DISPLAY FEATURES

This module is a 5.7" VGA of 4:3 format amorphous silicon TFT. The pixel format is vertical stripe and sub pixels are arranged as R(red), G(green), B(blue) sequentially. This display is RoHS compliant, and COG (chip on glass) technology and LED backlight are applied on this display.

Module Dimensions	135.0 (W) mm x 104.6(H) mm x 11.00 (D) mm
LCD Active Area	115.2(W) mm x 86.4(H) mm
Pixel Pitch	0.18(W) x 0.18(H) mm
Resolution	640 x 3(RGB)(W) x 480(H) dots
Color Pixel Arrangement	R, G, B Vertical stripe
LCD Type	Transmissive Color TFT; Normally White
Display Type	Active Matrix
Number of Colors	262k Colors (6-bit RGB)
Backlight	Light Emitting Diode (LED)
Weight	104g
Interface	C-MOS; 18-bit RGB; 40 pins
Power Supply Voltage	3.3V for LCD; 12V for Backlight
Power Consumption	314mW for LCD ; 2.4W for Backlight
Viewing Direction	6 O'clock (without image inversion and least brightness change) 12 O'clock (contrast peak located at)

OPTICAL CHARACTERISTICS

The optical characteristics are measured based on the conditions as below:

- Supplying the signals and voltages defined in the section of electrical characteristics.
- The ambient temperature is 25°C.
- In the dark room less than 100 lx, the equipment has been set for the measurements as shown in Fig 6.1.

T_a = 25 °C, f_{Frame} = 60 Hz, V_{DD} = 3.3V

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Remarks
Brightness of White		-	I_{LED}= 200mA $\phi=0^\circ, \theta=0^\circ$	800	1000	-	cd/m^2	Note 1
Brightness Uniformity		-		70	-	-	%	Note 2
Contrast Ratio		CR		300	600	-	-	Note 3
Response Time		Tr + Tf	$\phi=0^\circ, \theta=0^\circ$	-	50	-	ms	Note 4
NTSC Ratio		-	$\phi=0^\circ, \theta=0^\circ$	-	50	-	%	-
Viewing Angle		θx	$\phi=0^\circ$, CR ≥ 10	-	70	-	Degree	Note 5
		θx'	$\phi=180^\circ$, CR ≥ 10	-	70	-		
		θy	$\phi=90^\circ$, CR ≥ 10	-	80	-		
		θy'	$\phi=270^\circ$, CR ≥ 10	-	60	-		
Color Chromaticity	Red	X	$\phi=0^\circ, \theta=0^\circ$	0.55	0.60	0.65	-	Note 6
		Y		0.30	0.35	0.40		
	Green	X		0.30	0.35	0.40		
		Y		0.53	0.58	0.63		
	Blue	X		0.10	0.15	0.20		
		Y		0.05	0.10	0.15		
	White	X		0.25	0.30	0.35		
		Y		0.28	0.33	0.38		

INTERFACE PIN CONNECTIONS

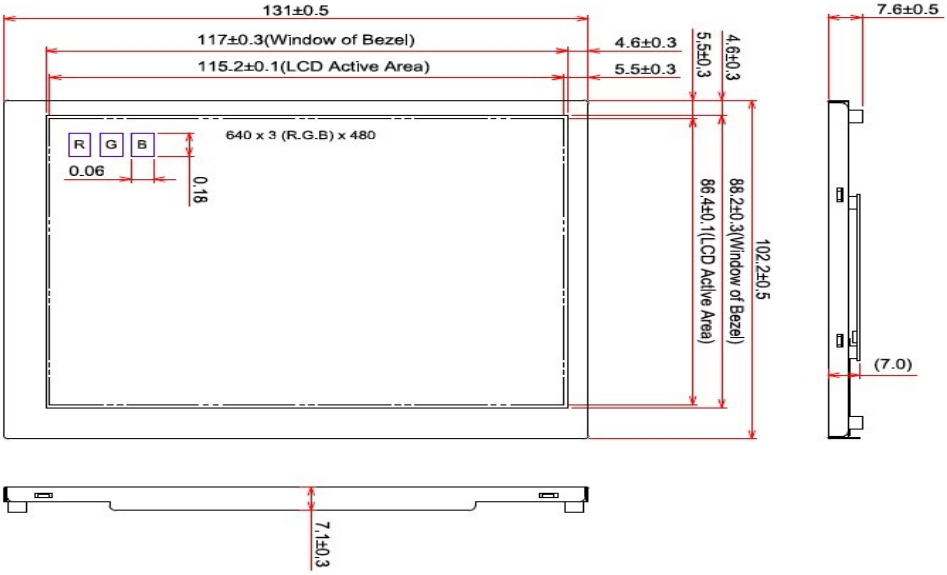
The display interface connector is FA5B040HP1R3000 made by JAE (Thickness: 0.3±0.05mm; Pitch: 0.5±0.05mm) and more details of the connector are shown in the section of outline dimension.

