Next Vision Display
Brighten The Future

NEXT VISION DISPLAY

SPECIFICATION

CUSTOMER : _____

MODULE NO.: NT020-N001DW

Version	02
Engineer	
Date	2023-02-22

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Customer:
Approved by

NEXT VISION DISPLAY CO., LTD.

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General Feature

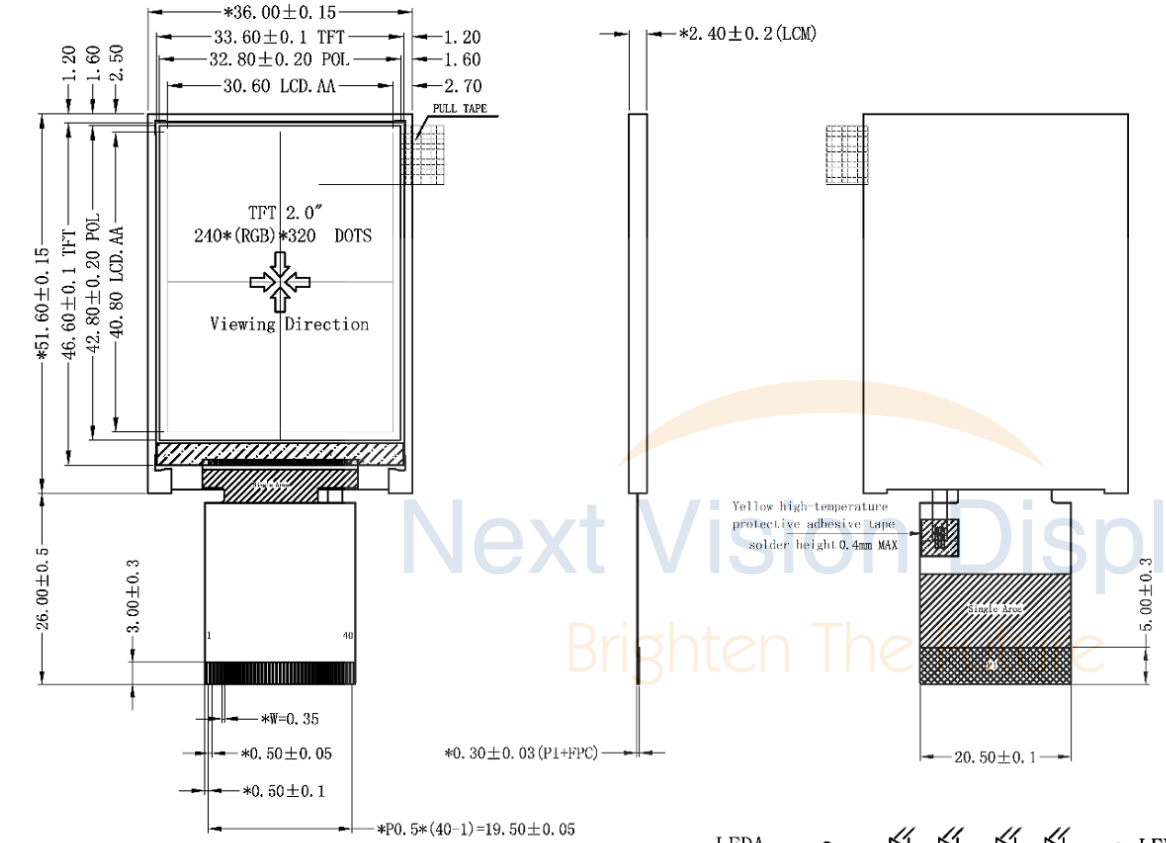
Feature		Description	Unit
Display Spec.	Size	2.0	inch
	Resolution	240(H)*320(V)	pixels
	Pixel Configuration	RGB stripe	-
	Pixel Pitch	0.1275(H)*RGB*0.1275(V)	mm
	Viewing Direction	ALL	-
Mechanical Characteristics	Outside Dimension	36.00±0.15(W)*51.60±0.15(H)*2.40±0.2(D)	mm
	Active Area	30.60(W)*40.80(H)	mm
	Luminance	350	cd/m²
	LED Numbers	4 LEDS	-
	Pin Order	From left to right 40PIN_0.5mm	-
	Weight	7	g
Electrical Characteristics	Interface	RGB_18bit	-
	Color Depth	262K	colors
	Driver Condition	2.8(Type)	V
	Driver IC	ST7789V	-
Temperature Range	Operating Temp.	-20~70	℃
	Storage Temp.	-30~80	℃

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Note: Requirements on Environmental Protection: RoHS.
You can use dynamic screen saver wallpapers to avoid afterimages caused by fixed paper display for a long time.

