

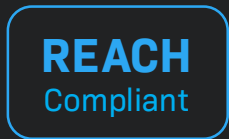
**Product Specification**

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# NHD-7.0-HDMI-HR-RSXP-CTU

## TFT Liquid Crystal Display

<b>NHD -</b>	Newhaven Display
<b>7.0 -</b>	7" Diagonal
<b>HDMI -</b>	HDMI Interface
<b>HR -</b>	1024 x 600 Resolution
<b>RSXP -</b>	IPS Display
<b>CTU -</b>	Capacitive USB-HID Touch



## Table of Contents

Document Revision History .....	2
Functions and Features .....	2
Mechanical Drawing .....	3
Schematics .....	4
Electrical Characteristics .....	8
HDMI Receiver Information .....	8
Technical Resource .....	8
EDID Array .....	9
EDID Timing .....	9
Quality Information .....	10

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## Additional Resources

- **Support Forum:** <http://www.nhdforum.newhavendisplay.com>
- **GitHub:** <https://github.com/newhavendisplay>
- **Example Code:** [https://www.newhavendisplay.com/example\\_code.html](https://www.newhavendisplay.com/example_code.html)
- **Knowledge Center:** [https://www.newhavendisplay.com/knowledge\\_center.html](https://www.newhavendisplay.com/knowledge_center.html)
- **Quality Center:** [https://www.newhavendisplay.com/quality\\_center.html](https://www.newhavendisplay.com/quality_center.html)
- **Precautions for using LCDs/LCMs:** <https://www.newhavendisplay.com/specs/precautions.pdf>
- **Warranty / Terms & Conditions:** <https://www.newhavendisplay.com/terms.html>

