

1. GENERAL SPECIFICATION

1.1 Description

The G49812BK01A8(GD3199B) is a color active matrix Thin Film Transistor (TFT) Liquid Crystal Display (LCD) that uses amorphous silicon(a-Si) TFT as a switching device. This model is composed of a single 4.98 inches transmissive type main TFT-LCD panel. The resolution of the panel is 480*854 pixels and can display up to 16.7M color.

1.2 Feature

- TN type for main TFT-LCD panel
- Structure COG+FPC+BL
- Full, Normal (Still), Partial, Sleep mode are available

1.3 Application

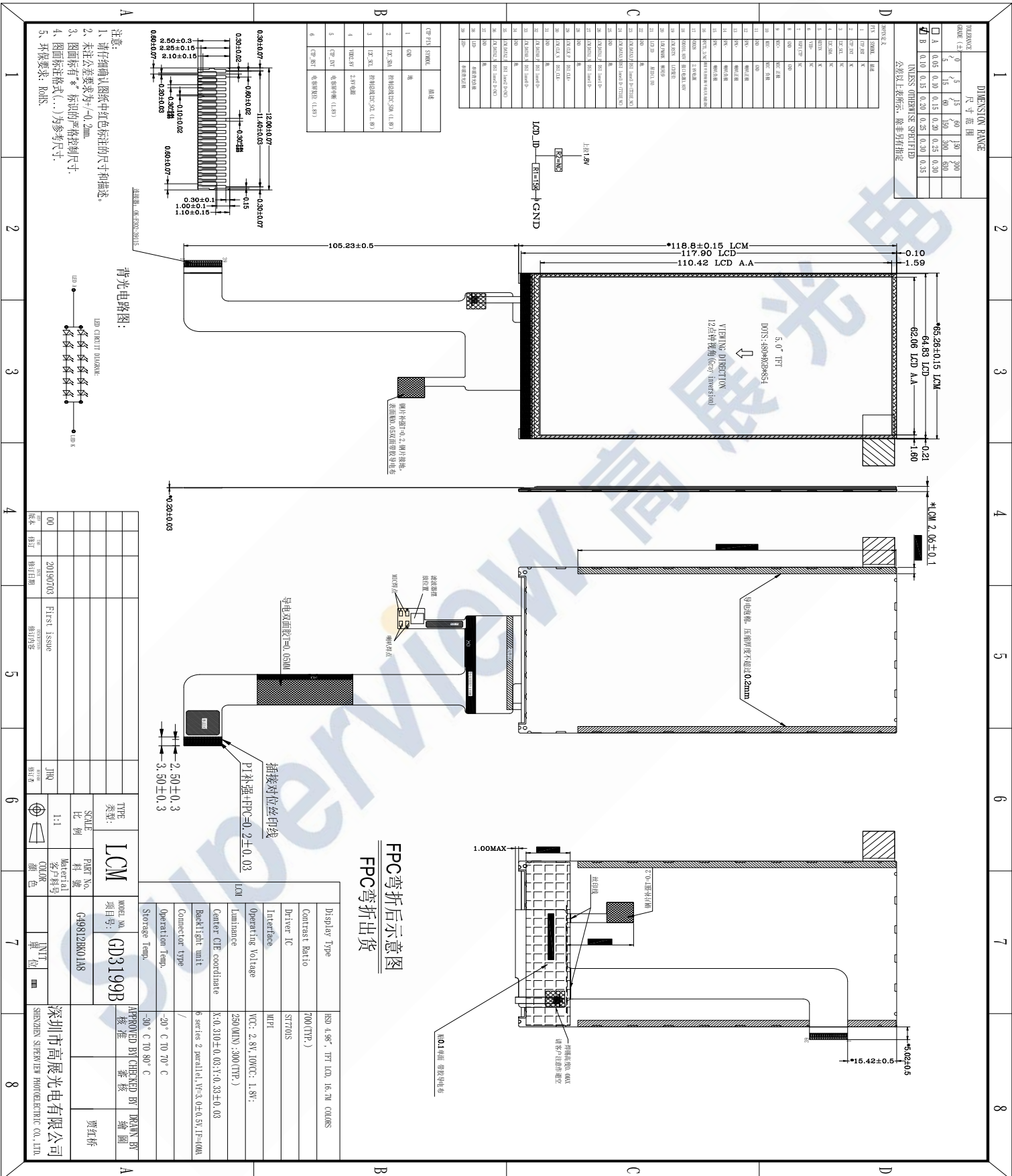
- Display terminals for Mobile phone

1.4 General Specification

No.	Item	Specification	Unit	Remark
1	LCD Size	5.0	inch	-
2	Panel Type	a-Si TFT active matrix	-	-
3	Resolution	480 x (RGB) x 854	pixel	-
4	Display Mode	Normally White, Transmissive	-	-
5	Display Number of Colors	16.7M	-	-
6	Viewing Direction	12 点钟	-	Note
7	Contrast Ratio	700(Typ)	-	-
8	Luminance	350(Typ)	cd/m ²	-
9	Module Size	67.2(W) x 140.7(L) x 2.06 ± 0.2	mm	Note
10	Active Area	62.06(W) x 110.42(L)	mm	Note
11	Pixel Pitch	0.1293(W) x 0.1293 (L)	mm	-
12	Driver IC	ST7701S	-	-
13	Light Source	12 LEDs White	-	-
14	Interface	MIPI_2Lane	-	-
15	Operating Temperature	-20~70	℃	-
16	Storage Temperature	-30~80	℃	-

