



Description	4.3" TFT LCD Module
Model Name	TY430TFT480272
Product Revision	04
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Doc. Number	TY430TFT480272 Rev02
Doc. Revision	02

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1. Summary

TY430TFT480272 is a transmissive type TFT (Thin Film Transistor) active matrix color liquid crystal display (LCD) comprising an amorphous silicon TFT attached to each signal electrode. This model consists of a TFT-LCD module, driver circuit, backlight unit, and a resistive Touch Panel on a 40-pin FPC interface. This model supports 480*RGB*272 WQVGA mode and displays up to 16 million colors.

2. Features

- a. High resolution: 391,680 dots (480 RGB x 272)
- b. 24-bit RGB interface
- c. The power supply for LED backlight, touch panel signal, and data bus integrated on a single 40-pin-FPC
- d. LCD Driver IC : HX8257

3. General Specifications

Parameter	Specifications	Unit	
Screen Size	4.3" (Diagonal)	inch	
Display format	480* RGB * 272	dot	
Active area	95.04(W) x 53.86(H)	mm	
Pixel size	198(W) x 198(H)	μm	
Outline dimension	105.6(W) x 67.3(H) x 4.0(T)	mm	
Touch Panel outline	104.73(W) x 64.84(H) x 1.1 Max (T)	mm	
Touch Panel Active area	95.04(W) x 53.86(H)	mm	
View angle direction	6 O'Clock		
Temperature	Operation	-20 - +70	°C
	Storage	-30 - +80	°C

4. Absolute Maximum Ratings (GND = 0V)

Item	Symbol	Min	Max	Unit
Power Voltage	V _{CC}	1.8	3.6	V
Input High Voltage	V _{IH}	0.8* V _{CC}	V _{CC}	V
Input Low Voltage	V _{IL}	0	0.2* V _{CC}	V

Note: Device subject to permanent damage if stresses applied beyond those absolute maximum ratings above.

5. Electrical Characteristics

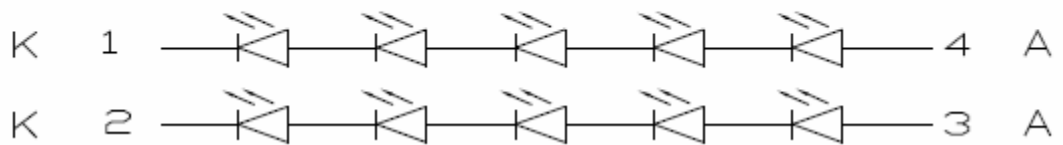
5.1 Recommended Operation Conditions (GND = 0V, Ta = 25°C)

Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power supply voltage	V _{cc}	1.8	3.0	3.6	V	
Operating Current	I _{Vcc}	-	13	15	mA	
Frame Frequency	fFrame	-	60	-	Hz	
Dot Data Clock	DCLK	-	9.0	15	MHz	

5.2 LED Driving Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Forward voltage	V _f	15	16	17	V	I _f = 40mA
Uniformity	Δ B _p	80	-	-	%	I _f = 40mA
Luminance	L _v	5200	-	-	Cd/m ²	I _f = 40mA