Mechanical Drawing

REV.	SYMBOL	DESCRIPTION	NAME	DATE
00	0	INITIAL	XIANG	2022-07-22



No	PIN NAME	No	PIN NAME
1	LEDK	21	GND
2	LEDA	22	GND
3	GND	23	B0
4	VDD	24	B1
5	GND	25	B2
6	GND	26	B3
7	R0	27	B4
8	R1	28	B5
9	R2	29	GND
10	R3	30	CLK
11	R4	31	NC
12	R5	32	HSYNC
13	GND	33	VSYNC
14	GND	34	DE
15	G0	35	NC
16	G1	36	GND
17	G2	37	CS
18	G3	38	SCL
19	G4	39	SDA
20	G5	40	RESET



LED CIRCUIT DIAGRAM:

ITEM	PARAMETERS	ITEM	PARAMETERS
DISPLAY TYPE	2.0" TFT, Normal Black, IPS	VIEWING DIRECTION	ALL
POLARIZER TYPE	TRANSMISSIVE	OPERATING TEMPERATURE	-20° C TO +70° C
INTERFACE	RGB Interface	STORAGE TEMPERATURE	-30° C TO +80° C
LCM LUMINANCE	350cd/m2(TYP)	IC	ST7789V
BACKLIGHT	WHITE, 4LED, 12.8V, 20mA	LOGIC VOLTAGE(VDD)	2.8V
RoHS COMPLIANT		CONNECTING METHOD	COG+FPC+BL

UNMARKED TOLERANCE: ± 0.2

SCALE	FIT	UNIT	MM
SHEET	1 OF 1	REV.	00

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TITLE	OUTLINE DWAWING	DRAWN	NAME XIANG DATE 2022-07-22
PART NO.		CHECKED	
MODULE NO.	M04397	APPROVED	
CUSTOMER NO.	NT020-N001DW		

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Input/Output Terminals

Pin NO.	Symbol	Function	Remark
1	VLED-	Back light cathode	
2	VLED+	Back light anode	
3	GND	Ground	
4	VDD	Power supply	
5-6	GND	Ground	
7-12	R0-R5	Data bus	
13-14	GND	Ground	
15-20	G0-G5	Data bus	
21-22	GND	Ground	
23-28	B0-B5	Data bus	
29	GND	Ground	
30	CLK	Clock signal	
31	NC	Not connect	
32	HSYNC	Line synchronizing signal	
33	VSYNC	Frame synchronizing signal	
34	DEN	Data ENABLE signal	
35	NC	Not connect	
36	GND	Ground	
37	CS	A chip select signal	
38	SCL	Serial clock input for SPI interface	
39	SDA	Serial data input/output bidirectional pin for SPI interface	
40	RESET	Reset signal input	

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Electrical Characteristics

Driving TFT LCD Panel

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Analog Voltage	VCC	2.6	2.8	3.3	V	
Input Logic High Voltage	VIH	0.7VCC	-	VCC	V	
Input Logic Low Voltage	VIL	GND	-	0.3VCC	V	
Output Logic High Voltage	VOH	0.8VCC	-	VCC	V	
Output Logic Low Voltage	VOL	GND	-	0.2VCC	V	

LED Backlight Specification

Item	Symbol	Min.	Typ.	Max.	Unit	Remark
Forward Voltage	V_F	11.2	12.8	13.2	V	
Forward Current	I_F	-	20	-	mA	
Luminance	Lv	-	350	-	cd/m^2	
Power Consumption	P_{LED}	-	256	-	mW	
Uniformity(with L/G)	Avg	75	80	-	%	
LED Life Time	Hr	-	30000	-	Hour	

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Note: 4 LEDs (4 LEDs Serial,1 ways Parallel)



