Next Vision Display
Brighten The Future

NEXT VISION DISPLAY

SPECIFICATION

CUSTOMER : _____

MODULE NO.: NE073-N001GD

Version	1.0
Engineer	
Date	06/02/2024

Customer:
Approved by

NEXT VISION DISPLAY CO., LTD.

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1. Over View

NE073-N001GD is a reflective electrophoretic E Ink® SpectraTM 6 technology display module on an active matrix TFT substrate. The panel is capable of displaying black, white, yellow, red, green and blue images depending on the associated lookup table used. The circuitry on the panel includes an integrated gate and source driver, timing controller, oscillator, DC-DC boost circuit, and memory to store the frame buffer and lookup tables, and additional circuitry to control VCOM and BORDER settings.

2. Features

Highlight Red, Yellow, Green and Blue color

High contrast

High reflectance

Ultra wide viewing angle

Ultra low power consumption

Pure reflective mode

Bi-stable

Antiglare hard-coated front-surface

Low current deep sleep mode

On chip display RAM

Waveform stored in On-chip OTP

Serial peripheral interface available

On-chip oscillator

On-chip booster and regulator control for generating VCOM, Gate and source driving voltage

I2C Signal Master Interface to read external temperature sensor

Available in COG package

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3. Mechanical Specifications

Parameter	Specifications	Unit	Remark
Screen Size	7.3	Inch	
Display Resolution	800 (H) × 480 (V)	Pixel	PPI: 127
Active Area	160 (H) × 96 (V)	mm	
Pixel Pitch	0.200 × 0.200	mm	Square
Outline Dimension	170.2 (H) × 111.2 (V) × 0.91 (D)	mm	Without masking film
Module Weight	34.5±0.5	g	

Pin #	Type	Single	Description
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
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

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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 theMCU. 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

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 interface selection

BS0	MPU Interface
L	4-lines serial peripheral interface (SPI)
H	3-lines serial peripheral interface (SPI) – 9 bits SPI

4. Electrical Characteristics

4.1 Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Analog power	VDD	-0.5 to +3.6	V
Operating Temp. range	TOPR	(0 to +50)	℃
Storage Temp. range	TSTG	(-25 to +60)	℃

Note: Maximum ratings are those values beyond which damages to the device may occur. Functional operation should be restricted to the limits in the Electrical Characteristics chapter.

5.3 Panel AC Characteristics

5.3.1 MCU Interface

5.3.1.1 MCU Interface Selection

In this module, there are 4-wire SPI and 3-wire SPI that can communicate with MCU. TheMCU interface mode can be set by hardware selection on BS0 pins. When it is "High", 4-wire SPI is selected. When it is "Low", 3-wire SPI (9 bits SPI) is selected.

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Pin Name	Data/Command Interface		Control Signal		
Bus interface	SDA	SCL	CS#	D/C#	RES#
SPI4	SDIN	SCLK	CS#	D/C#	RES#
SPI3	SDIN	SCLK	CS#	L	RES#

Table 7-1: MCU interface assignment under different bus interface mode

Note 7-1: Lis connected to GND
Note 7-2: H is connected to VDD

6. Optical Characteristics

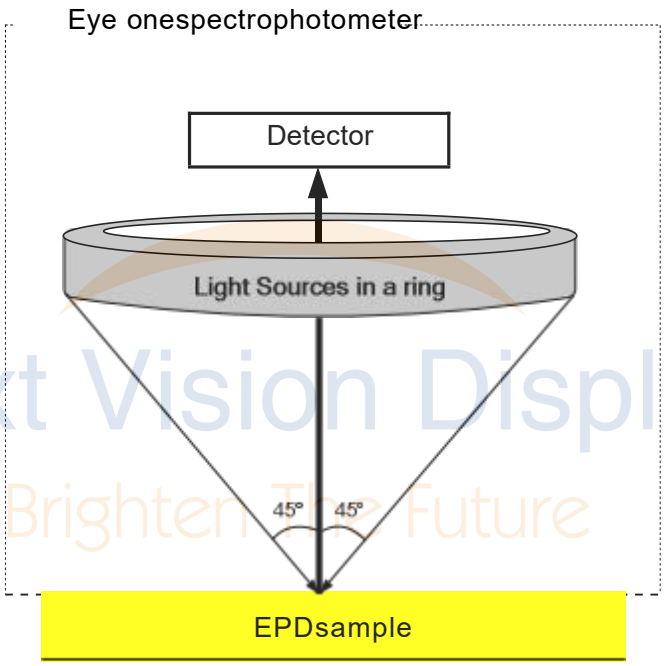
6.1 Specification

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

6.2 Definition of contrast ratio

The contrast ratio (CR) is the ratio between the reflectance in a full white area (Rl) and the reflectance in x

$$CR = Rl/Rd$$



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6.3 Reflection Ratio

The reflection ratio is expressed as :

R = Reflectance Factorwhiteboard x (L_{center} / $L_{whiteboard}$)

L_{center} is the luminance measured at center in a white area (R=G=B=1).