LED CIRCUIT



6. AC Characteristics

6.1 AC Timing Characteristics

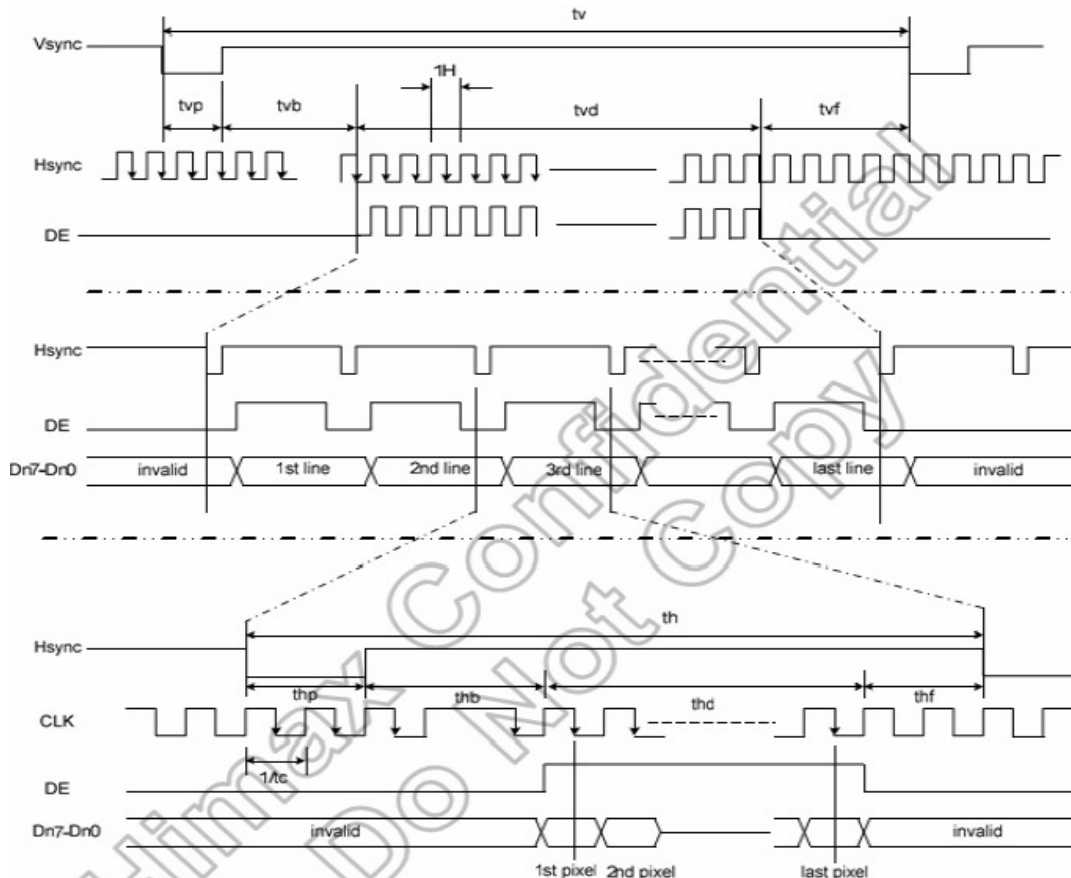
(480RGBx272, T=25°C, VDDIO= 1.8V to 3.6V, VSS=0V)

Signal	Item	Symbol	Values			Unit	Note
			Min.	Typ.	Max.		
Dclk	Frequency	DCLK	-	9.0	15	MHz	
Hsync	Period	1/th	-	17.14	-	kHz	
	Pulse Width	thp	2	41	41	DCLK	
	Back-Porch	thb	2	2	41	DCLK	
	Display Period	thd	-	480	-	DCLK	1
	Front-Porch	thf	2	2	82	DCLK	2
Vsync	Vsync cycle	1/tv	-	60	-	Hz	
	Period	tv	285	286	511	H	
	Pulse Width	tvp	1	10	11	H	3
	Back-Porch	tvb	1	2	11	H	
	Display Period	tvd	-	272	-	H	
	Front-Porch	tvf	1	2	227	H	

Note 1: thd=480 DCLK, thf=2 DCLK, thp=41 DCLK, thb=2 DCLK
525 DCLK=480+2+41+2 (DCLK)

