SPECIFICATION

FOR

TFT LCD MODULE

CUSTOMER : _____

CUSTOMER MODULE : _____

HL MODEL : HG043HV002P01

☐ **Preliminary Specification**

■ **Final Specification**

Customer Confirmation column:

Approved by :_____ Dept. :_____ Data :_____

Please return one of the copies of the specification with your signature to us within two weeks after you receive this document. If it is not returned, we will assume that you agree to the entire contents of this specification document.

Designed by	Checked by	Approved by

1、Product Description

Product Name	TFT LCD Module
Abbreviation	TFT-LCM
Model	HG043HV002P01
Technology	PAL/NTSC Automatic
Size	4.3 inch
Structure	TFT LCD Module+controller board
Application	Building intercom, video phone, car display
Quality Standards	A

2. Product parameters

Resolution	480*3（RGB）*272
Display effect	TFT Color
Active Area	95.04(W)53.85(H)mm
Pixel pitch (W*H)	0.066(W)*0.198(H)mm
Display ratio	16:9
Viewing range	50/70/70/70
Input signal	Standard value：Vp-p,
Signal range	Min：0.5 Vp-p ， Max：2.0 Vp-p
Working voltage	Standard value：12V
Voltage range	9V-18V
Working current	DC100mA±20mA（When DC12V power supply)
Power	≤1.5W
Startup time	≤1.6S

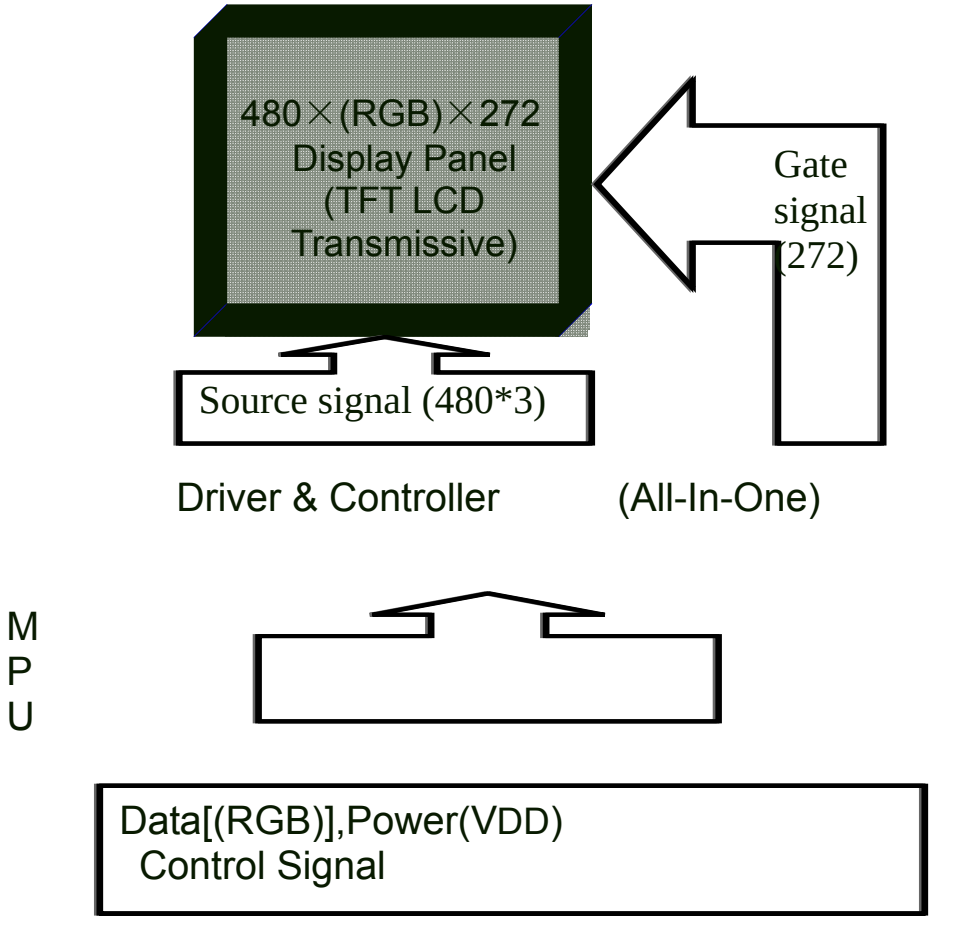
3. LCD product structure

(1) Absolute Maximum Ratings

The following are maximum values which, if exceeded may cause operation or damage to the unit.

