

## 1.1 Description

The G02004AA01A0(GD3081 V00) 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 2.0 inches transmissive type main TFT-LCD panel. The resolution of the panel is 240\*320 pixels and can display up to 262K 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

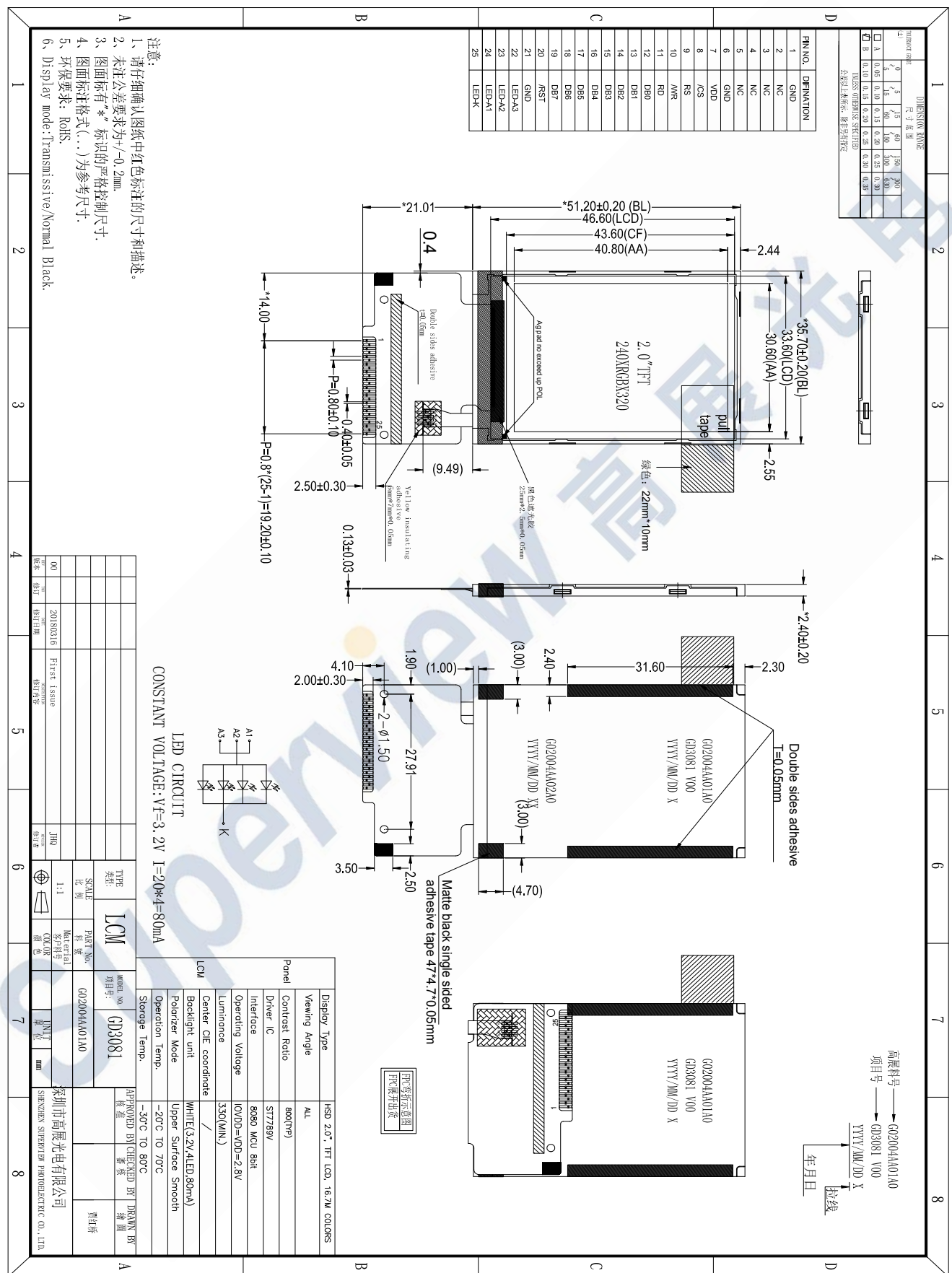
- Display terminals for Toys

## 1.4 General Specification

No.	Item	Specification	Unit	Remark
1	LCD Size	2.0	inch	-
2	Panel Type	a-Si TFT transmissive	-	-
3	Resolution	240 x (RGB) x 320	pixel	-
4	Display Mode	Normally Black, Transmissive	-	-
5	Display Number of Colors	262K	-	-
6	Viewing Direction	ALL	-	Note
7	Contrast Ratio	800(Typ)	-	-
8	Luminance	330(MIN)	cd/m2	-
9	Module Size	35.7(W) x 51.2(L) x 2.4(T)	mm	Note
10	Active Area	30.6(W) x 40.8(L)	mm	Note
11	Pixel Pitch	0.180(W) x 0.180 (L)	mm	-
12	Weight	TBD(TYP)	g	-
13	Driver IC	ST7789V	-	-
14	Driver IC Size	15155X700X300	um	-
15	Light Source	4 White LEDs	-	-
16	Interface	8080 MCU 8bit	-	-
17	Operating Temperature	-20~70	°C	-

Note: Please refer to the mechanical drawing.

