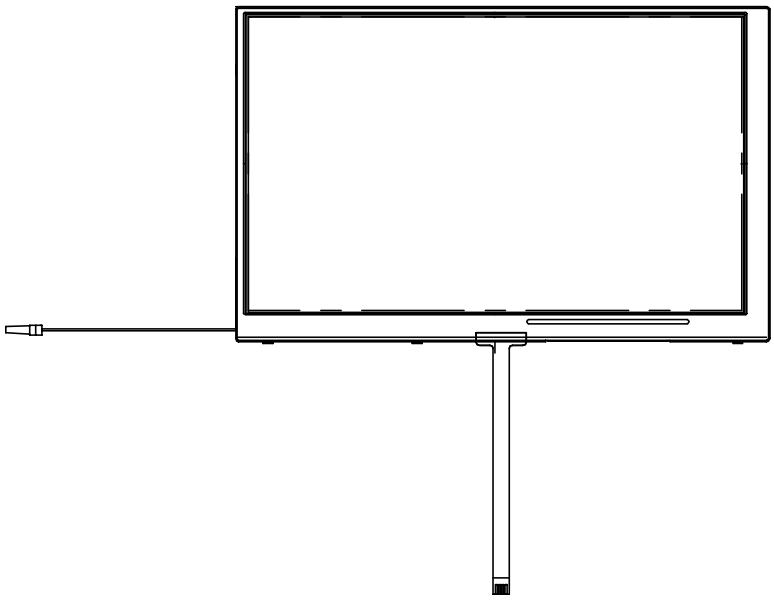
HANTRONIX

PRODUCT SPECIFICATION

HDA700LT-2S

7”, TFT WVGA (800X480) COLOR LCD DISPLAY MODULE



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1. SUMMARY

This technical specification applies to 7" TFT-LCD module with a LED Backlight unit and 40-pin TTL interface. This module supports 800*R.G.B x 480 WVGA mode and can displ 262,144 colors.

2. FEATURES

- Thin and Light Weight.
- WVGA(800x480 pixels) resolution.
- 3.3 V TTL interface

3. GENERAL SPECIFICATIONS

Parameter		Specifications	Unit
Screen size		7"(Diagonal)	inch
Display Format		800 RGB x 480	dot
Active area		152.4x91.44	mm
Pixel size		190.5 x 190.5	um
Surface treatment		Anti-glare	
Color Saturation (NTSC)		45	%
Pixel Configuration		RGB Vertical Stripe	
Outline dimension		165(W) x 104.44(H) x 6.6 (D)	mm
Weight		TBD	g
View Angle direction (Gray inversion)		6 o'clock	
Temperature Range	Operation	-20~70	℃
	Storage	-30~80	℃

4. ABSOLUTE MAXIMUM RATINGS (GND=0V)

Item	Symbol	Condition	Min.	Max.	Unit	Remark
Power Voltage	Vcc	GND=0	-0.3	6	V	-
Input logic voltage	Vi	GND=0	-0.3	Vcc+0.3	V	Note1

Note 1: DCLK, DE, R0~ R5, G0~ G5, B0~ B5

5. ELECTRICAL CHARACTERISTICS

5.1 Recommended Operation condition (GND=0,Ta=25)

Parameter		Symbol	Rating			Unit	Condition
			Min.	Typ.	Max.		
Power Supply Voltage		Vcc	3	3.3	3.6	V	
Input logic	High Level	VIH	0.7Vcc	-	Vcc	V	Note 1
voltage	Low Level	VIL	0	-	0.3Vcc	V	Note 1

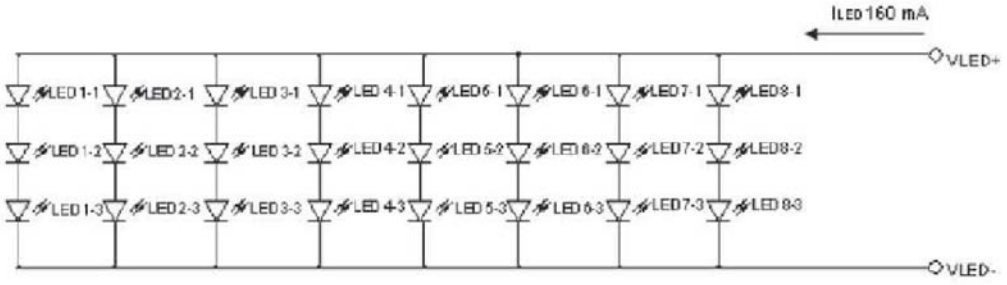
Note 1: DCLK, DE, R0~ R5, G0~ G5, B0~ B5.

