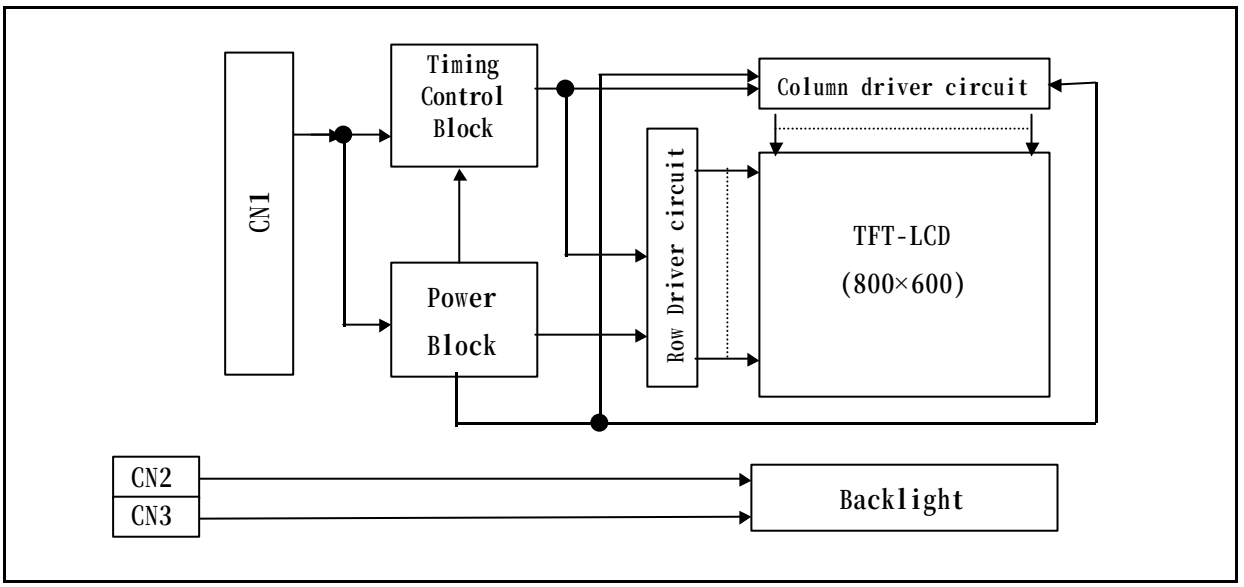
1. General Description

The LB121S1 is a Color Active Matrix Liquid Crystal Display with an integral Cold Cathode Fluorescent Lamp(CCFL) 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 12.1 inch diagonally measured active display area with SVGA resolution(600 vertical by 800 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 LB121S1 is intended to support applications where high brightness, broad viewing angle are critical factors and graphic displays are important. In combination with the vertical arrangement of the sub-pixels, the LB121S1 characteristics provide an excellent flat panel display for office automation products.



General Features

The following are general feature of the model LB121S1 LG Philips LCD;

Active screen size	12.1 inches(30.75cm) diagonal
Outline dimensions	280(H) × 218(V) × 12(D) mm (typ)
Pixel pitch	0.3075 mm × 0.3075 mm
Pixel format	800 horiz. By 600 vert. pixels RGB stripe arrangement
Color depth	6-bit, 262,144 colors
Luminance,White	300 cd/m^2 (typ)
Power Consumption	Total 8 Watt,typ (1Watt @Vcc, 7 Watt @Lamp)
Weight	795g(typ), 810g(Max)
Display operating mode	transmissive mode, normally white
Surface treatments	hard coating(3H), anti-glare treatment of the front polarizer

2. Electrical Specifications

2-1. Electrical Characteristics

The LB121S1-A2 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_{CC}	3.0	3.3	3.6	Vdc	
Power Supply Input Current	I_{CC}	-	0.310	0.355	A	1
Power Consumption	P_c	-	1.0	1.2	Watts	1
Rush current	I_{RUSH}	-	-	1.8	A	2
LAMP						
Operating Voltage	V_{BL}	540	580	665	V_{RMS}	3
Operating Current	I_{BL}	3.0	6.0	8.0	mA	
Established Starting Voltage				875	V_{RMS}	4
at 25°C		-	-	1300	V_{RMS}	
at 0°C						
Operating Frequency	f_{BL}	30	55	60	kHz	
Power Consumption	P_{BL}	4.0	7.0	8.6	Watts	5
Life Time		50,000	-		Hrs	6

