

TENTATIVE

All information in this technical data sheet is tentative
and subject to change without notice.

Preliminary

8.4" VGA

TECHNICAL SPECIFICATION

T-55467D084J-LW-A-AAN

OPTREX CORPORATION.

Date: Nov.28,'08

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2. OVERVIEW

T-55467D084J-LW-A-AAN is 8.4" color TFT-LCD (Thin Film Transistor Liquid Crystal Display) module composed of LCD panel, driver ICs, control circuit, and backlight unit.

3. ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	MIN.	MAX.	UNIT
Power Supply Voltage for LCD	VCC	0.3	4.0	V
Logic Input Voltage	VI	0.3	6.0	V
Backlight (LED) Current	IF	0	180	mA
Operation Temperature (Panel) <small>Note 1,2)</small>	T _{op} (Panel)	30	80	°C
Operation Temperature (Ambient) <small>Note 2)</small>	T _{op} (Ambient)	30	80	°C
Storage Temperature <small>Note 2)</small>	T _{stg}	30	80	°C

[Note]

- 1) Measured at the center of active area and at the center of panel back surface
- 2) Top, Tstg > 40 C : 90%RH max. without condensation
 Top, Tstg > 40 C : Absolute humidity shall be less than the value of 90%RH at 40 C without condensation.

4. ELECTRICAL CHARACTERISTICS

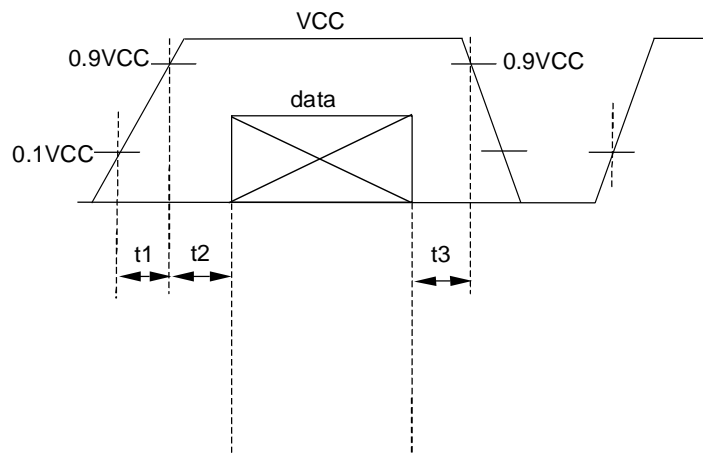
(1) TFT- LCD

Ambient Temperature: Ta = 25°C

ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT	Remarks
Power Supply Voltage for LCD	VCC	3.0	3.3	3.6	V	*1)
Power Supply Current for LCD	ICC	-	320	500	mA	*2)
Permissible Input Ripple Voltage	VRP	-	-	100	mVp-p	VCC = +3.3V
Logic Input Voltage	High	VIH	2.0	-	5.5	V
	Low	VIL	0	-	0.8	V

*1) Power and signals sequence:

t1	10 ms	200 ms	t4
0 < t2	50 ms	200 ms	t5
0 < t3	50 ms	0	t6

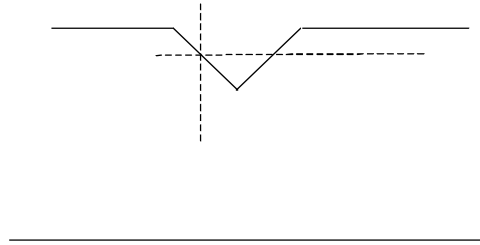


VCC-dip conditions:

1) When $2.4\text{ V} < VCC < 3.0\text{ V}$, $t_d = 10\text{ ms}$

2) When $VCC < 2.4\text{ V}$

VCC-dip conditions should also follow the power and signals sequence.



under high temperature.