5.2 LED Driving Conditions

Ta = 25

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED current	I_{LED}	-	160	-	mA	Note 1
LED voltage	V_{LED}	-	9.9	-	V	
LED Life Time	-	10,000	20,000	-	Hr	Note 2

Note 1:There are 8Groups LED shown as below,Vled=9.9V, Iled=160mA



Note 2 : Brightess to be decreased to 50% of the initial value.

5.3 TFT-LCD current consumption

Parameter	Symbol	Rating			Unit	Condition
		Min.	Typ.	Max		
LCD power current	Icc	--	200	260	mA	black pattern
LED power current	I_{LED}	--	160	200	mA	

6. AC CHARATERISTICS

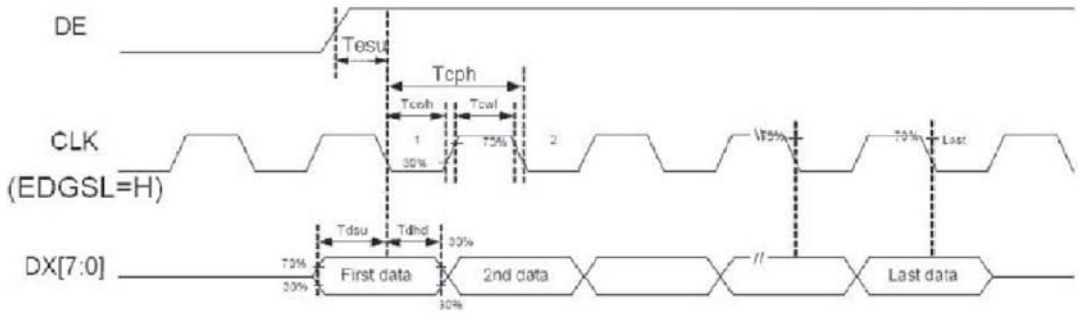
6.1 AC Electrical CHARATERISTICS

Parameter	Symbol	Rating			Unit
		Min.	Typ.	Max	
Data setup time	Tdsu	6	-	-	ns
Data hold time	Tdhd	6	-	-	ns
DE setup time	Tesu	6	-	-	ns
CLK frequency	F_{CPH}	29.40	33.26	42.48	MHz
CLK period	T_{CPH}	23.54	30.06	34.01	ns
CLK pulse duty	T_{CWH}	40	50	60	%
CLK pulse duty	T_{CWL}	40	50	60	%
DE period	$T_{DEH}+T_{DEL}$	1000	1056	1200	T_{CPH}
DE pulse width	T_{DEH}	-	800	-	T_{CPH}
DE frame blanking	T_{DEB}	10	45	110	$T_{DEH}+T_{DEL}$
DE frame width	T_{DE}	-	480	-	$T_{DEH}+T_{DEL}$

