Next Vision Display
Brighten The Future

MODULE NO.: NT028-C002PT

1. SPECIFICATIONS

1.1 Features

Main LCD panel

Item	Standard Value
Display Type	240(R、G、B) * 320 Dots
LCD Type	Normally white , Transmissive type
Screen size(inch)	2.8 inch
Viewing Direction	12 O'clock
Color configuration	RGB-Strip
Interface	MCU parallel / RGB / SPI
Other(controller/driver IC)	ILITEK: ILI9341
ROHS	THIS PRODUCT CONFORMS THE ROHS OF PTC

1.2 Mechanical Specifications

Item	Standard Value	Unit
Outline Dimension	56.0(W) * 75.2 (L) * 4.35 (H)	mm

LCD panel

Item	Standard Value	Unit
Active Area	43.2 (W) * 57.6 (L)	mm

Touch panel

Item	Standard Value	Unit
Active Area	45.2 (W) * 59.6 (L)	mm

1.3 Absolute Maximum Ratings

Module

Item	Symbol	Condition	Min.	Max.	Unit
System Power Supply Voltage	V_{DDI}	-	-0.3	+4.6	V
	V_{GH} ~ V_{GL}	-	-0.3	+32	V
Input Voltage	V_{IN}	-	-0.3	V_{DDI}+0.3	V
Operating Temperature	T_{OP}	-	-20	+70	°C
Storage Temperature	T_{ST}	-	-30	+80	°C
Storage Humidity	H_D	Ta ≦ 60 °C	20	90	%RH

1.4 DC Electrical Characteristics

Module VSS = 0V, Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power Supply Voltage1	V_{DDI}	-	-	2.8	-	V
Input High Voltage	V_{IH}	-	0.7*V_{DDI}	-	V_{DDI}	V
Input Low Voltage	V_{IL}	-	VSS	-	0.3*V_{DDI}	V
Output High Voltage	V_{OH}	I_{OH}=-0.1mA	0.8*V_{DDI}	-	V_{DDI}	V
Output Low Voltage	V_{OL}	I_{OL}=0.1mA	V_{SS}	-	0.2*V_{DDI}	V
Supply Current	I_{DD}	V_{DDI} = 2.8V	-	(9.4)	(14.5)	mA

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2.2 Interface Pin Description

LCM

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>LED A</td><td>Backlight anode</td></tr>
<tr><td>2</td><td>LED K1</td><td>Backlight cathode</td></tr>
<tr><td>3</td><td>LED K2</td><td>Backlight cathode</td></tr>
<tr><td>4</td><td>LED K3</td><td>Backlight cathode</td></tr>
<tr><td>5</td><td>LED K4</td><td>Backlight cathode</td></tr>
<tr><td>6</td><td>IM0</td><td rowspan="9">- Select the MCU interface mode
<table>
<tr><th rowspan="2">IM3</th><th rowspan="2">IM2</th><th rowspan="2">IM1</th><th rowspan="2">IM0</th><th rowspan="2">MCU Interface Mode</th><th colspan="2">DB Pin in use</th></tr>
<tr><th>Register/Content</th><th>GRAM</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>80 MCU 8-bit bus interface I</td><td>D[7:0]</td><td>D[7:0]</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>80 MCU 16-bit bus interface I</td><td>D[7:0]</td><td>D[15:0]</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>80 MCU 9-bit bus interface I</td><td>D[7:0]</td><td>D[8:0]</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>80 MCU 18-bit bus interface I</td><td>D[7:0]</td><td>D[17:0]</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td>3-wire 9-bit data serial interface I</td><td colspan="2">SDA: In/OUT</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0</td><td>4-wire 8-bit data serial interface I</td><td colspan="2">SDA: In/OUT</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>80 MCU 16-bit bus interface II</td><td>D[8:1]</td><td>D[17:10], D[8:1]</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td>80 MCU 8-bit bus interface II</td><td>D[17:10]</td><td>D[17:10]</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td>80 MCU 18-bit bus interface II</td><td>D[8:1]</td><td>D[17:0]</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1</td><td>80 MCU 9-bit bus interface II</td><td>D[17:10]</td><td>D[17:9]</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1</td><td>3-wire 9-bit data serial interface II</td><td colspan="2">SDI: In
SDO: Out</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0</td><td>4-wire 8-bit data serial interface II</td><td colspan="2">SDI: In
SDO: Out</td></tr>
</table>
MPU Parallel interface bus and serial interface select
If use RGB Interface must select serial interface.
* : Fix this pin at VDDI or VSS.</td></tr>
<tr><td>7</td><td>IM1</td></tr>
<tr><td>8</td><td>IM2</td></tr>
<tr><td>9</td><td>IM3</td></tr>
</table>

