SPECIFICAIONS

Version: V0
This module uses ROHS material

PRODUCT: TFT LCD MODULE

MODEL NO: IE-H-1819CH07MP-CB-1

SUPPLIER: InterElcom

ISSUED DATE: 2024-7-12

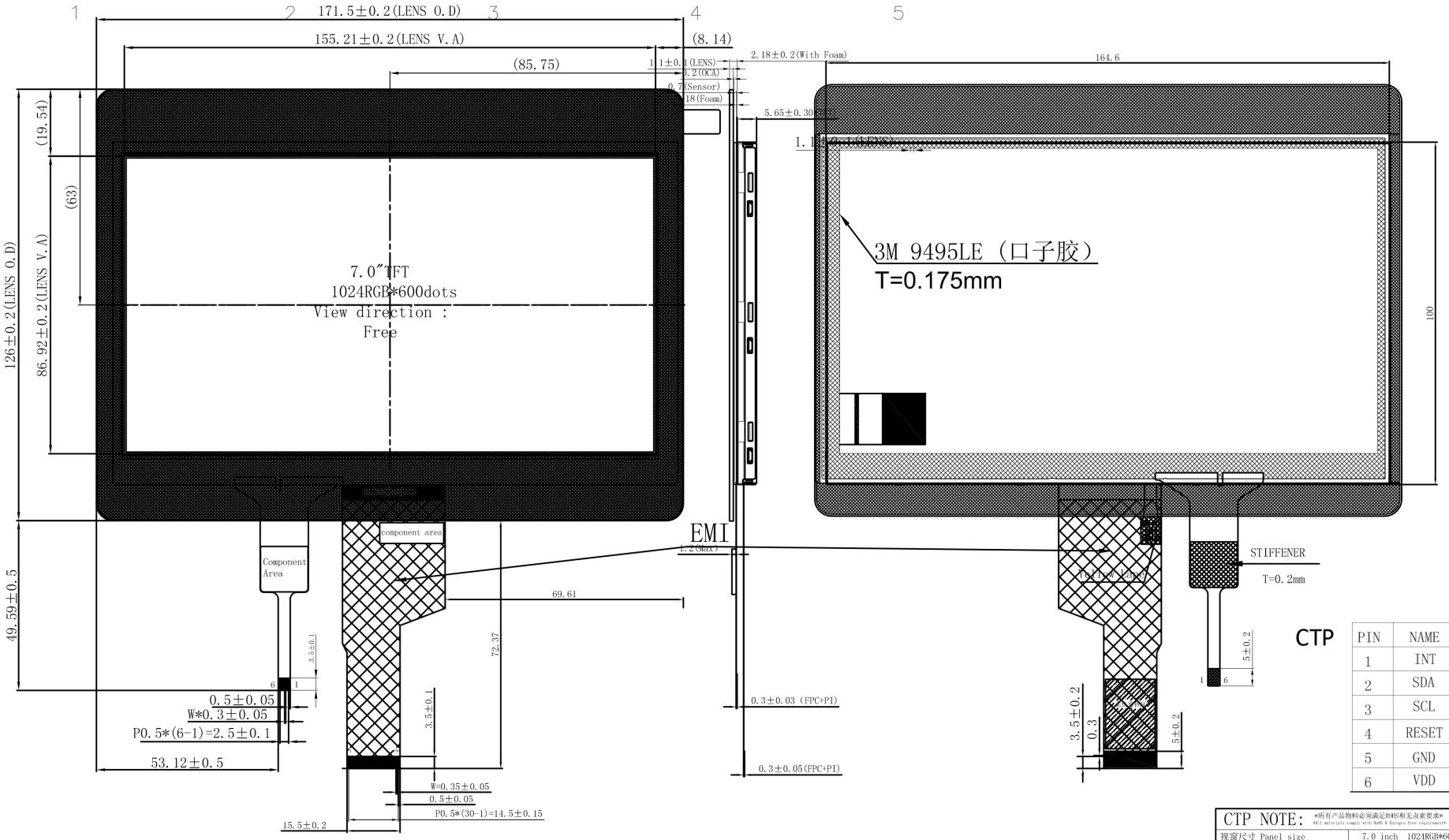
■ **Preliminary Specification**
☐ **Final Product Specification**