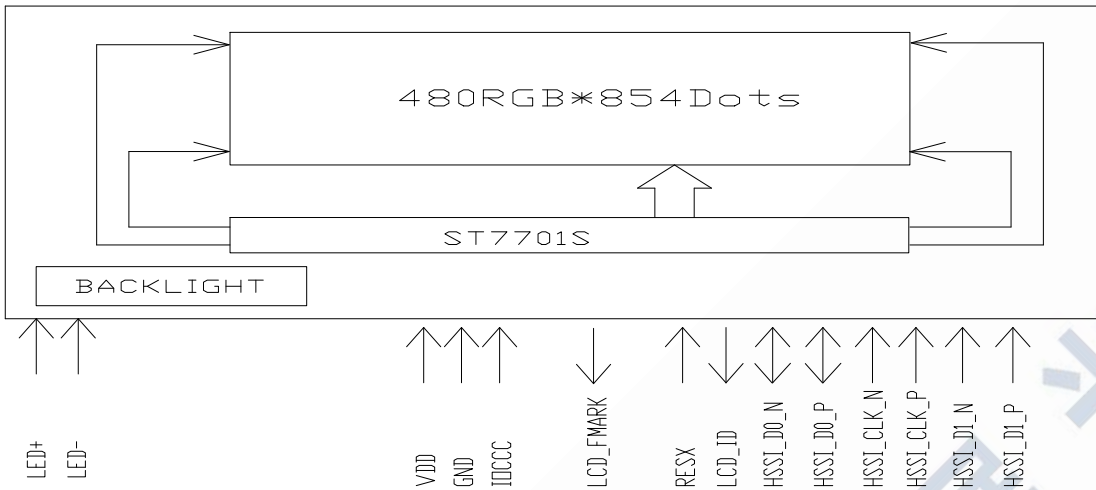
Note: Please refer to the mechanical drawing.

2. MECHANICAL DRAWING



3. ELECTRICAL SPECIFICATION for TFT

3.1. APPLICATION CIRCUIT



3.2. TFT ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	Rating	UNIT
Power Supply for Analog	VCC-VSS	-0.3 to +5.0	V
Power Supply for Digital IO	IOVCC-VSS	-0.3 to+2.0	
Lcd supply voltage range	VCIP-VSS	-0.3 to+6.5	
	VSS-VCIN	-0.3 to+6.5	
	VGH-VSS	-0.3+18.0	
	VSS-VGL	-0.3+18	
Input Voltage range	Vin	-0.3 to VDDI +0.5	

3.3. TFT TYPICAL OPERATION CONDITION

TFT DC Characteristics

ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN	TYP	MAX	
Power Supply for Analog	VDD	Ta=25 °C	2.5	2.8	3.5	V
Power Supply for Digital IO	IOVDD	Ta=25 °C	1.65	1.8	3.3	V
Input Signal "H" Level	V _{IH}	-	0.7IOVDD	-	IOVDD	V
Input Signal "L" Level	V _{IL}	-	0	-	0.3IOVDD	V
Output Signal "H" Level	V _{OH}	I _{OH} =-1.0mA	0.8IOVDD	-	IOVDD	V
Output Signal "L" Level	V _{OL}	I _{OL} =1.0mA	0	-	0.2IOVDD	V
Frame Frequency	FRAME	-	50	60	80	Hz

Note: To prevent IC latch up or DC operation in LCD panel, the power on/off sequence should follow the driver IC specification.

4. LCD OPTICAL CHARACTERISTICS

(T_a=+25°C, V_{CI}=+2.85V IOVCC=+1.8V, I_B=20mA)

Item		Symbol	Condition	Values			Unit	Remark
				Min.	Typ.	Max.		
Viewing Angle Range	Left	θ _L	CR ≥ 10	60	70	-	degree	Note 1
	Right	θ _R		60	70	-		
	Top	Φ _T		60	70	-		
	Bottom	Φ _B		50	60	-		
Response Time		T _R	Normal θ=Φ=0°	-	4	8	ms	Note ,2
		T _F		-	12	24		
Contrast Ratio		CR	Normal θ=Φ=0° angle	560	700	-	-	Note 3
Color Chromaticity (CIF1931)	White	X	Normal θ=Φ=0°	0.290	0.310	0.330	-	Note 4
		Y		0.310	0.330	0.350		
Transmittance		Trans		-	4.76	-	%	Note 5

Note 1: Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface (see Figure 4 shown in Appendix).

Note 2: The electro-optical response time measurements shall be made as Figure 5 by switching the "data" input signal OFF and On. The times needed for the transmittance to change from 90% to 10% is Tr, and 10% to 90% is Td. Fig. 2 Definition of response time

Note 3: Contrast measurements shall be made at viewing angle of Θ= 0° and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state. (see Figure 4) Luminance Contrast Ratio (CR) is defined mathematically.

$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

Note 4: The color chromaticity coordinates specified in Table 4 shall be calculated from the spectral data measured with all pixels first in red, green, blue and white.

Measurements shall be made at the center of the panel.

Measurement condition is C- light Source & Halogen Lampe