10	FMARK	Tearing effect output pin to synchronize MPU to frame writing, activated by S/W command. When this pin is not activated, this pin is low. If not used, open this pin
11	VSYNC	Frame synchronizing signal for RGB interface operation. Fix to VDDI or VSS level when not in use.
12	HSYNC	Line synchronizing signal for RGB interface operation. Fix to VDDI or VSS level when not in use.
13	DOTCLK	Dot clock signal for RGB interface operation. Fix to VDDI or VSS level when not in use.
14	ENABLE	Data enable signal for RGB interface operation. Fix to VDDI or VSS level when not in use.
15~32	DB17~DB0	18 bit parallel bi-direction data bus for MCU system and RGB interface mode. Fix to VSS level when not in use. Please refer to the IM[0:3] setting.
33	CS	This pin is used to select “Data or Command” in the parallel interface or 4-wire 8-bit serial data interface. When RS = ‘1’, data is selected. When RS = ‘0’, command is selected. This pin is used serial interface clock in 3-wire 9-bit / 4-wire 8-bit serial data interface. If not used, this pin should be connected to VDDI or VSS.
34	WR	- 8080-I / 8080-II system (WRX): Serves as a write signal and writes data at the rising edge. - 4-line system (D/CX): Serves as command or parameter select. Fix to VDDI or VSS level when not in use.
35	RS/SCL	This pin is used to select “Data or Command” in the parallel interface. When RS = ‘1’, data is selected. When RS = ‘0’, command is selected. This pin is used serial interface clock in 3-wire 9-bit / 4-wire 8-bit serial data interface. If not used, this pin should be connected to VDDI or VSS.
36	RD	8080-I / 8080-II system (RDX): Serves as a read signal and MCU read data at the rising edge. Fix to VDDI or VSS level when not in use.

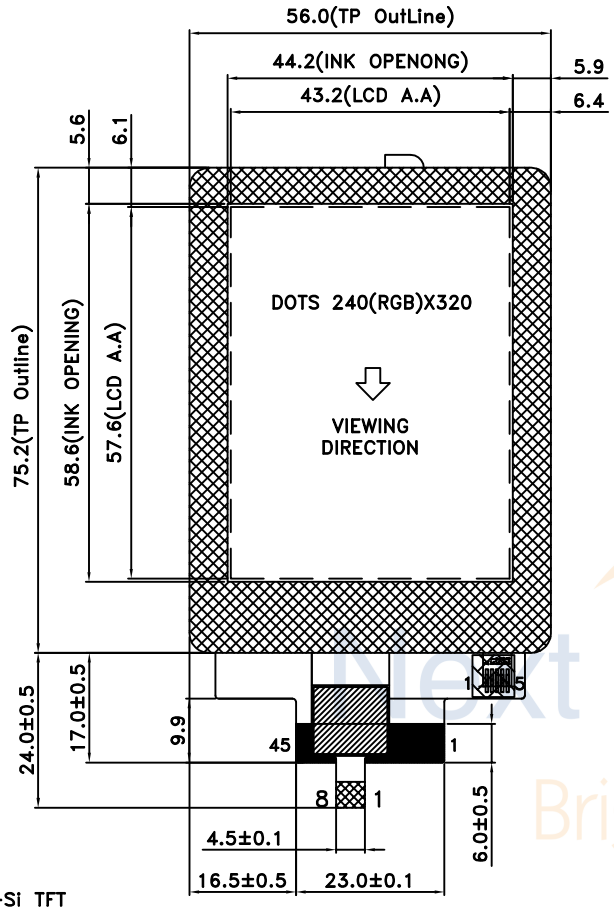
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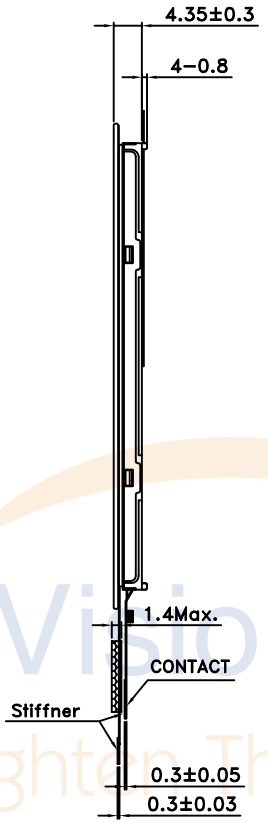
37	RESET	Reset pin.
38	SDO	Serial output signal. The data is outputted on the falling edge of the SCL signal. If not used, open this pin
39	SDI	When IM[3] : Low, Serial in/out signal. When IM[3] : High, Serial input signal. The data is applied on the rising edge of the SCL signal. If not used, fix this pin at VDDI or VSS.
40	VDDI	Power supply 2.8V
41	GND	Power ground 0V
42	NC	No Connection
43	NC	
44	NC	
45	NC	

