



Product specifications contained herein may be changed without prior notice.
It is therefore advisable to contact Purdy Electronics before proceeding with the design of equipment incorporating this product.

AND-TFT-5LA

5" TFT LCD

aSi LCD Color Module

The AND-TFT-5LA is a color active matrix thin film transistor (TFT) liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. This model is composed of a TCT LCD panel, a driving circuit and a back light system. This TFT LCD has a 5.0 (15:9) inch diagonal measured active display area with WVGA (800 horizontal by 480 vertical pixel) resolution. Applications include personal navigation device and multimedia applications and other AV systems.

Features

- 5.0 (15:9 diagonal) inch configuration
- 6 bits + FRC driver with 1 channel TTL interface
- NTSC/PAL/SECAM Video Auto Switch
- Single Operation Voltage +12V
- CVBS (optional) / Analog RGB (PC Mode) (optional) Single Input
- All functions can be controlled by UART
- RoHS compliant

Mechanical Characteristics

Item	Standard Value	Unit
Screen size	5 inch	inch
Number of Pixels	800 RGB (H) x 480 (V)	pixels
Display Area	108.0 (H) x 64.8 (V)	mm
Outline Dimension	120.7 x 75.75 x 3.10 (Typ.)	mm
Display Mode	Normally white	—
Pixel Arrangement	RGB vertical stripe	—
Pixel Pitch	0.135 (H) x 0.135 (V)	mm
Backlight	LED Side Light type	—
Surface Treatment	Antiglare, Hard Coating (3H)	—

Mechanical Information

Item		Min.	Typ.	Max.	Unit
Module Size	Horizontal (H)	120.60	120.70	120.90	mm
	Vertical (V)	75.60	75.80	76.00	mm
	Depth (D)	—	3.10	3.20	mm
Weight		—	66	—	g

Absolute Maximum Ratings: Driving TFT LCD Panel Electrical Absolute Rating

Item	Symbol	Absolute Maximum Rating			Unit	Remarks
		Min.	Typ.	Max.		
Power Supply Voltage	VDD	-0.5	—	5.0	V	GND = 0
Logic Signal Input Level	Vi	-0.3	—	VDD +0.3	V	
LED Current (Backlight unit)	IL	—	40	—	mA	Ta = 25±2°C, Test condition: LED current 40 mA. The LED lifetime could be decreased if operating IL is larger than 40 mA.
LED Voltage (Backlight unit)	VL	—	19.2	—	V	
Storage Temperature	T _{STG}	-30	—	80	°C	
Operating Temperature	T _{OPR}	-20	—	70	°C	

Item	Symbol	min.	typ.	max.	Unit	Condition
Luminance	Lv	230	260	—	cd/m ²	
Uniformity	Avg	80	—	—	%	
Main screen	Colour	X	0.27	0.32		
	Coordinate	Y	0.29	0.34		
	Luminance	Lv	—	—	cd/m ²	If= 40 mA
	Uniformity	Avg	—	—	%	
Sub screen	Colour	X	—	—		
	Coordinate	Y	—	—		
Forward Voltage	Vf	18	19.2	20.4	V	

Operating Temperature: -20~70 C • Storage Temperature: -30~80 C

NO.	DESCRIPTION	QTY
1	PCB	1
2	Light guide	1
3	Plastic housing	1
4	Main Material Title	

