

Product Specification

NHD-10.1-HDMI-A-RSXV-CTU

TFT Liquid Crystal Display

NHD-	Newhaven Display
10.1-	10.1" Diagonal
HDMI-	HDMI Interface
A-	1024x600 Resolution, HDMI Audio Support
RSXV-	Premium (MVA) Display
CTU-	Capacitive USB-HID Touch

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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
- **Knowledge Center:** https://www.newhavendisplay.com/knowledge_center.html
- **Quality Center:** 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>

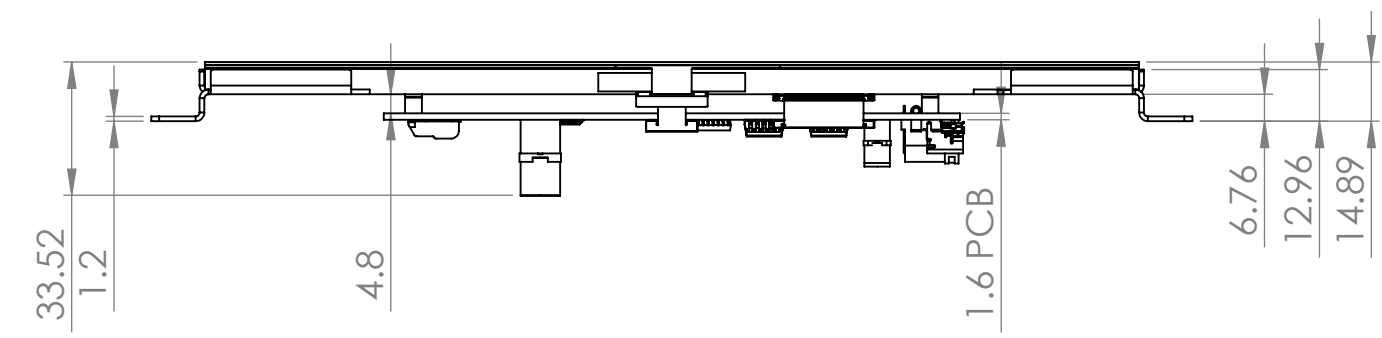
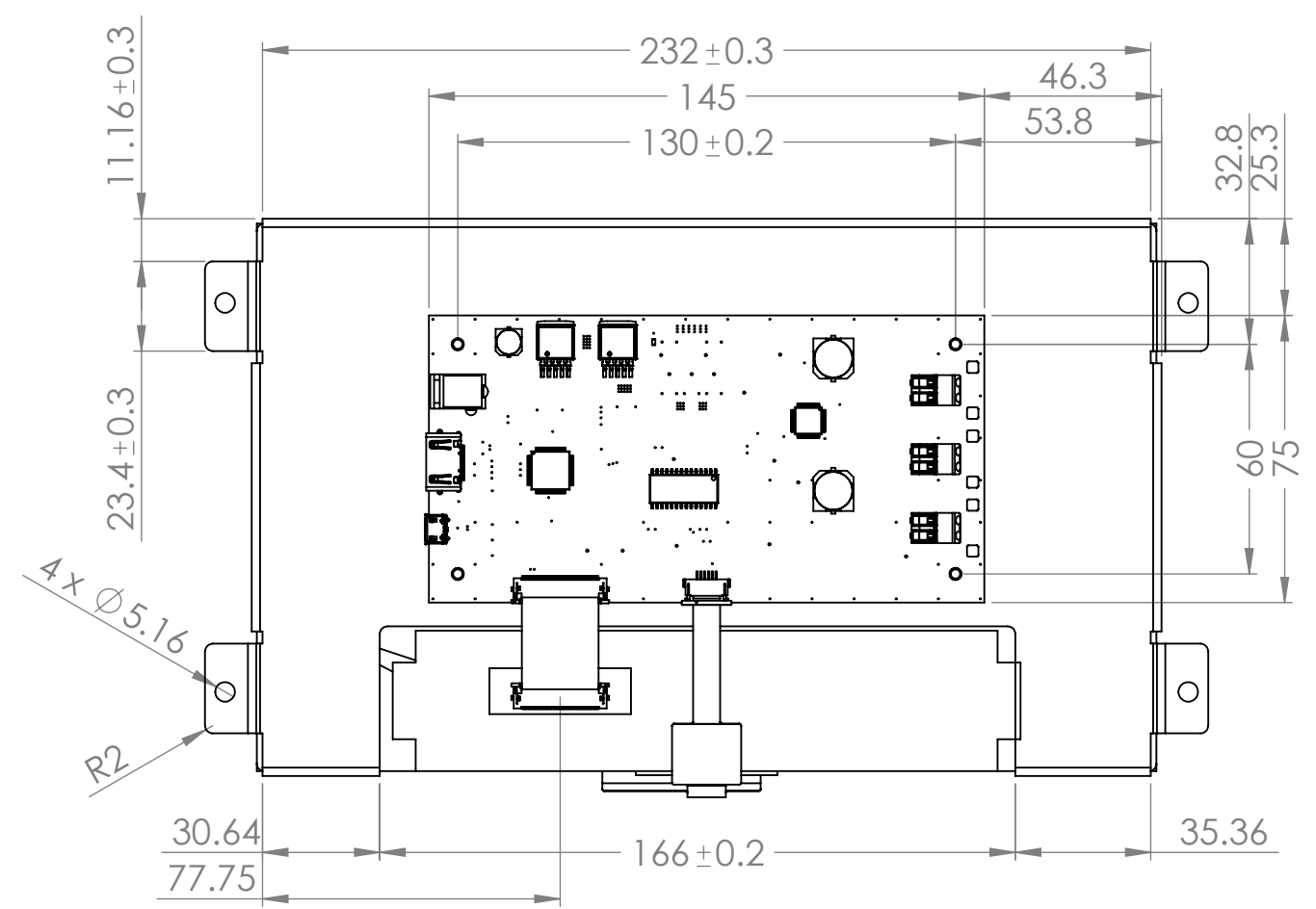
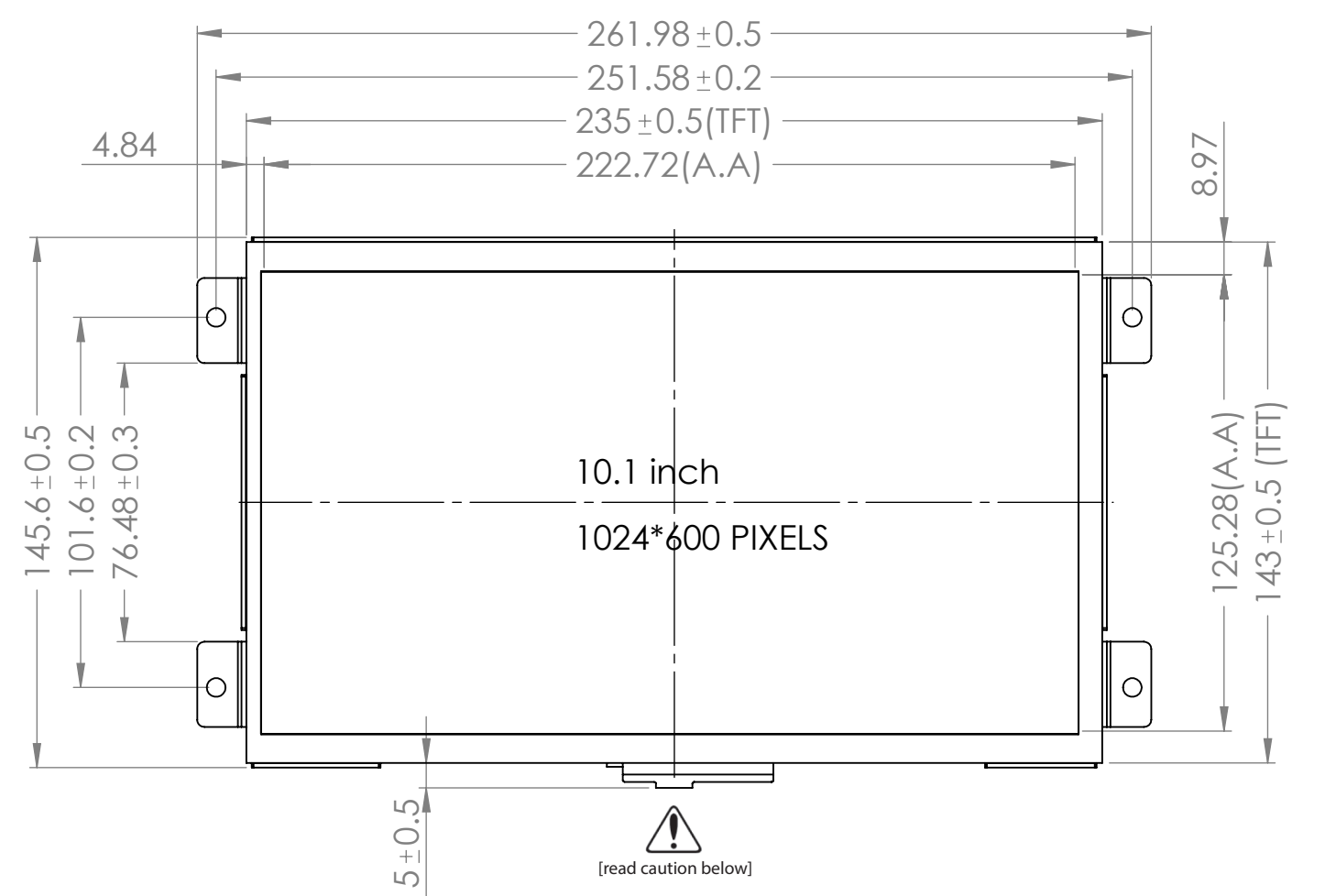