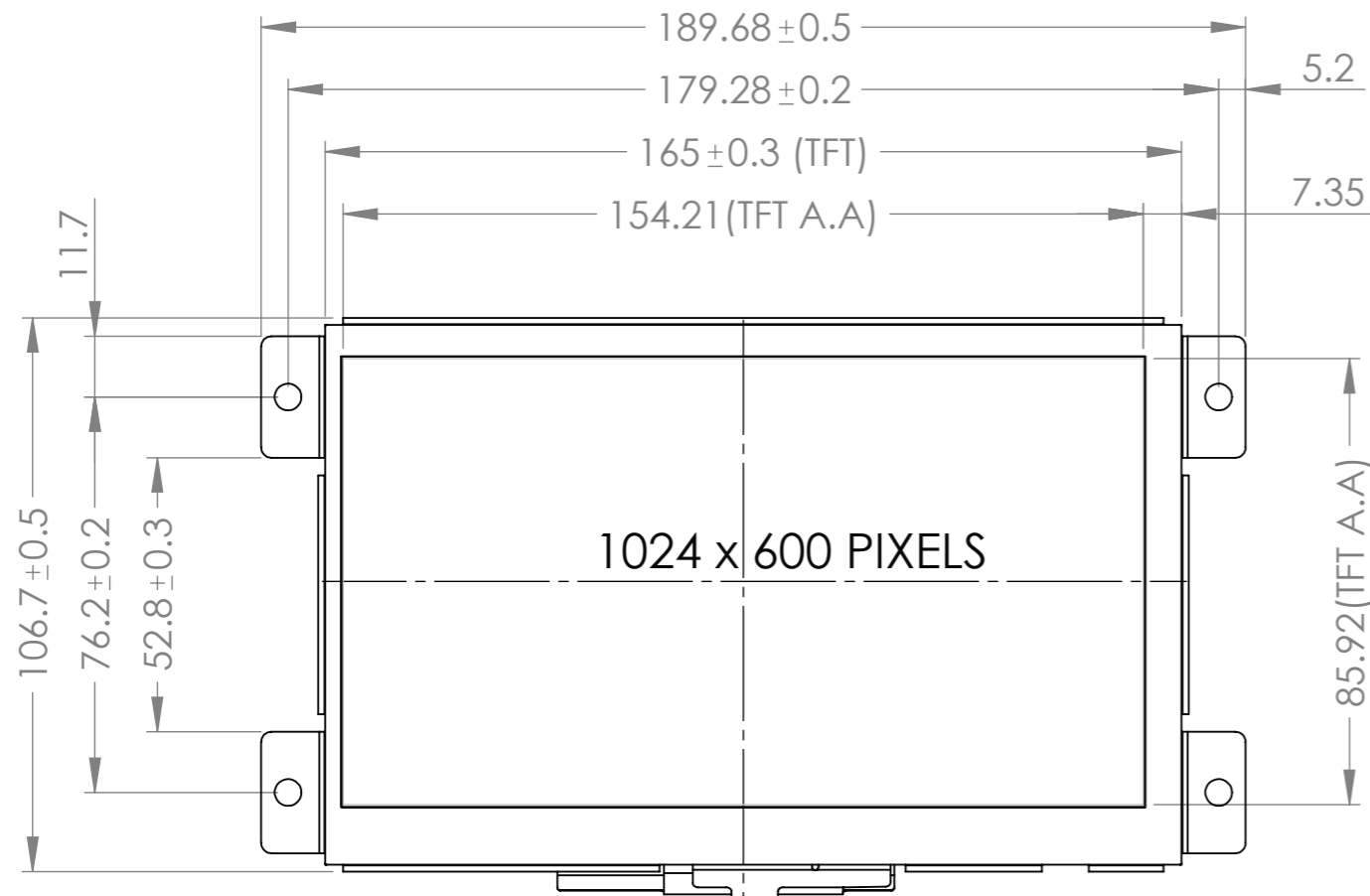


## Document Revision History

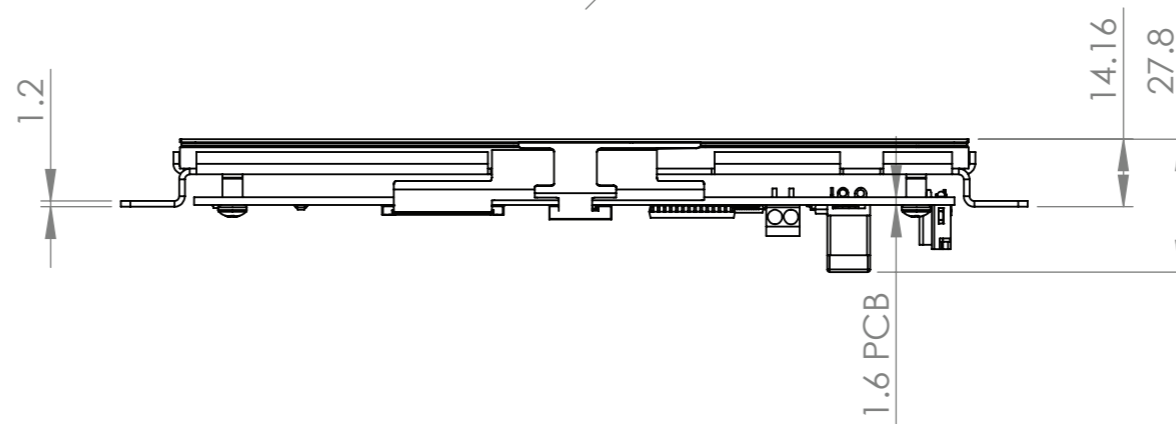
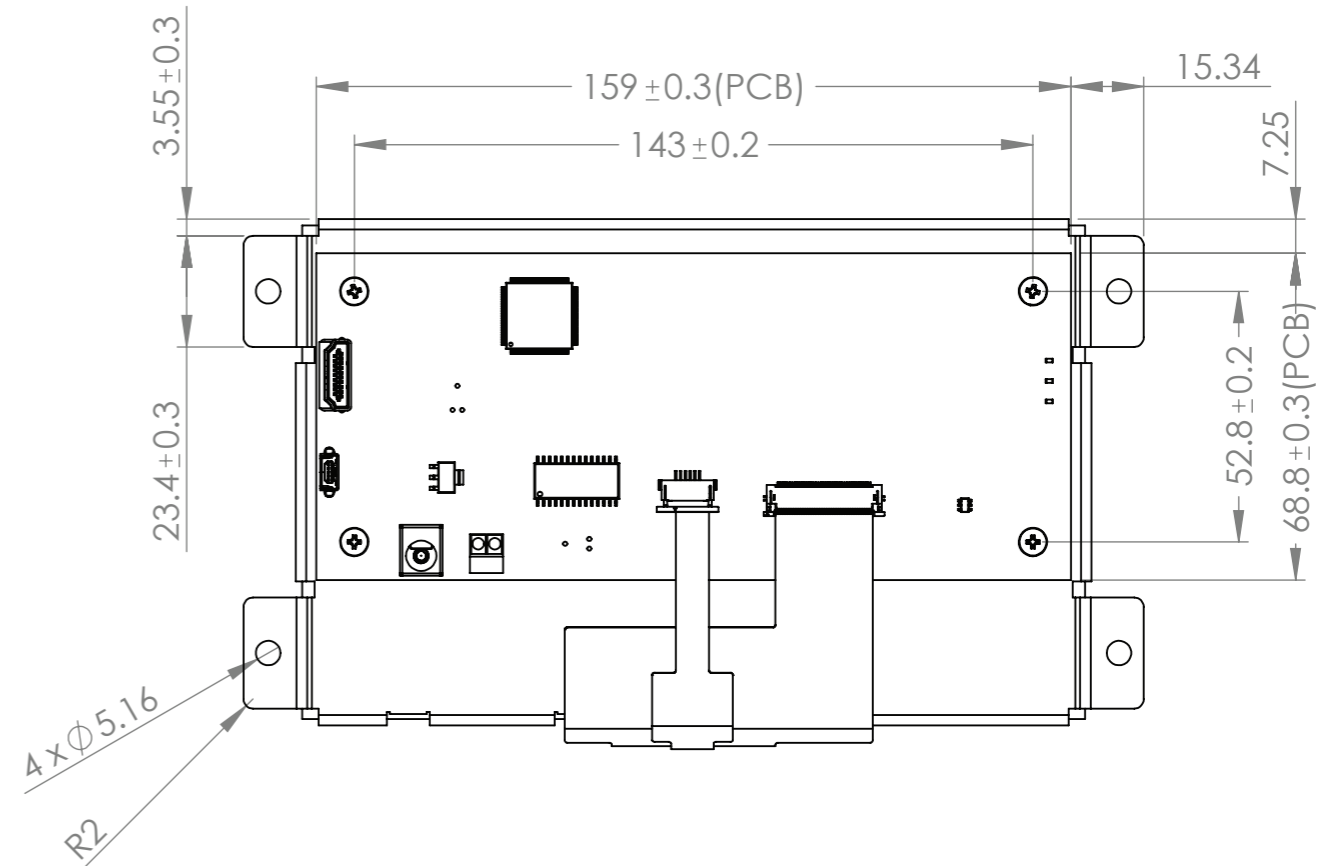
Revision	Date	Description	Changed By
0	04/22/2021	Initial Release	ZP
1	11/12/2021	CTP IC FT5426 Version Update	ZP
2	01/31/2022	Updated cover page, Technical Resources section, and mechanical drawing	CJ

# Mechanical Drawing

SYMBOL	REVISION	DATE



[read caution below]