$L_{whiteboard}$ is the luminance of a standard whiteboard.

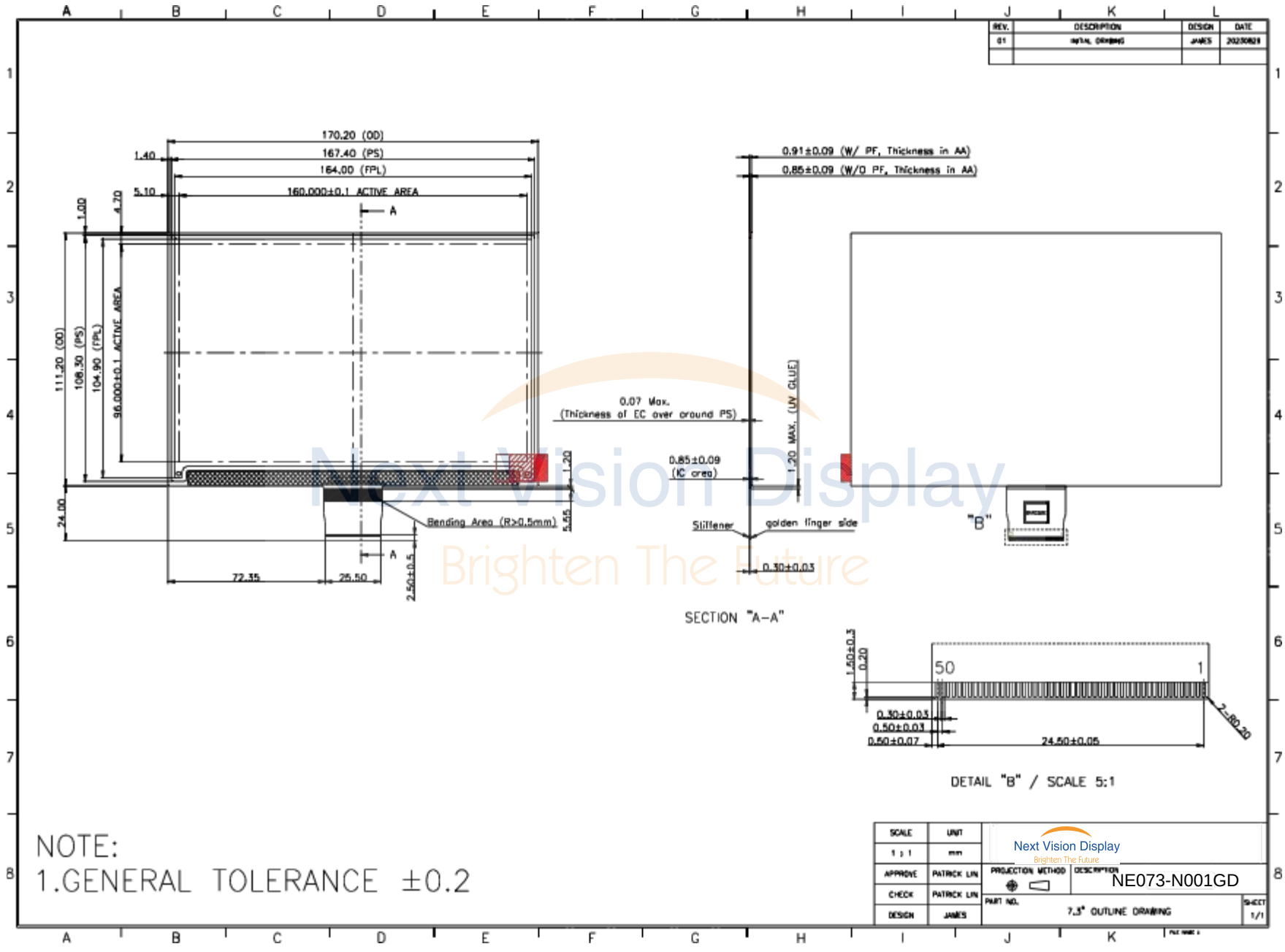
Both are measured with equivalent illumination source. The viewing angle shall be no more than 2 degrees.

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.
Supported development platforms include STM32 and ESP32.

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8. Mechanical Drawing of EPD module



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