NHD-1.27-Breakout

Breakout Board for 1.27" Color OLED Glass

NHD-	Newhaven Display
1.27-	1.27” Diagonal Size
Breakout-	Breakout Board

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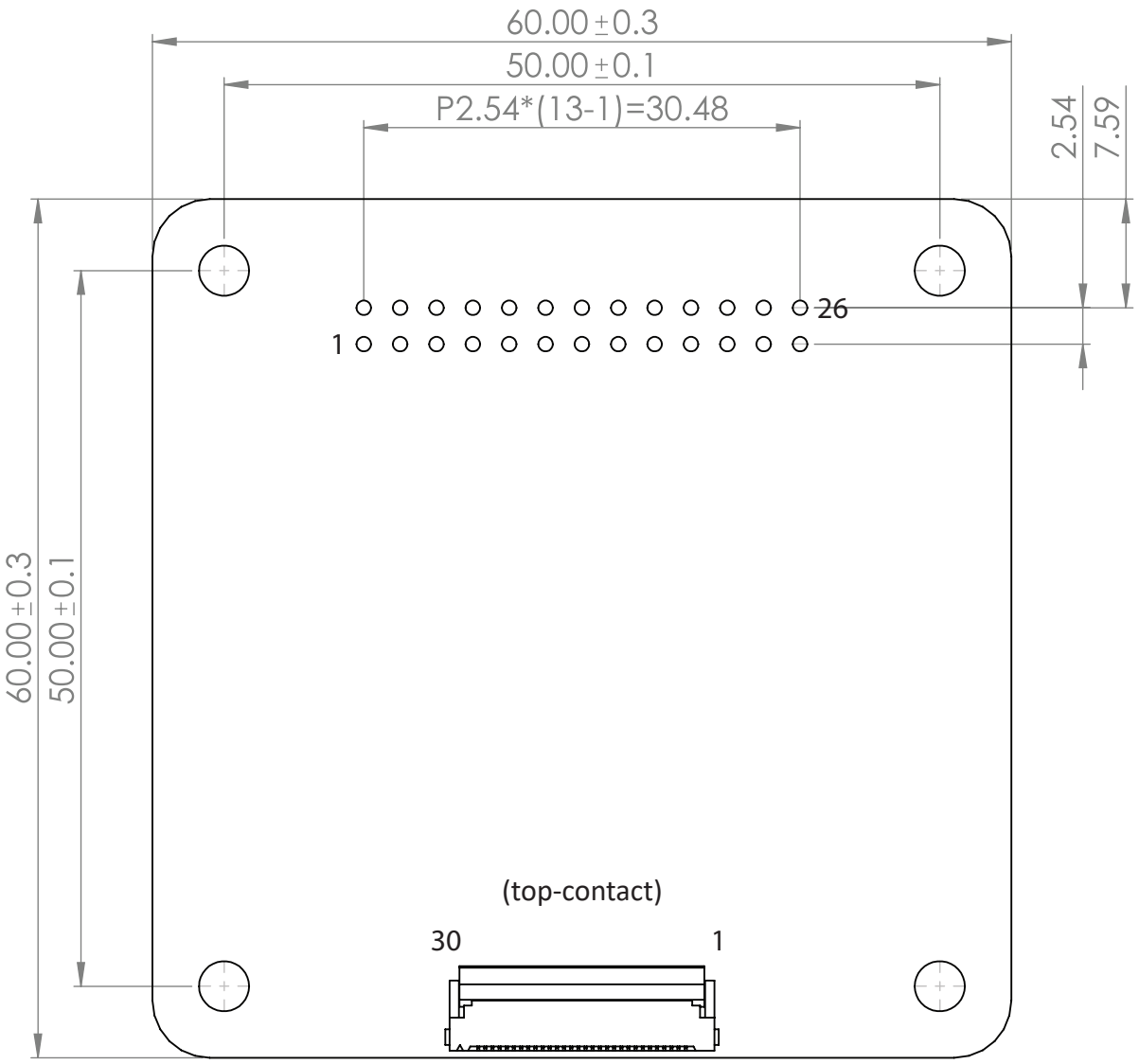
Document Revision History

