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)	Note 1,2)	$T_{op(Panel)}$	30	80	°C
Operation Temperature (Ambient)	Note 2)	$T_{op(Ambient)}$	30	80	°C
Storage Temperature	Note 2)	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

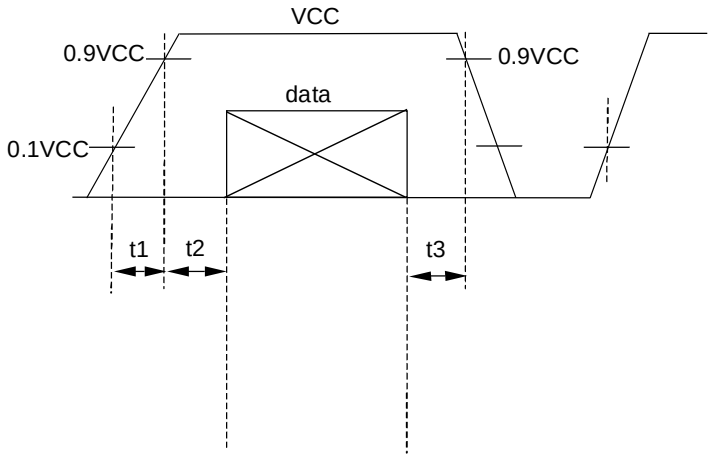
ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT	Remarks
Power Supply Voltage for LCD		VCC	3.0	3.3	3.6	V	*1)
Power Supply Current for LCD		ICC	-	320	500	mA	*2)
Permissive Input Ripple Voltage		VRP	-	-	100	mVp-p	VCC = +3.3V
Logic Input Voltage	High	VIH	2.0	-	5.5	V	
	Low	VIL	0	-	0.8	V	

*1) Power and signals sequence:

t1 10 ms 200 ms t4

0 < t2 50 ms 200 ms t5

0 < t3 50 ms 0 t6

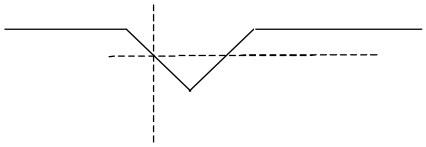


VCC-dip conditions:

1) When 2.4 V VCC < 3.0 V, td 10 ms

2) When VCC < 2.4 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.

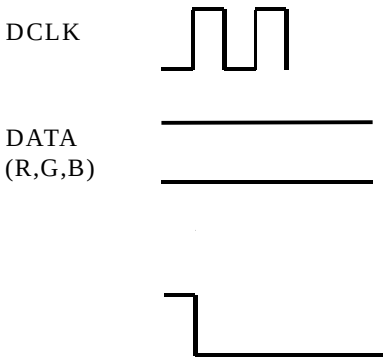
3) DCLK should appear during all invalid period.

4) In case of blanking time fluctuation, please satisfy following condition.

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

(2) Timing Chart

b. Horizontal Timing Chart



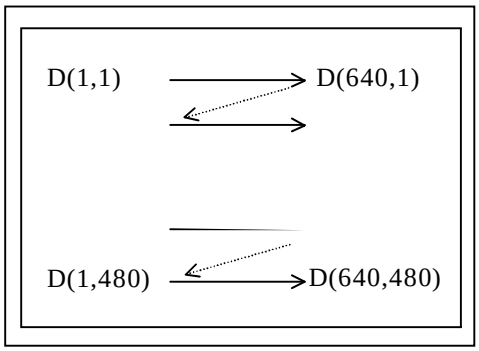
(3) Color Data Assignment

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

(4) Display Position and Scan Direction

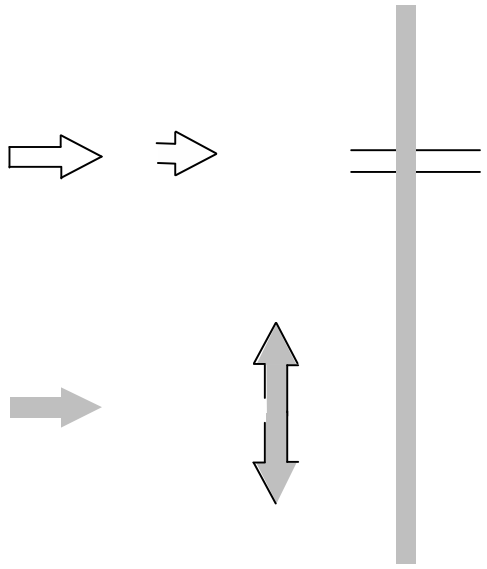
D(X,Y) shows the data number of input signal for LCD panel signal processing PCB.