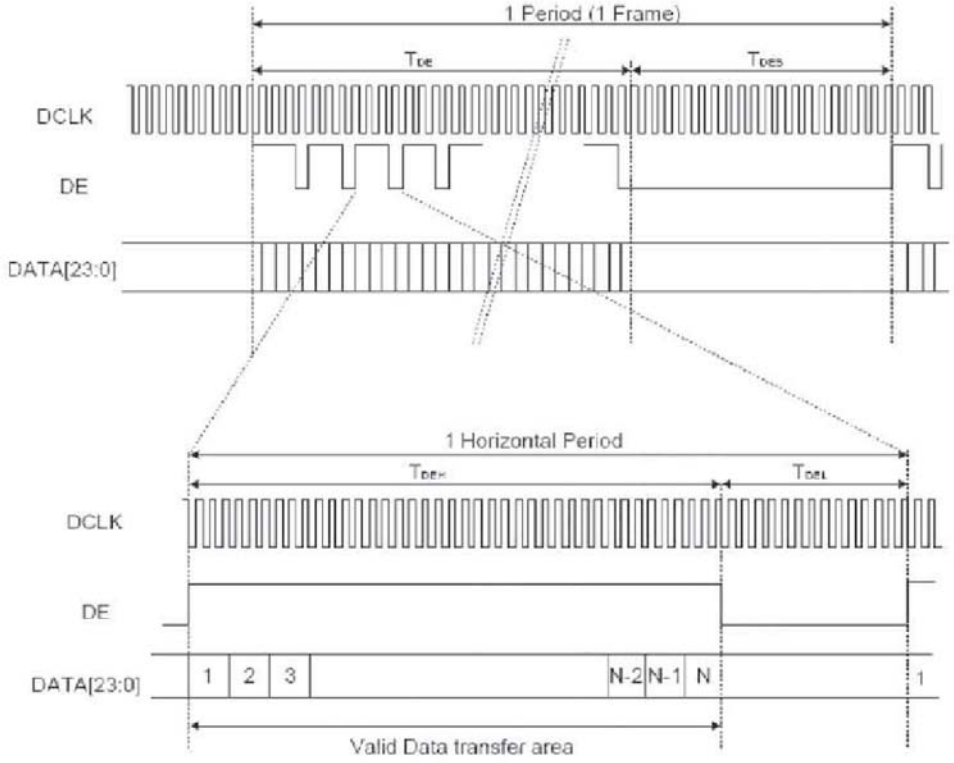
Note We suggest using the typical value, so it can have better performance.

6.2 Timing Controller Timing Chart

Clock and Data input waveforms



6.3 Data input format



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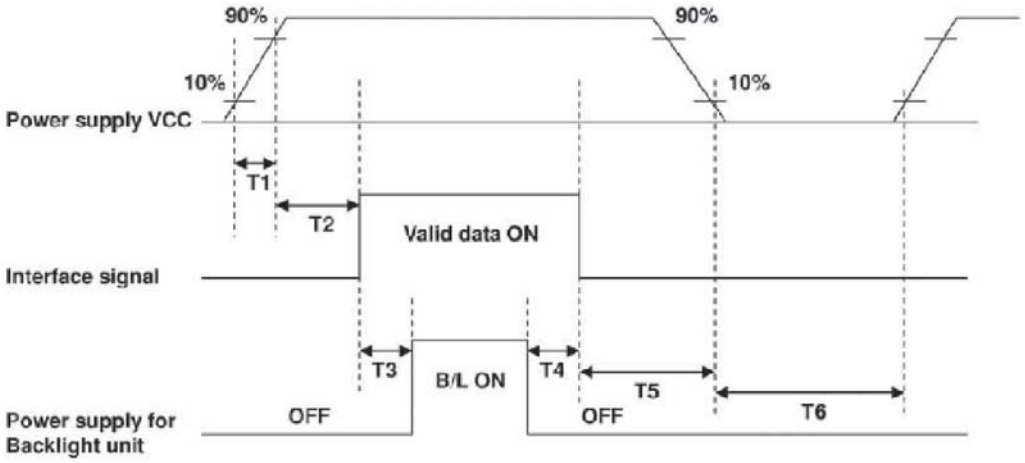
6.4 Power ON/OFF sequence



Parameter	SPEC.			Unit
	Min.	Typ.	Max.	
T1	1		2	ms
T2	0	60		ms
T3	200			ms
T4	200			ms
T5	1			ms
T6	1000			ms

7. OPTICAL CHARATERISTIC

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Brightness		-	Viewing normal angle θ=φ=0	-	280	-	cd/m2	Center of displaye
Response time		Tr		-	5	10	ms	Note 3, 5
		Tf		-	11	16	ms	
Contrast ratio		CR		250	400	-	-	Note 4,5
Color Chromaticity	White	Wx		0.249	0.299	0.349	-	Note 2, 6, 7
		Wy		0.278	0.328	0.378		
Viewing angle	Hor	θR	CR≧10	60	70	-	Deg.	Note 1
		θL		60	70	-		
	Ver	φl		50	60	-		
		φB		60	70	-		