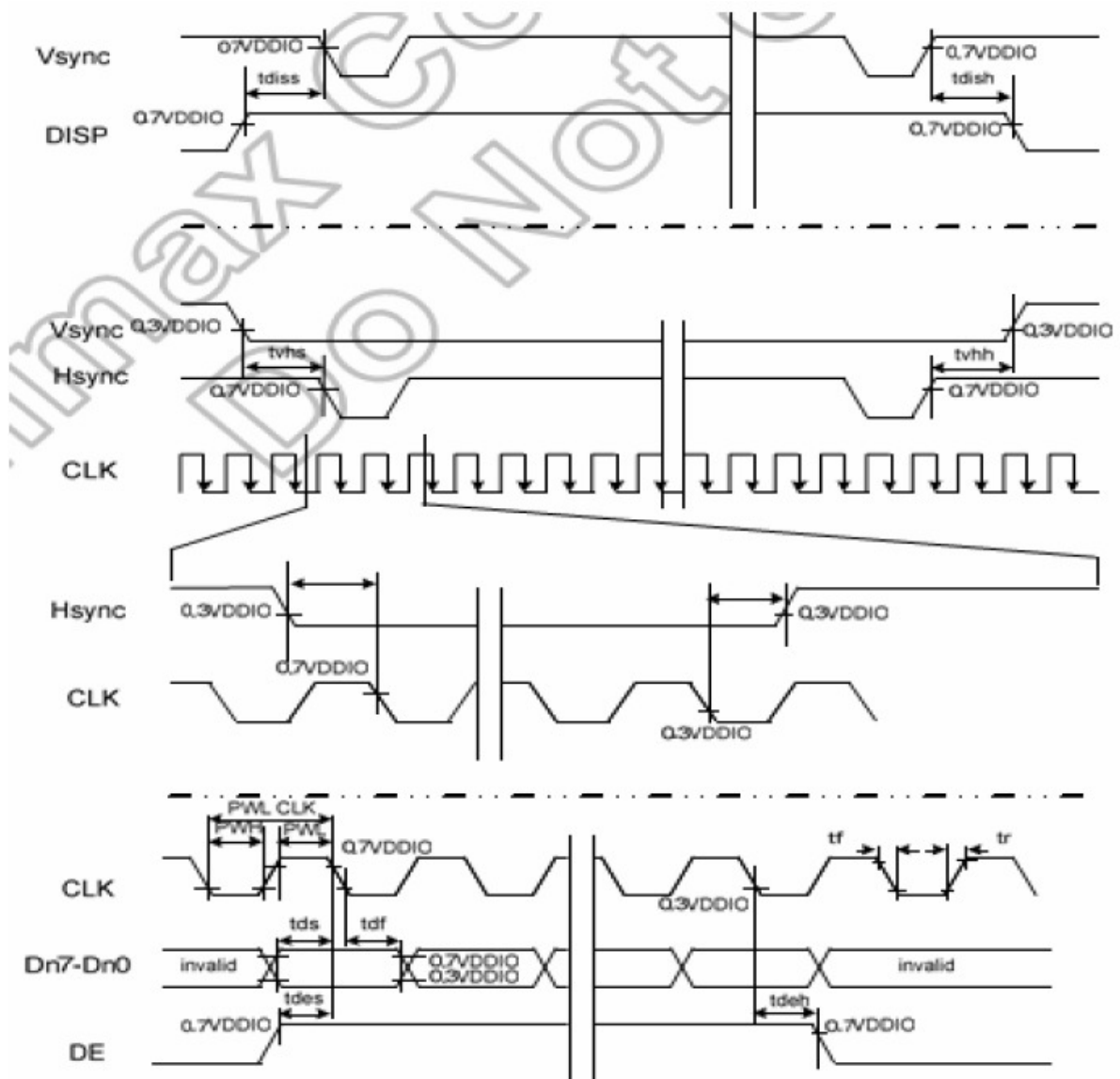
Note 2: It is necessary to keep thp + thb = 43 in sync mode. It is unnecessary to keep it in DE mode

Note 3: It is necessary to keep tvp + tvb = 12 in sync mode.