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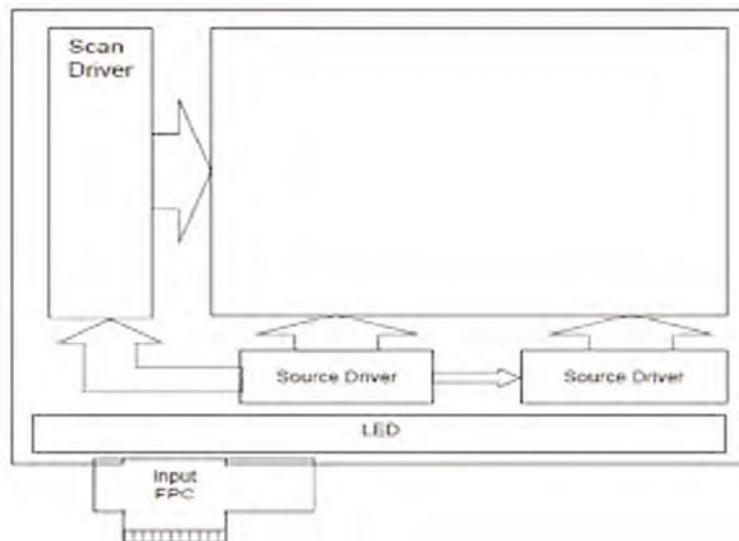
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Optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
White luminance (center)		YL	IL=40mA	230	260	—	cd/m ²
Response time		Tr	Θ=0 Normal viewing angle	—	2	4	msec
		Tf		—	6	12	
Contrast ratio		CR		480	600	—	—
Color chromaticity (CIE 1931)	white	Wx		0.260	0.310	0.360	
		Wy		0.280	0.330	0.380	
Viewing Angle	horizontal	ΘL	CR ≥ 10	65	75	—	—
		ΘR		65	75	—	—
	vertical	ΘU		50	60	—	—
		ΘD		60	70		
Brightness Uniformity		BUNI	o = 0	70	—	—	%
Optimal View Direction		6 o'clock					

Block Diagram: TFT LCD Module

Electrical Characteristics - TFT LCD Module

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Supply Voltage	VDD	3.0	3.3	3.4	V	
Input Signal Voltage	VIH	0.7 VDD	—	VDD	V	Note 1
	VIL	GND	—	0.3 VDD	V	Note 1
Current Power Supply	IDD	—	—	220	mA	VDD = 3.3 V

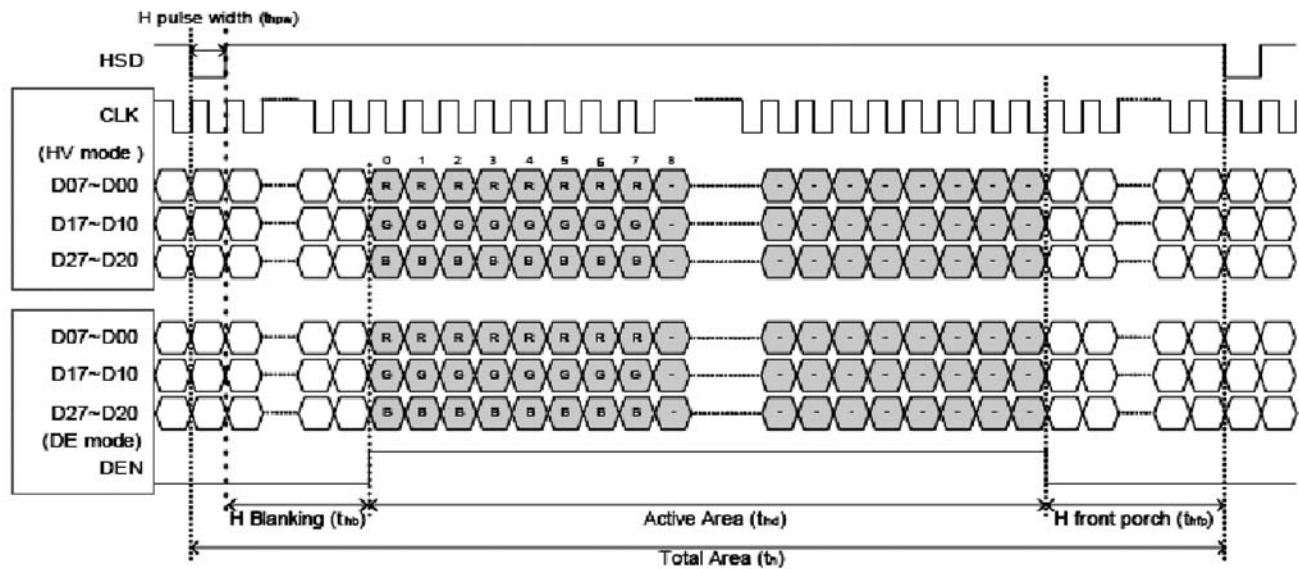
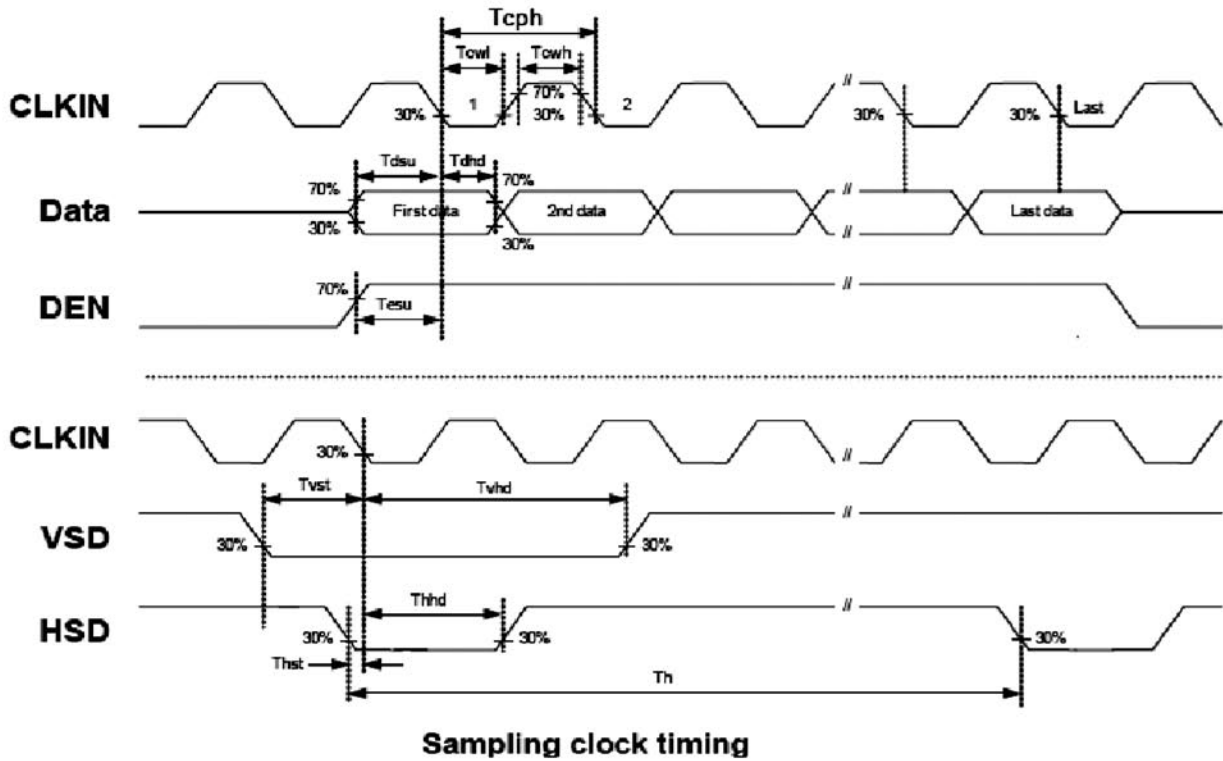
Note: HSYNC, VSYNC, DE, R/G/B Data

