Product Specification

SPECIFICATION

FOR

APPROVAL

Title	17.0” SXGA LED BACKLIGHT TFT LCD

BUYER	
MODEL	BR170S10
SUFFIX	AUO

Product Specification

1. General Description

The BR170S10 is a Color Active Matrix Liquid Crystal Display with an integral Light Emitting Diode (LED) backlight system. The matrix employs a-Si Thin Film Transistor as the active element.

It is a transmissive type display operating in the normally white mode. This TFT-LCD has a 17.0 inch diagonal measured active display area with SXGA resolution(1024 vertical by 1280 horizontal pixel array) Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arranged in vertical stripes.

Gray scale or the brightness of the sub-pixel color is determined with a 6-bit gray scale signal for each dot,thus, presenting a palette of more than 16.2M colors with FRC(Frame Rate Control).

The BR17S10 has been designed to apply the interface method that enables low power, high speed,low EMI. FPD Link or compatible must be used as a LVDS(Low Voltage Differential Signaling) chip.

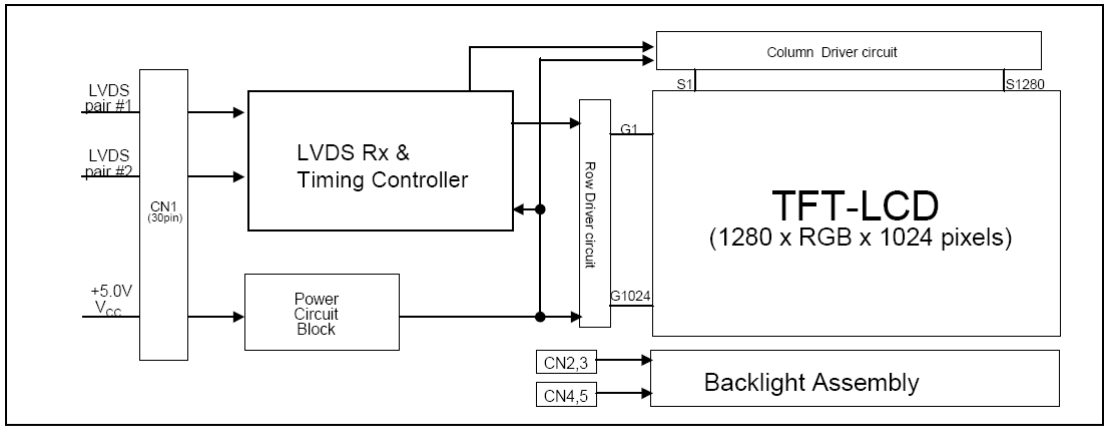


Figure 1. Block diagram

General Features

Active screen size	17.0 inch (43.27cm) diagonal
Outline Dimension	358.5(H) x 296.5(V) x 17.0(D) mm(Typ.)
Active Area	337.920(H) x 270.336(V) mm
Pixel Pitch	0.264 mm x 0.264 mm
Pixel Format	1280 horiz. by 1024 vert. Pixels. RGB stripe arrangement
Display Colors	16.2M colors
Luminance, white	1000 cd/m2(Typ. Center 1 point)
Power Consumption	30.8 Watts(Typ.) (PDD=6W PBL=24.8W)
Weight	1950g (Typ.)
Display operating mode	Transmissive mode, normally white
Surface treatments	Hard coating (3H), Anti-glare treatment of the front polarizer

2. Absolute maximum ratings

The following are maximum values which, if exceeded, may cause faulty operation or damage to the unit.

Table 1. Absolute Maximum Ratings

Parameter	Symbol	Values		Units	Notes
		Min	Max		
Power Supply Input Voltage	V_{CC}	-0.3	+5.5	V_{dc}	At 25℃
Operating Temperature	T_{OP}	0	+50	℃	1
Storage Temperature	T_{ST}	-20	+60	℃	1
Operating Ambient Humidity	H_{OP}	10	+90	%RH	1
Storage Humidity	H_{ST}	10	+90	%RH	1

Note : 1. Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39 °C Max, and no condensation of water.