2. MECHANICAL DRAWING

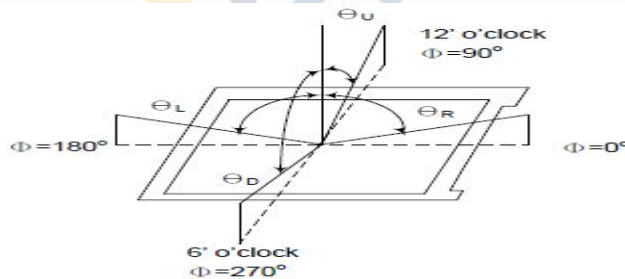


3.OPTICAL CHA

( $T_a=+25^{\circ}\text{C}$ ,  $V_{CI}=+2.85\text{V}$   $\text{IOVCC}=+1.8\text{V}$ ,  $I_B=20\text{mA}$ )

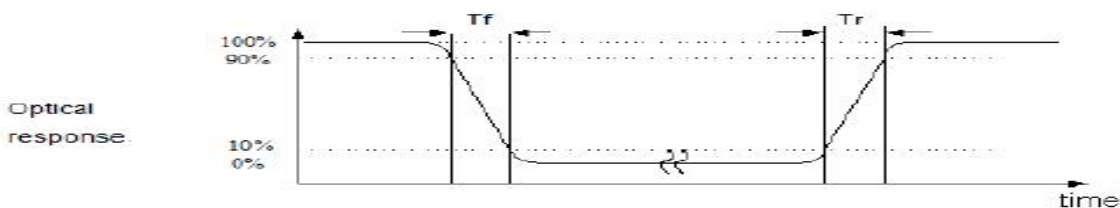
Item	Symbol	Condition	Values			Unit	Remark	
			Min.	Typ.	Max.			
Viewing Angle Range	Left	$\theta_L$	$\text{CR} \geq 10$	-	80	-	degree	Note 1
	Right	$\theta_R$		-	80	-		
	Top	$\Phi_T$		-	80	-		
	Bottom	$\Phi_B$		-	80	-		
Response Time		$T_{\text{on}} + T_{\text{off}}$	Normal $\theta = \Phi = 0^{\circ}$	-	30	-	ms	Note 2
Contrast Ratio		CR	Normal $\theta = \Phi = 0^{\circ}$	640	800	-	-	Note 3
Luminance		L	Normal $\theta = \Phi = 0^{\circ}$		450	--	$\text{cd}/\text{m}^2$	Note 4
Color Chromaticit	White	X	Normal $\theta = \Phi = 0^{\circ}$	-0.03	0.296	+0.03	-	Note 5
		Y			0.310			
Transmittance		Trans		-	4.5%		-	Note7 Normal POL

Note 1: Definition of viewing angle range



Note 2: Definition of response time

The output signals of TRD-100 are measured when the input signals are changed to "White" (falling time) and from "White" to Black" (rising time). respectively. The interval is between the 10% and 90% of amplitudes. Refer to figure as below.



Note 3: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 4: Definition of luminance

Measured at the center area of the panel when LCD panel is driven at "white" state.

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at the center point of LCD when panel is driven at "White", "Red", "Green" and "Blue" state respectively.

Note 7:

CDY shipping status is cell without polarizer. Transmittance of Specification is cell with polarizer

#### 4.RELIABILITY TESTS

ITEM	CONDITION	CRITERION
Operating Temperature Test	High Temperature: +70 °C, 96 hrs	No defects in display and operational functions
	Low Temperature: -20 °C,96 hrs	
Storage Temperature Test	High Temperature: +80 °C, 96 hrs	No defects in display and operational functions
	Low Temperature: -30 °C, 96 hrs	
Humidity Endurance Test	60°C, 90%RH, 96 hrs	No defects in display and operational functions
Thermal Shock Test	-20 °C (30mins)~ +70 °C (30mins) 10 cycles	No defects in display and operational functions
Electro Static Discharge	± 4KV, Human BodyMode,150pF/330Ω; ± 8KV,Air Mode,150pF/330Ω	No defects in display and operational functions