Product Description: 7" HDMI IPS TFT w/ Capacitive Touch

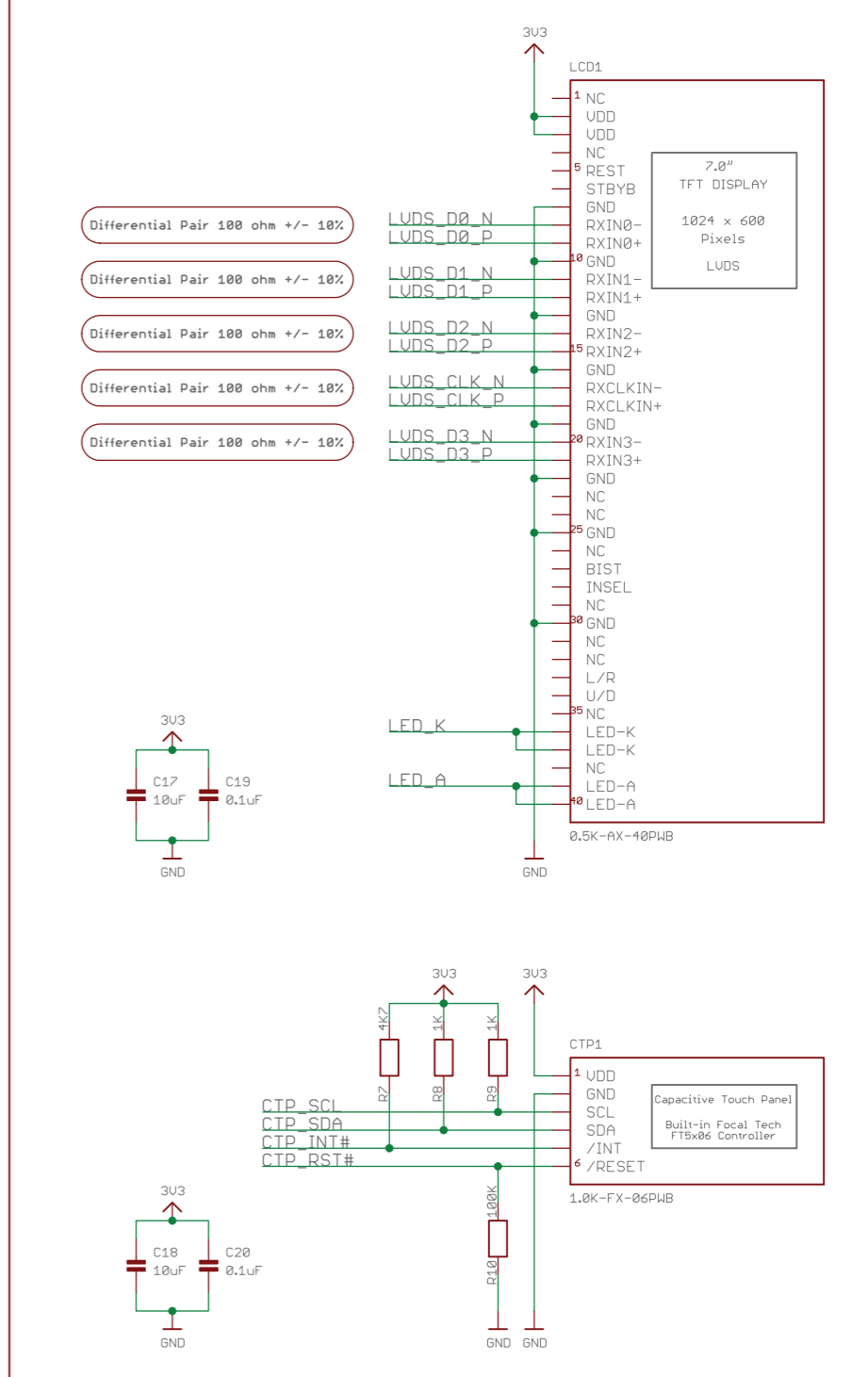
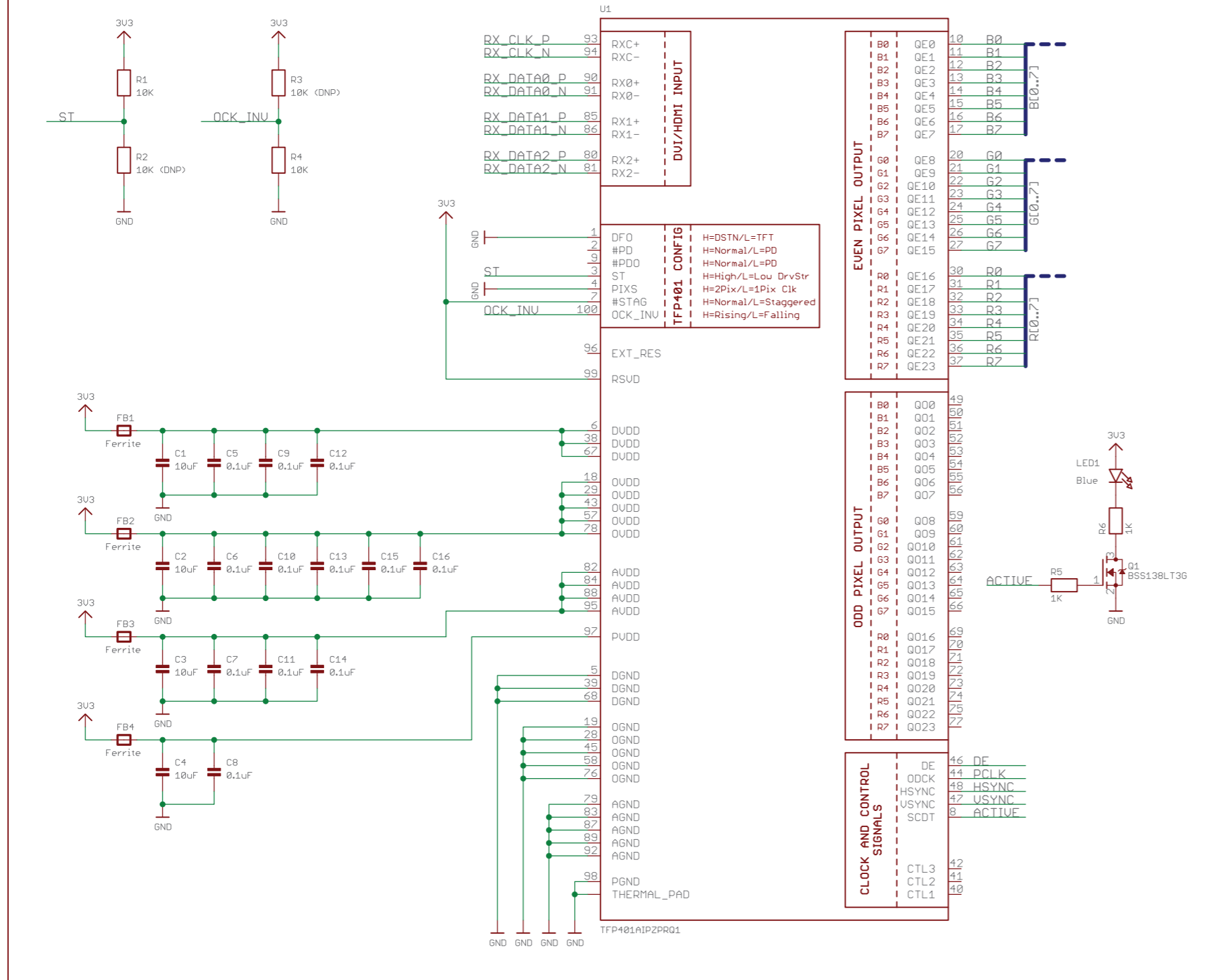
1. TFT Driver IC: TFP401A, CTP IC: FT5426
2. TFT Interface: HDMI, CTP Interface: I<sup>2</sup>C
3. TFT Power Requirement: 7.0V
4. Optical Features: Normally Black, Transmissive, 900 cd/m<sup>2</sup>

