

# TFT DISPLAY SPECIFICATION



RAYSTAR

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## RFJ02000B-AYH-DNN

### General Specifications

- Size: 2.0" inch
- Dot Matrix: 240 x RGB x 320(TFT) dots
- Module dimension: 38.8(W) x 52.3(H) x 2.15(D) mm
- Active area: 30.60 x 40.80 mm
- Pixel Pitch: 0.1275 x 0.1275 mm
- LCD type: TFT, Normally Black, Transmissive
- Interface: MCU / SPI
- Driver IC: ST7789VI
- Viewing angle: 80/80/80/80 (IPS)
- Aspect Ratio: 3 : 4
- Backlight Type: LED, Normally White
- Touch Panel: Without Touch Panel
- Surface: Glare

# Interface

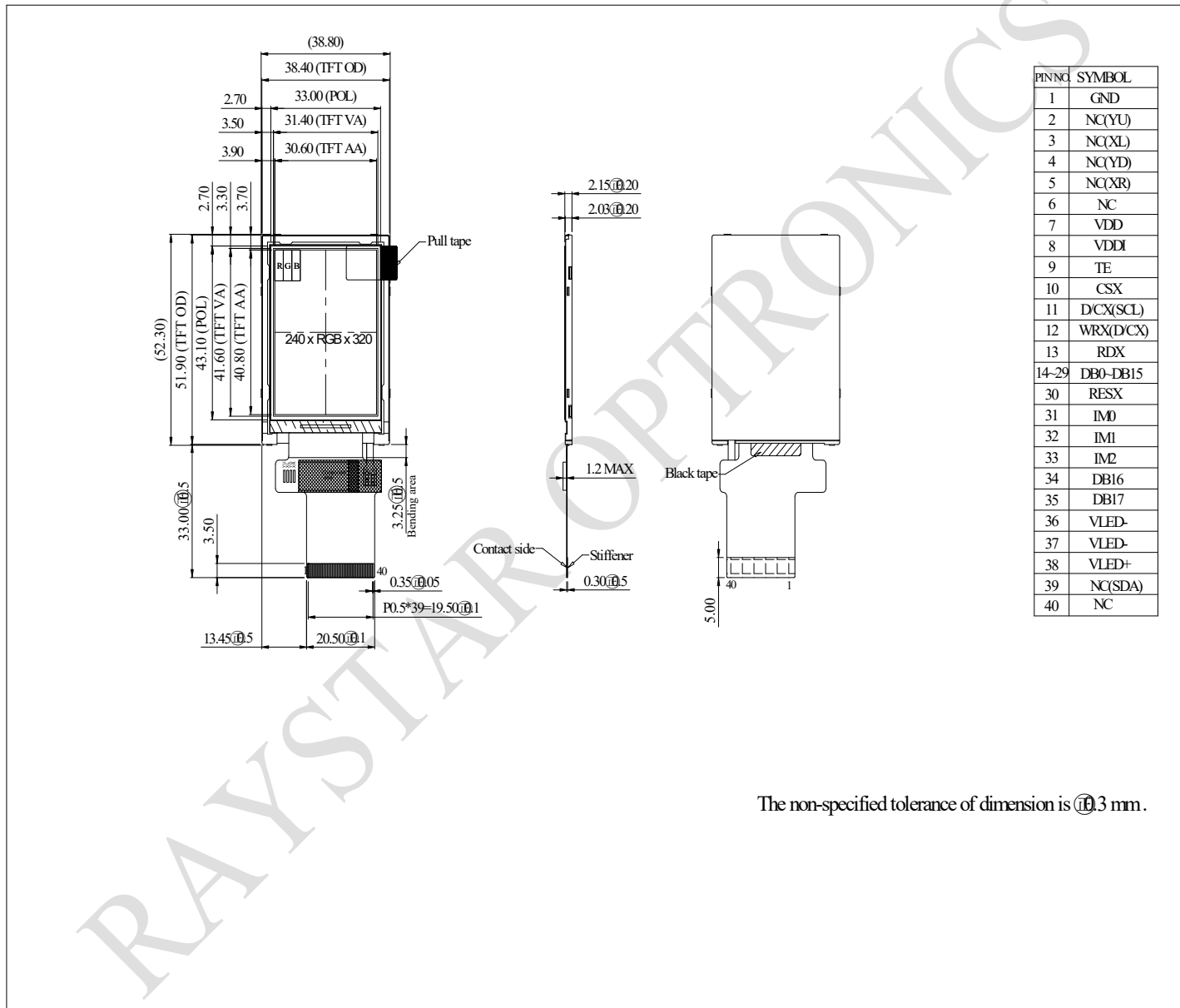
## LCM PIN Definition

NO	Symbol	Function																																				
1	GND	Ground																																				
2	NC	No connection																																				
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6	NC	No connection																																				
7	VDD	Power supply																																				
8	VDDI	Power Supply for I/O System.																																				
9	TE	Tearing effect signal is used to synchronize MCU to frame memory writing. If not used, please let this pin open																																				
10	CSX	Chip selection pin Low enable. High disable.																																				
11	DCX(SCL)	(D/CX): This pin is used to select "Data or Command" in the parallel interface. DCX='1': display data or parameter. DCX='0': command data. (SCL): When SPI mode, This pin is used to be serial interface clock.																																				
12	WRX(D/CX)	Display data/command selection Second Data lane in 2 data lane serial interface. (WRX): Write enable in MCU parallel interface. (D/CX): When 4-SPI mode, This pin in 4-line serial interface If not used, please fix this pin at VDDI or GND.																																				
13	RDX	-Read enable in 8080 MCU parallel interface. -If not used, please fix this pin at VDDI or GND.																																				
14~29	DB0~DB15	Data bus line																																				
30	RESX	System reset pin. signal is active low																																				
31	IM0	The MCU interface mode select.																																				
