

TFT DISPLAY SPECIFICATION



RAYSTAR

RAYSTAR Optronics, Inc.
曜凌光電股份有限公司



曜凌光電股份有限公司 Raystar Optronics, Inc.

T: +886-4-2565-0761 | F: +886-4-2565-0760

salescontact@raystar-optronics.com | www.raystar-optronics.com

RFJ02000B-AYW-DNG1

General Specifications

- Size: 2.0" inch
- Dot Matrix: 240 x RGB x 320(TFT) dots
- Module dimension: 38.8(W) x 52.3(H) x3.8(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
- PCAP Driver IC: GT911
- PCAP Interface: I2C
- PCAP FW: V92
- PCAP Resolution: 240 * 320
- Touch Panel: Projected Capacitive Touch Panel, PCAP
- Surface: Glare

Interface

LCM PIN Definition

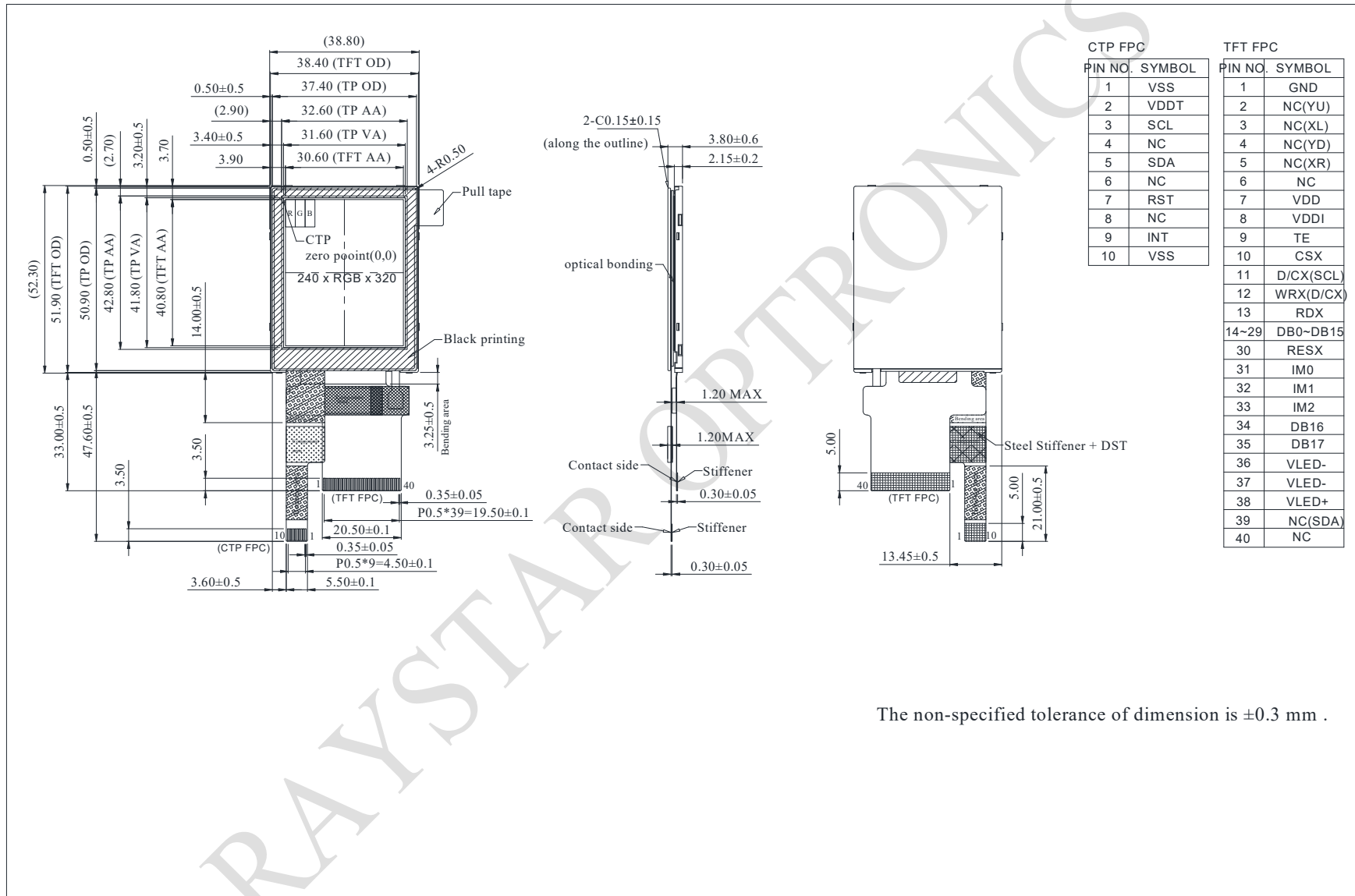
NO	Symbol	Function																																			
1	GND	Ground																																			
2	NC(YU)	No connection																																			
3	NC(XL)	No connection																																			
4	NC(YD)	No connection																																			
5	NC(XR)	No connection																																			
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.<table><tr><th>IM2</th><th>IM1</th><th>IM0</th><th>MPU Interface Mode</th><th>Data pin</th></tr><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></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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32	IM1																																				
33	IM2																																				
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

PCAP PIN Definition

Pin	Symbol	Function
1	VSS	Ground for analog circuit
2	VDDT	Power Supply :
3	SCL	I2C clock inputI2C clock input
4	NC	No connect
5	SDA	I2C data input and output
6	NC	No connect
7	/RST	External Reset, Low is active
8	NC	No connect
9	/INT	External interrupt to the host
10	VSS	Ground for analog circuit

Contour Drawing



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 _{DD}	—	2.4	3.3	3.6	V
Interface Operation Voltage	V _{DDI}	—	1.65	1.8	3.6	V
Supply Current For LCM	I _{DD}	V _{DD} = V _{DDI} = V _{CC} =3.0V	—	6.0	9.0	mA
Supply CTP	V _{CTP}	—	2.8	—	3.3	V
	I _{CTP}	—	—	8.0	12.0	mA

LED driving conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
LED current	—	—	60	—	mA
LED voltage	V _{LED+}	2.7	3.1	3.4	V
LED Life Time	—	—	50,000	—	Hr