Note 1: Definition of viewing angle range

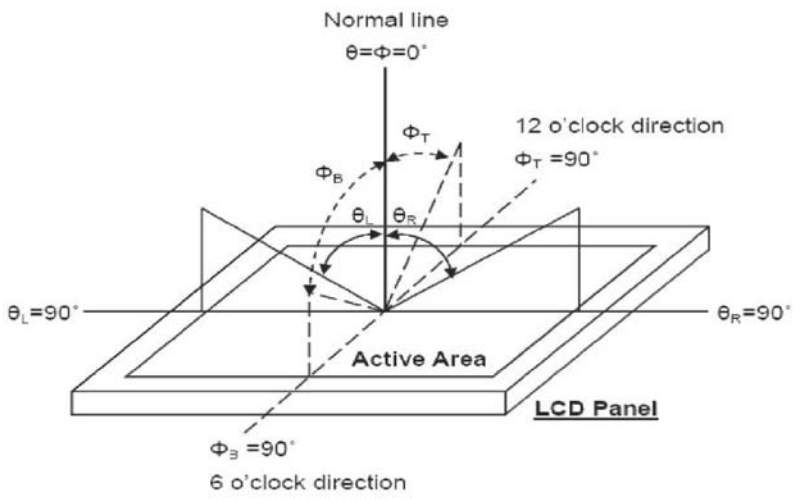


Fig. 7-1 Definition of viewing angle

Note 2: Test equipment setup:

After stabilizing and leaving the panel alone at a driven temperature for 10 minutes,the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

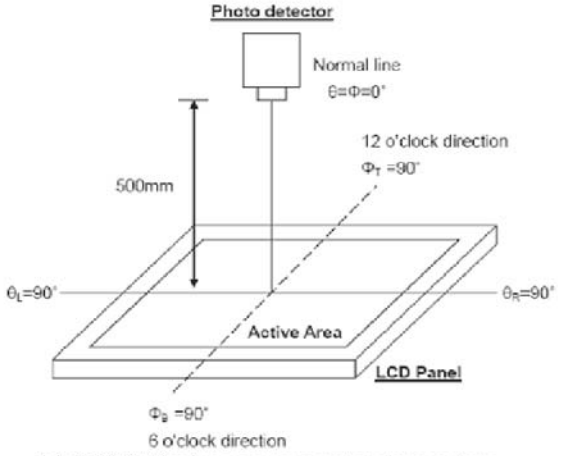


Fig.7-2 Optical measurement system setup

Note 3: Definition of Response time:

The response time is defined as the LCD optical switching time interval between "White state and "Black" state. Rise time, Tr, is the time between photo detector output intensity changed from 90% to 10%. And fall time, Tf, is the

time between photo detector output Intensity changed from 10% to 90%

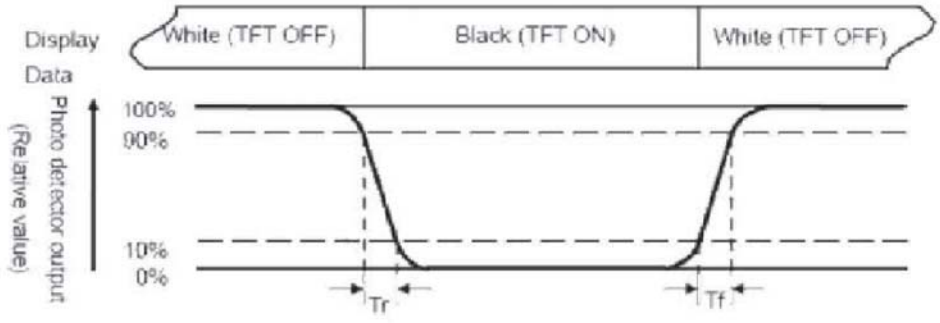


Fig. 7-3 Definition of response time

Note 4: Definition of contrast ratio:
The contrast ratio is defined as the following expression.

Contrast ratio (CR)=

$$\frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: White Vi = V_{i50} ± 1.5V
Black Vi = V_{i50} ± 2.0V
"±" means that the analog input signal swings in phase with VCOM signal.
"±" means that the analog input signal swings out of phase with VCOM signal.
The 100% transmission is defined as the transmission of LCD panel when all the input terminals of module are electrically opened.

Note 6: Definition of color chromaticity (CIE 1931)
Color coordinates measured at the center point of LCD

Note 7: Measured at the center area of the panel when all the input terminals of LCD panel are electrically opened.

