Next Vision Display
Brighten The Future

NEXT VISION DISPLAY

SPECIFICATION

CUSTOMER : _____

MODULE NO.: NE042-N003GD

Version	1.0
Engineer	
Date	17/06/2024

Customer:
Approved by

NEXT VISION DISPLAY CO., LTD.

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1. Over View

NE042-N003GD is an Active Matrix E Ink Display all-in-one driver with timing controller for ESL. The sources have 2-bit outputs per pixel to support white/black/red/yellow. The 4.2 inch active area contains 400×300 pixels. The module is a TFT-array driving electrophoresis display, with integrated circuits including gate driver, source driver, MCU interface, timing controller, oscillator, DC-DC, SRAM, LUT, VCOM. Module can be used in portable electronic devices, such as Electronic Shelf Label (ESL) System.

2. Features

◆400×300 pixels display

◆High contrast High reflectance

◆Ultra wide viewing angle Ultra low power consumption

◆Pure reflective mode

◆Bi-stable display

◆Commercial temperature range

◆Landscape portrait modes

◆Hard-coat antiglare display surface

◆Ultra Low current deep sleep mode

◆On chip display RAM

◆Waveform can stored in On-chip OTP or written by MCU

◆Serial peripheral interface available

◆On-chip oscillator

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

◆I^2C signal master interface to read external temperature sensor

◆Built-in temperature sensor

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3. Mechanical and Optical Specification

Parameter	Specifications	Unit	Remark
Screen Size	4.2	Inch	
Display Resolution	400(H)×300(V)	Pixel	DPI:119
Active Area	84.80×63.60	mm	
Pixel Pitch	0.212×0.212	mm	
Pixel Configuration	Square		
Outline Dimension	91.0(H)×71.0 (V) ×1.0(D)	mm	
Weight	16.1 ±0.3	g	

Temperature Range(℃)		0-9	10-19	20-29	30-40	Units
White State	TYP L*	64	63	63	63	
	MIN L*	62	62	62	62	
	a*	≤0	≤0	≤0	≤0	
	b*	≤2.5	≤2.5	≤2.5	≤2.5	
Black State	TYP L*	9	9	9	9	
	MAX L*	11	11	11	11	
	a*	≤9	≤9	≤8	≤10	
Red State	MIN L*	23	23	24	23	
	TYP a*	36	38	40	40	
	MIN a*	34	34	38	38	
	MAX b*	34	34	34	34	
Yellow State	MIN L*	50	50	54	54	
	TYP b*	55	63	66	66	
	MIN b*	53	56	60	60	
	MAX a*	18	18	18	18	
Ghosting		≤2	≤2	≤2	≤2	delta E

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Notes: 3-1. Luminance meter: Eye-One Pro Spectrophotometer.

5.Input/output Pin Assignment

No.	Name	I/O	Description	Remark
1	NC		Do not connect with other NC pins	Keep Open
2	GDR	O	N-Channel MOSFET Gate Drive Control	
3	RESE	I	Current Sense Input for the Control Loop	
4	NC		Do not connect with other NC pins	Keep Open
5	VSH2	C	Positive Source driving voltage(Red)	
6	NC		Do not connect with other NC pins	Keep Open
7	NC		Do not connect with other NC pins	Keep Open
8	BS1	I	Bus Interface selection pin	Note 5-5
9	BUSY	O	Busy state output pin	Note 5-4
10	RES#	I	Reset signal input. Active Low.	Note 5-3
11	D/C#	I	Data /Command control pin	Note 5-2
12	CS#	I	Chip select input pin	Note 5-1
13	SCL	I	Serial Clock pin (SPI)	
14	SDA	I/O	Serial Data pin (SPI)	
15	VDDIO	P	Power Supply for interface logic pins It should be connected with VCI	
16	VCI	P	Power Supply for the chip	
17	VSS	P	Ground	
18	VDD	C	Core logic power pin VDD can be regulated internally from VCI. A capacitor should be connected between VDD and VSS	
19	VPP	P	FOR TEST	Keep Open
20	VSH1	C	Positive Source driving voltage	
21	VGH	C	Power Supply pin for Positive Gate driving voltage and VSH1	
22	VSL	C	Negative Source driving voltage	
23	VGL	C	Power Supply pin for Negative Gate driving voltage VCOM and VSL	
24	VCOM	C	VCOM driving voltage	

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I = Input Pin, O =Output Pin, I/O = Bi-directional Pin (Input/output), P = Power Pin, C = Capacitor Pin

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 is (D/C#) Data/Command control pin connecting to the MCU in 4-wire SPI mode. When the pin is pulled HIGH, the data at SDA will be interpreted as data. When the pin is pulled LOW, the data at SDA 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 is Busy state output pin. When Busy is Low, the operation of chip should not be interrupted, command should not be sent. The chip would put Busy pin Low when -Outputting display waveform -Communicating with digital temperature sensor