Revision Record

REV No.	REV Date	Contents	Editor	Remarks
V0	2024-7-12	First release		Preliminary

1. General information

Feature	Spec	Unit
LCD size	7.0	inch
Resolution	1024 RGB x 600 Dots	---
Pixel pitch (WxH)	0.0502 x0.1432	mm
Active area	154.21 (W) x 85.92 (H)	mm
Viewing area	157.00 x 89.50	mm
Display Mode	IPS，NB	---
LCM Outline(with TP) (WxHxT)	165.00 × 100.00 × 5.65	mm
With/Without TP	With	---
TFT Driver IC	EK79007HN,EK73217BCGA	---
TFT Interface	MIPI	---
TFT Input voltage	1.8	V
Backlight Power consumption	1.8	W
LCM brightness with CTP	TYP 500	Cd/m^2



TFT

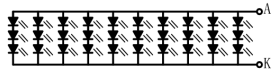
PIN	NAME
1	LED+
2	LED+
3	LCD-VGH
4	LCD-VGL
5	UPDN
6	SHLR
7	LED-
8	LED-
9	AVDD
10	GND
11	MIPI_TDP3
12	MIPI_TDN3
13	GND
14	MIPI_TDP2
15	MIPI_TDN2
16	GND
17	MIPI_TCP
18	MIPI_TCN
19	GND
20	MIPI_TDP1
21	MIPI_TDN1
22	GND
23	MIPI_TDP0
24	MIPI_TDN0
25	GND
26	STBYB
27	RESET
28	VDD
29	VDD
30	VCOM

CTP

PIN	NAME
1	INT
2	SDA
3	SCL
4	RESET
5	GND
6	VDD

TFT NOTE:	
显示类型 Display type	7.0 inch 1024RGB*600
显示模式 Display mode	Transmissive Normally Black
视察方向 Viewing direction	□ 6 □ 12 □ 3 □ 9 ■ Free
对比度 Contrast ratio	800:1
亮度 Luminance	500 cd/m² (TYP)
接口类型 Interface	□ SPI □ LVDS ■ MIPI □ RGB
供电电压 VDD	■ 1.8V □ 5V
工作温度 Operation temperature	-20℃ to 70℃
存储温度 Storage temperature	-30℃ to 80℃
驱动芯片型号 Driver IC	EK79007;EK73217BCGA
FPC连接方式 FPC Connection	■ Plug-in type □ welded
未标注公差 Unmarked tolerance	±0.3mm

CIRCUIT DIAGRAM



Backlight LED Circuit

BACKLIGHT: 30 CHIP-WHITE LED
IF=200mA(constant current) VF=8.1-10.2V

CTP NOTE: *所有产品物料必须满足ROHS和无卤素要求* *All materials comply with RoHS & Halogen free requirement*	
视窗尺寸 Panel size	7.0 inch 1024RGB*600
产品结构 Structures	G+G
表面硬度 Surface Hardness	6H
总厚度值 Total Thickness	2.0 mm W/O Foam
透明度 Transparenly	>85%
接口类型 Interface	□ USB ■ IIC
供电电压 Working Voltage	1.8V-3.3V
驱动芯片型号 Driver IC	GT911
工作温度 Operation temperature	-20℃ to 70℃
存储温度 Storage temperature	-30℃ to 80℃
FPC连接方式 FPC Connection	■ Plug-in type □ USB

DRAWING No. :
DRAWING TITLE: TFT
FILE NO. : 1
REV. : A
SCALE: 1:1
PROJECTION:
UNIT: mm
SHEET: 1/1

3. Absolute maximum ratings

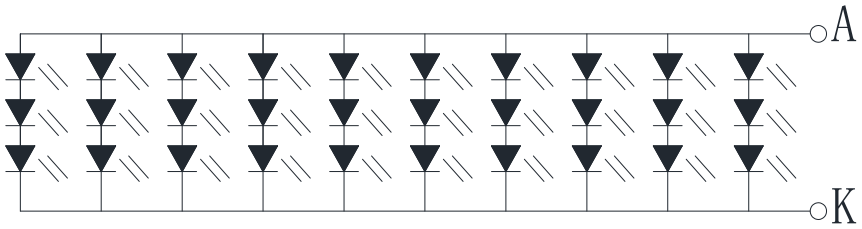
Item	Symbol	Min.	Max.	Unit
Supply voltage for logic	VDD	-0.3	3.6	V
Input voltage	VIN	-0.3	VDD+0.3	V
Operating temperature	TOP	-20	70	°C
Storage temperature	TST	-30	80	°C
Humidity	RH	--	90%(Max60 °C)	RH

