

NHD-TFT40

40-pin TFT Breakout

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|------|------------------|
| NHD- | Newhaven Display |
| TFT- | TFT Breakout |
| 40- | 40-pin Connector |

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Document Revision History

| Revision | Date | Description | Changed by |
|----------|---------|------------------|------------|
| - | 3/20/17 | Initial Release | PB |
| 1 | 4/12/18 | Updated Features | TM |

Functions and Features

- Open-Source Hardware
- Configurable LED Driver w/ PWM
- Breadboard Friendly
- Power LED Indicator
- Supports the following TFT displays:

NHD-4.3-480272EF-ATXL#
NHD-4.3-480272EF-ASXV#
NHD-4.3-480272EF-ASXN#

NHD-4.3-480272EF-ATXL#-T
NHD-4.3-480272EF-ASXV#-T
NHD-4.3-480272EF-ASXN#-T

NHD-4.3-480272EF-ATXL#-CTP
NHD-4.3-480272EF-ASXV#-CTP
NHD-4.3-480272EF-ASXN#-CTP

NHD-5.0-800480TF-ATXL#

NHD-5.0-800480TF-ATXL#-T

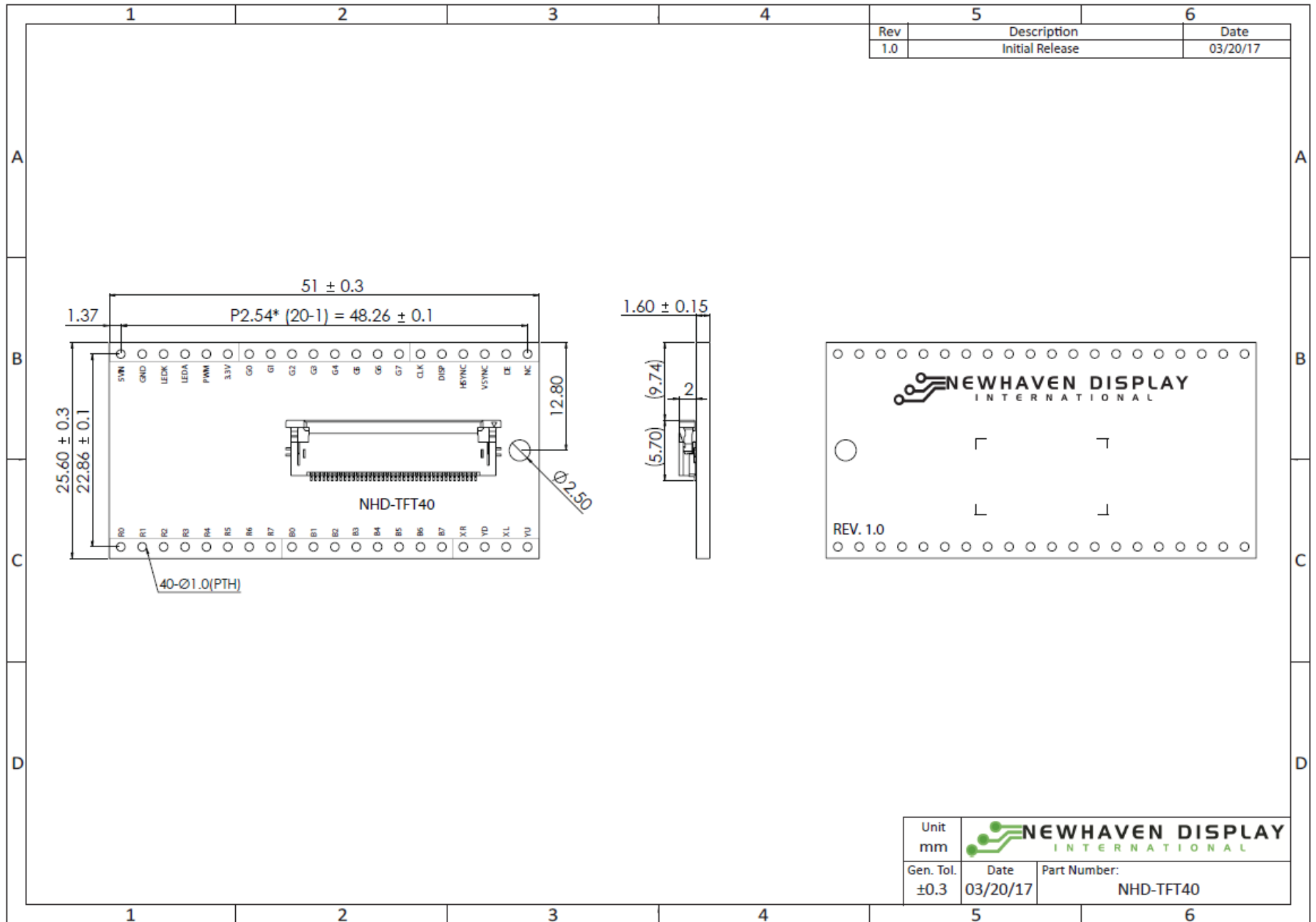
NHD-5.0-800480TF-ATXL#-CTP

NHD-7.0-800480EF-ATXL#
NHD-7.0-800480EF-ASXV#
NHD-7.0-800480EF-ASXN#

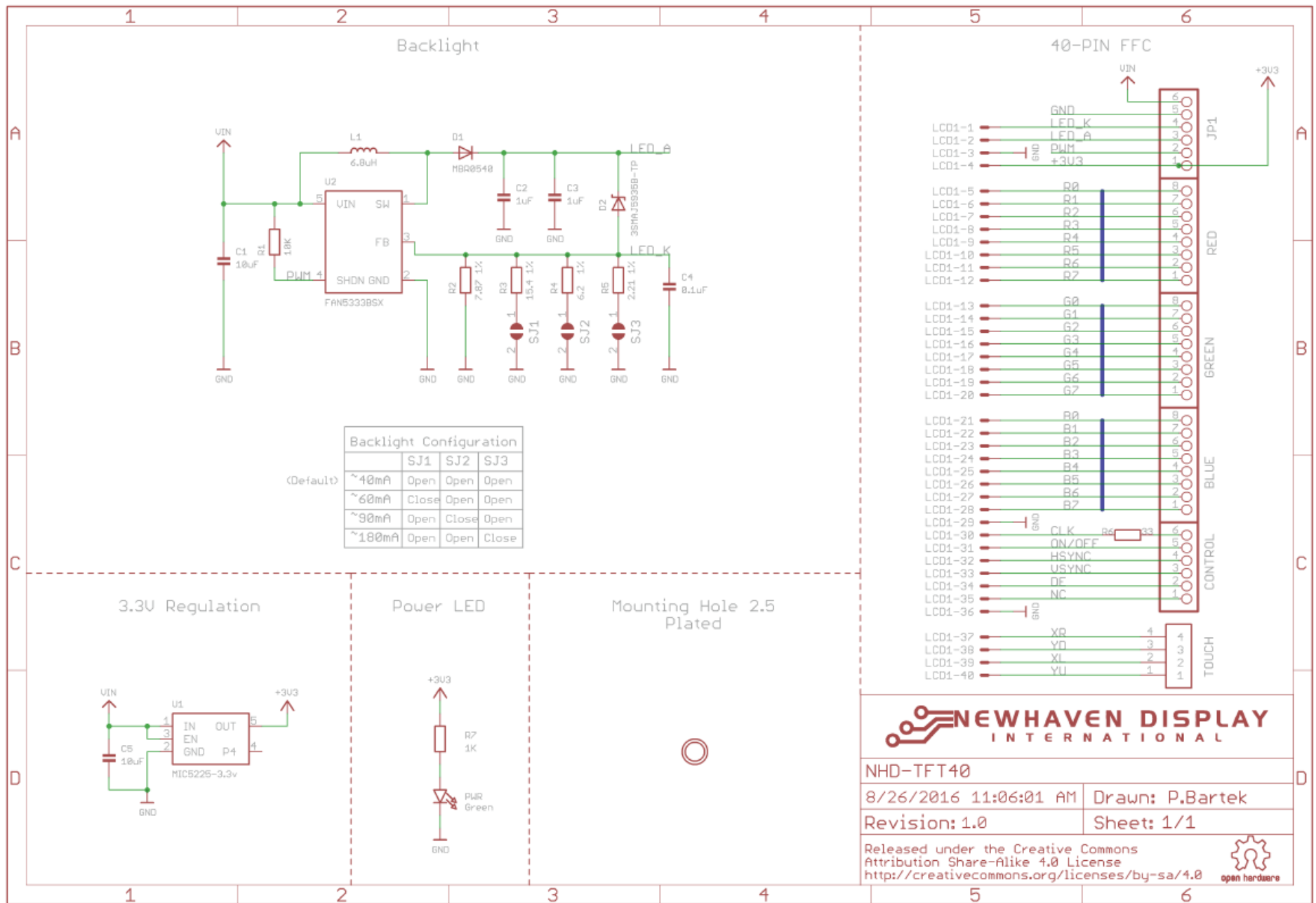
NHD-7.0-800480EF-ATXL#-T
NHD-7.0-800480EF-ASXV#-T
NHD-7.0-800480EF-ASXN#-T