Note 5-5: Bus interface selection pin

BS1 State	MCU Interface
L	4-lines serial peripheral interface(SPI) - 8 bits SPI
H	3- lines serial peripheral interface(SPI) - 9 bits SPI

6. Electrical Characteristics

6.1 Absolute Maximum Rating

Parameter	Symbol	Rating	Unit
Logic supply voltage	VCI	-0.3 to +6.0	V
Logic Input voltage	VIN	-0.3 to VCI +0.3	V
Operating Temp range	TOPR	0 to +40	ºC.
Storage Temp range	TSTG	-25 to+70	ºC.
Optimal Storage Temp	TST Go	23±2	ºC.
Optimal Storage Humidity	HST Go	55±10	%RH

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Note:

1. **Maximum ratings are those values beyond which damages to the device may occur.Functional operation should be restricted to the limits in the Panel DC Characteristics tables.**
2. **The storage time is within 10 days for -25℃ ~ 70℃.**
   The display screen should be kept white and face up.

13. 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.

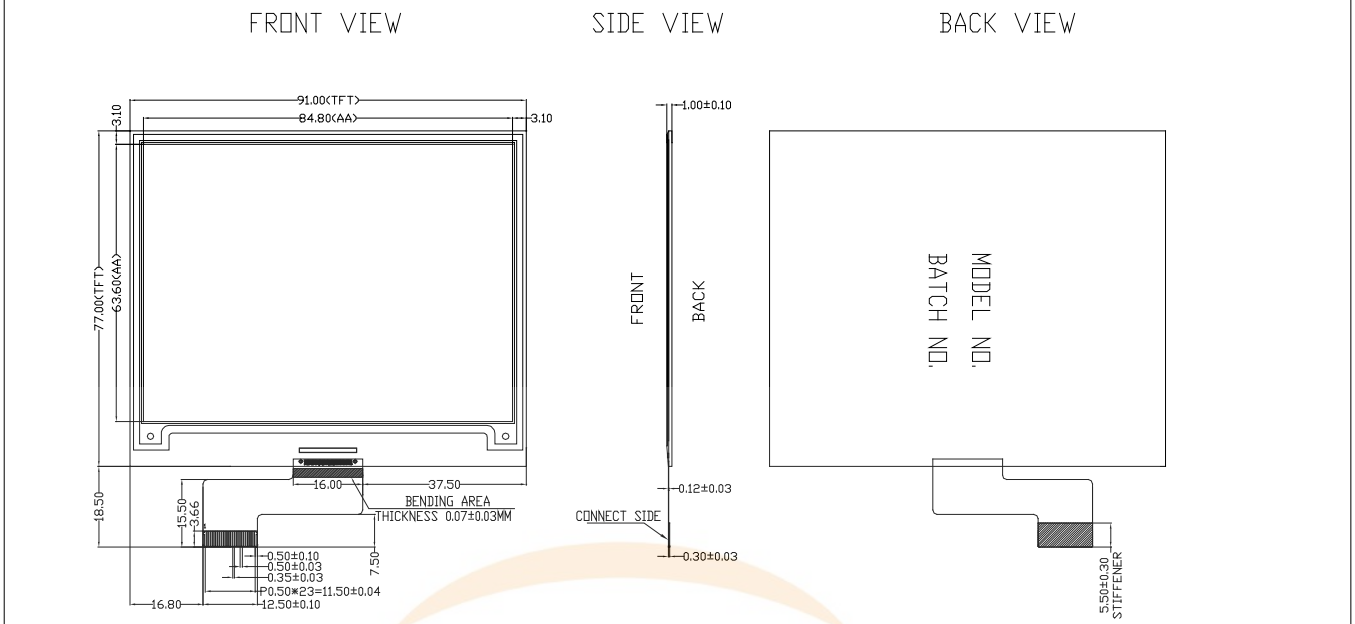
Development Kit consists of the development board and the pinboard. Supported development platforms include STM32, ESP32, ESP8266, Arduino UNO, etc.

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4. Mechanical Drawing of EPD Module

Confirmation:

DATE	REV.	MODIFICATION
2023-09-03	A	FIRST ISSUE



RoHS

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NOTE
1 DISPLAY MODULE 4.2" ARRAY FOR EPD
2 DRIVER IC:JD79668
3 RESOLUTION:300gateX400source
4 PIXEL SIZE:0.212mmX0.212mm

TOLERANCES UNMARKED	TITLE:	PROJECT:	REV.:	DATE:	CUST. P/N:
ANGLES±5° .X=±0.4mm .XX=±0.20mm .XXX=±0.20mm	EPD	NE042-N003GD	A	23.09.03	
	DWN.	CHK. / APPR.	UNIT: mm	3RD ANGLE:	PAGE: 1/1

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