Next Vision Display
Brighten The Future

NEXT VISION DISPLAY

SPECIFICATION

CUSTOMER : _____

MODULE NO.: NE040-N001GD

Version	1.0
Engineer	
Date	29/01/2024

Customer:
Approved by

NEXT VISION DISPLAY CO., LTD.

地址: 中國上海小木橋路600號
ADD: 600 XIAO MU QIAO ROAD, SHANGHAI, CHINA

WEB: www.nextvisiondisplay.com

TECHNICAL: technical@nextvisiondisplay.com
MARKETING: marketing@nextvisiondisplay.com
SALES: sales@nextvisiondisplay.com

Represented by:

first FC components

FIRST Components s.r.l.
www.first-components.com
sales@first-components.com
+39 0332 1888005

1. Over View

The NE040-N001GD is a reflective electrophoretic E Ink Spectra 6 Display module based on glass active matrix TFT substrate and E Ink Advanced Color ePaper (Specrta 6) technology. It has 4.0” active area with 400(H) x 600(V) pixels, the display is capable to display images with full colors driven by the all in one display controller and the associated waveform file.

2. Features

- High contrast reflective/electrophoretic technology
- 400(H) x 600(V) display
- Full colours
- Ultra wide viewing angle
- Ultra low power consumption
- Pure reflective mode
- Bi-stable
- Commercial temperature range
- Portrait type
- Glass substrate
- All in one IC that integrated source driver, gate driver, TCON, PMIC and OTP memory in the module.

Next Vision Display
Brighten The Future

3. Mechanical Specifications

Parameter	Specifications	Unit	Remark
Screen Size	4.0	Inch	
Display Resolution	400(H) x 600(V)	Pixel	
Active Area	56.4(H) x 84.6(V)	mm	
Pixel Pitch	0.141(H) x 0.141(V)	mm	180 PPI
Pixel Configuration	Square		
Outline Dimension	66.0(H) x 99.0(H) × 0.85 (D)	mm	w/o PF
Module Weight	11.92±1.19	g	
Number of Gray	Full colors		
Display operating mode	Reflective mode		
Surface treatment	AG		

4. Input /Output Pin Assignment

4.1 Connector type: Golden Finger for ZIF Type FH34SRJ-50S-0.5SH(50)

4.2 Pin assignment

Pin #	Type	Single	Description	Remark
1		NC	No connection and do not connect with other NC pins	
2	P	TFT_VCOM	TFT_VCOM driving voltage	
3	P	FPL_VCOM	FPL_VCOM driving voltage	
4		NC	NC	
5	I/O	GDRH	N-Channel MOSFET Gate Drive Control	
6	I/O	RESEH	Current Sense Input for the Control Loop	
7		GDRL	Reserved	
8	P	GND	Ground	
9	I/O	GDRC	P-Channel MOSFET Gate Drive Control	
10	I/O	RESEC	Current Sense Input for the Control Loop	
11	P	VPC	VPC driving voltage	
12	P	GND	Ground	
13	P	VGL	Negative Gate driving voltage	
14	P	VPH	VPH driving voltage	
15	P	VSH	Positive Source driving voltage	
16	P	VSH_LV	Positive Source driving voltage	
17	P	VSH_LV2	Positive Source driving voltage	
18	P	VSL	Negative Source driving voltage	
19	P	VSL_LV	Negative Source driving voltage	
20	P	VSL_LV2	Negative Source driving voltage	
21	P	GNDA	Ground ; Connect to GND	
22		REFN	Reserved	
23		REFP	Reserved	
24	O	TSCL	I2C Interface to digital temperature sensor Clock pin	
25	I/O	TSDA	I2C Interface to digital temperature sensor Data pin	
26	I	BS0	Bus selection pin; L: 4-wire IF. H: 3-wire IF. (Default)	
27	I	BS1	Bus selection pin; L: refer to BS0. (Default) H: Standard 4-wire SPI/dual SPI/quad SPI	
28	I	RES#	Reset	
29	O	BUSY_N	Busy state output pin	
30	I	D/C#	Data /Command control pin (D/C)	
31	I	CS#	Chip Select input pin (CSB)	
32	I	SCL	Serial clock pin (SPI)	
33	I/O	SI0	serial data pin (SPI)	
34	I/O	SI1	serial data pin ; Reserved	
35	I/O	SI2	serial data pin ; Reserved	
36	I/O	SI3	serial data pin ; Reserved	
37	P	VDDDO	Core logic power pin; Connect to VDDD	
38	P	VDD	Supply voltage	
39	P	GND	Ground; Connect to GNDA	