NHD-7.0-800480EF-ATXL#-CTP
NHD-7.0-800480EF-ASXV#-CTP
NHD-7.0-800480EF-ASXN#-CTP

Mechanical Drawing



Schematic



Pin Description

| Pin No. | Symbol | Connection | Function Description |
|---------|---------|---------------------|--|
| 1 | 5VIN | Power Supply | Supply Voltage (+5.0V) |
| 2 | GND | Power Supply | Ground |
| 3 | LEDK | N.C. / Power Supply | Backlight Cathode (Can be used to power the display's backlight directly. Please refer to the appropriate display's datasheet for electrical info.) |
| 4 | LEDA | N.C. / Power Supply | Backlight Anode (Can be used to power the display's backlight directly. Please refer to the appropriate display's datasheet for electrical info.) |
| 5 | PWM | MPU | Pulse Width Modulation input pin |
| 6 | 3.3V | - | 3.3V Output of on-board regulator |
| 7-14 | [G0-G7] | MPU | Green Data signals |
| 15 | CLK | MPU | Pixel Clock |
| 16 | DISP | MPU | Display ON/OFF signal |
| 17 | HSYNC | MPU | Horizontal (Line) Synchronization signal |
| 18 | VSYNC | MPU | Vertical (Frame) Synchronization signal |
| 19 | DE | MPU | Data Enable signal |
| 20 | NC | - | No Connect |
| 21-28 | [R0-R7] | MPU | Red Data signals |
| 29-36 | [B0-B7] | MPU | Blue Data signals |
| 37 | XR | - | Touch Panel – Right (Resistive Touch Panel models) |
| 38 | YD | - | Touch Panel – Down (Resistive Touch Panel models) |
| 39 | XL | - | Touch Panel – Left (Resistive Touch Panel models) |
| 40 | YU | - | Touch Panel – Up (Resistive Touch Panel models) |

Electrical Characteristics

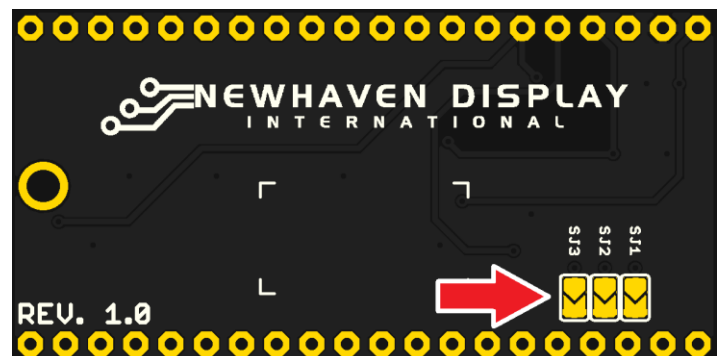
| Item | Symbol | Condition | Min. | Typ. | Max. | Unit |
|-----------------------------|-----------------|--------------|------|------|------|------|
| Operating Temperature Range | T _{OP} | Absolute Max | -40 | - | +85 | °C |
| Storage Temperature Range | T _{ST} | Absolute Max | -40 | - | +85 | °C |
| Supply Voltage | V _{IN} | - | - | 5.0 | 5.5 | V |

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

Backlight Driver Configuration

The on-board backlight driver circuit is adjustable for various output currents via the three solder jumpers labeled “SJ1 – SJ3”. Consult the datasheet of the LCD to determine the required backlight supply current. The backlight driver defaults to 40mA. Refer to the “Backlight Configuration” table shown below.

| Current Output | SJ1 | SJ2 | SJ3 |
|-----------------|--------------|--------------|--------------|
| ~40mA (Default) | Open | Open | Open |
| ~60mA | Close | Open | Open |
| ~90mA | Open | Close | Open |
| ~180mA | Open | Open | Close |



Quality Information

| Test Item | Content of Test | Test Condition | Note |
|---------------------------------------|---|---|------|
| High Temperature storage | Endurance test applying the high storage temperature for a long time. | +85°C , 96hrs | 2 |
| Low Temperature storage | Endurance test applying the low storage temperature for a long time. | -40°C , 96hrs | 1,2 |
| High Temperature Operation | Endurance test applying the electric stress (voltage & current) and the high thermal stress for a long time. | +85°C , 96hrs | 2 |
| Low Temperature Operation | Endurance test applying the electric stress (voltage & current) and the low thermal stress for a long time. | -40°C , 96hrs | 1,2 |
| High Temperature / Humidity Operation | Endurance test applying the electric stress (voltage & current) and the high thermal with high humidity stress for a long time. | +60°C , 90% RH , 96hrs | 1,2 |
| Thermal Shock resistance | Endurance test applying the electric stress (voltage & current) during a cycle of low and high thermal stress. | -20°C,30min -> 25°C,5min ->70°C,30min = 1 cycle 10 cycles | |
| Vibration test | Endurance test applying vibration to simulate transportation and use. | 10-55Hz, 1.5mm amplitude. 60 sec in each of 3 directions X,Y,Z For 15 minutes | 3 |

Note 1: No condensation to be observed.

Note 2: Conducted after 4 hours of storage at 25°C, 0%RH.

Note 3: Test performed on product itself, not inside a container.

Precautions for using 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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