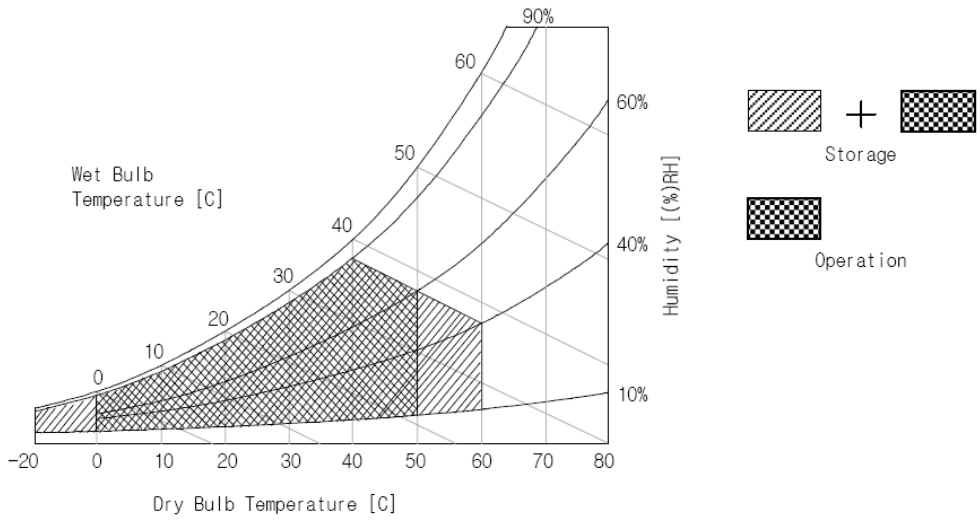


Figure 2. Temperature and relative humidity

3. Electrical specifications

3-1. Electrical characteristics

The BR17S10 requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. Another which powers the LED Backlight .LED Driver is an internal unit to the LCD.

Table 2. Electrical Characteristics

Parameter	Symbol	Values			Units	Notes
		Min	Type	Max		
Power Supply Input Voltage	V_{CC}	4.5	5.0	5.5	V	
Permissive Power Input Ripple	V_{RF}	-	-	0.1	V	
Power Supply Input Current	I_{CC}	-	1.2	1.56	A	1
Power Consumption	Pc	-	6	7.8	Watts	
In Rush Current	I_{RUSH}	-	-	2.5	A	2
LED Power supply Voltage	V_{BL}	9	12	18	V	3
LED Power Supply current	I_{BL}	-	2.06	2.10	A	
LED BL Power Consumption	P_{BL}	-	24.8	-	Watts	4
Life Time		50,000			Hrs	5

Note: Do not attach a conducting tape to lamp connecting wire. If the lamp wire attach to conducting tape TFT-LCD Module have a low luminance.

1.The specified current and power consumption are under the VCC=5.0V, 25°C, f_V (frame frequency)=60Hz condition.

2.The duration of rush current is about 2ms. And V_{CC} rise time is 500us ± 20%.

3.Operating voltage is measured under 25°C.

4.The LED Backlight power consumption shown above include LED Diver Module under 25°C.

5.The life time is determined as the time at which brightness of lamp is 50% compared to that of initial value at the typical lamp current on condition of continuous operating at 25° C.

3-2. Interface Connections

Interface chip must be used LVDS, part No. SN75LVDS83 (Tx, Texas Instrument) or compatible.

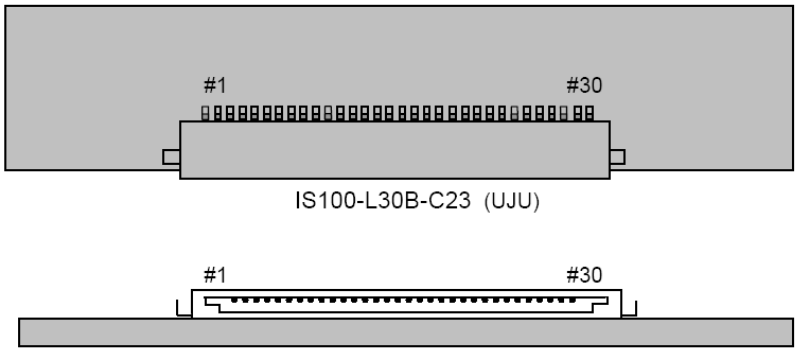
This LCD employs a interface connection, a 30 pin connector is used for the module electronics interface. One 6pin connectors are used for the LED backlight system.

