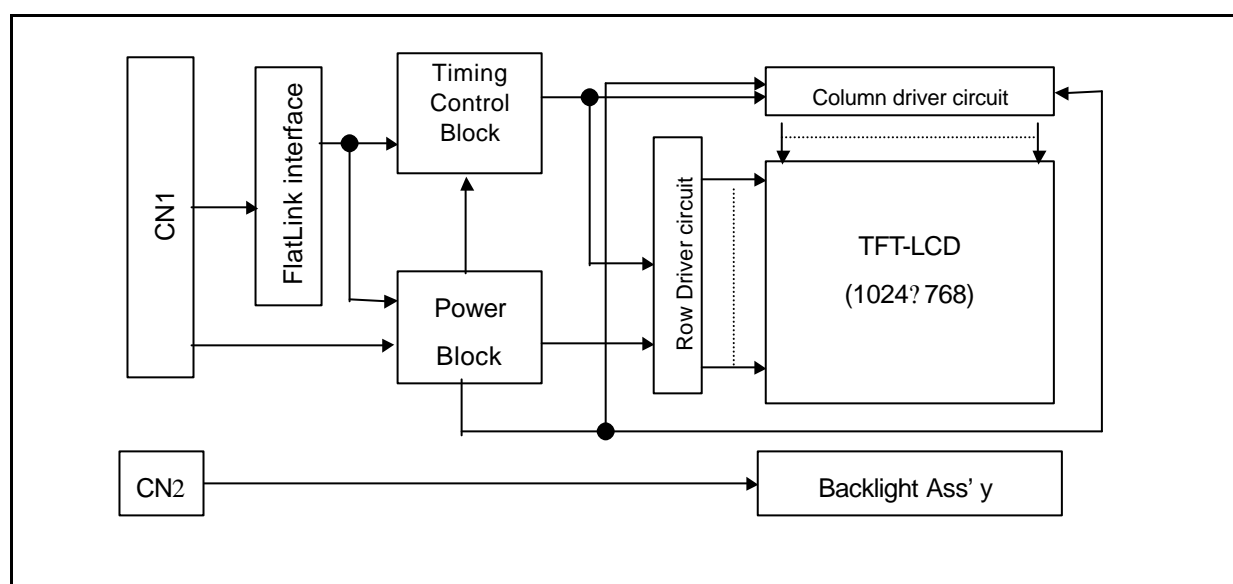


## **1. General Description**

The LP141XA is a Color Active Matrix Liquid Crystal Display with an integral Cold Cathode Fluorescent Lamp(CCFL) back light 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 13.3 inch diagonally measured active display area with XGA resolution(768 vertical by 1024 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 262,144 colors.

The LP141XA has been designed to apply the interface method that enables low power, high speed low EMI. Flat Link must be used as a LVDS(Low Voltage Differential Signaling) chip.

The LP141XA is intended to support applications where thin thickness, low power are critical factors and graphic displays are important. In combination with the vertical arrangement of the sub-pixels, the LP141XA characteristics provide an excellent flat panel display for office automation products such as Notebook PC.



## **General Features**

Active screen size	14.1 inches(33.78cm) diagonal
Outline dimensions	298.5(H) × 227.5(V) × 5.8(D) mm (typ)
Pixel pitch	0.279 mm × 0.279 mm
Pixel format	1024 horiz. By 768 vert. pixels
	RGB stripe arrangement
Color depth	6bit, 262,144 colors
Luminance, White	120 cd/m <sup>2</sup> (typ)
Power Consumption	Total 4.97Watt(typ)
Weight	590g (max)
Display operating mode	transmissive mode, normally white
Surface treatments	hard coating(3H), anti-glare treatment of the front polarizer

**Product General Specification**

## 2. Electrical Specifications

### 2-1. Electrical Characteristics

The LP141XA requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The second input which powers the CCFL, is typically generated by an inverter. The inverter is an external unit to the LCD.