6.2 AC Timing Diagrams

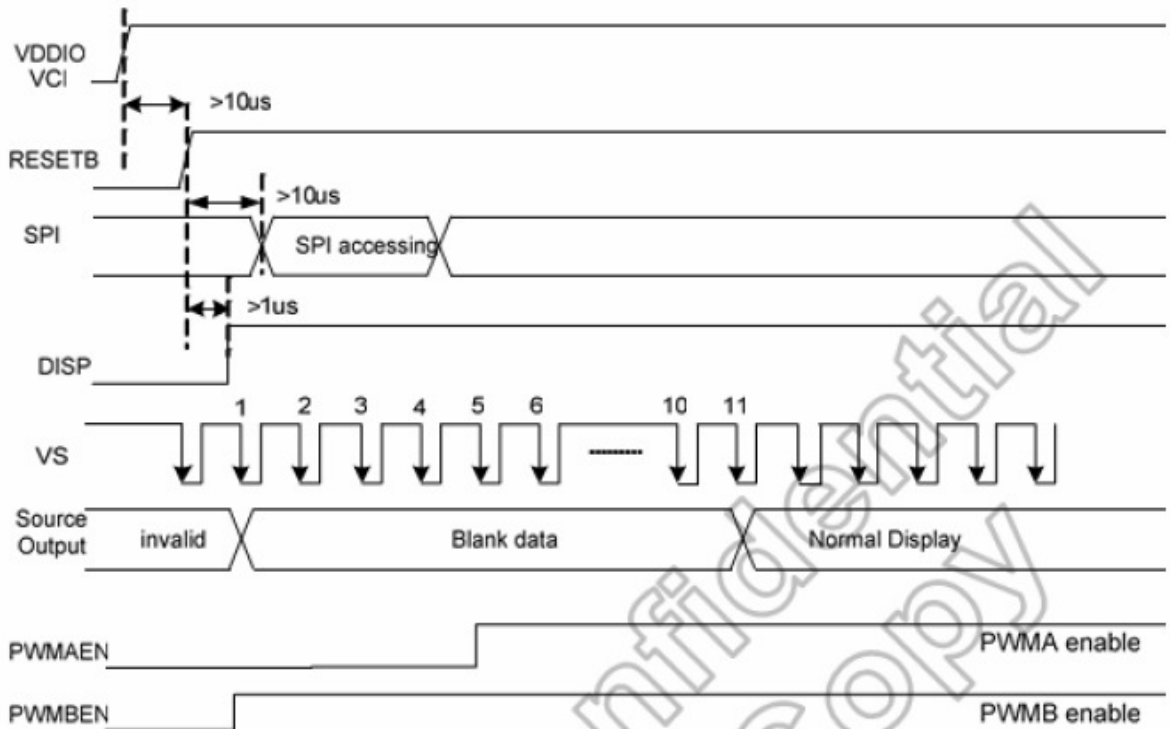
Parameter	Symbol	Min	Typ	Max	Unit
DISP Setup time	t_{diss}	10	-	-	ns
DISP hold time	t_{dish}	10	-	-	ns
Clock period	PW _{CLK}	66.7	-	-	ns
Clock pulse high period	PWH	26.7	-	-	ns
Clock pulse low period	PWL	26.7	-	-	ns
Hsync setup time	t_{hs}	10	-	-	ns
Hsync hold time	t_{hh}	10	-	-	ns
Data setup time	t_{ds}	10	-	-	ns
Data hold time	t_{dh}	10	-	-	ns
DE setup time	t_{des}	10	-	-	ns
DE hold time	t_{deh}	10	-	-	ns
Vsync setup time	t_{vhs}	10	-	-	ns
Vsync hold time	t_{vhh}	10	-	-	ns



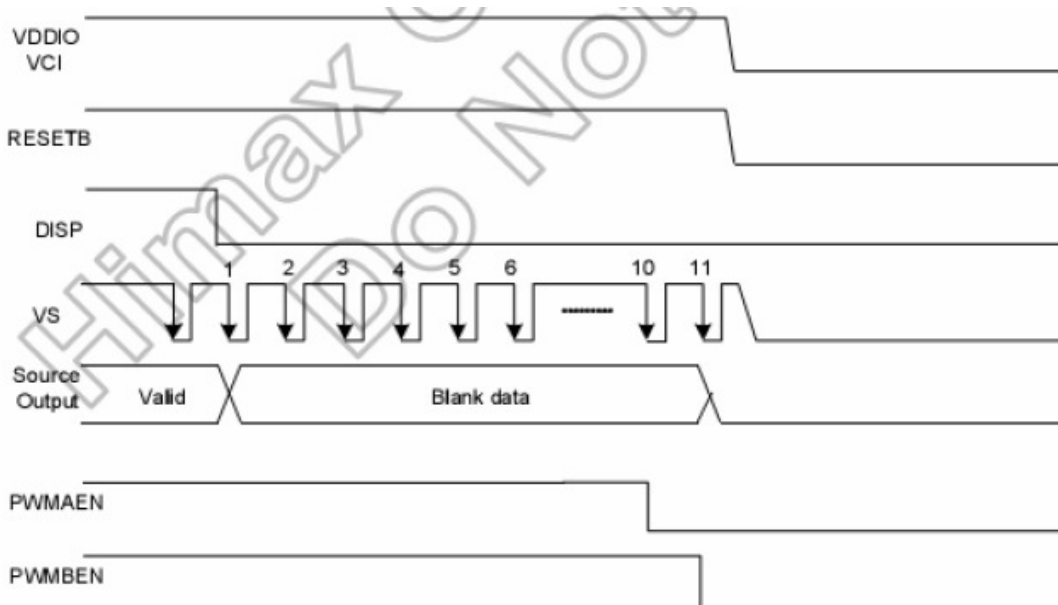
7. Power Sequence

The LCD panel power ON/OFF sequence specified below.