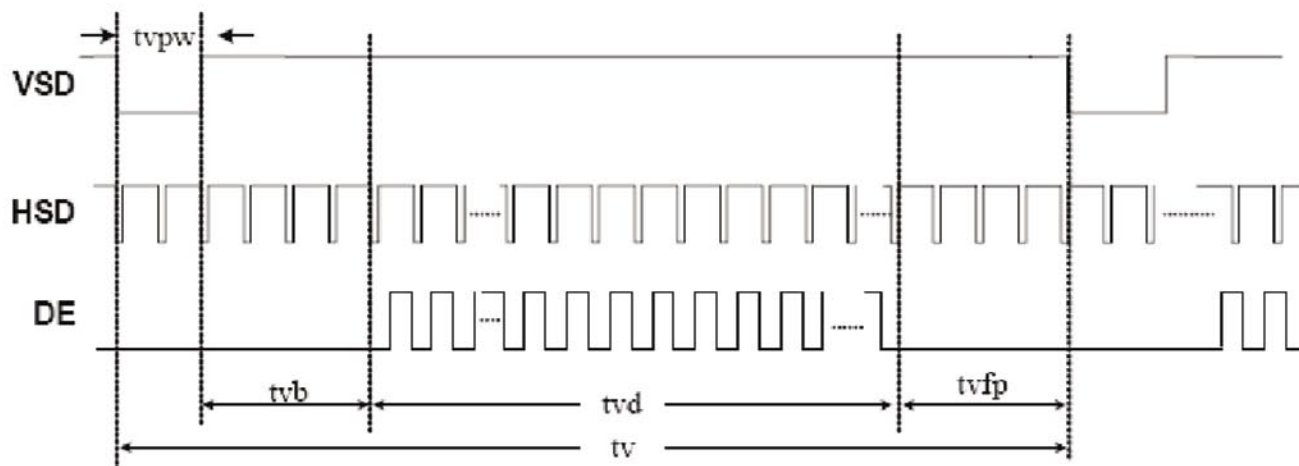
Input Interface Pin Assignment

(FPC Connector is used for electronic interface. Recommended model is FH19SC-40S-0.5SH (51) manufactured by HIROSE.)