**Table 1 ELECTRICAL CHARACTERISTICS:**

Parameter	Symbol	Values			Units	Notes
		Min.	Typ.	Max.		
MODULE:						
Power Supply Input Voltage	V <sub>CC</sub>	3.0	3.3	3.6	V <sub>dc</sub>	
Power Supply Input Current	I <sub>CC</sub>	-	0.410	0.620	A	1
Differential Impedance	Z <sub>m</sub>	90	100	110	ohm	2
Power Consumption	P <sub>c</sub>	-	1.35	2.05	Watts	1
Rush current	I <sub>RUSH</sub>	-	1.5	1.8	A	3
LAMP						
Operating Voltage	V <sub>BL</sub>	680	725	850	V <sub>RMS</sub>	4
Operating Current	I <sub>BL</sub>	3.0	5.0	6.0	mA	
Established Starting Voltage						5
at 25		-	-	1170	V <sub>RMS</sub>	
at 0		-	-	1450	V <sub>RMS</sub>	
Operating Frequency	f <sub>BL</sub>	40	60	80	kHz	
Power Consumption	P <sub>BL</sub>	-	3.63	4.08	Watts	6
Life Time		10.000		-	Hrs	7

Notes: 1. The specified current and power consumption are under the  $V_{CC} = 3.3V$ , 25 °C,  $f_v = 60Hz$  condition whereas Black pattern is displayed.

- This impedance value is needed to proper display and measured from LVDS Tx to the mating connector.
- The duration of rush current is about 20ms.
- The variance of the voltage is  $\pm 10\%$ .
- The transformer output voltage in the inverter must be high considering to the loss of the ballast capacitor in the inverter.
- The lamp power consumption shown above does not include loss of external inverter.
- The life time is determined as the time at which brightness of lamp is 50% compare to that of initial value at the typical lamp current on condition of continuous operating at 25 °C  $\pm 2$

Product General Specification

## 2-2. Interface Connections

This LCD employs two interface connections, a 20 pin connector is used for the module electronics and the other connector is used for the integral backlight system.

The electronics interface connector is a model FI-SEB-20P-HF manufactured by JAE or equivalent. The pin configuration for the connector is shown in the table below.

**Table 2 MODULE CONNECTOR PIN CONFIGURATION (LVDS) [CN1]**

Pin	Symbol	Description	Notes
1	VCC	Power (3.3V)	<div>1. Interface chips 1.1 LCD : FPD85310(National Semiconductor)</div> <div>2. Connector 2.1 LCD : 15021-2040R(UJU Electronics) 2.2 Mating JAE : FI-SE20M-HF(FPC type) JAE : FI-SE20S-HF(Wire type) 2.3 Connector pin arrangement</div> <div><div><div>No. 1 ... 20</div><div>CN1</div></div><div>Viewing on Display side</div><div>CN2</div></div>
2	VCC	Power (3.3V)	
3	GND	Ground	
4	GND	Ground	
5	A0M	Differential Signal	
6	A0P	Differential Signal	
7	GND	Ground	
8	A1M	Differential Signal	
9	A1P	Differential Signal	
10	GND	Ground	
11	A2M	Differential Signal	
12	A2P	Differential Signal	
13	GND	Ground	
14	CLKM	Differential Signal	
15	CLKP	Differential Signal	
16	GND	Ground	
17	NC	No Connection	
18	NC	No Connection	
19	GND	Ground	
20	GND	Ground	

The backlight interface connector is a model BHSR-02VS-1, manufactured by JST. The mating connector part number is SM02B-BHSS-1 or equivalent. The pin configuration for the connector is shown in the table below.