ITEM	Symbol	Min.	Typ.	Max.	Unit	Remark
Power for Circuit Driving	VDD		3.2		V	
Power for Circuit Logic	VCI		3.2		V	
LC Operating Voltage *1)	Vop		3.3		V	
LED Forward Voltage	V_f	-	22.4	-	V	
LED Forward Current	Ir	-	20	-	mA	
LCD Luminance	B_P	-	280	-	cd/m^2	
Storage Humidity	H_{ST}	10	-	90	%RH	At 25±5℃
Storage Temperature	T_{ST}	-30	-	80	℃	
Operating Ambient Humidity	H_{OP}	10	-	90	%RH	
Operating Ambient temperature	T_{OP}	-20	-	70	℃	

(2) Block Diagram



(3) Scope of View

ITEM		SYMBOL	CONDITION	Min.	TYP.	Max.
Color Filter Chromacicity (Note.1)	White	x	θ = ϕ = 0°	0.287	0.307	0.327
		y		0.321	0.341	0.361
		Y		29.0	32.0	35.0
	Red	x	θ = ϕ = 0°	0.633	0.653	0.673
		y		0.312	0.332	0.352
		Y		15.55	18.55	21.55
	Green	x	θ = ϕ = 0°	0.294	0.314	0.334
		y		0.555	0.575	0.595
		Y		58.71	61.71	64.71
	Blue	x	θ = ϕ = 0°	0.117	0.137	0.157
		y		0.113	0.133	0.153
		Y		13.79	15.79	18.79
Transmittance(%) (Note.3)		T	θ = ϕ = 0°	--	5	--

Note.1 These items are measured by C light.
Note.2 Definition of Viewing Angle(θ,ψ),refer to Fig.1 as below：

