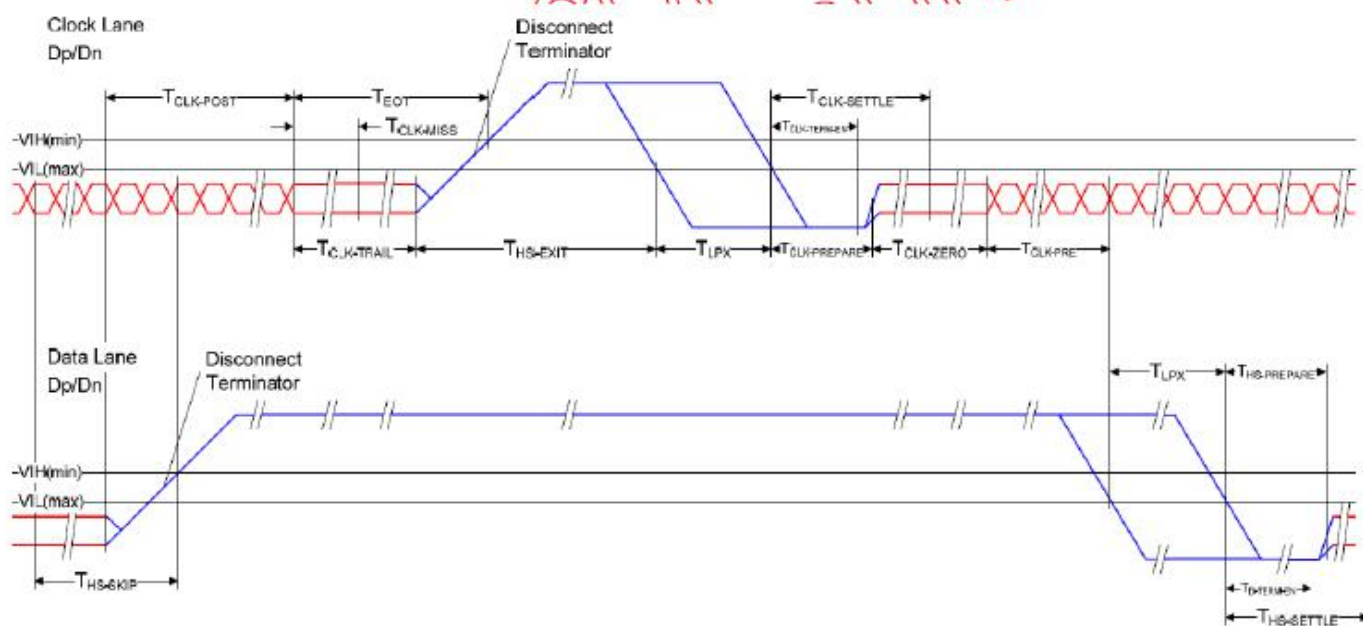
3.3.2. MIPI AC Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Notes
15%~85% rising time and falling time	T_{RLP} / T_{FLP}	-	-	25	ns	-
30%~85% rising time and falling time	T_{REOT}	-	-	35	ns	-
Pulse width of LP exclusive-OR clock	First LP EXOR clock pulse after STOP state or Last pulse before stop state	40	-	-	ns	-
	All other pulses				ns	
Period of the LP EXOR clock	$T_{LP-PER-TX}$	90	-	-	mV/ns	-
Slew Rate @CLOAD =0pF	$\delta V / \delta t_{SR}$	30	-	500	mV/ns	-
Slew Rate @CLOAD =5pF		30	-	200	mV/ns	-
Slew Rate @CLOAD =20pF		30	-	150	mV/ns	-
Slew Rate @CLOAD =70pF		30	-	100	mV/ns	-
Load Capacitance	T_{RLP}	-	-	70	pF	-