Notes: 1. The current draw and power consumption specified is for 3.3 Vdc at 25°C and fv at 60Hz.(at Black pattern displayed)
2. The duration of rush current is about 20ms
3. The variance of the voltage is ±10%.
4. The output voltage at the transformer in the inverter must be high considering to the loss of the ballast capacitor in the inverter.
5. The lamp power consumption shown above does not include loss of external inverter.
6. 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.

2-2. Interface Connections

This LCD employs three interface connections, a 41 pin connector is used for the module electronics and two connectors, a three pin connector, are used for the integral backlight system.
The electronics interface connector is a model DF9B-41P-1V manufactured by Hirose and its mate is DF9B-41S-1V.
The pin configuration for the connector is shown in the table below.

Table 2 MODULE CONNECTOR PIN CONFIGURATION

Pin	Symbol	Description	Notes
1	Vss	Ground	Connect to Vss, see Note 1
2	CLK	Main clock	
3	Vss	Ground	Connect to Vss, see Note 1
4	Hsync	Horizontal sync.	
5	Vsync	Vertical sync.	
6	Vss	Ground	Connect to Vss, see Note 1
7	Vss	Ground	Connect to Vss, see Note 1
8	Vss	Ground	Connect to Vss, see Note 1
9	R0	Red data	Red data least significant bit(LSB)
10	R1	Red data	
11	R2	Red data	
12	Vss	Ground	Connect to Vss, see Note 1
13	R3	Red data	
14	R4	Red data	
15	R5	Red data	Red data most significant bit(MSB)
16	Vss	Ground	Connect to Vss, see Note 1
17	Vss	Ground	Connect to Vss, see Note 1
18	Vss	Ground	Connect to Vss, see Note 1
19	G0	Green data	Green data least significant bit(LSB)
20	G1	Green data	
21	G2	Green data	
22	Vss	Ground	
23	G3	Green data	
24	G4	Green data	
25	G5	Green data	Green data most significant bit(MSB)
26	Vss	Ground	Connect to Vss, see Note 1
27	Vss	Ground	Connect to Vss, see Note 1
28	Vss	Ground	Connect to Vss, see Note 1
29	B0	Blue data	Blue data least sinificant bit(LSB)
30	B1	Blue data	
31	B2	Blue data	
32	Vss	Ground	Connect to Vss, see Note 1
33	B3	Blue data	
34	B4	Blue data	
35	B5	Blue data	Blue data most significant bit(MSB)
36	Vss	Ground	Connect to Vss, see Note 1
37	DTMG	Data timing signal	
38	L_R	Horizontal display mode select	See Note 3
39	VCC	signal	+3.3Vdc power supply input, see Note 2
40	VCC	Power input	+3.3Vdc power supply input, see Note 2
41	U_D	Power input	See Note 4
		Vertical display mode select signal	

Notes : 1. All GND(ground) pins should be connected together and the LCD's metal frame.
2. All Vcc(power input) pins should be connected together