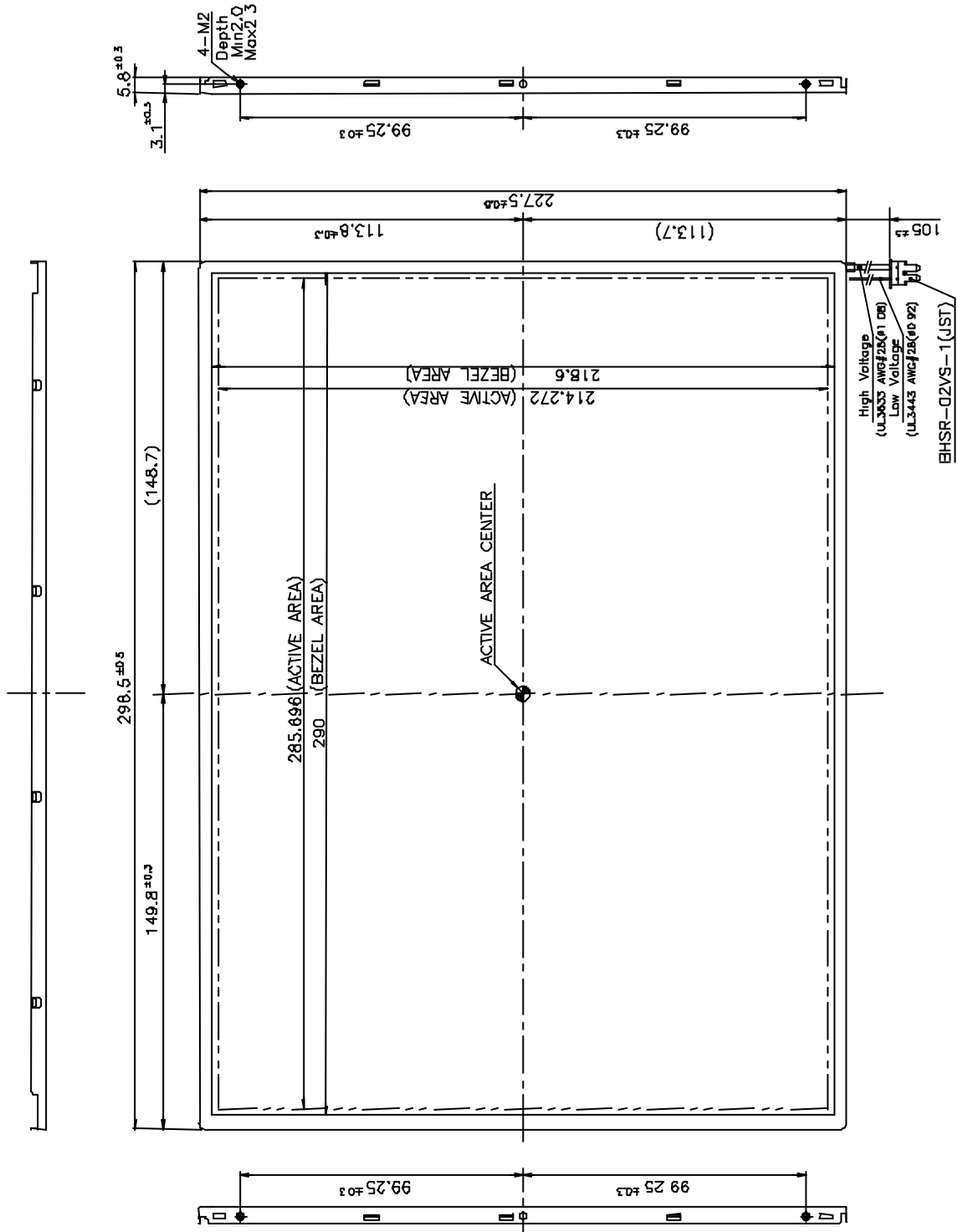
**Table 3 BACKLIGHT CONNECTOR PIN CONFIGURATION [CN2]**

Pin	Symbol	Description	Notes
1	HV	Power supply for lamp (High voltage side)	1
2	LV	Power supply for lamp (Low voltage side)	2

Notes: 1. The high voltage side terminal is colored pink.  
2. The low voltage side terminal is colored black.