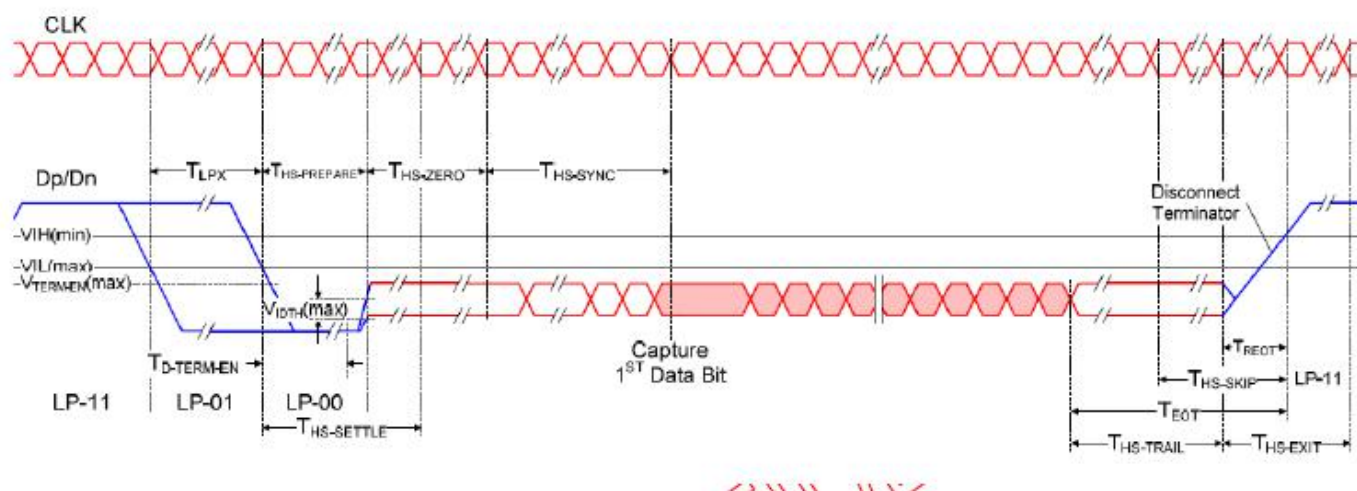


3.3.3. High Speed Clock Transmission

Parameter	Symbol	Min	Typ	Max	Units
Time that the transmitter shall continue sending HS clock after the last associated Data Lane has transitioned to LP mode	TCLK-POST	60+52UI	-	-	ns
Detection time that the clock has stopped toggling	TCLK-MISS	-	-	60	ns
Time to drive LP-00 to prepare for HS clock transmission	TCLK-PREPARE	38	-	95	ns
Minimum lead HS-0 drive period before starting clock	TCLK-PREPARE + TCLK-ZERO	300	-	-	ns
Time to enable Clock Lane receiver line termination measured from when Dn cross $V_{IL,MAX}$	THS-TERM-EN	-	-	38	ns
Minimum time that the HS clock must be prior to any associated data lane beginning the transmission from LP to HS mode	TCLK-PRE	8	-	-	UI
Time to drive HS differential state after last payload clock bit of a HS transmission burst	TCLK-TRAIL	60	-	-	ns



3.3.4. High Speed Data Transmission in Bursts

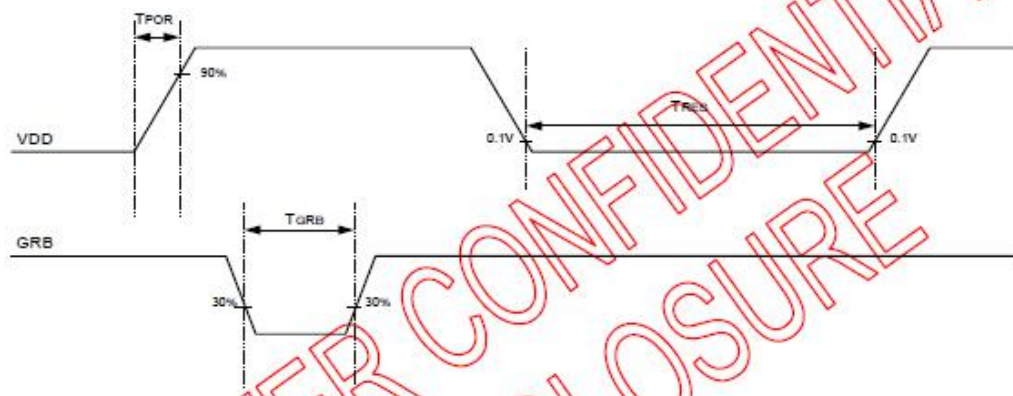


3.3.5. Basic AC Electrical Characteristics

(VDD=VDD_IF=1.8V, AVDD=8 to 13.5V, GND=AGND=GND_IF=0V, TA=-20 to +70°C)

VDD/GRB AC characteristic

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
VDD power slew rate	TPOR	-	-	20	ms	From 0 to 90% VDD
GRB active pulse width	TGRB	1	-	-	ms	VDD=VDD_IF=1.8V
VDD resettle time	TRES	1	-	-	s	