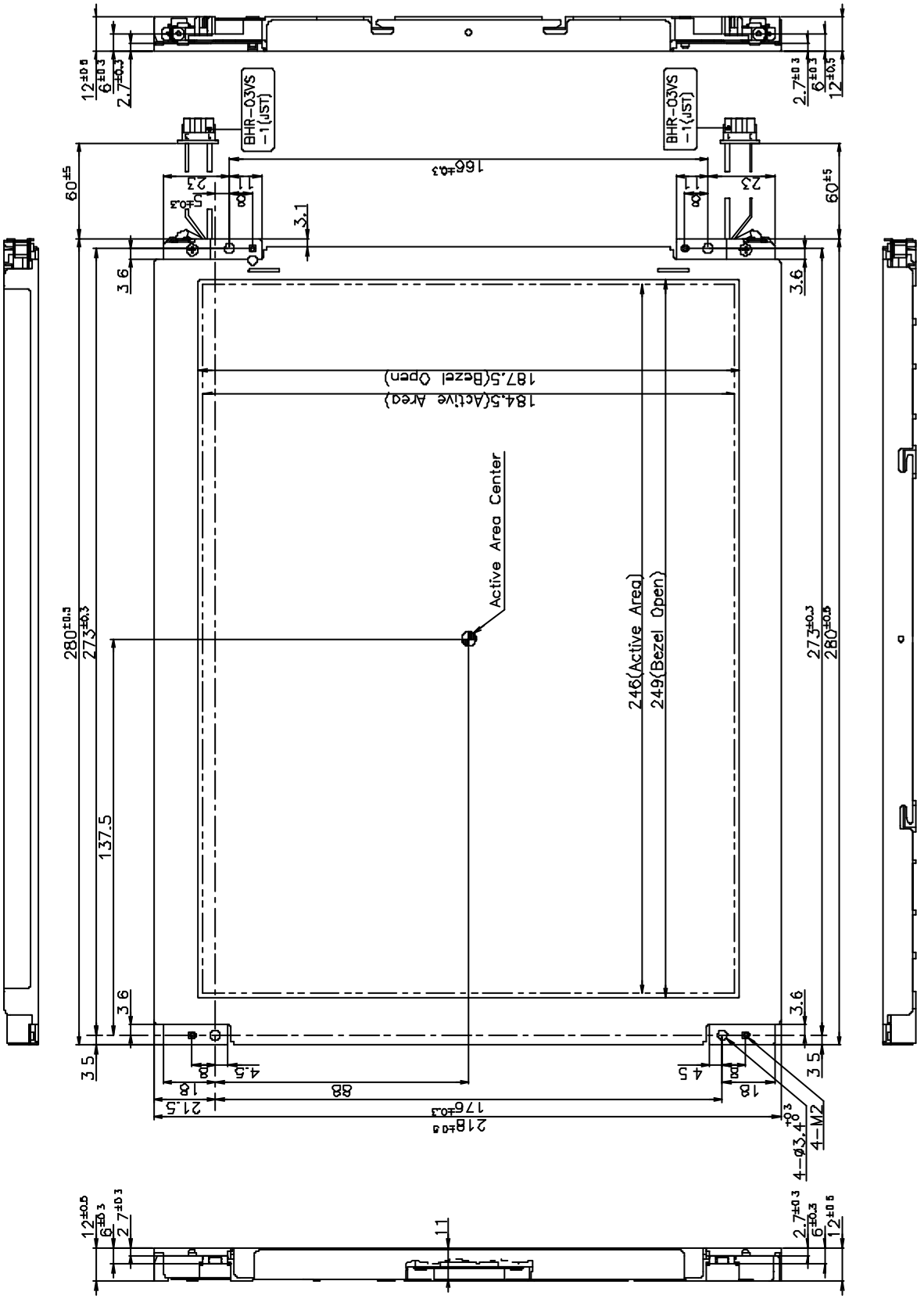
The backlight interface connector is a model BHR-03VS-1, manufactured by JST. The mating connector part number is SM02(8.0)B-BHS-1-TB or equivalent. The pin configuration for the connector is shown in the table below.