4. Electrical characteristics

Item	Symbol	Min.	Typ.	Max.	Unit
Power voltage	VDD	1.71	1.8	1.89	V
	AVDD	--	9.6	--	V
	VGH	--	18	--	V
	VGL	--	-6	--	V
Input signal voltage	VCOM	3.1	--	3.3	V

5. Backlight characteristics

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Current	If	--	200	--	mA	
Forward Voltage	Vf	8.1	9	10.2	V	
LED Life Time	L_L	--	30000	--	Hrs	Ta=25°C



Backlight LED Circuit

BACKLIGHT: 30 CHIP-WHITE LED

IF=200mA(constant current) VF=8.1-10.2V

Note1: Under LCM operating, the stable forward current should be inputted. And forward voltage is for reference only.

Note2: Optical performance should be evaluated at Ta=25℃. if LED is driven by high current, high ambient temperature & Humidity condition. The life time of LED will be reduced. Operating life means brightness goes down to 50% initial brightness. Typical operating life time is estimated data.

6. Electro-optical characteristics

Optical Specification

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Contrast Ratio		CR		—	800	—	—	Note 2
Response Time		$T_{ON}+T_{OFF}$		—	30	40	ms	Note 5
Color Gamut	(%)			—	50	—	%	
Color Chromaticity (CIE1931)	White	W_X		-0.03	0.308	+0.03	—	Note 4
		W_Y			0.336			
	Red	R_X			0.599		—	
		R_Y			0.338			
	Green	G_X			0.299		—	
		G_Y			0.550			
	Blue	B_X			0.139		—	
		B_Y			0.131			
Viewing Angle	Hor.	Θ_L	CR>10	—	85	—	—	Note 1
		Θ_R		—	85	—		
	Ver.	Θ_U		—	85	—		
		Θ_D		—	85	—		

Note :

1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o' clock direction and the vertical or 6, 12 o' clock direction with respect to the optical axis which is normal to the LCD surface (see FIGURE 5).
2. Contrast measurements shall be made at viewing angle of θ= 0 and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state . (see FIGURE 5) Luminance Contrast Ratio (CR) is defined mathematically.

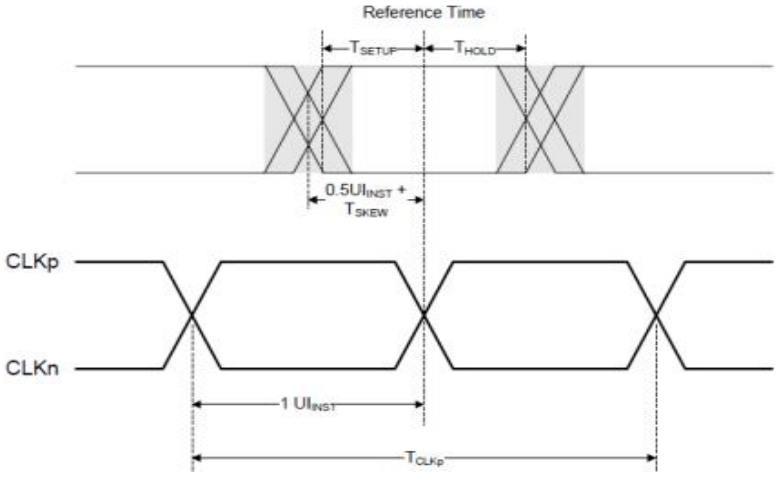
$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

3. Transmittance is the Value with Polarizer.
4. The color chromaticity coordinates specified in Table 6 shall be calculated from the spectral data measured with all pixels first in red, green, blue and white. Measurements shall be made at the center of the panel.