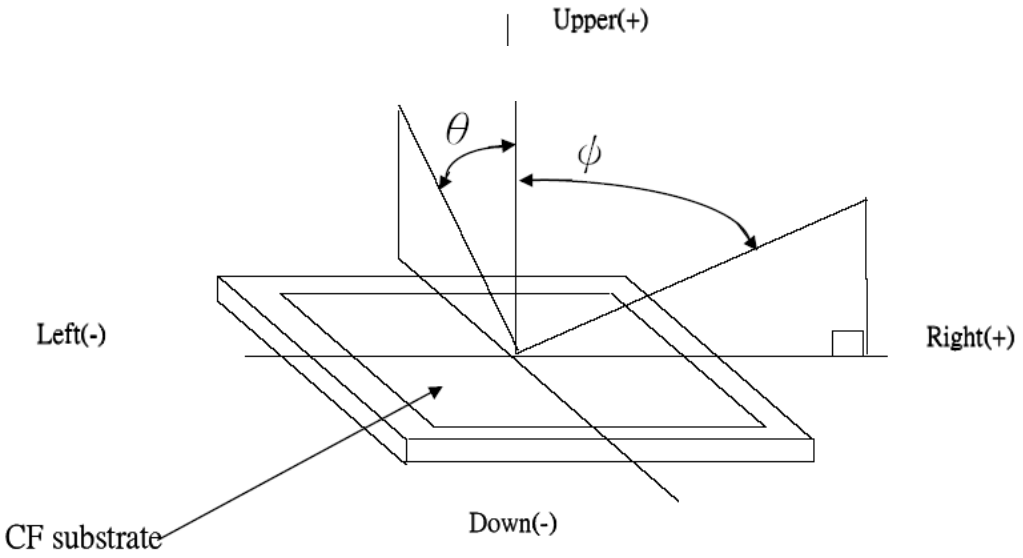


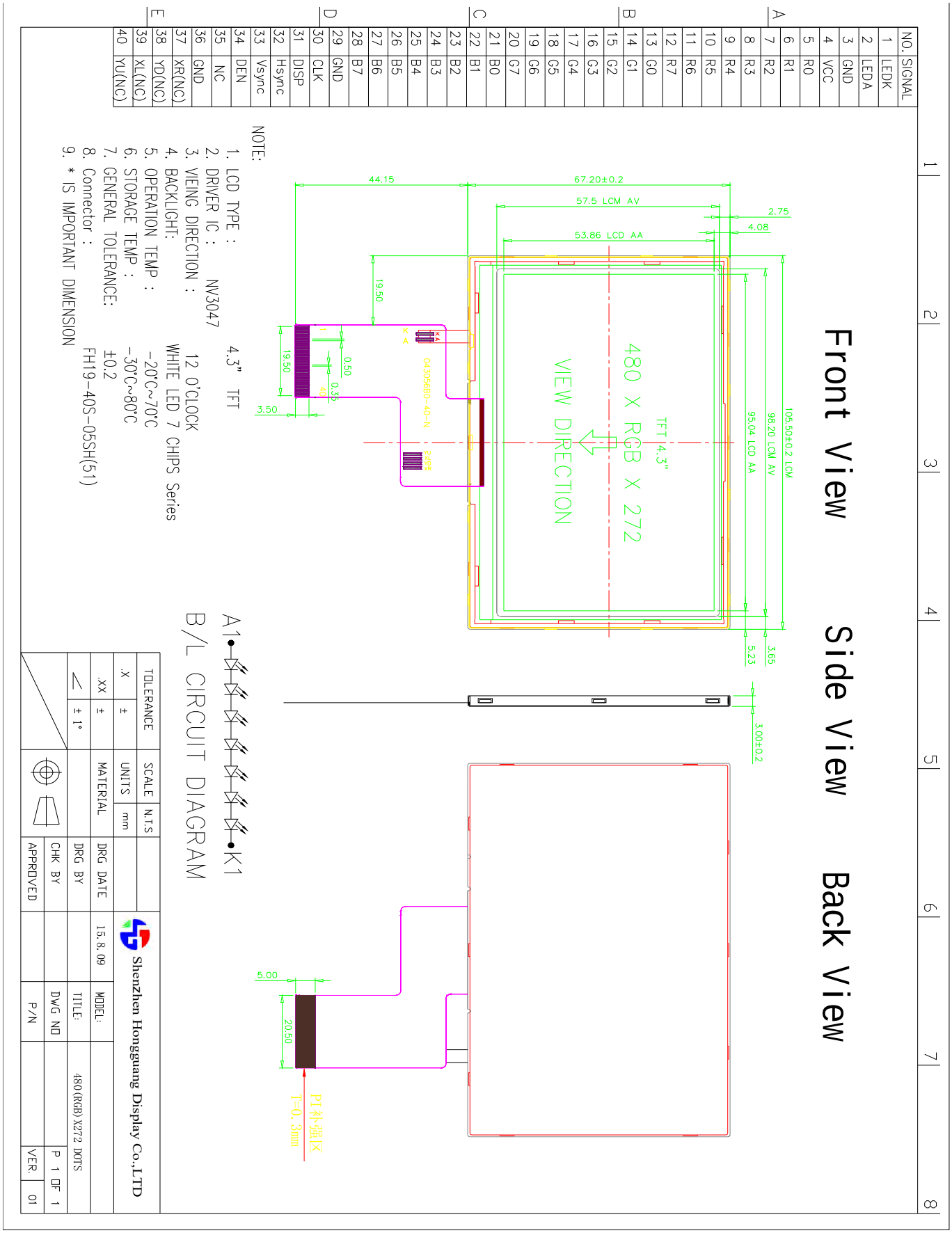
Fig.1 Definition of Viewing Angle

Note.3 Using LC+ EWV Polarizer+Corresponding Backlight, reference only, Measure device：BM-5A (TOPCON)，viewing cone= 1 °，I_L=20mA。