5. INTERFACE PIN CONNECTION

(1) CN 1(Interface Signal)

Used connector: DF9BA-31P-1V(32) (HIROSE)

Corresponding connector: DF9B-31S-1V (HIROSE)

Pin No.	Symbol	Function
1	GND	
2	DCLK	Clock signal for sampling catch data signal
3	HD	Horizontal sync signal *1)
4	VD	Vertical sync signal *1)
5	GND	
6	R0	Red data signal(LSB)

(2) CN 2(Backlight)

6. INTERFACE TIMING

(1) Timing Specifications

ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT	
DCLK	Frequency	f _{CLK}	20	25	30	MHz	
	Period	t _{CLK}	33.3	40	50	ns	
	Low Width	t _{wCL}	10	--	--	ns	
	High Width	t _{wCH}	10	--	--	ns	
DATA(R,G,B) DENA	Set up time	t _{DS}	4	--	--	ns	
	Hold time	t _{DH}	4	--	--	ns	
DENA	Horizontal	Active Time	t _{HA}	640	640	640	t _{CLK}
		Blanking Time	t _{HB}	20	160	--	t _{CLK}
		Frequency	f _H	27	31.5	38	kHz
		Period	t _H	26.3	31.7	37.0	s
	Vertical	Active Time	t _{VA}	480	480	480	t _H
		Blanking Time	t _{VB}	4	45	--	t _H
		Frequency	f _V	55	60	70	Hz
		Period	t _V	14.3	16.7	18.2	ms

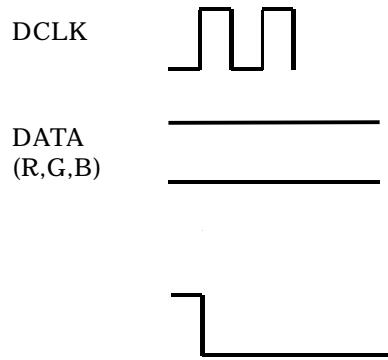
[Note]

- 1) DATA is latched at fall edge of DCLK in this specification.
- 2) DENA (Data Enable) should always be positive polarity as shown in the timing specification.
- 3) DCLK should appear during all invalid period.
- 4) In case of blanking time fluctuation, please satisfy following condition.

$$t_{VBn} > t_{VBn-1} \quad 3(t_H)$$

(2) Timing Chart

b. Horizontal Timing Chart



(3) Color Data Assignment

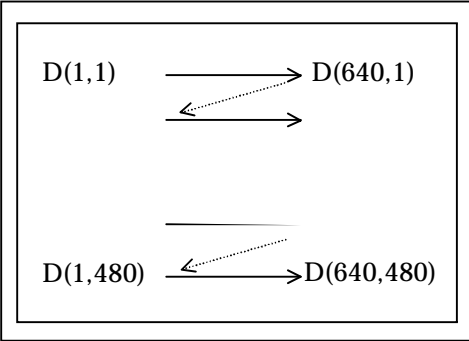
COLOR	INPUT DATA																							
	R DATA						G DATA						B DATA											
	R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0						
	MSB						LSB	MSB					LSB	MSB					LSB	MSB				

(4) Display Position and Scan Direction

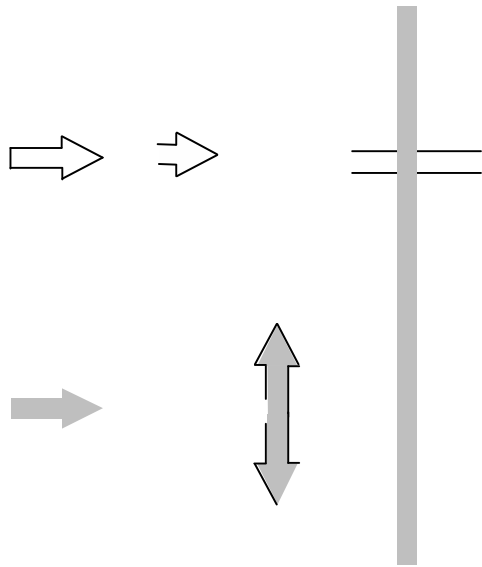
D(X,Y) shows the data number of input signal for LCD panel signal processing PCB.