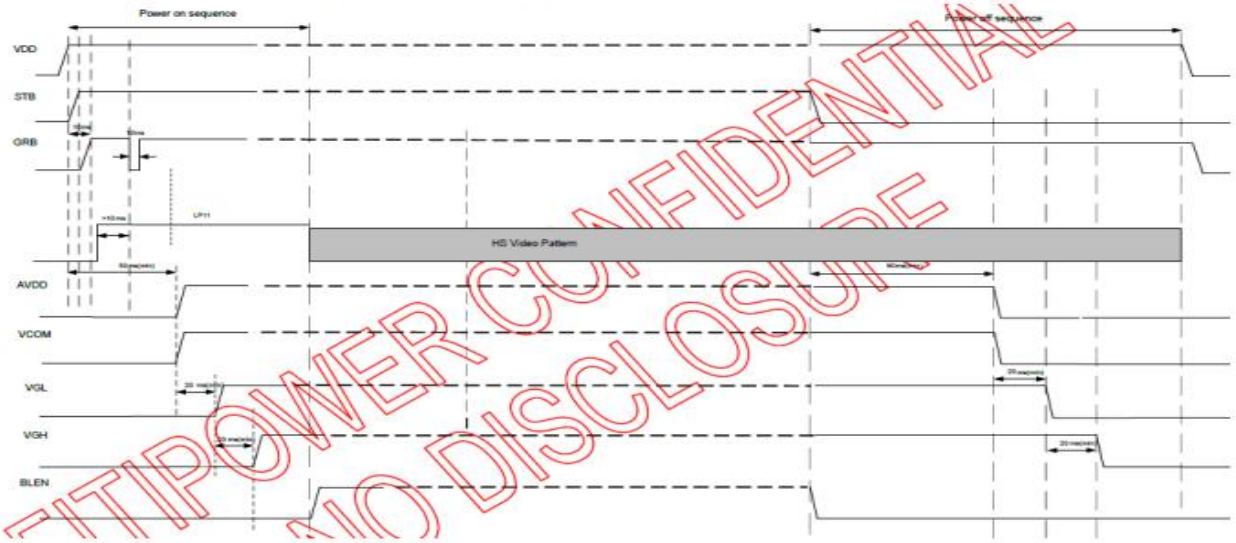
5. The elector-optical response time measurements shall be made as FIGURE 6 by switching the“data" input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is Tr, and 90% to 10% is TD.

7. Read/Write timing

Parameter	Symbol	Min	Typ	Max	Unit
Clock frequency	RxFCLK	40.8	51.2	67.2	MHz
UI instantaneous	UIINST	2	-	12.5	ns
Data to Clock Skew(measured at transmitter)	TSKEW(TX)	-0.15	-	0.15	UIINST
Data to Clock Setup time(measured at receiver)	TSETUP(RX)	0.15	-	-	UIINST
Data to Clock Hold time(measured at receiver)	THOLD(RX)	0.15	-	-	UIINST
20%~80% rise time and fall time	TR, TF	150	-	-	ps
		-	-	0.3	UIINST



In order to prevent IC from power on reset fail, the rising time(TPOR) of the digital power Supply VDD should be maintained within the given specifications. Refer to "AC Characteristics" for more detail on timing.



Notes:

1. CLK and Data Lanes should keep in LP11(stop state) before GRB

8. Interface description

TFT interface

No.	SYMBOL	Description
1-2	LED+	LED power anode.
3	VGH	A positive power output pin for gate driver. VGH = 18V.
4	VGL	A negative power output pin for gate driver. VGL = -6V.
5	UPDN	Up/down selection.
6	SHLR	Left / right selection.
7-8	LED-	LED power cathode.
9	AVDD	Power pad for analog circuit. AVDD = 9.6V.
10	GND	Ground
11	MIPI_TDP3	Differential signal input.
12	MIPI_TDN3	Differential signal input.
13	GND	Ground
14	MIPI_TDP2	Differential signal input.
15	MIPI_TDN2	Differential signal input.
16	GND	Ground
17	MIPI_TCP	Differential signal input.
18	MIPI_TCN	Differential signal input.
19	GND	Ground
20	MIPI_TDP1	Differential signal input.
21	MIPI_TDN1	Differential signal input.
22	GND	Ground
23	MIPI_TDP0	Differential signal input.
24	MIPI_TDN0	Differential signal input.
25	GND	Ground
26	STBYB	Standby mode. STBYB = ”H”,normal operation(default) STBYB = ”L”, timing controller, source driver will turn off, all output are High-Z
27	RESET	This signal will reset the device and it must be applied to properly.
28-29	VDD	Analog supply voltage range VCI to AVSS: 1.8V.
30	VCOM	A power supply for the TFT-LCD common electrode.