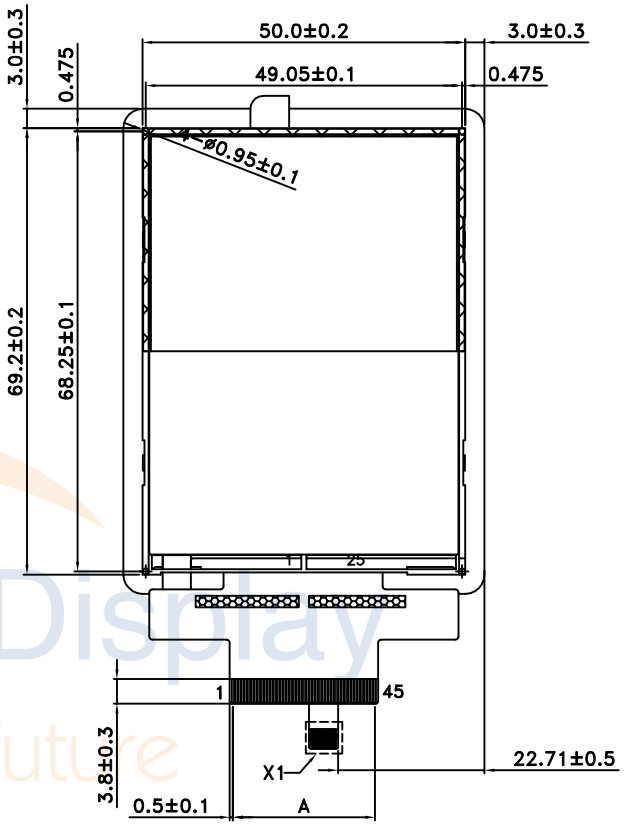
Touch Panel

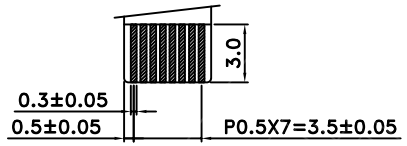
Pin No.	Symbol	Function
1	Shield	ESD Ground.
2	SCL	I2C serial clock.
3	SDA	I2C serial data.
4	VDD	Power supply.
5	RESET	System reset signal input, active low.
6	INT	Indicate coordinate data ready.
7	IOVDD	I/O power supply.
8	NC	No connection.

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Detail X1
Scale: 3/1

NOTES:
1.)LCD TYPE:a-Si TFT
2.)LCD DISPLAY: POSITIVE/TRANSMISSIVE
3.)VIEWING DIRECTION:12 O'CLOCK
4.)THE TOLERANCE UNLESS CLASSFIED ±0.3mm
THE R FOR NOT ASSIGNED 0.5±0.1mm
5.)DRIVER IC: ILI9341
6.)A:P0.5X44=22.0±0.05,W=0.35±0.03
7.) COMPONENT AREA HEIGHT 1.0 MAX.
8.)FPC suggested connector : ENTERY(6702K-E45N-00L) or compatible.
9.)T/P FPC suggested connector: CviLux (CF39082D0R0-NH)or compatible.

REV	REV BY	REVISER	DATE
007			
006			
005			
004			
003			
002			
001	NEW DRAWING	Sally	2016/10/27

PART NO: NT028-C002PT
DRAWING NAME :
TITLE: LCD MODULE DRAWING

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Design	Sally	(3)	Surface		
Check	Terry	Unit	MM	Material	
Scale	FIT			Thickness	
Approve	Ryan	Page	1/1	Quantity	

Length(Min) (mm) / Tolerance / Precision	Precision Level
1 ~ 4	-
4 ~ 16	-
16 ~ 63	-
63 ~ 250	-
250 ~ 1000	-