SC: Low

SC: High



7. BLOCK DIAGRAM

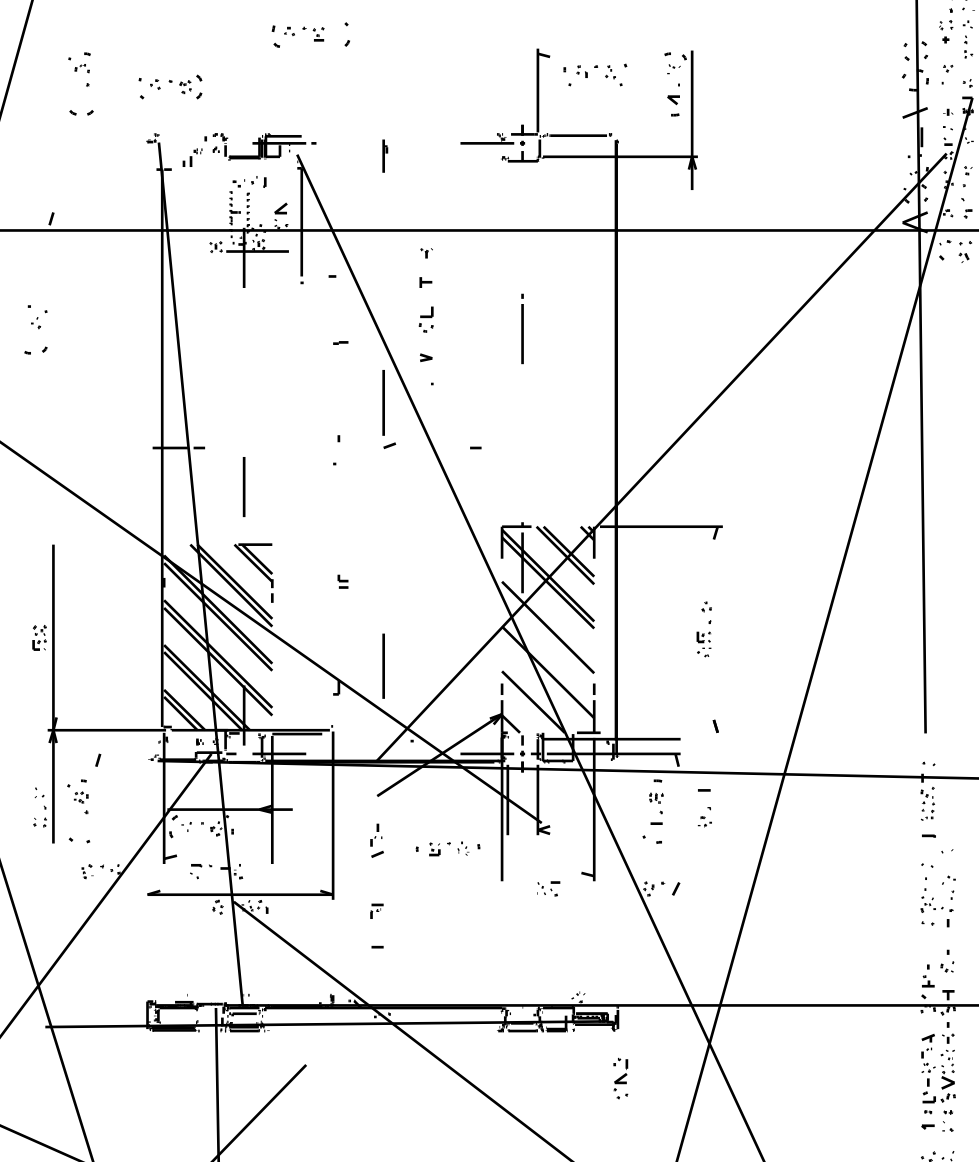


8. MECHANICAL SPECIFICATIONS

(1) Front Side



(2) Rear Side



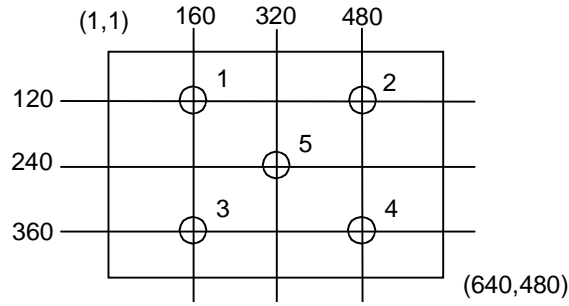
9. OPTICAL CHARACTERISTICS

Ta=25°C, VCC=3.3V, Input Signals: Typ. Values shown in Section 6

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	Remarks
Contrast Ratio	CR	v					