The pin configuration for the connector is shown in the table 3.

LED BackLight Driver 6pin connectors is shown in the table 4.

Table 3. Module connector pin configuration

Pin No	Symbol	Description
1	RxO0-	LVDS Signal of Odd Channel 0(-)
2	RxO0+	LVDS Signal of Odd Channel 0(+)
3	RxO1-	LVDS Signal of Odd Channel 1(-)
4	RxO1+	LVDS Signal of Odd Channel 1(+)
5	RxO2-	LVDS Signal of Odd Channel 2(-)
6	RxO2+	LVDS Signal of Odd Channel 2(+)
7	GND	Ground
8	RxOC-	LVDS Signal of Odd Channel Clock(-)
9	RxOC+	LVDS Signal of Odd Channel Clock(+)
10	RxO3-	LVDS Signal of Odd Channel 3(-)
11	RxO3+	LVDS Signal of Odd Channel 3(+)
12	RxE0-	LVDS Signal of Even Channel 0(-)
13	RxE0+	LVDS Signal of Even Channel 0(+)
14	GND	Ground
15	RxE1-	LVDS Signal of Even Channel 1(-)
16	RxE1+	LVDS Signal of Even Channel 1(+)
17	GND	Ground
18	RxE2-	LVDS Signal of Even Channel 2(-)
19	RxE2+	LVDS Signal of Even Channel 2(+)
20	RxEC-	LVDS Signal of Even Channel Clock(-)
21	RxEC+	LVDS Signal of Even Channel Clock(+)
22	RxE3-	LVDS Signal of Even Channel 3(-)
23	RxE3+	LVDS Signal of Even Channel 3(+)
24	GND	Ground
25	NC	No connection
26	NC	No connection
27	NC	No connection
28	VCC	Power supply (5.0V Typ.)
29	VCC	Power supply (5.0V Typ.)
30	VCC	Power supply (5.0V Typ.)



Rear view of LCM

[Figure 4] Connector diagram

Notes:

1.All GND(ground) pins should be connected together and should also be connected to the LCD's metal frame.

2.All VCC(power input) pins should be connected together.

3.All NC pins should be separated from other signal or power.

Table 4. LED Backlight Driver connector pin configuration

Pin	Symbol	Description	Notes
1	Vcc	LED Driver Power Supply Input Voltage	1
2	Vcc	LED Diver Power Supply Input Voltage	
3	On/Off	LED Backlight On/Off Control (0.0V-5.0V)	
4	Dim	Analog dimming voltage(0.0V-3.3V) or PWM Dimming input	2
5	GND	Ground	3
6	GND	Ground	

Notes:

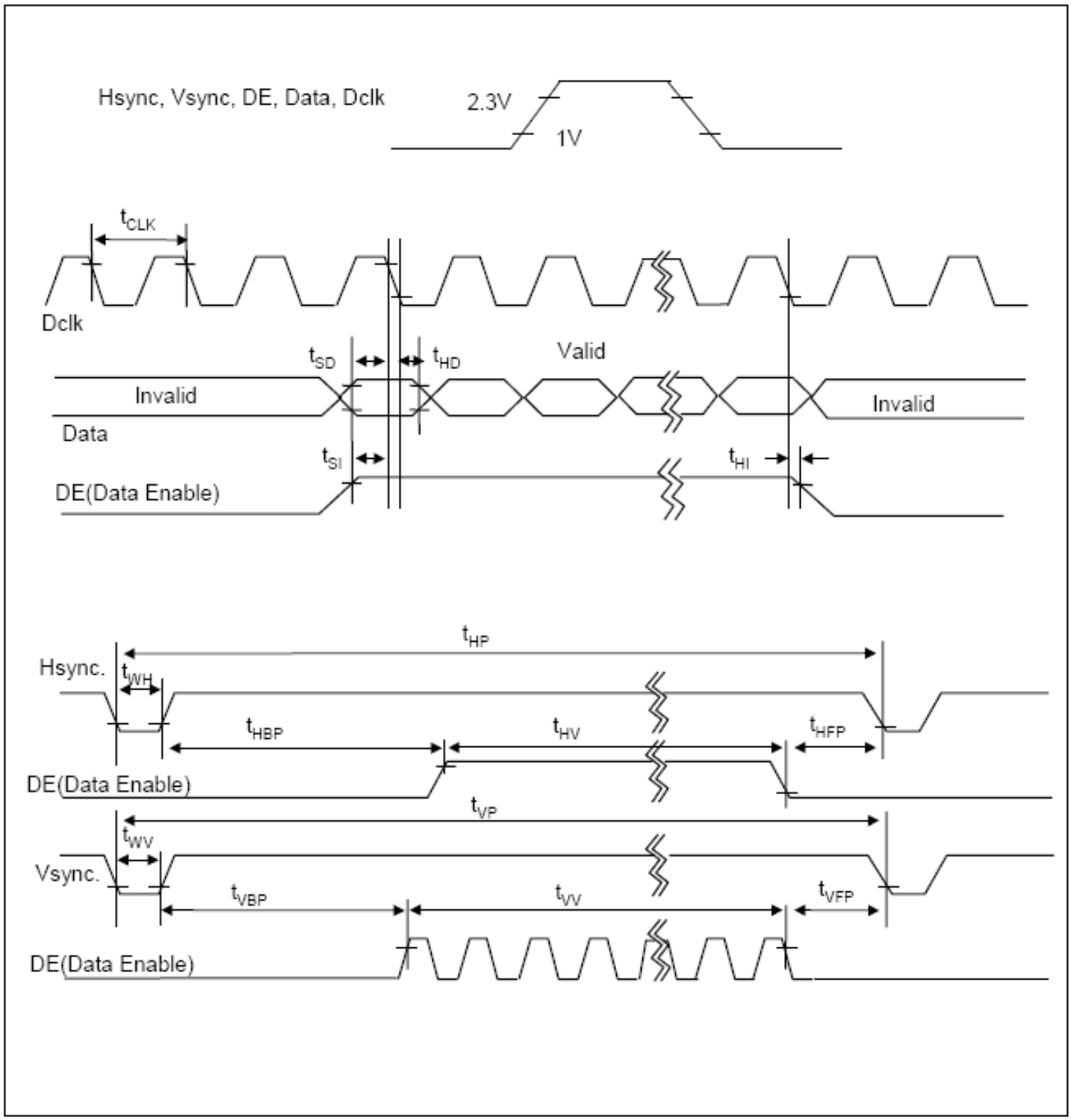
1. The LED Driver Power supply Input Voltage Base on Table 2.

2. This Dim Voltage control brightness.

Voltage	Function	Voltage	Function
0V	Minimum Duty (20%)	3.3V	Maximum Duty (100%)

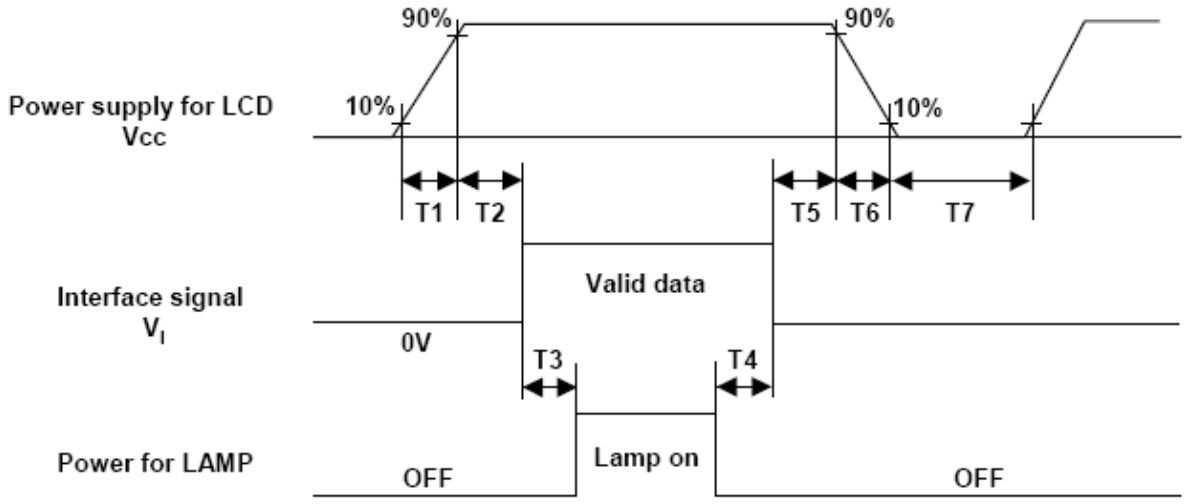
3. The backlight ground should be common with LCD metal frame.