4. Optical Specifications

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle		θT	CR≥10	30	40	-	degree	-
		θB		40	50	-		
		θL		40	50	-		
		θR		40	50	-		
Contrast Ratio		CR	Θ=0°	300	600	-	-	-
Response Time		Ton	25℃	-	10	15	ms	-
		Toff		-	15	25	ms	-
Chromaticity	White	X	Backlight is on	0.26	0.295	0.32	-	-
		Y		0.28	0.335	0.34		
Luminance (center)		L		200	250	-	cd/m2	-
Luminance Uniformity		ΔL		75	80	-	%	-

Test Condition:

1、VDD=3.3V, IL=140mA(Backlight current), the ambient temperature is 25°C.

5. Reliability Test Items

Item	Test Conditions	Remark
High Temperature Storage	Ta=60℃ 120h	Note1 ,Note4
Low Temperature Storage	Ta=-20℃ 120h	Note1, Note4
High Temperature Operation	Ts=55℃ 120h	Note2 ,Note4
Low Temperature Operation	Ts=-20℃ 120h	Note4
Operation at High Temperature and Humidity	+60℃,90%RH 120h	Note4
Thermal Shock	-20℃/30min~+60℃/30min for a total 48 cycles , Start with cold temperature and end with high temperature	
Package Drop Test	Height 60cm 1corner , 3edges , 6surfaces	
Elector Static Discharge	±2KV,Human Body Mode, 150pF/330 Ω	
Image Sticking	25℃ ; 30min	Note5

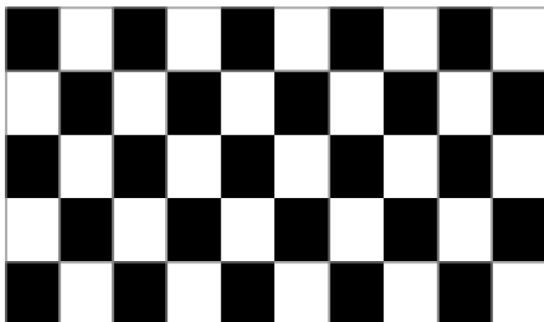
Note1:Ta is the ambient temperature of samples.

Note2: Ts is the temperature of panel's surfaces.

Note3: 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 don't guarantee all of the cosmetic specification.

Note4: before cosmetic and function test,the product must have enough recovery time,at least 2 hours at room temperature.

Note5: Condition of image sticking test :25℃±2℃ , Operation with test pattern sustained for 30min's,then change to gray pattern immediately. After 5 min's , the Mura must be disappeared completely.