*1) Measurement Point

Contrast Ratio, Luminance, Response Time, Viewing Angle, Color Coordinates: Display Center
 Luminance Uniformity: point 1-5 shown in a figure below



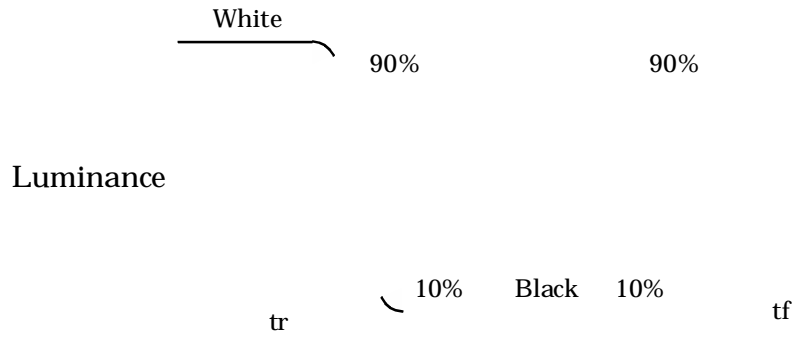
*2) Definition of Contrast Ratio

$CR = \text{Luminance with all white pixels} / \text{Luminance with all black pixels}$

*3) Definition of Luminance Uniformity

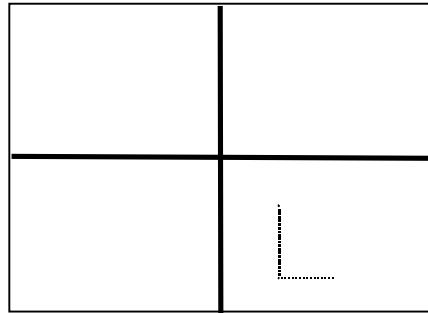
$$Lw = [Lw(\text{MAX}) / Lw(\text{MIN}) - 1] \cdot 100$$

*4) Definition of Response Time



*6) Image Sticking

Continuously display the test pattern shown in the figure below for two-hours. Then display a completely white screen. The previous image shall not persist more than two seconds at 25°C.



10. RELIABILITY TEST CONDITION

(1) Temperature and Humidity

TEST ITEM	CONDITIONS
HIGH TEMPERATURE HIGH HUMIDITY OPERATION	40°C, 90%RH, 240 h (No condensation)
HIGH TEMPERATURE OPERATION	80°C, 240 h

LOW TEM

11. OTHER FEATURE

This LCD module complies with RoHS*) directive.

*) RoHS: Restriction of the use of certain hazardous substances in electrical and electronic equipment

12. HANDLING PRECAUTIONS FOR TFT-LCD MODULE

Please pay attention to the followings in handling TFT-LCD products;

(1) ASSEMBLY PRECAUTION

- a. Please mount the LCD module by using mounting hole with a screw clamping torque (recommended value: 0.3 Nm). Please do not bend or wrench the LCD module in assembling. Please do not drop, bend or twist the LCD module in handling.
- b. Please design display housing in accordance with the following guide lines.
 - (a) Housing case must be designed carefully so as not to put stresses on LCD and not to wrench module.

- d. LED driver should be designed carefully to limit or stop its function when over current is detected on the LED.

(6) OTHERS

- a. A strong incident light into LCD panel may cause deterioration to polarizer film, color filter, and other materials, which will degrade the quality of display characteristics. Please do not expose LCD module under strong Ultraviolet rays for a long time.
- b. Please pay attention to a panel side of LCD module not to contact with other materials in preserving it alone.
- c. For the packaging box handling, please see and obey with the packaging specification datasheet.