Note 8 : Uniformity (U) = $\frac{\text{Brightness (min)}}{\text{Brightness (max)}} \times 100\%$ Brightness (max)

8. INTERFACE

8.1 LCM PIN Definition

Pin No.	Symbol	Description	Remark
1	GND	Power Ground	
2	GND	Power Ground	
3	NC	Not Connect	
4	Vcc	Power Supply for Digital Circuit	
5	Vcc	Power Supply for Digital Circuit	
6	Vcc	Power Supply for Digital Circuit	
7	Vcc	Power Supply for Digital Circuit	
8	NC	Not Connect	
9	DE	Data Enable	
10	GND	Power Ground	
11	GND	Power Ground	
12	GND	Power Ground	
13	B5	Blue Data 5 (MSB)	
14	B4	Blue Data 4	
15	B3	Blue Data 3	
16	GND	Power Ground	
17	B2	Blue Data 2	
18	B1	Blue Data 1	
19	B0	Blue Data 0 (LSB)	
20	GND	Power Ground	
21	G5	Green Data 5 (MSB)	
22	G4	Green Data 4	
23	G3	Green Data 3	
24	GND	Power Ground	
25	G2	Green Data 2	
26	G1	Green Data 1	
27	G0	Green Data 0 (LSB)	
28	GND	Power Ground	
29	R5	Red Data 5 (MSB)	
30	R4	Red Data 4	
31	R3	Red Data 3	
32	GND	Power Ground	
33	R2	Red Data 2	
34	R1	Red Data 1	
35	R0	Red Data 0 (LSB)	
36	GND	Power Ground	
37	GND	Power Ground	
38	DCLK	Clock Signals ; Latch Data at the Falling Edge	
39	GND	Power Ground	
40	GND	Power Ground	

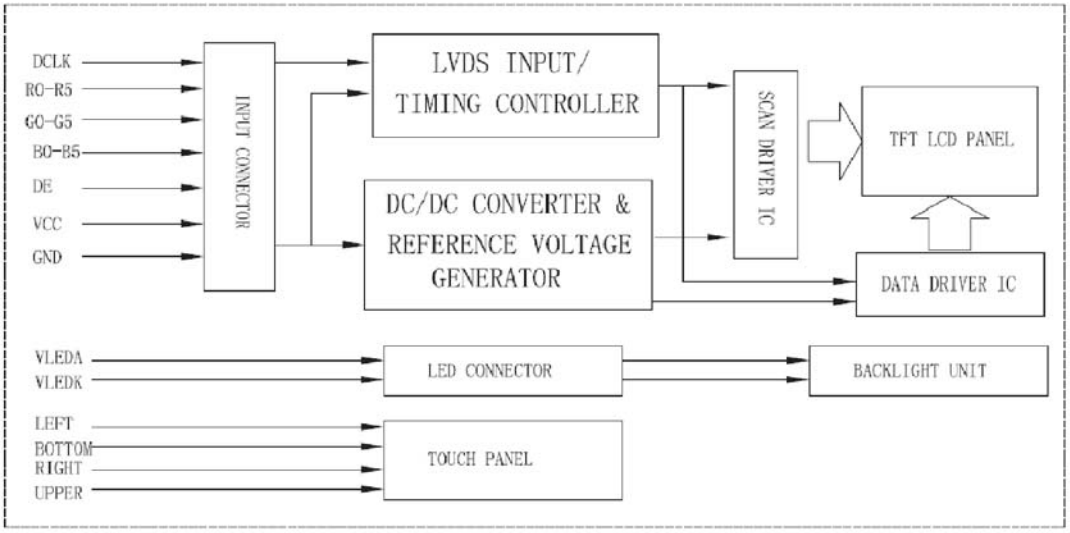
T/P

Pin No.	Symbol	Description	Remark
1	LEFT	The pin of the touch panel	
2	BOTTOM	The pin of the touch panel	
3	RIGHT	The pin of the touch panel	
4	UPPER	The pin of the touch panel	