Next Vision Display
Brighten The Future

40	P	VDDIO	Supply voltage	
41	P	VCP2	Charge Pump Pin	
42	P	CP2N	Charge Pump Pin	
43	P	CP2P	Charge Pump Pin	
44	P	VCP1	Charge Pump Pin	
45	P	CP1N	Charge Pump Pin	
46	P	CP1P	Charge Pump Pin	
47		CGH1N	Charge Pump Pin; Reserved	
48		CGH1P	Charge Pump Pin; Reserved	
49	P	VGH	Positive Gate driving voltage	
50	P	VCOMBD	VCOMBD driving voltage	

Note 5-1: This pin (CS#) is the chip select input connecting to the MCU. The chip is enabled for MCU communication only when CS# is pulled Low.

Note 5-2: This pin (D/C#) is Data/Command control pin connecting to the MCU. When the pin is pulled HIGH, the data will be interpreted as data. When the pin is pulled Low, the data will be interpreted as command.

Note 5-3: This pin (RES#) is reset signal input. The Reset is active Low.

Note 5-4: This pin (BUSY_N) is Busy state output pin. When Busy is low, the operation of chip should not be interrupted and any commands should not be issued to the module. The driver IC will put Busy pin low when the driver IC is working such as:

- Outputting display waveform; or
- Programming with OTP
- Communicating with digital temperature sensor

Next Vision Display
Brighten The Future

Note 5-5: This pin (BS0) is for 3-line SPI or 4-line SPI selection. When it is “Low”, 4-line SPI is selected. When it is “High”, 3-line SPI (9 bits SPI) is selected. Please refer to below Table.

Table: Bus interfaceselection

BS1	MPU Interface
L	4-lines serial peripheral interface (SPI)
H	3-lines serial peripheral interface (SPI) – 9 bits SPI

5. Electrical Characteristics

5.1 Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Logic Supply Voltage	VDD	-0.5	+3.6	V
Tst	Storage Temperature	-25	65	℃
Top	Operating Temperature	0	50	℃

Note 6-1: Maximum ratings are those values beyond which damages to the device may occur.
Note 6-2: Functional operation should be restricted to the limits by chapter "6. Electrical Characteristics".

6. Optical characteristics

6.1 Specification

Measurements are made with that the illumination is under an angle of 45 degrees, the detector is perpendicular unless otherwise specified.

Item	PARAMETER	Test Condition	Spec			
			L*	a*	b*	dE2000
Optical Characteristics Evaluation	Color Performance (CIELAB)	Black	TBD	TBD	TBD	TBD
		White	TBD	TBD	TBD	TBD
		Blue	TBD	TBD	TBD	TBD
		Green	TBD	TBD	TBD	TBD
		Red	TBD	TBD	TBD	TBD
		Yellow	TBD	TBD	TBD	TBD