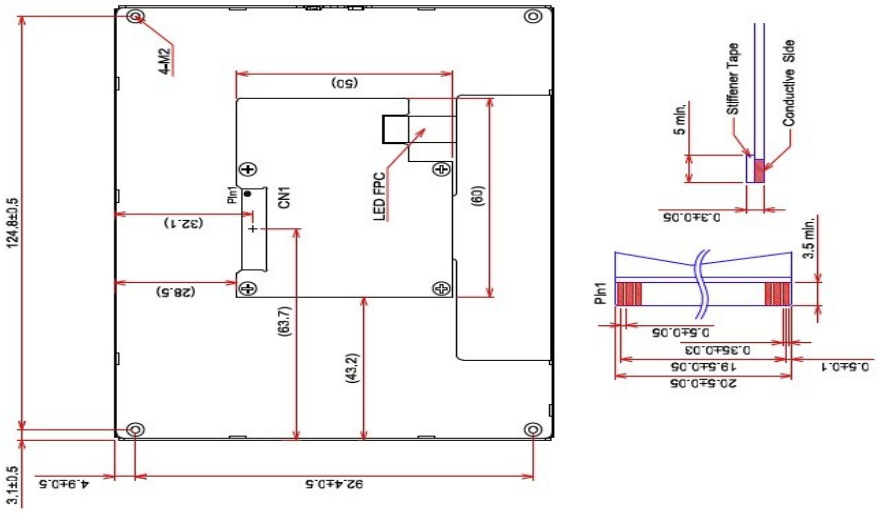
Pin assignment of LCD interface is as below:

Pin No.	Signal	Function	Pin No.	Signal	Function
1	V_{DD}	Power Supply for Logic	21	G4	Green Data
2	V_{DD}		22	G3	Green Data
3	UD	Vertical Display mode Control	23	V_{SS}	GND
4	LR	Horizontal Display mode Control	24	G2	Green Data
5	Vsync	Vertical synchronous signal	25	G1	Green Data
6	DE	Data Enable Signal	26	G0	Green Data (LSB)
7	V_{SS}	GND	27	V_{SS}	GND
8	CLK	Dot Clock	28	R5	Red Data (MSB)
9	V_{SS}	GND	29	R4	Red Data
10	Hsync	Horizontal synchronous signal	30	R3	Red Data
11	V_{SS}	GND	31	V_{SS}	GND
12	B5	Blue Data (MSB)	32	R2	Red Data
13	B4	Blue Data	33	R1	Red Data
14	B3	Blue Data	34	R0	Red Data (LSB)
15	V_{SS}	GND	35	NC	No Connection
16	B2	Blue Data	36	DIM	Brightness control
17	B1	Blue Data	37	V_{LED}	Power Supply for LED (12V)
18	B0	Blue Data (LSB)	38		
19	V_{SS}	GND	39		
20	G5	Green Data (MSB)	40		

RELIABILITY TESTS

Test Item	Condition	
High Temperature	1) Operating 2) 80°C	240 hrs
Low Temperature	1) Operating 2) -30°C	240 hrs
High Temperature	1) Storage 2) 80°C	240 hrs
Low Temperature	1) Storage 2) -30°C	240 hrs
Heat Cycle	1) Operating 2) –20°C ~70°C 3) 3hrs~1hr~3hrs	240 hrs
Thermal Shock	1) Non-Operating 2) -35°C ↔ 85°C 3) 0.5 hr ↔ 0.5 hr	240 hrs
High Temperature & Humidity	1) Operating 2) 40°C & 85%RH 3) Without condensation	240 hrs (Note 3)
Vibration	1) Non-Operating 2) 20～200 Hz 3) 2G 4) X, Y, and Z directions	1 hr for each direction
Mechanical Shock	1) Non-Operating 2) 10 ms 3) 50G 4) ±X, ±Y and ±Z directions	Once for each direction
ESD	1) Operating 2) Tip: 150 pF, 330Ω 3) Air discharge for glass: ±8KV 4) Contact discharge for metal frame: ±8KV	1) Glass: 9 points 2) Metal frame: 8 points (Note 4)





Recommended design rule for CN1 FPC