Revision	Date	Description	Changed by
-	09/18/19	Initial Release	PB

Functions and Features

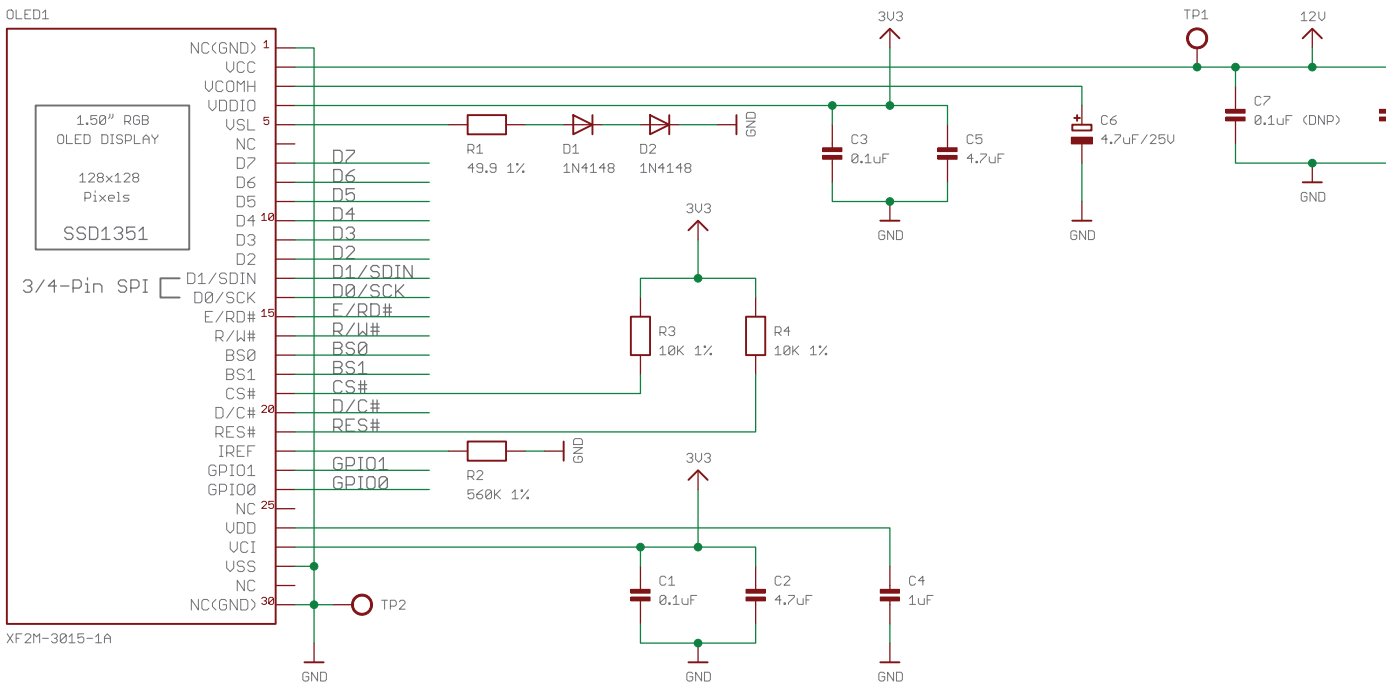
- **Breakout board for 1.27” Color OLED Glass (NHD-1.27-12896G)**
- **On-board booster circuit (FAN5331SX)**
- **Jumper option to bypass booster circuit and provide V_{CC} directly**
- **Open source hardware**



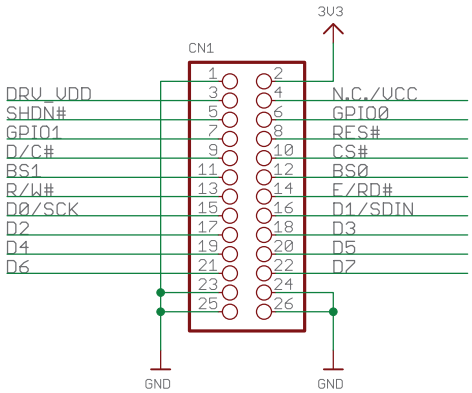
[read caution below]

OLED Panel must be connected with gold fingers **<u>facing upward</u>** (top-contact), for the display to operate