32	IM1																																					
33	IM2		<table border="1"> <thead> <tr> <th>IM2</th> <th>IM1</th> <th>IM0</th> <th>MPU Interface Mode</th> <th>Data pin</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>80-8bit parallel I/F</td> <td>DB[7:0]</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>80-16bit parallel I/F</td> <td>DB[15:0]</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>80-9bit parallel I/F</td> <td>DB[8:0]</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>80-18bit parallel I/F</td> <td>DB[17:0],</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>3-line 9bit serial I/F</td> <td>SDA: in/out</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>4-line 8bit serial I/F</td> <td>SDA: in/out</td> </tr> </tbody> </table>	IM2	IM1	IM0	MPU Interface Mode	Data pin	0	0	0	80-8bit parallel I/F	DB[7:0]	0	0	1	80-16bit parallel I/F	DB[15:0]	0	1	0	80-9bit parallel I/F	DB[8:0]	0	1	1	80-18bit parallel I/F	DB[17:0],	1	0	1	3-line 9bit serial I/F	SDA: in/out	1	1	0	4-line 8bit serial I/F	SDA: in/out
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34~35	DB16~DB17	Data bus line																																				

36	VLED-	Cathode of LED backlight.
37	VLED-	Cathode of LED backlight.
38	VLED+	Anode of LED backlight.
39	NC(SDA)	When SPI mode, This pin is SPI interface input/output pin. The data is latched on the rising edge of the SCL signal. If not used(NC), please fix this pin at VDDI or GND level.
40	NC	No connection

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# Contour Drawing



The non-specified tolerance of dimension is  $\pm 0.3$  mm.

## Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	—	+70	°C
Storage Temperature	TST	-30	—	+80	°C

## Electrical Characteristics

### Operating conditions

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Analog	V <sub>DD</sub>	—	2.4	3.3	3.6	V
Interface Operation Voltage	V <sub>DDI</sub>	—	1.65	1.8	3.6	V
Supply Current For LCM	I <sub>DD</sub>	V <sub>DD</sub> = V <sub>DDI</sub> = V <sub>CC</sub> =3.0V	—	6.0	9.0	mA

### LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
LED current	—	—	60	—	mA
LED voltage	V <sub>LED+</sub>	5.5	6.0	6.5	V
LED Life Time	—	—	50,000	—	Hr