8.2 Backlight Driving Part

Pin No.	Symbol	Description
1	VLEDA	Red, LED_ Anode
2	VLEDK	White, LED_ Cathode

9. BLOCK DIAGRAM

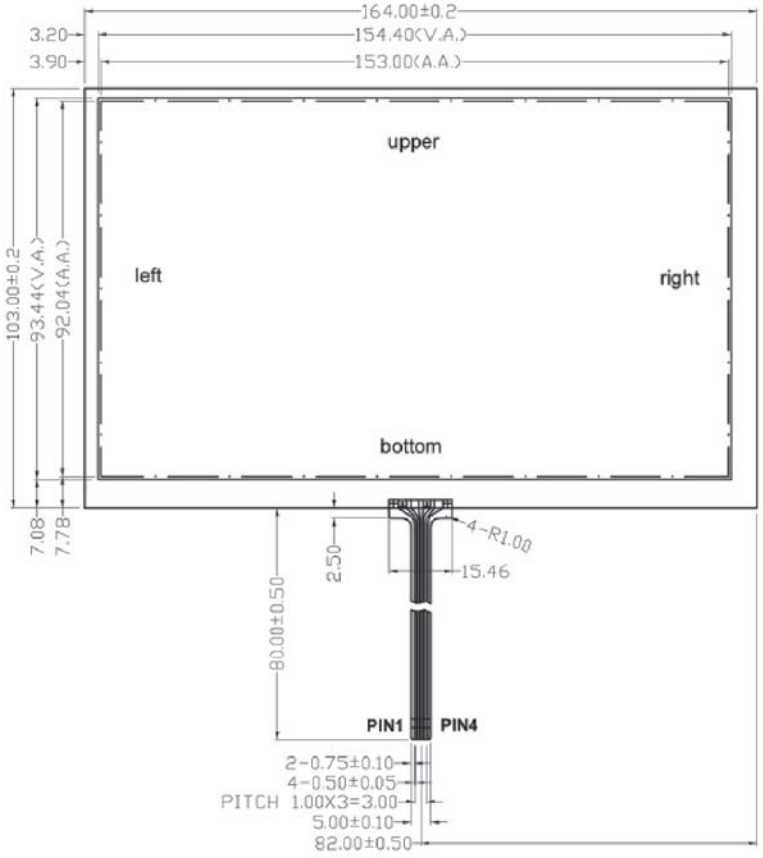


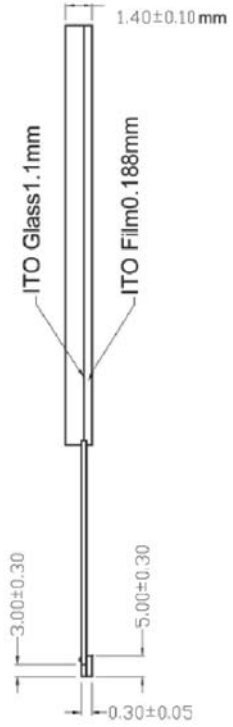
10. QUALITY ASSURANCE

No.	Test Items	Test Condition
1	High Temperature Storage Test	Ta=80℃ Dry 240h
2	LOW Temperature Storage Test	Ta=-30℃ Dry 240h
3	High Temperature Operation Test	Ta=70℃ Dry 240h
4	LOW Temperature Operation Test	Ta=-20℃ Dry 240h
5	High Temperature and High Humidity Operation Test	Ta=60℃ 90%RH 240h
6	Electro Static Discharge Test	150pF,330Ω,±8KV(Contact)/± 15KV(Air),5points/panel, 5 times/point
7	Shock Test(non-operating)	Half sine wave,180G,2ms one shock of each six faces I.e.run 180G 2ms for all six faces
8	Vibration Test(non-operating)	Sine wave,10~500~10Hz 1.5G,0.37oct/min 3axis,1hour/axis
9	Thermat Shock Test	-20℃(0.5h)~70℃(0.5h)/100 cycles(Dry)

