



LCD MODULE SPECIFICATION

Customer: _____

Model Name: LCM-TFT035C1HVS4LN8D-V01

Date: 2019-06-21

Version: 1.0

Approved by	Reviewed by	Prepared by

Approved by	Comment

Contents

1. General Specifications.....	1
2. Pin Assignments.....	2
3. Electrical Specifications.....	3
3.1. Absolute Maximum Rating.....	3
3.2. Typical Operation Conditions.....	3
3.3. Backlight Unit.....	5
4. Optical Specifications.....	5
5. Mechanical Drawing.....	6

1. General Specifications

No.	Item	Specification	Unit	Remark
1	LCD Size	3.5"	inch	-
2	Panel Type	a-si TFT	-	-
3	Resolution	320x(RGB)x480	pixel	-
4	Display Mode	Normally white, Transmissive	-	-
5	Display Number of Colors	262K	-	-
6	Viewing Direction	12 o'clock	-	Note 1
7	Contrast Ratio	300	-	-
8	Luminance	260	cd/m ²	
9	Module Size	54.46(W)x82.94(L)x2.05 (T)	mm	Note 1
12	Weight	TBD	g	-
13	Driver IC	ST7796S	-	-
14	Driver IC RAM Size	320x16x480	bit	-
15	Light Source	8 LEDs in Parallel	-	-
16	Interface	4-Line SPI/3-Line SPI	-	-
17	Operating Temperature	-20~70	°C	-
18	Storage Temperature	-30~80	°C	-

Note 1: Please refer to the mechanical drawing.

2. Pin Assignments

Pin No.	Pin Name	Function
1	VSS	Negative power supply,0V
2	VDD	Power supply
3	WRX(SCL)	This pin is used serial interface clock in 3-wire 9-bit / 4-wire 8-bit serial data interface.
4	SDA	serial data input/output bi-direction pin
5	RESET	This signal will reset the device and must be applied to properly initialize the chip.
6	D/C(RS)	4-line system (D/CX): Serves as command or parameter select. Data/Command Selection pin Low: Command High: Parameter
7	BLK	Backlight switch button, low level backlight off
8	SDO	Serial output signal.

3. Electrical Specifications

3.1. Absolute Maximum Rating

(T_a=+25°C)

Item	Symbol	Values		Unit	Remark	
		Min.	Max.			
TFT Module	I/O Circuit Supply Voltage	VDD	-0.3	4.6	V	Note 1
	Analog/Logic Supply Voltage	VCI	-0.3	4.6	V	Note 1
Backlight Unit	Current	I _B	-	120	mA	Note 2
	Power Consumption	P _{BL}	-	480	mW	Note 2

Note1: Permanent damage to the device may occur if maximum values are exceeded or reverse voltage is applied.

Note2: Without LED driver IC, please refer to 4.3.

3.2. Typical Operation Conditions

3.2.1 DC Characteristics

(T_a=+25°C, VCI=+2.8V)

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Logic Supply Voltage	VDD	2.6	2.8	3.3	V	Ta=25°C
Analog Supply Voltage	VCI	2.6	2.8	3.3	V	
Input High Voltage	V _{IH}	0.7VDD	-	VDD	V	
Input Low Voltage	V _{IL}	0		0.3VDD	V	
Output High Voltage	V _{OH}	0.8VDD	-	VDD	V	
Output Low Voltage	V _{OL}	0	-	0.2VDD	V	
Frame Frequency	f _{FRAME}	-	65	-	Hz	

Note: To prevent IC latch up or DC operation in LCD panel, the power on/off sequence should follow the driver IC specification.

3.2.2 Current Consumption

Item	Symbol	Values		Unit	Remark
		Typ.	Max.		
MCU Interfscce (8080 16-bit parallel Interface)					
Still Mode	VDD	-	TBD	uA	Note1
	VCI	-	TBD	mA	
Sleep Mode	VDD	-	TBD	uA	Note1, Note3
	VCI	-	TBD	uA	

Note1: Test Condition

Typ: VDD=2.8V

VCI=2.8V

Display Pattern: 8 Color Bar

Frame Rate=80Hz at Line Inversion

Operating Temperature: 25°C

Max: VDD=3.0V

VCI=3.3V

Display: Pattern:All Pixel Black

Frame Rate=80Hz at Line Inversion

Operating Temperature: 25°C

Typ. current check pattern:

Max. current check pattern:

Backlight Unit

The backlight system is an edge lighting type with 8 white LEDs.

($T_a=+25^{\circ}\text{C}$)

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Current	I_B	-	15	-	mA	Note 1
Power Consumption	P_{BL}	-	270	-	mW	Note 2

Note1: 8 LEDs are connected in parallel; each LED's current consumption is 20mA.

Note2: Where $I_B=15\text{ mA}$, $P_{BL}=I_B \times V_{BL}$, V_{BL} is backlight forward voltage.

4. Optical Specifications

($T_a=+25^{\circ}\text{C}$, $V_{CI}=2.8\text{V}$, $V_{DD}=1.8\text{V}$, $I_B=46\text{mA}$)

Item	Symbol	Condition	Values			Unit	Remark	
			Min.	Typ.	Max.			
Viewing Angle Range	Left	θ_L	CR ≥ 10	—	45	-	degree	Note 1,2
	Right	θ_R		—	45	-		
	Top	θ_T		—	50	-		
	Bottom	θ_B		—	20	-		
Response Time	$T_{on} + T_{off}$	Normal $\theta=\phi=0^{\circ}$	-	30	50	ms	Note 2,3	
Contrast Ratio	CR	Normal $\theta=\phi=0^{\circ}$	200	300	-	-	Note 2,4	
Luminance	L	Normal $\theta=\phi=0^{\circ}$	160	200	-	cd/m ²	Note 2,5	
Flicker	-	-	No Visible			-	Note 8	
Crosstalk	-	-	No Visible			-	Note 9	
Color Chromaticity (CIE1931)	White	W_x	Normal $\theta=\phi=0^{\circ}$	—	0.30	—	-	Note 2,6
		W_y		—	0.31	—		
	Red	R_x		—	0.59	—		
		R_y		—	0.32	—		
	Green	G_x		—	0.31	—		
		G_y		—	0.56	—		
	Blue	B_x		—	0.15	—		
		B_y		—	0.08	—		
Color Gamut	NTSC	CIE1931	-	58	-	%	-	
Luminance Uniformity	U_L	Normal $\theta=\phi=0^{\circ}$	—	80	-	%	Note 2,7	
Package Drop Test	Height :76cm(Weight $\leq 10\text{kg}$); 60cm(Weight $> 10\text{kg}$) 1 corner, 3 edges, 6 surfaces					-	-	

LCM-TFT035C1HVS4LN8D-V01

5. Mechanical Drawing