3-3. Signal Timing Waveforms



[Figure 6] Signal timing waveforms

3-4. Power Sequence



[Figure 7] Power sequence

Table 5. Power sequence time delay

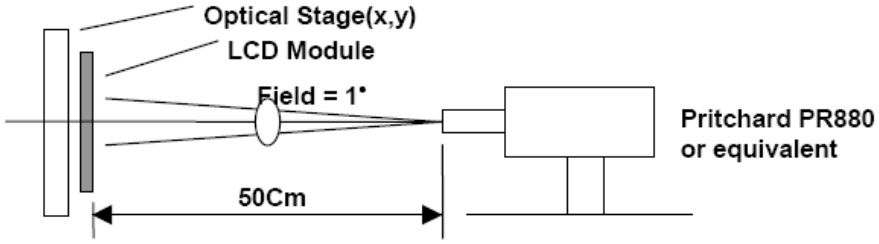
Parameter	Values			Units
	Min	Type	Max	
T_1	-	-	10	ms
T_2	0.01	-	50	ms
T_3	200	-	-	ms
T_4	200	-	-	ms
T_5	0.01	-	50	ms
T_6	0.01	-	10	ms
T_7	1	-	-	s

Notes:

1. Please avoid floating state of interface signal at invalid period.
2. When the interface signal is invalid, be sure to pull down the power supply for LCD VCC to 0V.
3. Lamp power must be turn on after power supply for LCD and interface signals are valid.

4. Optical Specifications

Optical characteristics are determined after the unit has been 'ON' and stable for approximately 30 minutes in a dark environment at 25 °C. The values specified are measured at an approximate distance 50cm from the LCD surface at a viewing angle 0 °.



[Figure 9] Optical characteristic measurement equipment and method

Table 6. Optical characteristics

Parameter	Symbol	Values			Units
		Min	Type	Max	
Contrast ratio	CR	800	1000	-	
Surface luminance, white	L_{wH}	900	1000	-	cd/m2
White luminance uniformity	ΔY	75	80	-	%
Response time	G to G	-	8	13	ms
Color Temperature			10000		K
Color Gamut(NTSC %)			72		%
Viewing angle (by CR >10)	x axis, right(Φ=0°)	-	80	-	degree
	x axis, left (Φ=180°)	-	80	-	
	y axis, up (Φ=90°)	-	70	-	
	y axis, down (Φ=270 °)	-	60	-	
Cross Talk	CT	-	-	1.5	%

Notes:

1.Contrast Ratio(CR) is defined mathematically as :

CR = Surface Luminance at all white pixels / Surface Luminance at all black pixels

It is measured at center 1-point.

2.Surface luminance is determined after the unit has been 'ON' and 1Hourafterlighting the backlight in a dark environment at 25±2° C. Surface luminance is the luminance value at center 1-point across the LCD surface 50cm from the surface with all pixels displaying L255 white.

3.The White luminance uniformity on LCD surface is then expressed as :

ΔY = (Minimum Luminance of 9points / Maximum Luminance of 9points) * 100

5. Mechanical Characteristics

Table 7. provides general mechanical characteristics for the model BR1750S. Please refer to Figure 15,16 regarding the detailed mechanical drawing of the LCD.

Table 7. Mechanical characteristics

Outside dimensions	Horizontal	358.5 ± 0.5mm
	Vertical	296.5 ± 0.5mm
	Depth	17.0 ± 0.5mm
Active display area	Horizontal	337.920mm
	Vertical	270.336mm
Weight(approximate)	1900g(Typ.), 1950g(Max.)	
Surface Treatment	Hard coating(3H) Anti-glare treatment of the front polarizer	