****Ta=Ambient Temperature

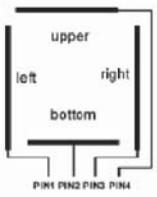
12. TOUCH PANEL RAWING

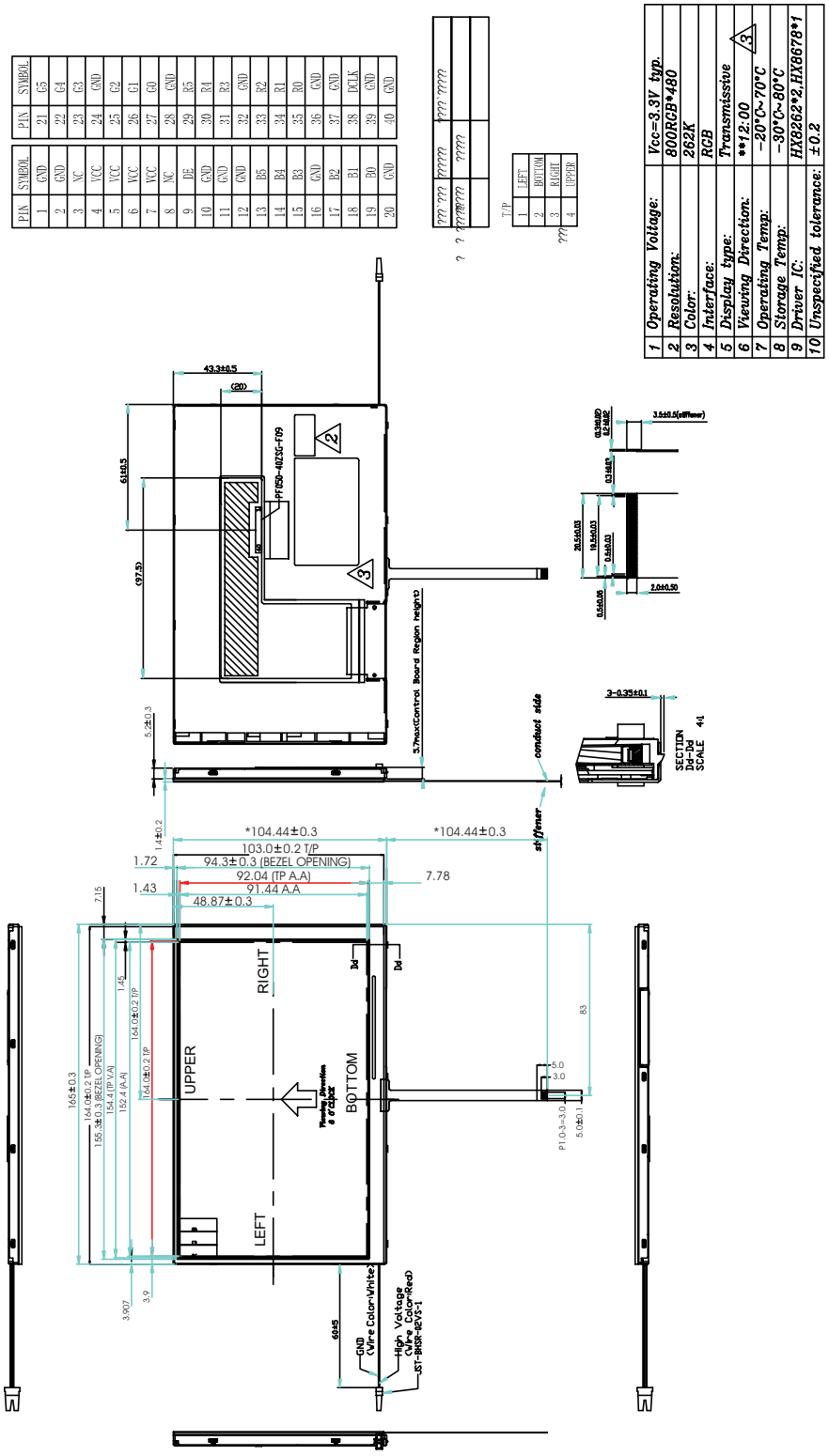




NOTE:

1. Driving condition: DC5V;
2. Operation force: 60~100g;
3. Linearity ≤±1.5%; Insulation resistance＞10MΩ, 25V(DC);
4. Operating environment: -20℃~+70℃, ≤80%RH;
5. Storage environment: -30℃~+80℃, ＜80%RH;
6. Light transparency: ＞75%;
7. Structure type: ITO Film/ITO Glass(F/G);
8. Connector type: FPC connect;
9. ITO Film type: Anti-glare hard coating and anti-newton ring ;
10. Tapping durability: 1,000,000 times;
11. Bound time: ＜10ms;
12. Compliant ROHS.





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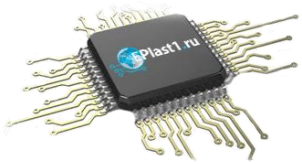
- Защита от снятия компонента с производства.



Как с нами связаться

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