Product General Specification

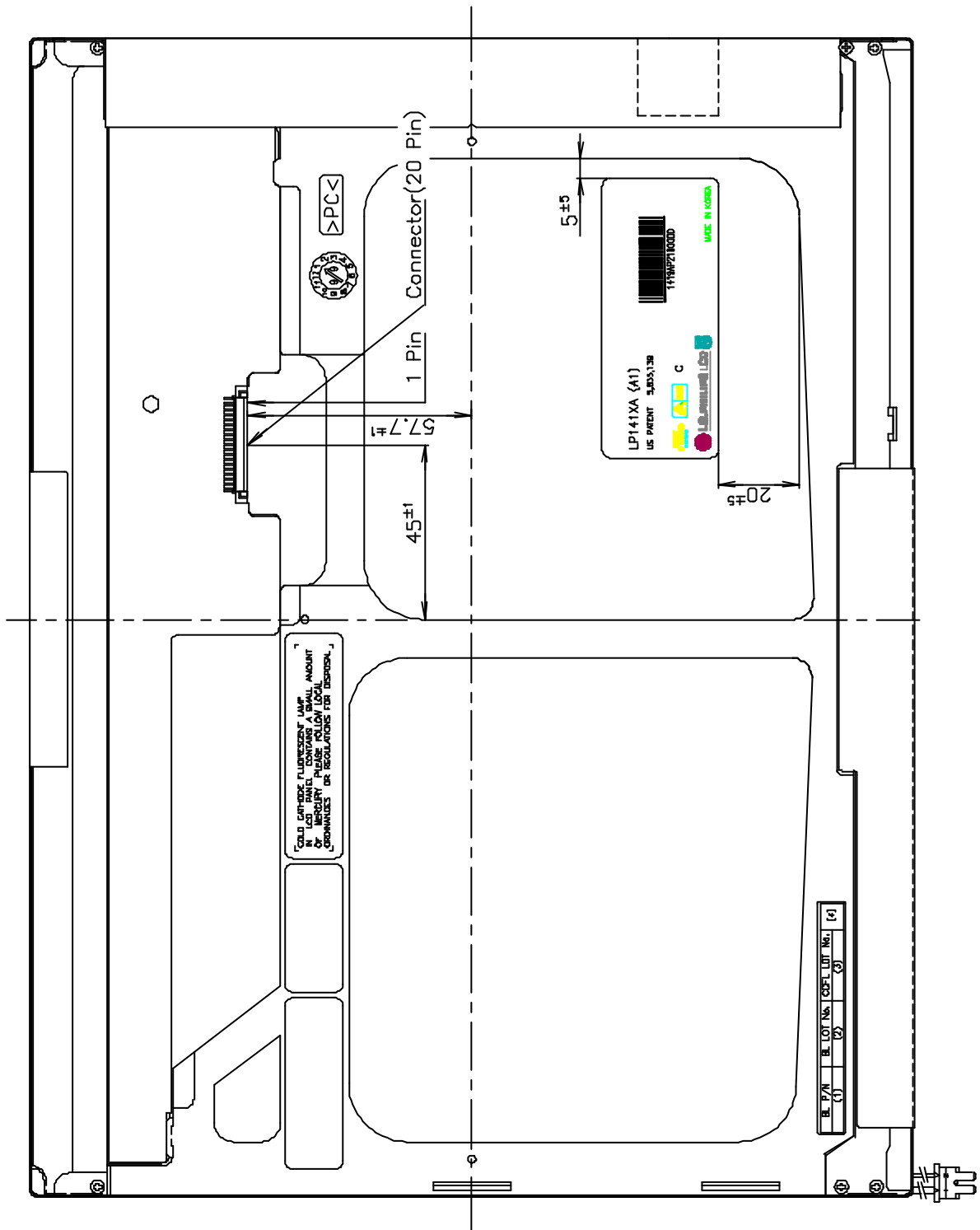
<FRONT VIEW>



Notes 1. Unspecified dimensional tolerance are ± 0.5mm

Product General Specification

< REAR VIEW >



### **3.PRECAUTIONS**

The LCD Products listed on this documents are not suitable for use of Military, Industry, Medical etc. system.

If customers intend to use these LCD products for above application, Please contact ours sales people in advance.