Item	Symbol	I/O	Function
1	VLED-	P	Power for LED backlight cathode
2	VLED+	P	Power for LED backlight anode
3	GND	P	Power ground
4	VDD	P	Power voltage
5	R0	I	Red data (LSB)
6	R1	I	Red data
7	R2	I	Red data
8	R3	I	Red data
9	R4	I	Red data
10	R5	I	Red data
11	R6	I	Red data
12	R7	I	Red data (MSB)
13	G0	I	Green data (LSB)
14	G1	I	Green data
15	G2	I	Green data
16	G3	I	Green data
17	G4	I	Green data
18	G5	I	Green data
19	G6	I	Green data
20	G7	I	Green data (MSB)
21	B0	I	Blue data (LSB)
22	B1	I	Blue data
23	B2	I	Blue data
24	B3	I	Blue data
25	B4	I	Blue data
26	B5	I	Blue data
27	B6	I	Blue data
28	B7	I	Blue data (MSB)
29	DGND	I	Digital Ground
30	DCLK	I	Pixel clock
31	DISP	I	Display on/off
32	HSYNC	I	Horizontal sync signal
33	VSNC	I	Vertical sync signal
34	DE	I	Data enable
35	NC	—	No Connect
36	GND	P	Power ground
37	X_R	I/O	Right electrode - differential analog
38	X_B	I/O	Bottom electrode - differential analog
39	X_L	I/O	Left electrode - differential analog
40	X_T	I/O	Top electrode - differential analog

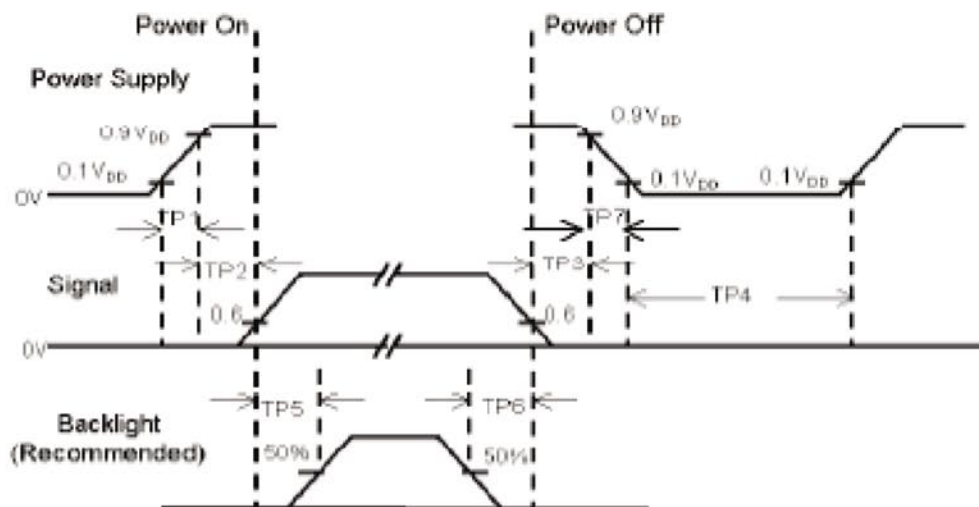
I/O: I: Input, O: Output, P: Power





Vertical timing

6.5 Power Sequence



Note : (1) The supply voltage of the external system for the module input should be the same as the definition of VDD.

(2) Apply the lamp voltage within the LCD operation range. When the back-light turns on before the LCD operation or the LCD turns off before the back-light turns off, the display may momentarily become white.

(3) In case of VDD = off level, please keep the level of input signal on the low or keep a high impedance.

(4) TP4 should be measured after the module has been fully discharged between power off and on period.

(5) Interface signal shall not be kept at high impedance when the power is on.