Document Revision History

Revision	Date	Description	Changed By
0	08/09/2021	Initial Release	ZP
1	01/14/2022	FT5526 IC Version Update	ZP
2	02/03/2022	Updated Cover Page, Technical Resource Section, & Mechanical Drawing	ZP

Mechanical Drawing

SYMBOL	REVISION	DATE



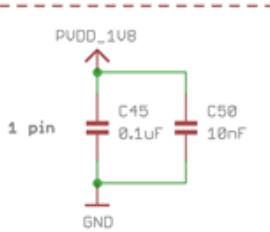
- Product Description: 10.1" HDMI Premium TFT w/ Capacitive Touch
1. TFT Driver IC: TFP401A, CTP IC: FT5526
 2. TFT Interface: HDMI, CTP Interface: I²C
 3. TFT Power Requirement: 6V/1.7A
 4. Optical Features: Normally White, Transmissive, 700 cd/m²

 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 creased.

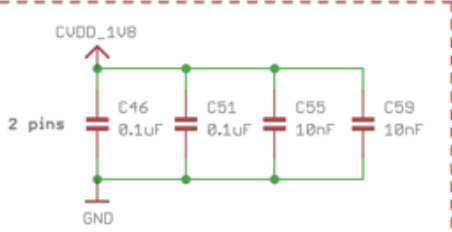
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	Drawing/Part Number: NHD-10.1-HDMI-A-RSXV-CTU	
	Drawn By: Z.Palrang	Approved By: Z.Palrang
	Drawn Date: 02/03/2022	Approved Date: 02/03/2022
Unless otherwise specified: • Dimensions are in Millimeters • Third Angle Projection 	Revision: -	
	Size: A3	
Do Not Scale Drawing		Scale: NS
Sheet 1 of 1		
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ADU7611 (Low Power 165 MHz HDMI Receiver)

