Next Vision Display
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NEXT VISION DISPLAY

SPECIFICATION

CUSTOMER : _____

MODULE NO.: NT021RC002ML

Version	01
Engineer	
Date	2022/12/21

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Customer:
Approved by

NEXT VISION DISPLAY CO., LTD.

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General Specifications

NT021RC002ML is a TFT-LCD module. It is composed of a TFT-LCD panel, driver IC, FPC,a back light unit. The 2.1'' display area contains 480X(RGB)x480 pixels and can display up to 262K colors. This product accords with ROHS environmental criterion.

Item	Contents	Unit	Note
LCD Type	TFT	-	
Display color	262K	Color	1
Viewing Direction	ALL	O'Clock	
Operating temperature	-20~+70	℃	
Storage temperature	-30~+80	℃	
Module size	Refer to the drawing	mm	2
Active Area(W×H)	53.28X53.28	mm	
Number of Dots	480×480	dots	
Controller	ST7701S	-	
Power Supply Voltage	2.8	V	
Backlight	4P-LEDs (white)	pcs	
Weight	/	g	
Interface	3SPI+18RGB	-	

Next Vision Display
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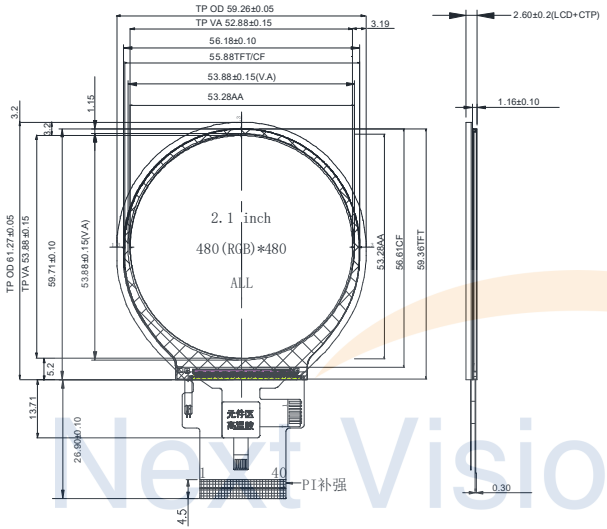
Note 1: Color tune is slightly changed by temperature and driving voltage.

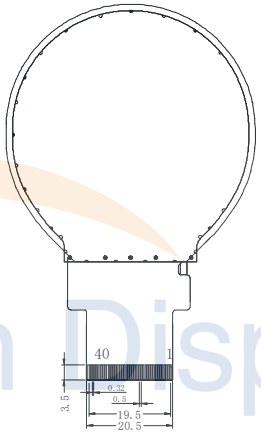
Note 2: Without FPC and Solder.

Outline Drawing

ALL PAGES OF THIS VERSION APPROVED			
SIGNATURE:		DATE:	

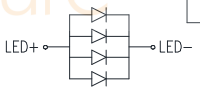
REV.	Description	Date
01	New released	





1	LEDA
2	LEDK
3	LEDK
4	GND
5	VCI
6	RST
7	NC
8	NC
9	SDA
10	SCK
11	CS
12	PCLK
13	DE
14	VS
15	HS
16~33	DB0~DB17
34	GND
35	TP-INT
36	TP-SDA
37	TP-SCL
38	TP-RST
39	TP-VCI
40	GND

TP	
1	GND
2	TPINT
3	TPSDA
4	TPSCL
5	TPRST
6	TPVCC
7	TPIOVCC



VF:2.8-3.0V IF:80MA

NOTES:
1. VIEWING DIRECTION : ALL O'CLOCK
2. POLARIZER MODE : TRANSMISSIVE
3. DRIVER IC : ST7701S+BOE2.1
4. CONNECTOR :
5. GENERAL TOLERANCE : ±0.2
6. CRITICAL DIMENSION : *
7. REFERENCE DIMENSION : ()
8. OPERATING TEMP : -20° C~+70° C
9. STORAGE TEMP : -30° C~+80° C
10. 图中LCD VA/TP VA为推荐机壳视窗开窗位置，建议机壳开窗位置不要超过LCD VA及比TP VA单边小0.3以上