Improper handling of the FPC connections at the bottom edge of this module may cause damage resulting in display or touch failure. Take special care when handling this area of the display module to make sure these connections are never strained nor created.

STANDARD TOLERANCE: (UNLESS OTHERWISE SPECIFIED)		
LINEAR: ±0.3mm	DRAWING/PART NUMBER: <b>NHD-7.0-HDMI-HR-RSXP-CTU</b>	REVISION: -
UNLESS OTHERWISE SPECIFIED: - DIMENSIONS ARE IN MILLIMETERS - THIRD ANGLE PROJECTION	DRAWN BY: C. Johnson	APPROVED BY: C. Johnson
	DRAWN DATE: 01/31/2022	APPROVED DATE: 01/31/2022
	DO NOT SCALE DRAWING	
	SHEET 1 OF 1	
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# TFP401 (DVI/HDMI Decoder)

# LCD Interface



**NEWHAVEN DISPLAY INTERNATIONAL**

SCHEMATIC/PART NUMBER: **NHD-7.0-HDMI-HR\_SCH**

REVISION: -

SIZE: A3

DRAWN BY: P. Bartek

CHECKED BY: M. LaVine

DRAWN DATE: 05/31/19

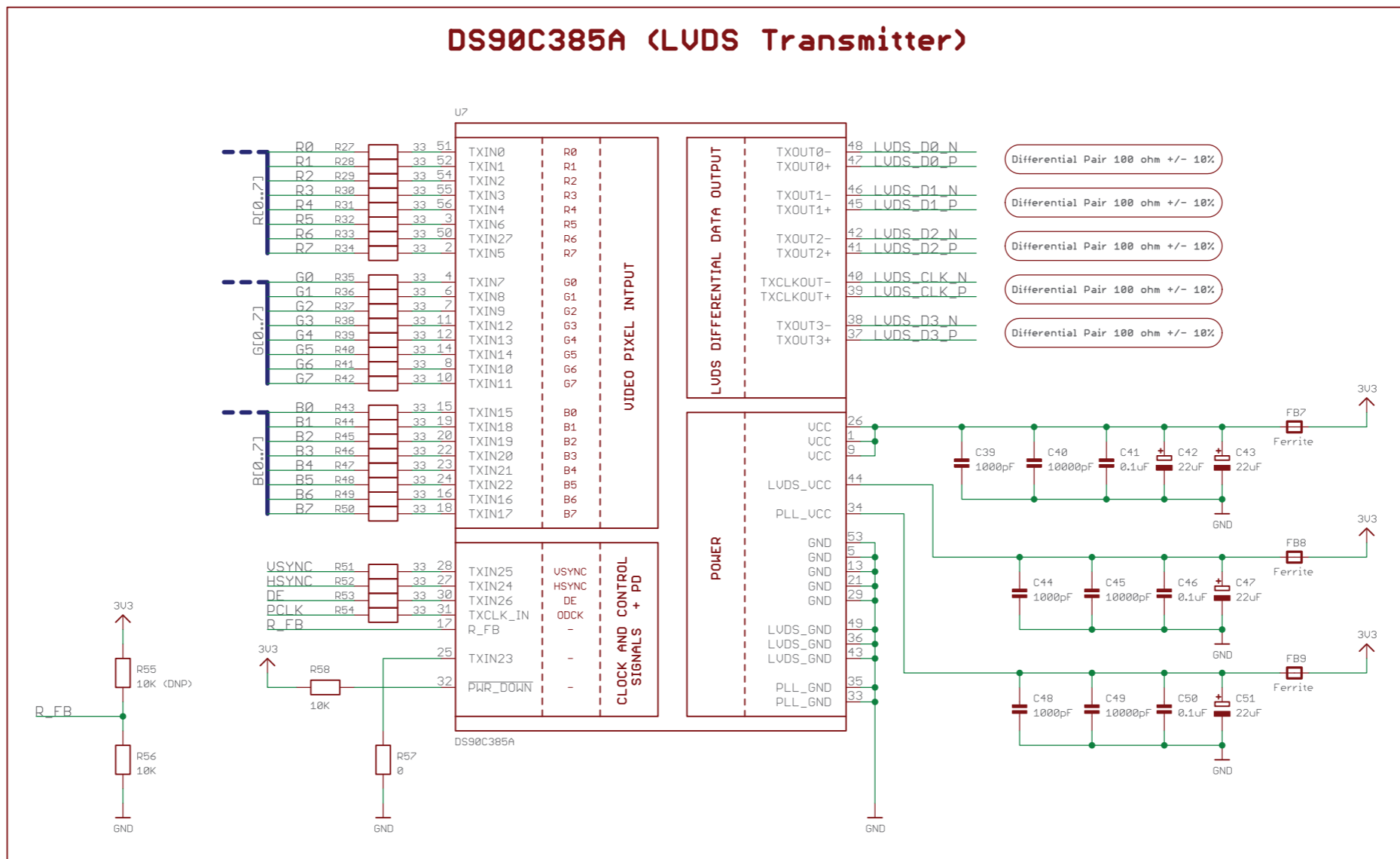
CHECKED DATE: 05/31/19

SHEET: 1 of 4

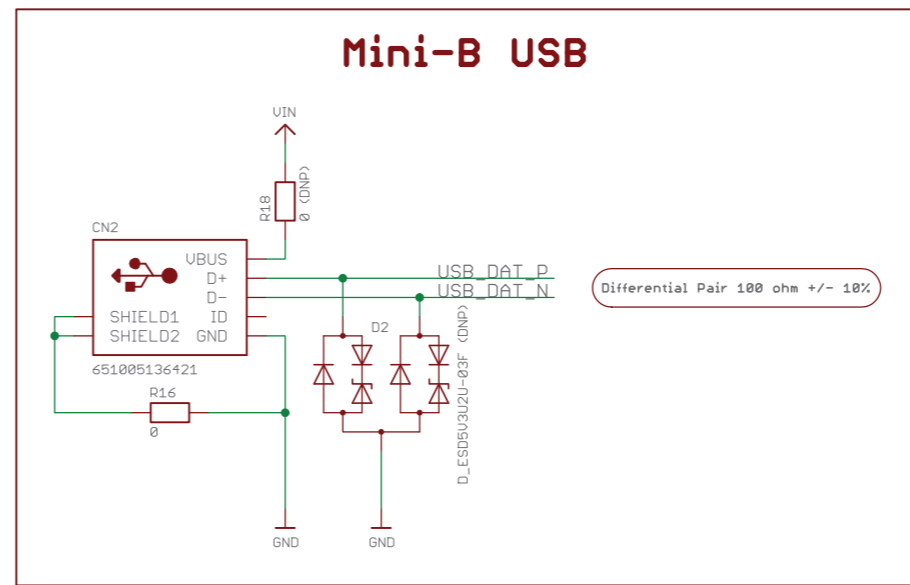
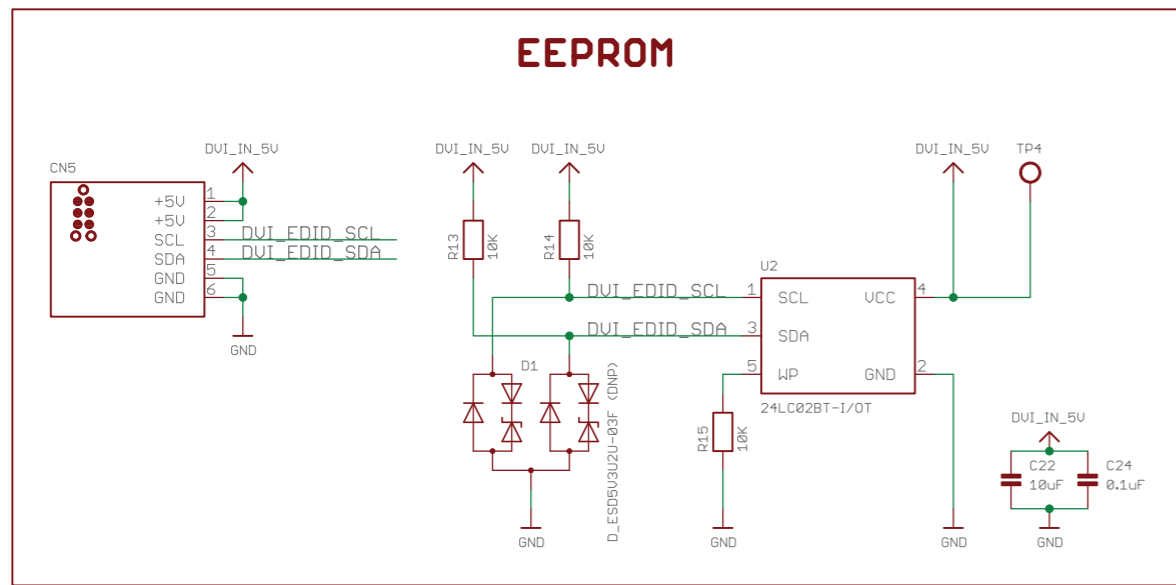
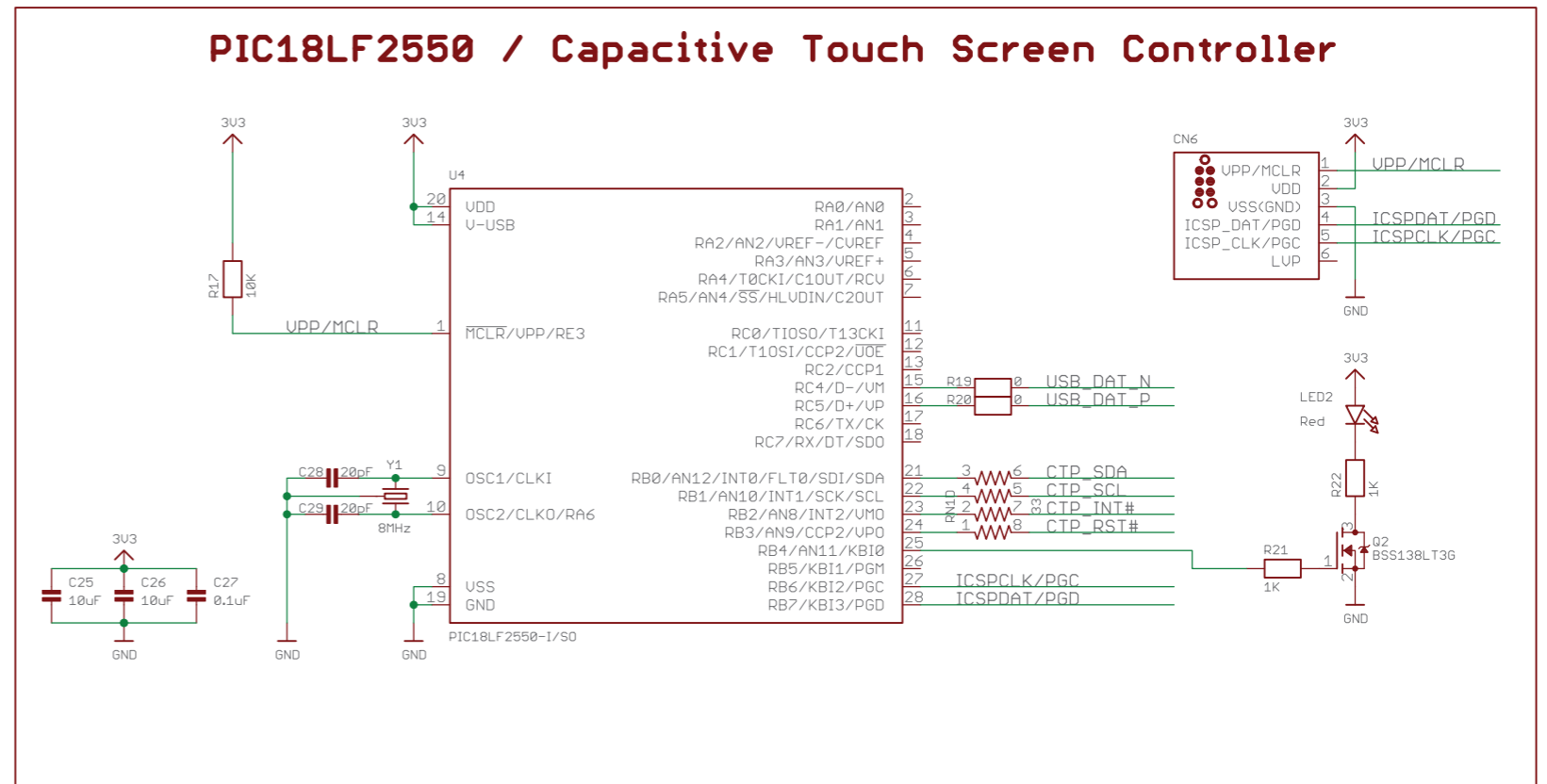
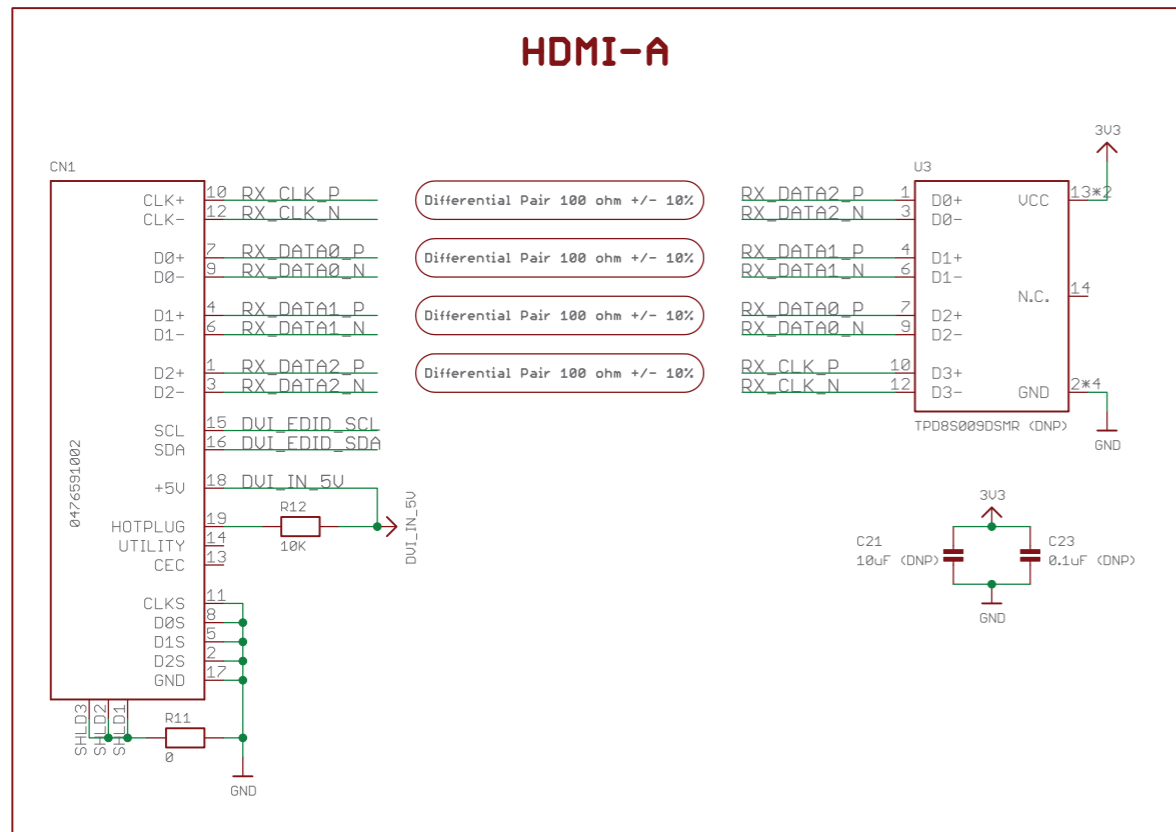
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## DS90C385A (LVDS Transmitter)