7.1 Power ON sequence

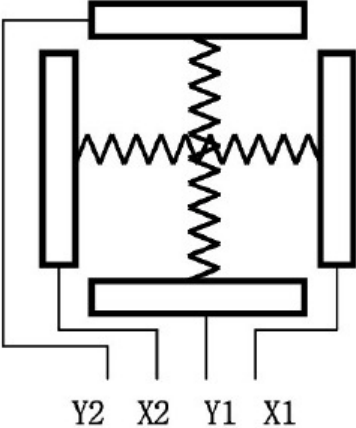


7.2 Power Off sequence



8. Touch Panel

8.1 Block Diagram



Top View

X: Upper electrode
Y: Lower electrode

PIN	Symbol	I/O	Function
37	X1	Right	Right electrode - differential analog
38	Y1	Bottom	Bottom electrode - differential analog
39	X2	Left	Left electrode - differential analog
40	Y2	Top	Top electrode - differential analog

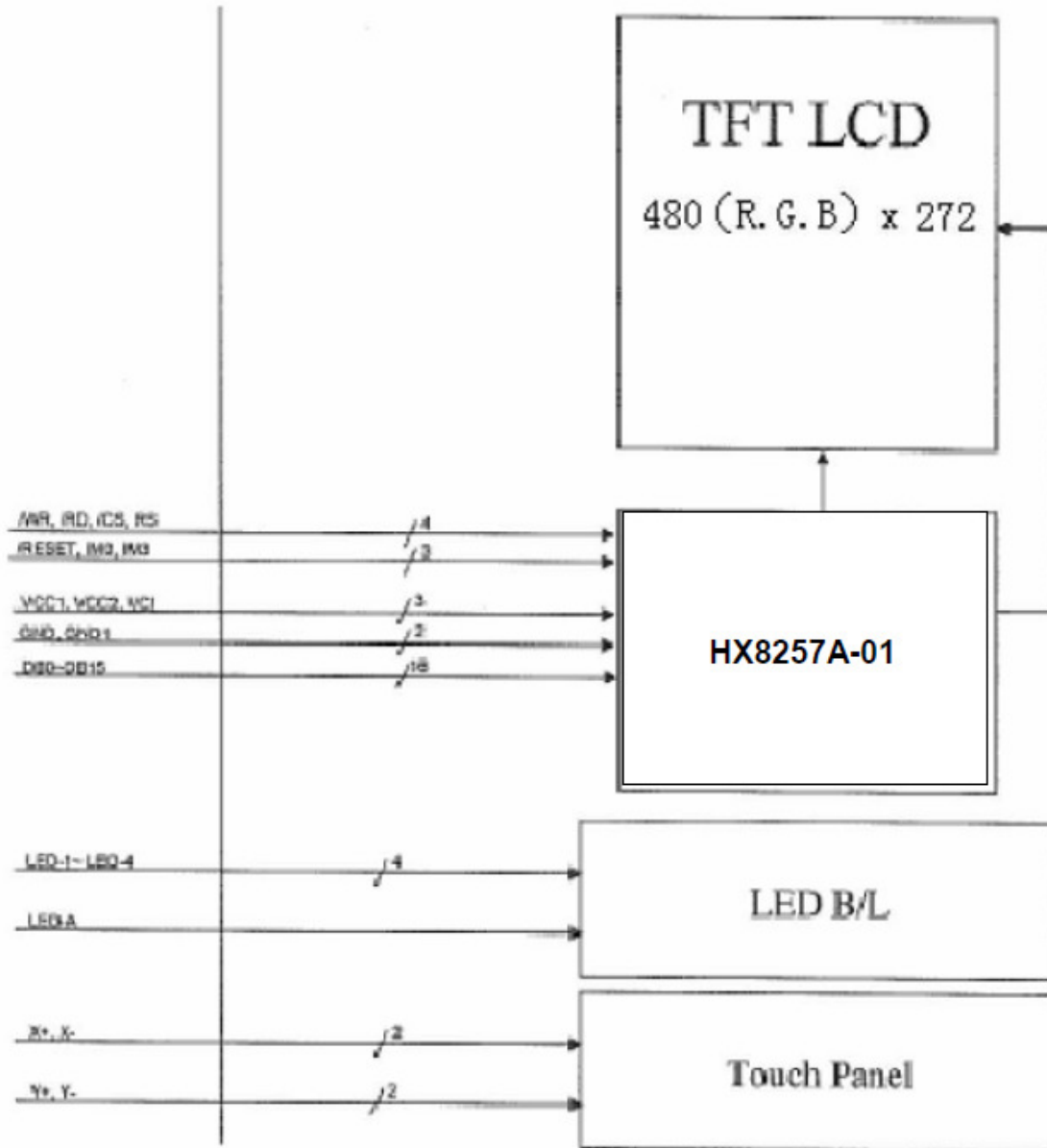
9. Interface

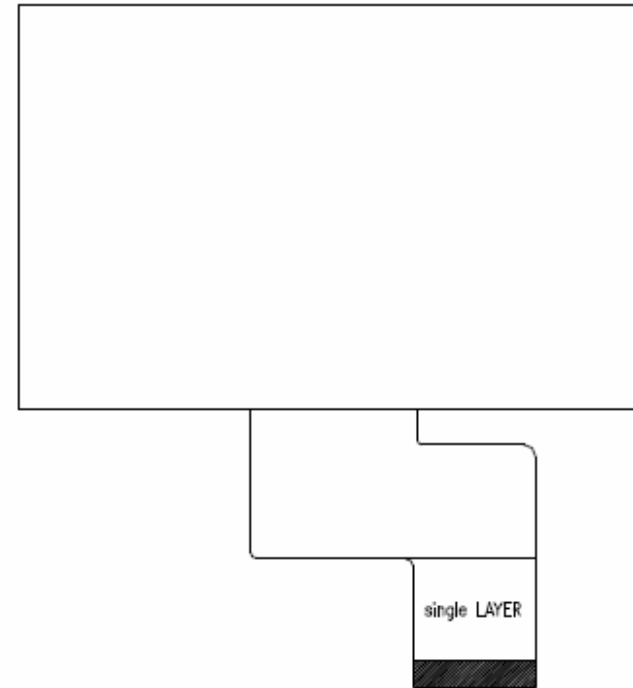
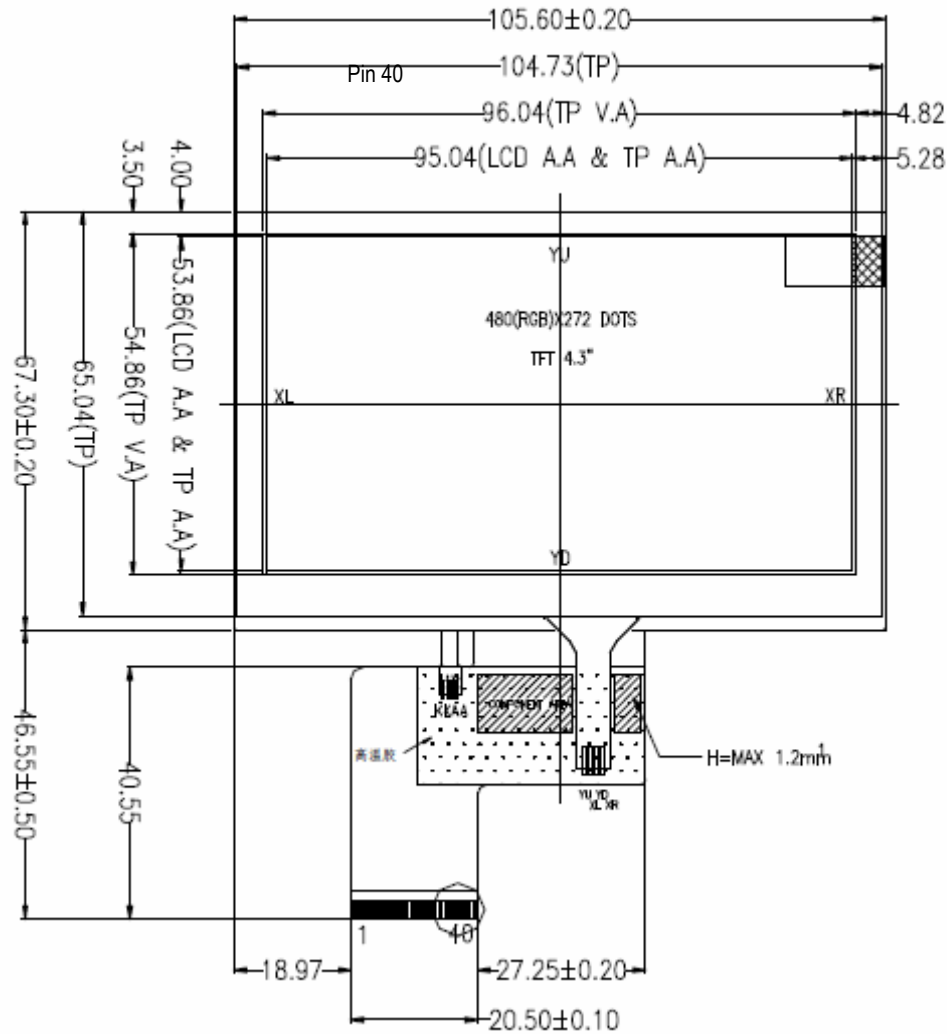
9.1 LCM PIN Definition