OLED Display



User Interface



Pin Description

Pin No.	Symbol	External Connection	Function Description
1	GND	Power Supply	Ground
2	3V3	Power Supply	Supply Voltage for OLED Logic (+3.3V)
3	DRV_VDD	Power Supply	Supply Voltage for boost converter (+5V) to drive OLED panel voltage (VCC). (Should be no connect if using pin 4 to apply external VCC)
4	N.C./VCC	-	No Connect by default. Can be configured for external VCC (+12V). (refer to On-Board Jumper Options table below)
5	SHDN#	MPU	Active LOW Shutdown control pin for boost converter (pulled HIGH via on-board 10kΩ resistor)
6	GPIO0	MPU	See command 0xB5 (can be treated as a no connect)
7	GPIO1	MPU	See command 0xB5 (can be treated as a no connect)
8	RES#	MPU	Active LOW Reset signal
9	D/C#	MPU	Register Select signal. LOW: Command. HIGH: Data
10	CS#	MPU	Active LOW Chip Select signal
11	BS1	MPU	MPU interface select signal
12	BS0	MPU	MPU interface select signal
13	R/W#	MPU	**6800 mode**: Read/Write signal. LOW: Write. HIGH: Read **8080 mode**: Active LOW Write signal
14	E/RD#	MPU	**6800 mode**: Enable signal. Falling edge triggered **8080 mode**: Active LOW Read signal
15	D0/SCK	MPU	**Parallel interface**: 8-bit bi-directional data bus **Serial interface**: D0 = Serial Clock signal (SCK) D1 = Serial Data Input signal (SDIN)
16	D1/SDIN	MPU	
17	D2	MPU	
18	D3	MPU	
19	D4	MPU	
20	D5	MPU	
21	D6	MPU	
22	D7	MPU	
23-26	GND	Power Supply	Ground

MPU Interface Pin Assignment Summary

Bus Interface	D7	D6	D5	D4	D3	D2	D1	D0	E	R/W	BS0	BS1	CS#	D/C#	RES#	GPIO1	GPIO0
8-bit 6800	D[7:0]								E	R/W	1	1	CS#	D/C#	RES#	NC	NC
8-bit 8080	D[7:0]								RD#	WR#	0	1	CS#	D/C#	RES#	NC	NC
4-wire SPI	0					NC	SDIN	SCK	0	0	0	0	CS#	D/C#	RES#	NC	NC
3-wire SPI	0					NC	SDIN	SCK	0	0	1	0	CS#	0	RES#	NC	NC

"X" : Don't care
"NC" : No Connect
"1" : VDD
"0" : VSS

On-Board Jumper Options

Default Jumper Setting

R10	R11	Description
Open	**Close**	**(default)** Boost converter circuit (+5V on pin 3) is used to provide VCC to OLED Glass.

Jumper Option #1 – External Supply Voltage for OLED Panel (VCC)

R10	R11	Description
Close	Open	Boost converter circuit (pin 3) is not used. User must apply VCC (+12V) externally to (pin 4). OLED logic is still powered from 3V3 (pin 2). This method allows for minimum current drain.

Default Jumper Setting

Jumper Option #1

Electrical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Temperature Range	T_{OP}	Absolute Max	-40	-	+70	°C
Storage Temperature Range	T_{ST}	Absolute Max	-40	-	+85	°C
Supply Voltage for OLED Logic	3V3	-	2.8	3.0	3.5	V
Supply Voltage for Boost Circuit	DRV_VDD	-	-	5.0	5.5	V
Supply Voltage for OLED Panel	V_{CC}	-	11.5	12.0	12.5	V

NOTICE: It is not recommended to apply power to the board without a display connected. Doing so may result in a damaged booster circuit. Newhaven Display does not assume responsibility for PCB failures due to this damage.

Compatible OLED Glass

This board is designed to drive and breakout the signals of the NHD-1.27-12896G.

Please download specification at http://www.newhavendisplay.com/specs/NHD-1.27-12896G.pdf

Quality Information

Test Item	Content of Test	Test Condition	Note
High Temperature storage	Test the endurance of the display at high storage temperature.	+85°C, 240 Hrs.	2
Low Temperature storage	Test the endurance of the display at low storage temperature.	-40°C, 240 Hrs.	1,2
High Temperature Operation	Test the endurance of the display by applying electric stress (voltage & current) at high temperature.	+70°C, 240 Hrs.	2
Low Temperature Operation	Test the endurance of the display by applying electric stress (voltage & current) at low temperature.	-40°C, 240 Hrs.	1,2
High Temperature / Humidity Operation	Test the endurance of the display by applying electric stress (voltage & current) at high temperature with high humidity.	+60°C, 90% RH, 120 Hrs.	1,2

Note 1: No condensation to be observed.
Note 2: Conducted after 2 hours of storage at 25°C, 0%RH.

Precautions for using OLEDs/LCDs/LCMs

See Precautions at www.newhavendisplay.com/specs/precautions.pdf

Warranty Information

See Terms & Conditions at http://www.newhavendisplay.com/index.php?main_page=terms

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