Table 3 BACKLIGHT CONNECTOR PIN CONFIGURATION

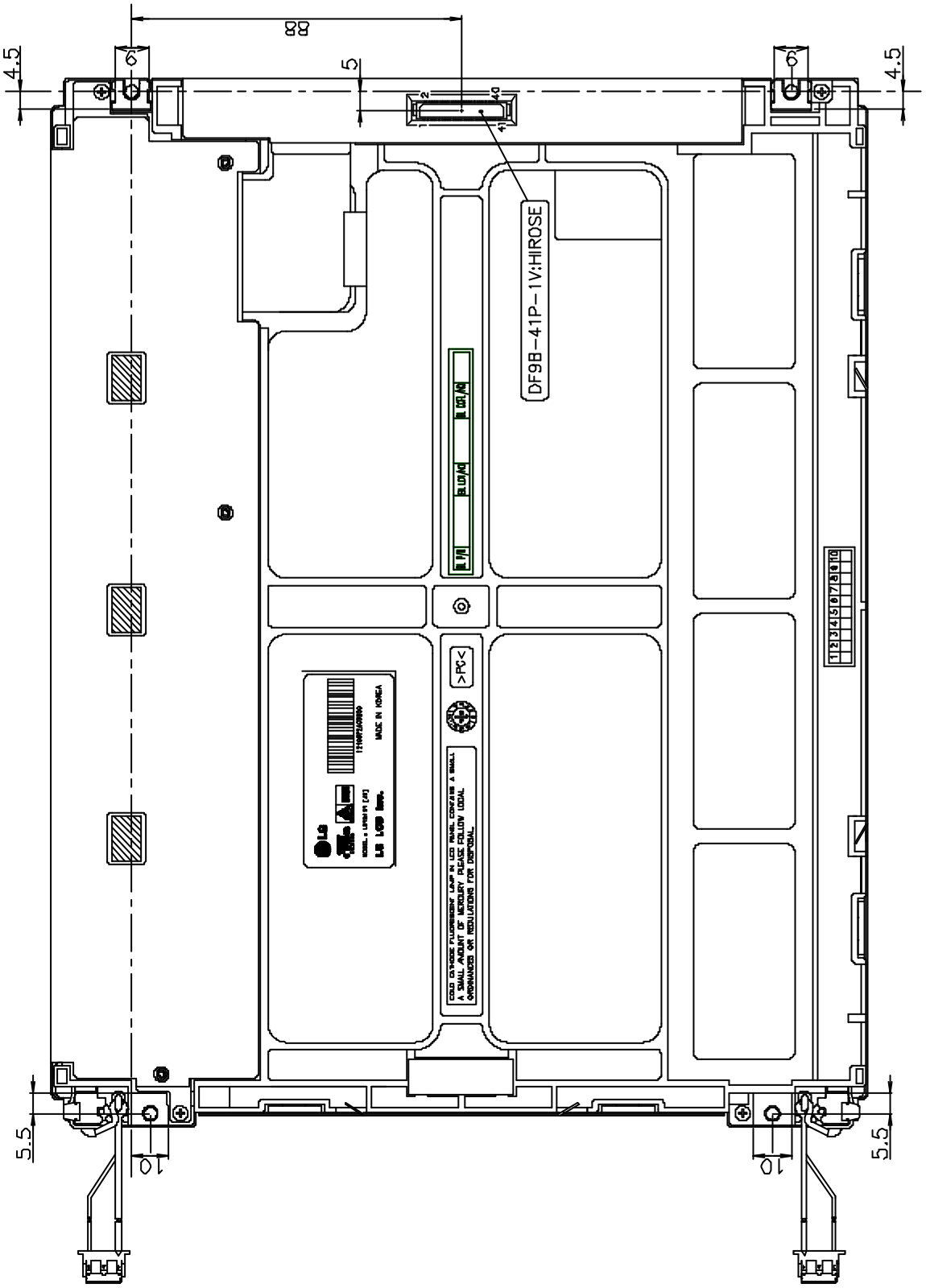
Pin	Symbol	Description	Notes
1	HV	Lamp power input	PINK
2	NC	No connect	
3	LV	Ground	WHITE

Notes : 1. The input power terminal is colored pink. Ground pin color is white.
2.The lamp ground should be common with GND.

< FRONT VIEW >


BHR-03VS-1(JST)
BHR-03VS-1(JST)
166±0.3
60±5
60±5
3.1
3.6
3.6
187.5(Bezel Open)
184.5(Active Area)
Active Area Center
246(Active Area)
249(Bezel Open)
280±0.3
273±0.3
273±0.3
280±0.5
137.5
3.6
3.6
3.5
3.5
4.5
4.5
18
18
88
21.5
176±0.3
218±0.3
4-M2
4-Ø3.4±0.3
11

< REAR VIEW >



NOTES

1. Unspecified tolerances to be ±0.5.

4. 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.