CTP NOTES:
1. COVER GLASS+ITO FILM+FPC
ITO FILM: 0.25MM
COVER GLASS: 0.95MM
2. IC: FT6336U(S12)
3. TRANSMITTANCE: ≥85%
4. SURFACE HARDNESS: ≥6H
5. GENERAL TOLERANCE : ±0.2

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Next Vision Display
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GENERAL TOL 0.30	ALL UNITS: MM	DATE	MODEL NUMBER : NT021RC002ML		SHEET: 1 OF 1
DWN:					DATE:
CHK:					
APP:			DO NOT SCALE THIS DRAWING.	PROJECTION	

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Absolute Maximum Ratings(Ta=25℃)

Electrical Absolute Maximum Ratings.(Vss=0V ,Ta=25℃)

Item	Symbol	Min.	Max.	Unit	Note
Supply Voltage	V_{DD}	-0.3	4.8	V	1,2
Input Voltage	Vin	VDD+0.3	VDD+0.3	V	

Notes:

1. If the module is above these absolute maximum ratings. It may become permanently damaged. Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability.

2. $V_{CI} > V_{SS}$ must be maintained.

3. Please be sure users are grounded when handing LCD Module.

Environmental Absolute Maximum Ratings.

Item	Storage		Operating		Note
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature	-30℃	80℃	-20℃	70℃	1,2

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Notes:

1. The response time will become lower when operated at low temperature.

2. Background color changes slightly depending on ambient temperature.

   The phenomenon is reversible.

3. Ta<=40℃:85%RH MAX.

   Ta>=40℃:Absolute humidity must be lower than the humidity of 85%RH at 40℃

Electrical Specifications

Electrical characteristics(Vss=0V ,Ta=25℃)

Parameter		Symbol	Condition	Min	Typ	Max	Unit	Note
Power voltage		V_{DD}	Ta=25℃	2.5	2.8	4.8	V	
Supply current		I_{DD}	Ta=25℃	-	-	50	mA	
Input leakage current		I_{IL}	$V_{IN}=V_{DD}$ or V_{SS}	-1.0	-	1.0	uA	
Input voltage	'H'	V_{IH}	Ta=25℃	0.8*V_{DD}	-	V_{DD}	V	
	'L'	V_{IL}	Ta=25℃	0	-	0.2*V_{DD}	V	

LED backlight specification(VSS=0V ,Ta=25℃)

Item	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply voltage	V_F	If=80mA	-	3.2	-	V	
Forward current	I_F		-	80	88	mA	
Uniformity	ΔBp	If=80mA	85	-	-	%	

Next Vision Display
Brighten The Future

Note 1:

Optical performance should be evaluated at Ta=25℃ only .If LED is driven by high current, high ambient temperature & humidity condition. The life time of LED will be reduced.
Operating life means brightness goes down to 50% initial brightness. Typical operating life time is estimated data.

Interface signals

Pin No.	Symbol	Function
1	LEDA	LED back light(Anode)
2~3	LEDK	LED back light(Cathode)
4	GND	Power Ground
5	VCI	Power supply
6	RESET	Reset pin,active “L”
7~8	NC	NC
9	SDA	SPI Data signal
10	SCK	SPI Clock signal
11	CS	SPI Chip select signal
12	PCLK	RGB dot clock signal
13	DE	RGB data enable signal
14	VSYNC	RGB frame synchronizing signal
15	HSYNC	RGB line synchronizing signal
16~33	DB0~DB17	RGB data signal(DB0:BIUE LSB;DB5:BIUE MSB;DB6:GREEN LSB;DB11:GREEN,MSB;DB12:RED LSB;DB17:RED MSB)
34	GND	Power Ground
35	TP_INT	Touch Interrupt
36	TP_SDA	Touch IIC Data signal
37	TP_SCL	Touch IIC Clock signal
38	TP_RST	Touch Reset Signal
39	TP_VCI	Touch Power supply
40	GND	Power Ground

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