Next Vision Display
Brighten the Future

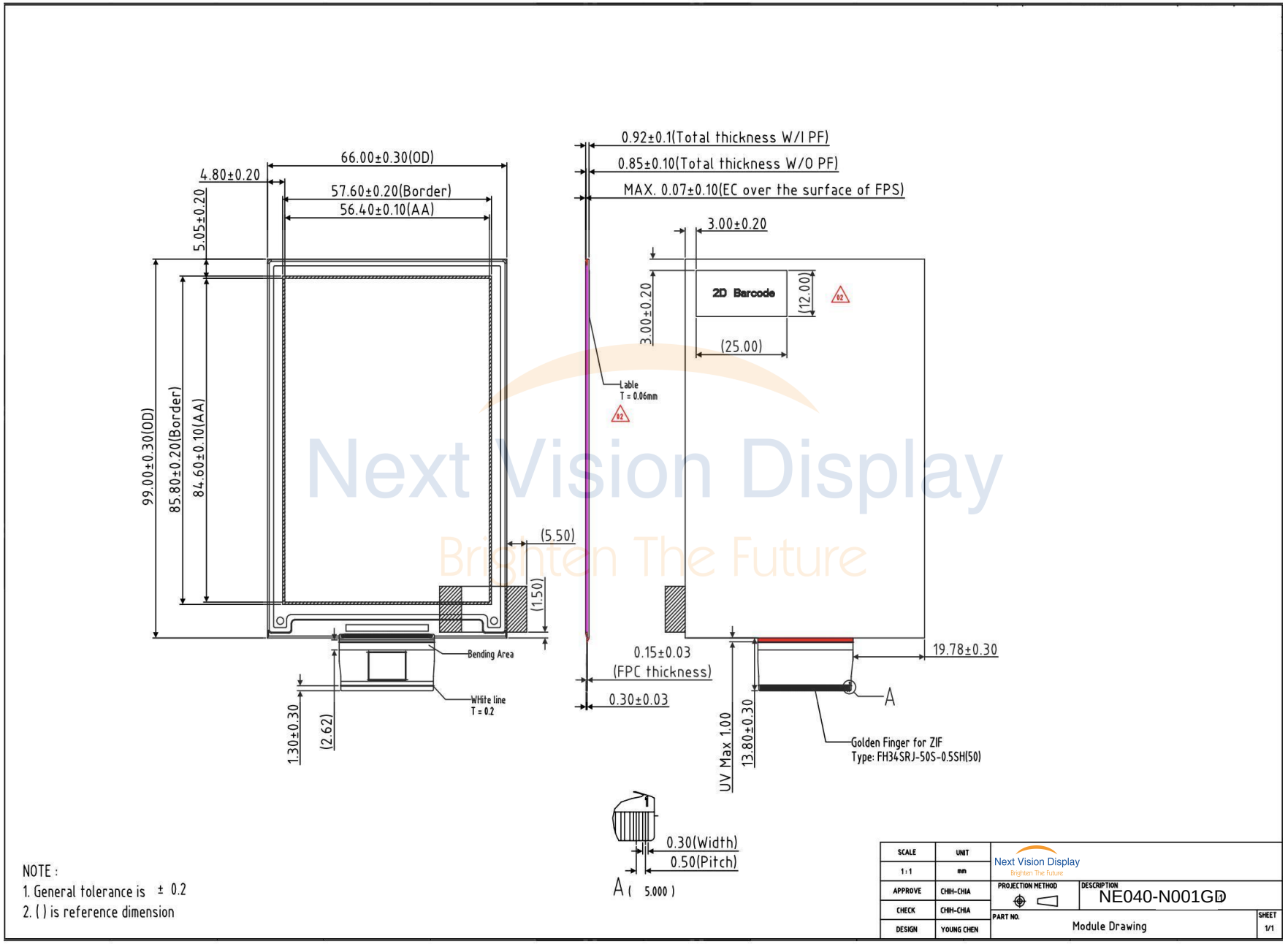
Note 8-1: Measuring Instrument: Minolta CM-25cG
Note 8-2: Performance values at 24°C ambient

Note 8-3: All items on this version is only for reference. The final item will be based on the real measurement result.

7. Matched Development Kit

Our Development Kit designed for SPI E-paper Display aims to help users to learn how to use E-paper Display more easily. It can refresh black-white E-paper Display, three-color (black, white and red/Yellow) E-paper Display and four-color(black, white, red and yellow) Next Vision Display 's E-paper Display. And it is also added the functions of USB serial port, FLASH c hip, font chip, current detection ect.
Development Kit consists of the development board and the pinboard.

4. Mechanical Drawing of EPD module



Next Vision Display
Brighten The Future