SC: Low



SC: High

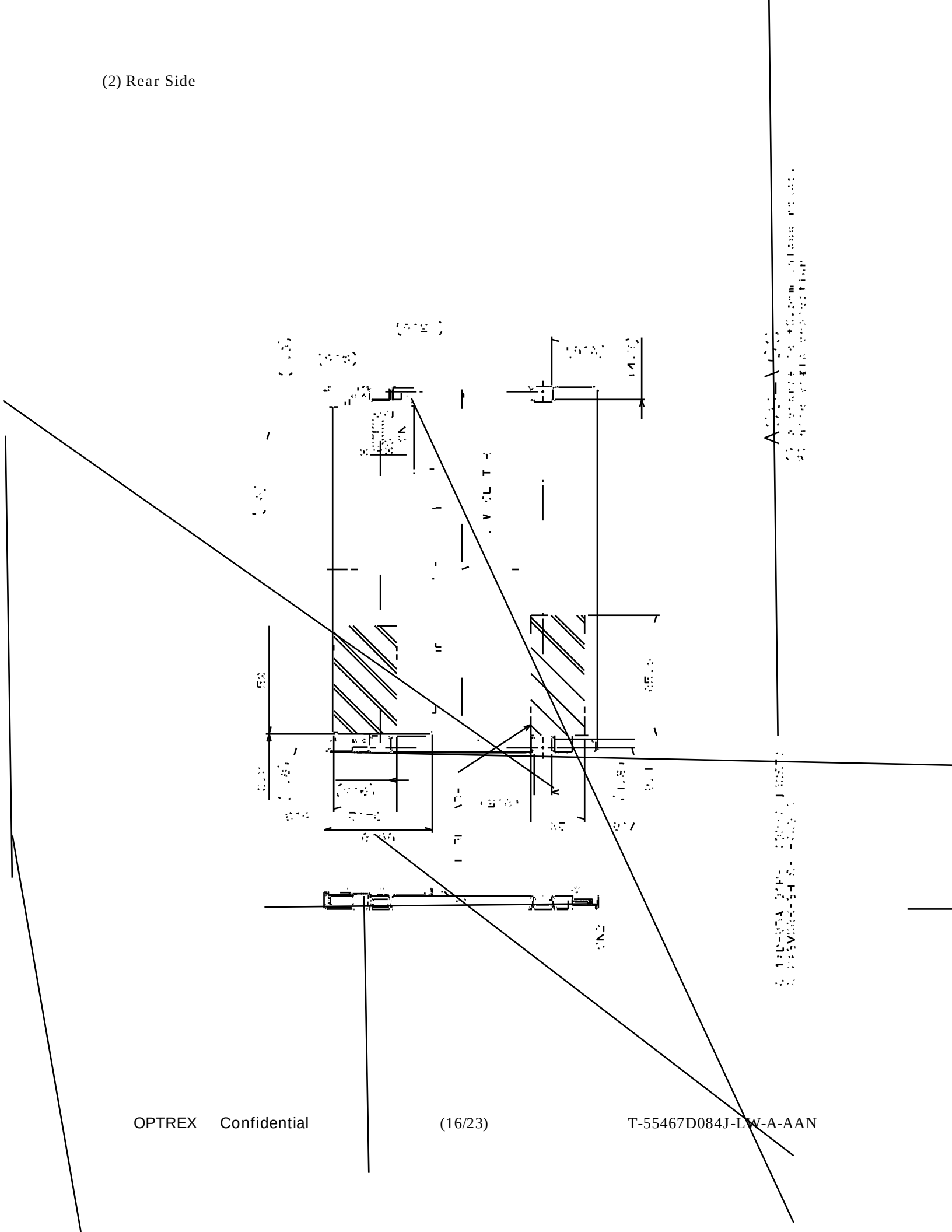
7. BLOCK DIAGRAM



8. MECHANICAL SPECIFICATIONS

(1) Front Side

(2) Rear Side



9. OPTICAL CHARACTERISTICS

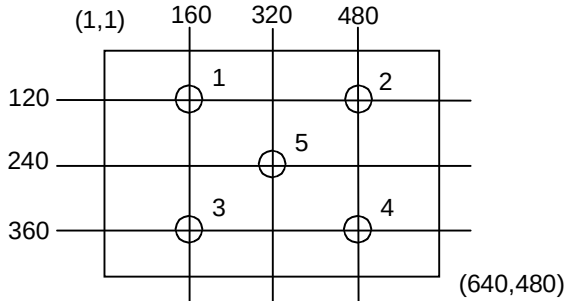
Ta=25°C, VCC=3.3V, Input Signals: Typ. Values shown in Section 6

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



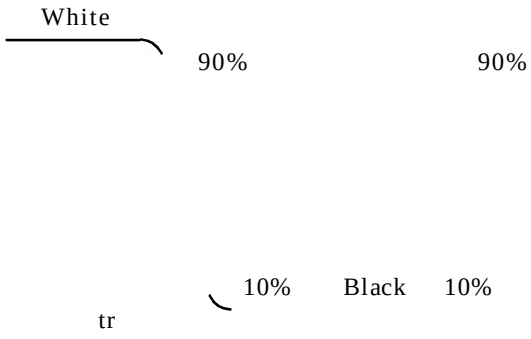
*2) Definition of Contrast Ratio

CR=Luminance with all white pixels / Luminance with all black pixels

*3) Definition of Luminance Uniformity

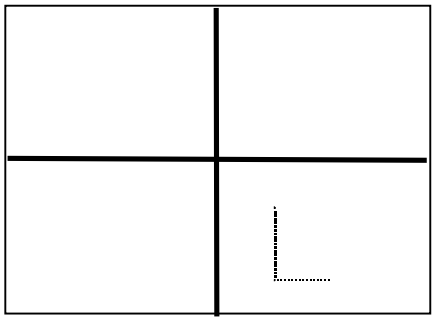
Lw=[Lw(MAX)/Lw(MIN)-1] 100

*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.