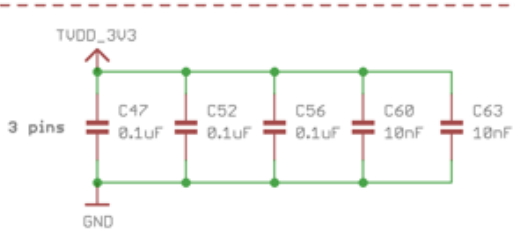
PUDD Decoupling



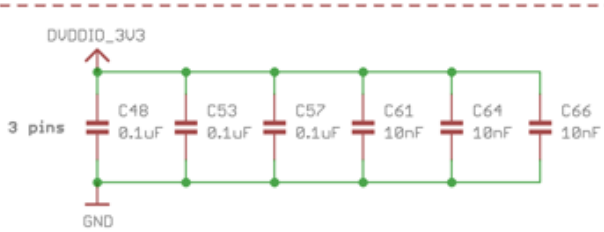
CUDD Decoupling



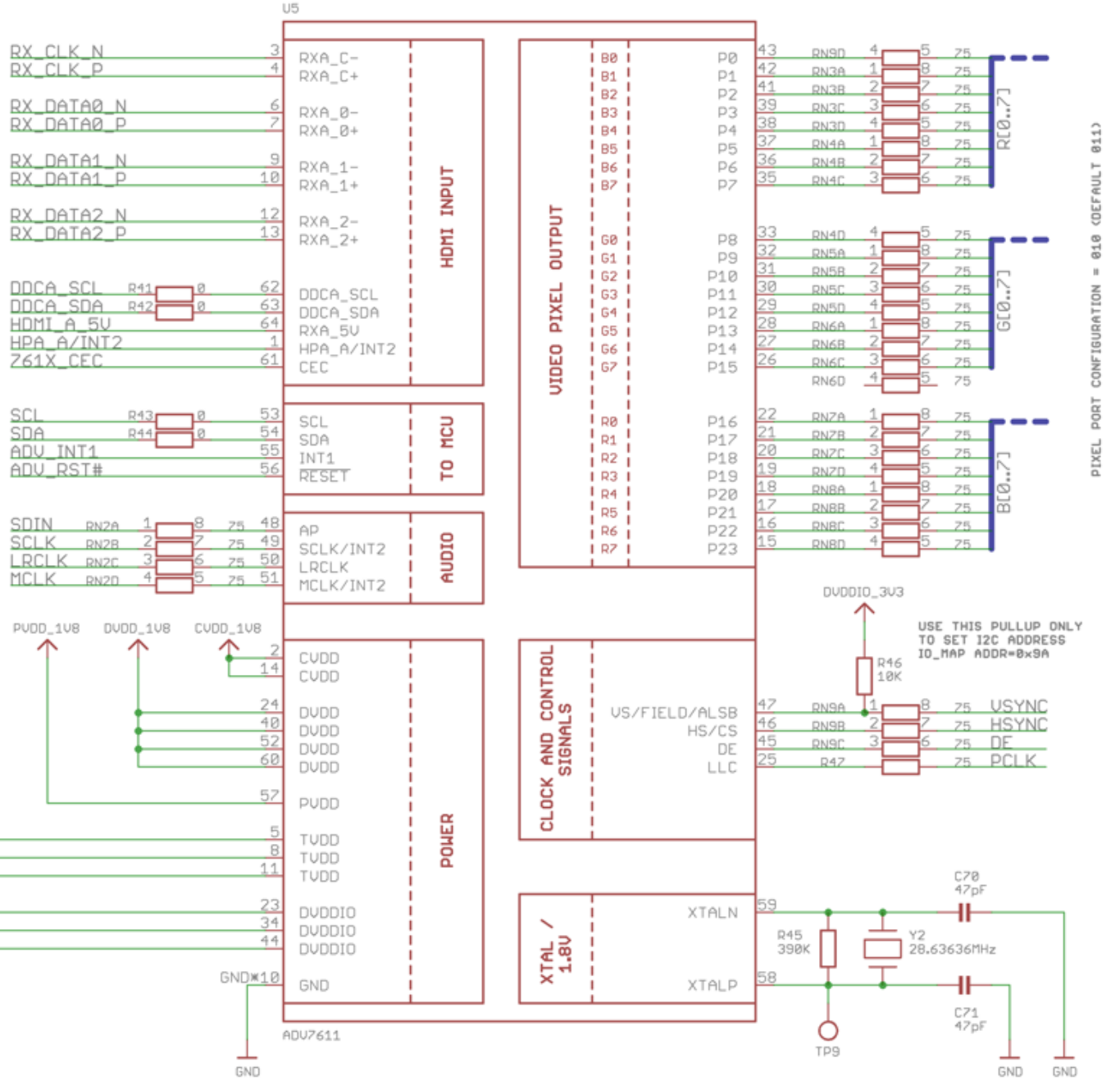
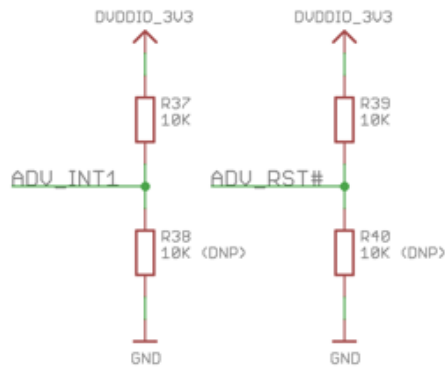
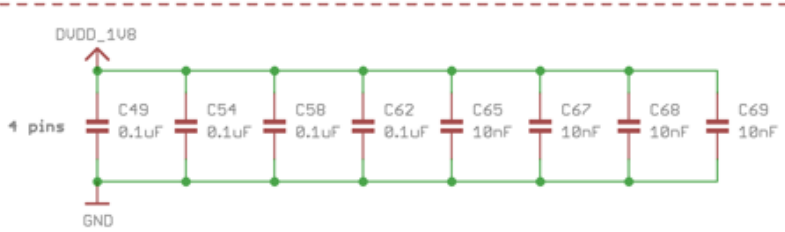
TUDD Decoupling