Pin No.	Symbol	Description	Remark
1	VLED-	LED backlight cathode	
2	VLED+	LED backlight anode	
3	DGND	Digital ground	
4	V _{cc}	Power Supply for Digital Circuit (+3.3V)	
5	R0	Red Data Bit 0	
6	R1	Red Data Bit 1	
7	R2	Red Data Bit 2	
8	R3	Red Data Bit 3	
9	R4	Red Data Bit 4	
10	R5	Red Data Bit 5	
11	R6	Red Data Bit 6	
12	R7	Red Data Bit 7	
13	G0	Green Data Bit 0	
14	G1	Green Data Bit 1	
15	G2	Green Data Bit 2	
16	G3	Green Data Bit 3	
17	G4	Green Data Bit 4	
18	G5	Green Data Bit 5	
19	G6	Green Data Bit 6	
20	G7	Green Data Bit 7	
21	B0	Blue Data Bit 0	
22	B1	Blue Data Bit 1	
23	B2	Blue Data Bit 2	
24	B3	Blue Data Bit 3	
25	B4	Blue Data Bit 4	
26	B5	Blue Data Bit 5	
27	B6	Blue Data Bit 6	
28	B7	Blue Data Bit 7	
29	DGND	Digital ground	
30	DCLK	Dot clock	
31	DISP	Display ON/OFF	Note 1
32	Hsync	Horizontal sync input	
33	VS _{ync}	Vertical sync input	
34	DE	Data enable control	Note 2
35	NC	No connect	
36	DGND	Digital ground	
37	X1	TP (Right)	
38	Y1	TP (Bottom)	
39	X2	TP (Left)	
40	Y2	TP (Up)	

Note 1: Display ON when DISP=H.

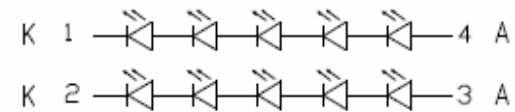
Note 2: Data can be accessed with when DE=H.





PIN DESCRIPTION

1	LEDK
2	LEDA
3	GND
4	VCC
5	R0
6	R1
7	R2
8	R3
9	R4
10	R5
11	R6
12	R7
13	G0
14	G1
15	G2
16	G3
17	G4
18	G5
19	G6
20	G7
21	B0
22	B1
23	B2
24	B3
25	B4
26	B5
27	B6
28	B7
29	GND
30	CLK
31	DISP
32	HSYNC
33	VSYNC
34	DEN
35	NC
36	GND
37	XR
38	YD
39	XL
40	YU



LED CIRCUIT