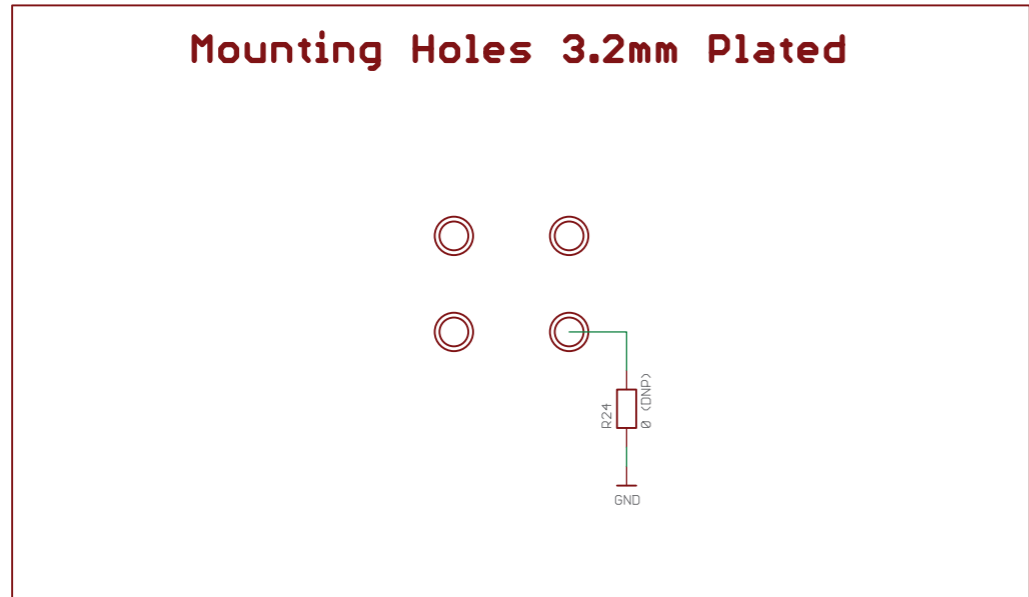
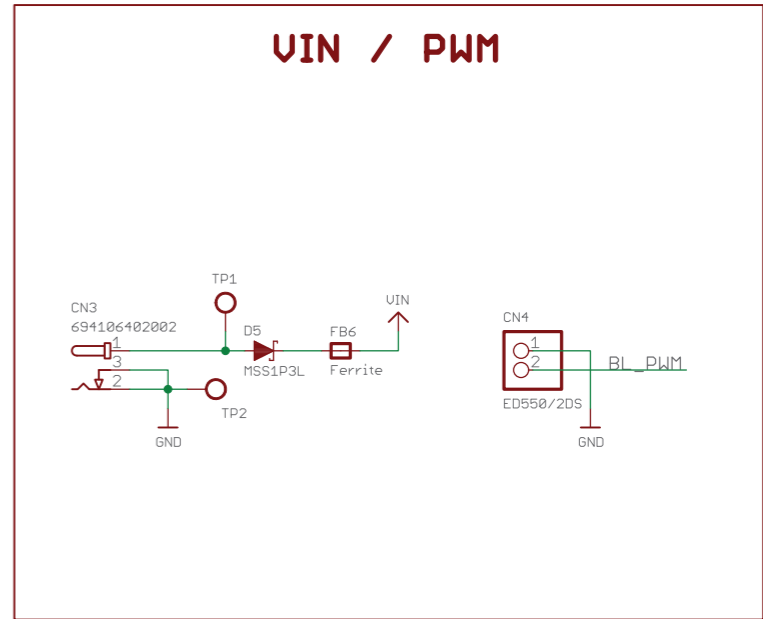
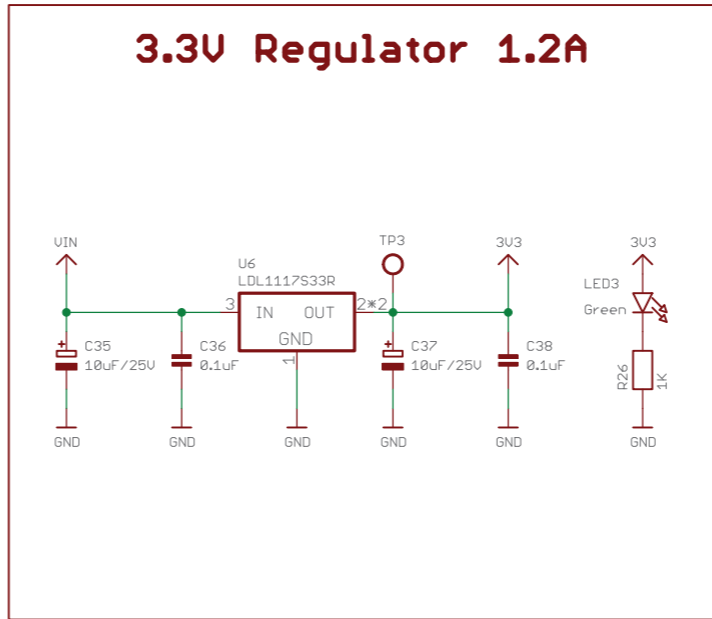
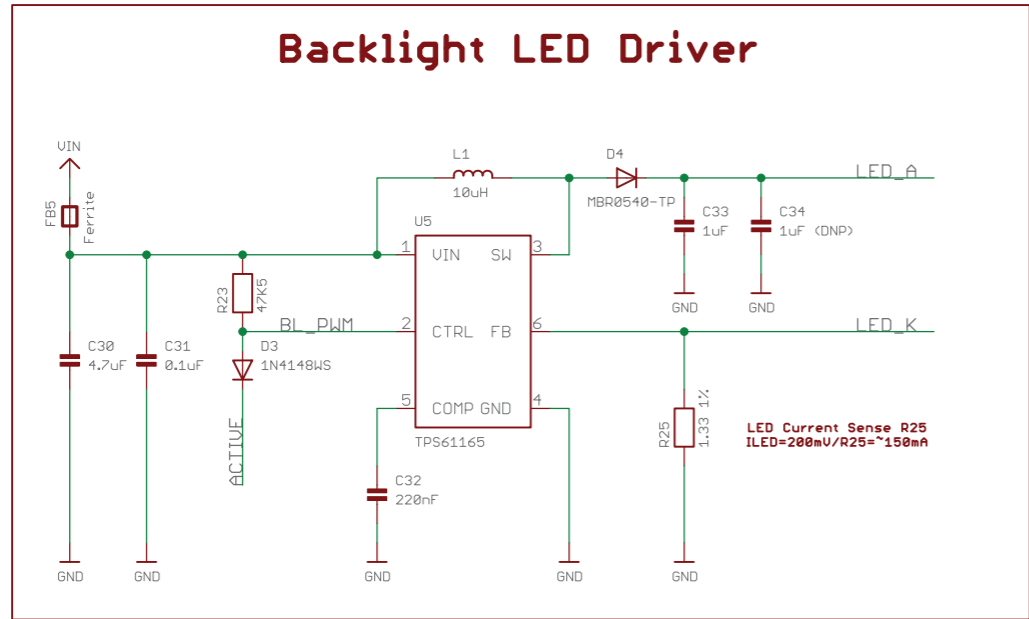