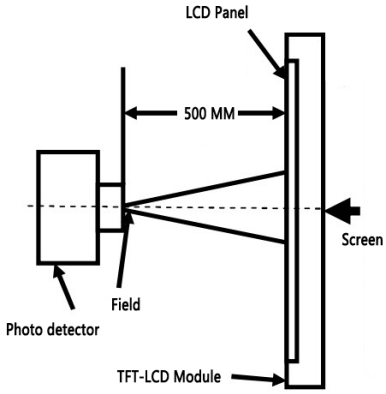
Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle	Top	CR≧10	75	85	-	Deg.	
	Bottom		75	85	-		
	Left		75	85	-		
	Right		75	85	-		
Contrast Ratio	CR	θ=0°	640	800	-		
Response Time	T_r+T_f	θ=0°	-	30	40	ms	
Color Chromaticity (CIE1931)	Wx	θ=0°	0.292	0.307	0.322		
	Wy		0.229	0.344	0.359		
	Rx		-	TBD	-		
	Ry		-	TBD	-		
	Gx		-	TBD	-		
	Gy		-	TBD	-		
	Bx		-	TBD	-		
	By		-	TBD	-		

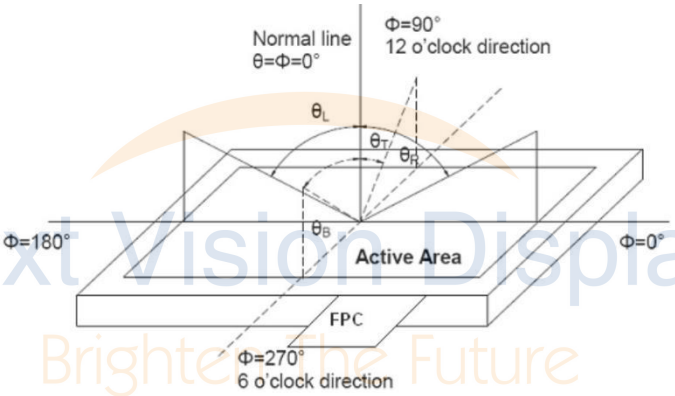
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Test conditions:
IF= 20 mA, and the ambient temperature is 25℃.

Note 1: Definition of optical measurement system.
The optical characteristics should be measured in dark room. After 5 minutes operation, the optical properties are measured at the center point of LCD.



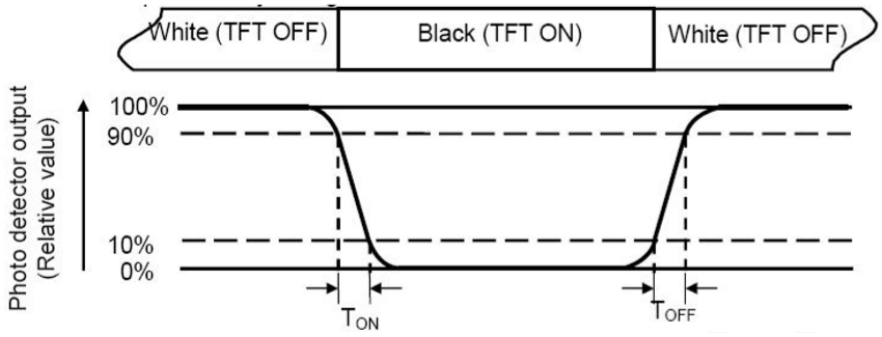
Note 2: Definition of viewing angle range and measurement system.
The viewing angle is measured at the center point of the LCD by BM-7A.



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Note 3: Definition of color temperature.
When the radiation of the light source is exactly the same in the visible region and the absolute blackbody, the temperature of the blackbody is called the color temperature of the light source. Color temperature is an index to measure the degree of light source color (cold color, warm color). Warm color < 3300K, intermediate color 3300 ~ 5000K, cold color > 5000K.

Note 4: Definition of response time.
The response time is defined as the LCD optical switching time interval between “White” state and “Black” state. Time ON (TON) is the time between photo detector output intensity changed from 90% to 10%. And time off (TOFF) is the time between photo detector output intensity changed from 10% to 90%.



Note 5: Definition of color chromaticity (CIE1931).
Color coordinates measured at center point of LCD.

Note 6: Definition of luminance.
Measure the luminance of white state at center point.

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