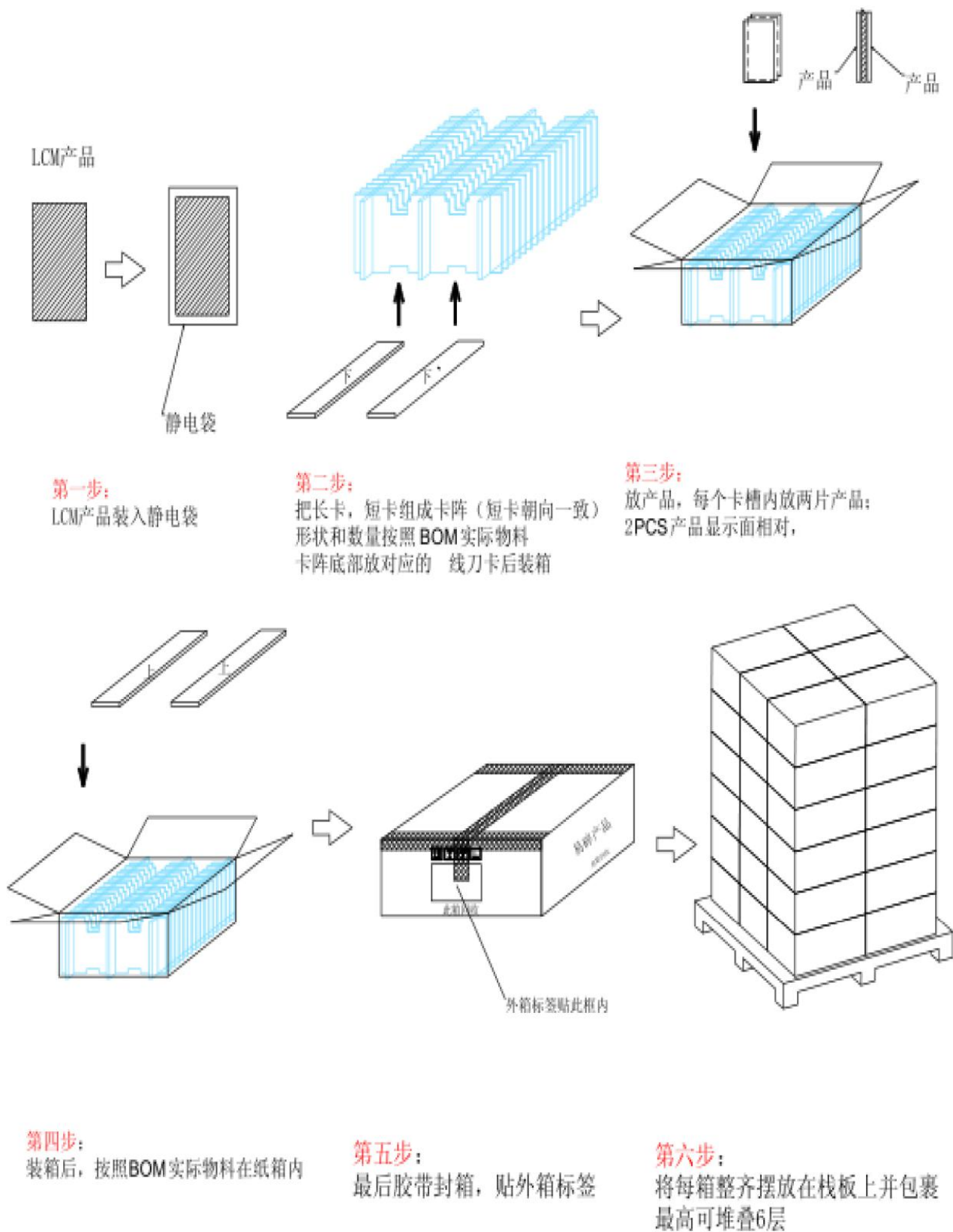


(a) Test Pattern (chess board Pattern)

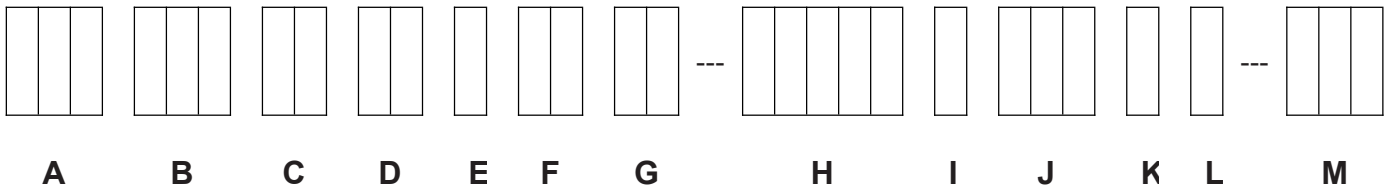


(b) Gray Pattern (127 Gray)

7. Package Drawing



8. Numbering System



NO.	Definition	Specifications
A	Company code	INTERNATIONAL CO.LTD.
B	Display monitor opposite angle line size	Unit : inch (size<10inch:take two integers;size>=10inch:takes three integers)
C	LCD Brands	AU-AUO; CP-CPT; IV-IVO; TM-TIANMA; HS-HSD; CM-CMO; BO-BOE; AT--INNOLUX; CT-CTC
D	Interface PIN Number	Arabic numerals from 01 to 99
E	LCD Type	A--Alternated Video Signal; D--Data Video Signal; H--High Definition ; I--IPS
F	Backlight LED Number	Arabic numerals from 01 to 99
G	Backlight Color Are	Include R1、R2、Y0、Y1、B1、B2;
H	Structure Size	Include module length and width size
I	Interface Mode	T:TTL L:LVDS M:MIPI
J	FPC Length	It represents the length of FPC with three figures, divided into long rows ,middle rows and short rows
K	View Angles	Z : represent narrow viewing angle K : represent wide viewing angle I : represent all viewing angle
L	Operating Mode	D: DE mode V: VSD mode F: Inverting mode N: No mode requirements
M	Suffix	1. NULL ; 2. TP/CTP-- Touch panel; 3. other--Insignificance