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SCHEMATIC/PART NUMBER: <b>NHD-7.0-HDMI-HR_SCH</b>		SIZE: A3
DRAWN BY: P. Bartek	CHECKED BY: M. LaVine	SHEET: 2 of 4
DRAWN DATE: 05/31/19	CHECKED DATE: 05/31/19	
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Note: The PIC18LF2550 / Capacitive Touch Screen Controller and necessary components are only populated on the CTU version.

<b>NEWHAVEN DISPLAY INTERNATIONAL</b>	
SCHEMATIC / PART NUMBER: NHD-7.0-HDMI-HR_SCH	
REVISION: -	SIZE: A3
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### BOARD VERSIONS

CTU Version: (DNP) - C21, C23, C34, CN5, CN6, D1, D2, R2, R3, R55, R18, R24, U3

Non-Touch Version: (DNP) - C18, C21, C25, C26, C20, C23, C27, C28, C29, C34, CN2, CN5, CN6, CTP1, D1, D2, LED2, Q2, R2, R3, R17, R55, R7, R8, R9, R21, R22, R10, R16, R19, R20, R24, R18, RN1, U3, U4, Y1

SCHEMATIC / PART NUMBER: <b>NHD-7.0-HDMI-HR_SCH</b>	
REVISION: -	
SIZE: A3	
DRAWN BY: P. Bartek	CHECKED BY: M. LaVine
DRAWN DATE: 05/31/19	CHECKED DATE: 05/31/19
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## Electrical Characteristics

Item	Symbol	Condition	Min.	Typical	Max.	Unit
Operating Temperature Range	T <sub>OP</sub>	Absolute Max	-20	-	+70	°C
Storage Temperature Range	T <sub>ST</sub>	Absolute Max	-30	-	+80	°C
Backlight PWM Voltage	V <sub>PWM</sub>	-	2.5	3.3	5.5	V
Backlight PWM Frequency	f <sub>PWM</sub>	V <sub>PWM</sub> = 3.3V	5	-	100	kHz
Module Supply Voltage	V <sub>DD</sub>	-	5.0	-	7.0	V
Module Supply Current	I <sub>DD</sub>	V <sub>DD</sub> = 5V	-	1.2	1.5	A
		V <sub>DD</sub> = 7V	-	0.9	1.2	A

## HDMI Receiver Information

On-board Texas Instruments TFP401A Receiver. To view the full TFP401A specification, please download it by accessing the link: <http://www.ti.com/lit/ds/slids190a/slids190a.pdf>

## Technical Resource

3D Model	TFT Panel Used	Display Type	Luminance Rating	Optimal Viewing Angle	Touch Panel
<a href="#">NHD-7.0-HDMI-HR-RSXP-CTU</a>	<a href="#">NHD-7.0-1024600AF-LSXP-CTP</a>	IPS, Sunlight Readable	900 cd/m <sup>2</sup>	85° all angles	PCAP (USB-HID)

## EDID Array

```
const unsigned char NHD_HDMI7HR[] = {  
0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0x00, 0x39, 0x04, 0xB4, 0x07, 0x00, 0x00, 0x00, 0x00,  
0x01, 0x11, 0x01, 0x03, 0x80, 0x0F, 0x09, 0x00, 0x0A, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,  
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01,  
0x01, 0x01, 0x01, 0x01, 0x01, 0x38, 0x18, 0x00, 0x40, 0x41, 0x58, 0x23, 0x20, 0xA0, 0x20,  
0xCA, 0x00, 0x9A, 0x56, 0x00, 0x00, 0x00, 0x18, 0x00, 0x00, 0x00, 0xFC, 0x00, 0x4E, 0x48, 0x44,  
0x2D, 0x37, 0x20, 0x48, 0x44, 0x4D, 0x49, 0x20, 0x48, 0x52, 0x00, 0x00, 0x00, 0x10, 0x00, 0x00,  
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x10,  
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0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,  
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,  
};
```

## EDID Timing

Pixel Clock:	62.0	V. Active Lines:	600
H. Active Pixels:	1024	V. Blank:	35
H. Blank:	320	V. Front Porch:	12
H. Front Porch:	160	V. Sync Width:	10
H. Sync Width:	32	V. Clock:	72.65 Hz
H. Clock:	46.13 kHz		

## Quality Information

Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	+80°C, 96 hrs.	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-30°C, 96 hrs.	1,2
High Temperature Operation	Endurance test applying the electric stress (voltage & current) and the high thermal stress for a long time.	+70°C, 96 hrs.	2
Low Temperature Operation	Endurance test applying the electric stress (voltage & current) and the low thermal stress for a long time.	-20°C, 96 hrs.	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, 96 hrs.	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, 15mm amplitude. 60 sec in each of 3 directions X,Y,Z For 15 minutes	3
Static electricity test	Endurance test applying electric static discharge.	Air: $V_s = \pm 8KV$ , Contact: $V_s = \pm 4KV$ 10 Times	

**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.