(4) Pin Description

Pin NO.	Symbol	Description
1	LEDK	LED BACKLIGHT(CATHODE
2	LEDA	LED BACKLIGHT(ANODE
3	GND	GROUND
4	VCC	POWER SUPPLY
5	R0	RED DATA
6	R1	RED DATA
7	R2	RED DATA
8	R3	RED DATA
9	R4	RED DATA
10	R5	RED DATA
11	R6	RED DATA
12	R7	RED DATA
13	G0	GREEN DATA
14	G1	GREEN DATA
15	G2	GREEN DATA
16	G3	GREEN DATA
17	G4	GREEN DATA
18	G5	GREEN DATA
19	G6	GREEN DATA
20	G7	GREEN DATA
21	B0	BLUE DATA
22	B1	BLUE DATA
23	B2	BLUE DATA
24	B3	BLUE DATA
25	B4	BLUE DATA
26	B5	BLUE DATA
27	B6	BLUE DATA
28	B7	BLUE DATA
29	GND	GROUND
30	CLK	CLOCK SIGNAL
31	DISP	DISPLAY ON/OFF
32	HSYNC	HORIZONTAL SYNC INPUT IN RGB MODE
33	VSYNC	VERTICAL SYNC INPUT IN RGB MODE
34	DEN	DATA ENABLE
35	NC	NC
36	GND	GROUND
37	XR(NC)	TOUCH PLANE PIN/NC
38	YD(NC)	TOUCH PLANE PIN/NC
39	XL(NC)	TOUCH PLANE PIN/NC
40	YU(NC)	TOUCH PLANE PIN/NC

(5) LCD product structure



(6) Reliability and Inspection Standard

No.	Test Item		Test Conditions	Remark
1	High Temperature	Storage	70℃, 120Hr	Note
		Operation	60℃, 120Hr	Note
2	Low Temperature	Storage	-30℃, 120Hr	Note
		Operation	-20℃, 120Hr	
3	High Temperature and High Humidity		60℃, 90%RH, 120Hr	Note
4	Temperature Cycle	Storage	-10℃(1Hr)→25℃(5min)→60℃(1Hr) 32 Cycles	Note
		Operation	-20℃(1Hr)→25℃(5min)→60℃(1Hr) 25 Cycles	
5	Peeling Off (Storage)		≧500gf/cm	Note
6	FPC Bending Test		≧6,000 times, 2/sec	Note
7	Vibration Test(Storage)		50HZ, 30min, Amplitude: 2 cm, X/Y/Z directions	Note
8	Drop Test		60cm/ 3Corner/ 8Face, 1Cycle	Note
9	Electrostatic Discharge		+/-200V,200pf(0ohm) 1 time/each terminal	