9. Reliability test conditions

No.	Test Item	Test condition	Remark
1	High Temperature Storage	80°C±2°C 96H	IEC60068-2-1:2007 GB2423.2-2008
2	Low Temperature Storage	-30°C±2°C 96H	IEC60068-2-1:2007 GB2423.1-2008
3	High Temperature Operation	70°C±3°C 96H	IEC60068-2-1:2007 GB2423.2-2008
4	Low Temperature Operation	-20°C±3°C 96H	IEC60068-2-1:2007 GB2423.1-2008
5	High Temperature /Humidity Storage	60°C±3°C 90%RH 120H	IEC60068-2-78:2007 GB2423.3-2006
6	Temperature Cycle	-30℃←→25℃←→80℃ 5min 30min ←→25℃ , 5min after 10cycle, Restore 4H at 25℃	IEC60068-2-14:1984 GB2423.22-2002
7	ESD test	Voltage:±2KV R: 330Ω C: 150pF Air discharge, 10time	IEC61000-4-2:2001 GB/T17626.2 - 2006

Note:
After completing the reliability test, leave the samples under the room temperature and f or the following inspection items:

1. No clearly visible defects or deterioration of display quality allowed.
2. No function-related abnormalities.
3. Connected parts still connecting tightly.
4. Display characteristics fulfill initial value contrast ratio should be an least 30% of initial value.

10. Storage and use precautions

When storing and using the LCD modules, the following precaution are necessary：

10.1 Store them in a sealed polyethylene bag. If properly sealed, there is no need for the desiccant.

10.2 Store them in a dark place. Do not expose to sunlight or fluorescent light, keep the temperature between 0°C and 35°C, and keep the relative humidity between 40%RH and 60%RH.

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

10.4 The polarizer surface should not come in contact with any other objects (We advise you to store them in the anti-static electricity container in which they were shipped).

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

10.6 Liquid crystals solidify under low temperature (below the storage temperature range) leading to defective orientation or the generation of air bubbles (black or white). Air bubbles may also be generated if the module is subject to a low temperature.

10.7 If the LCD modules have been operating for a long time showing the same display patterns, the display patterns may remain on the screen as ghost images and a slight contrast irregularity may also appear. A normal operating status can be gained by suspending use for some time. It should be noted that this phenomenon does not adversely affect performance reliability.

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

10.9 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.

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

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

10.12 If the display surface is contaminated, 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
— Ketone
— Aromatic solvents

10.13 Do not attempt to disassemble the LCD Module.

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

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

--Be sure to ground the body when handling the LCD Modules.
–Tools required for assembly, such as soldering irons, must be properly ground.
–To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions
--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.
--Exposed area of the printed circuit board.
--Terminal electrode sections

11. Packing

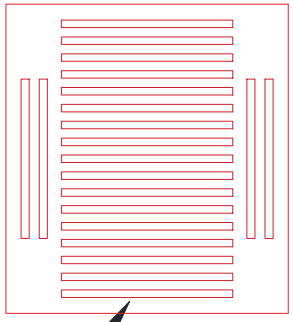
REV.	CHANGE CONTENT	BY	DATE
A	FIRST	ZJ	23.12.20

A. 将模块装入防静电包装袋中。

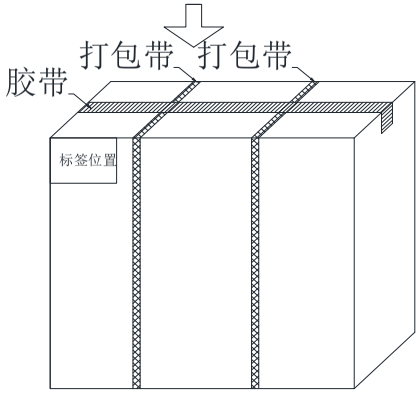
B. 将模块屏对屏放置到托盘的凹槽内，每凹槽放置一块，每个托盘放21片；

C. 每箱内放两组珍珠棉托盘，共放21*2=42片。

D. 在箱子顶端放两层珍珠棉盖板。



珍珠棉图



E、将外箱盖盖好，并用胶带封住。

F、使用打包机将外箱捆住.

G、按照图示位置贴好标签.

包装材料表

序号	材料名称	规格	每箱数量
1	珍珠棉托盘	330X280X120mm	2
2	纸箱	K2K材料，340*290*285mm	1
3	珍珠棉盖板	320X272X10mm	3
4	静电袋	150*250mm	42

			DRAWING No. :	
			DRAWING TITLE: PACKAGE	
			FILE NO. : 1	
DESIGN	ZJ	2023.12.20	REV. : A	SCALE: 1:1
CHECKED	HK	2023.12.20	PROJECTION:	UNIT: mm
APPROVED	HK	2023.12.20		SHEET: 1/1