3.Product Drive Board

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(1) Interface definition

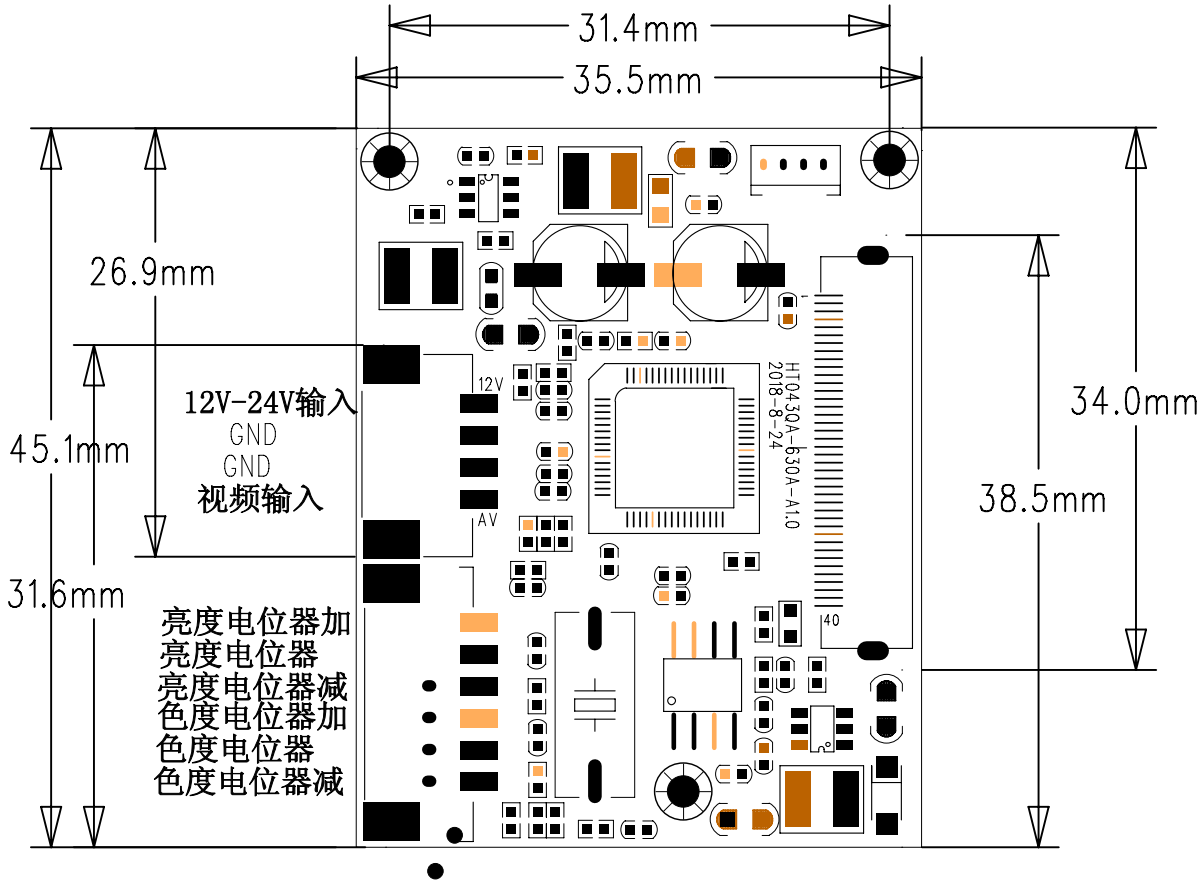
CN1 interface definition: 4-wire lead-out socket (PH specification, 2.0mm pitch), used to connect power and video.

引脚	符号	定　　义
1	VCC	9V~18V 电源输入
2	GND	电源地线
3	GND	视频地线
4	CVBS	PAL/NTSC 视频输入

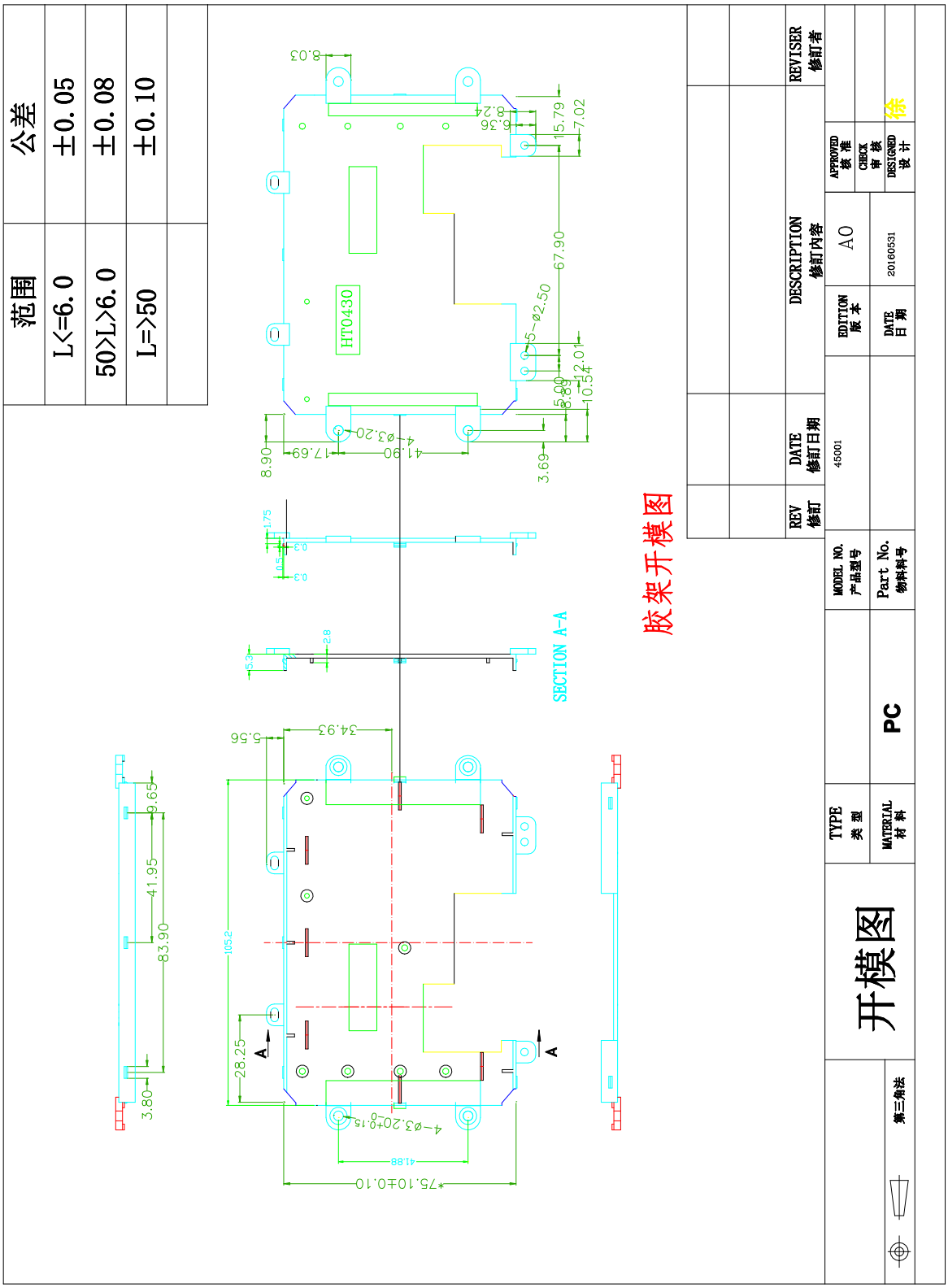
CN2 interface definition: 6-wire socket (PH specification, 2.0mm spacing) , used to connect the potentiometer.

引脚	定　　义	外接电位器阻值
1	亮度电位器加	10—50K
2	亮度电位器	
3	亮度电位器减	
4	色度电位器加	10—50K
5	色度电位器	
6	色度电位器减	

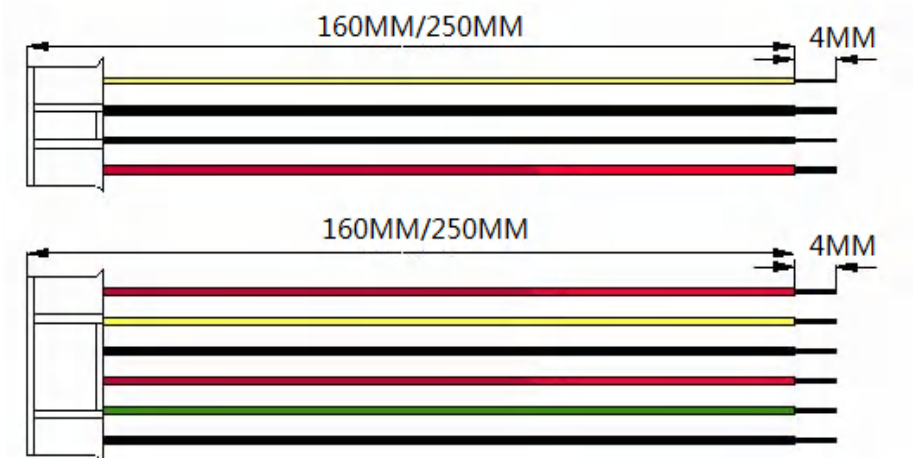
(2) Circuit Board Structural Diagram



4. Product rubber frame



5.Standard terminal line



6. Appearance chart