DVDDIO Decoupling

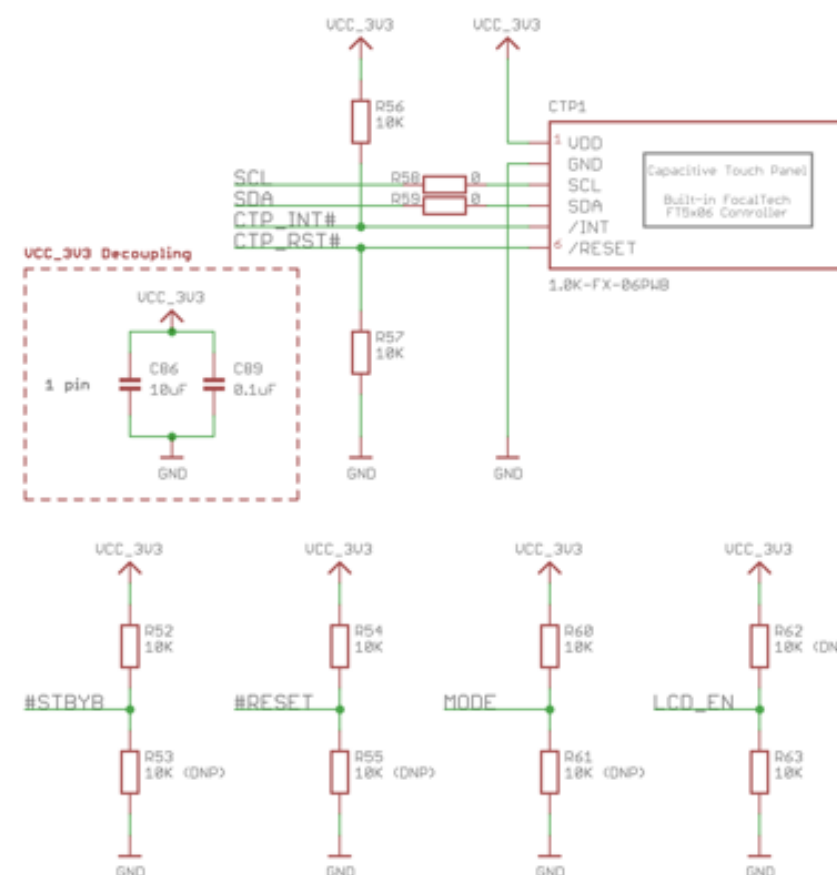
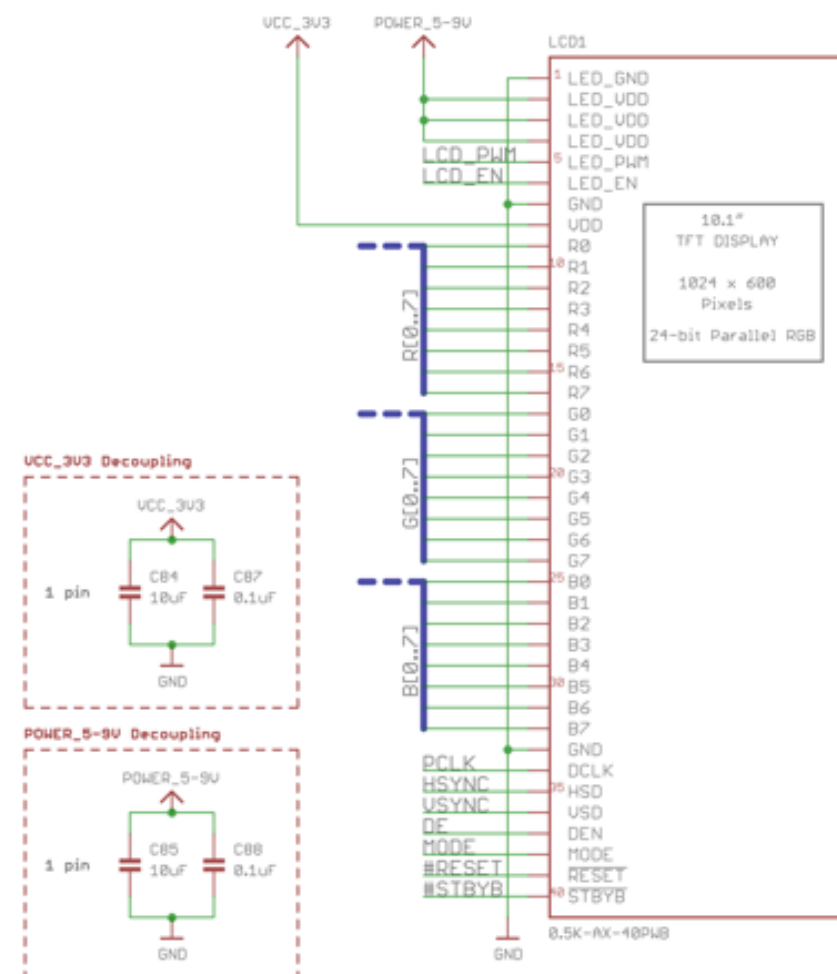


DVDD Decoupling

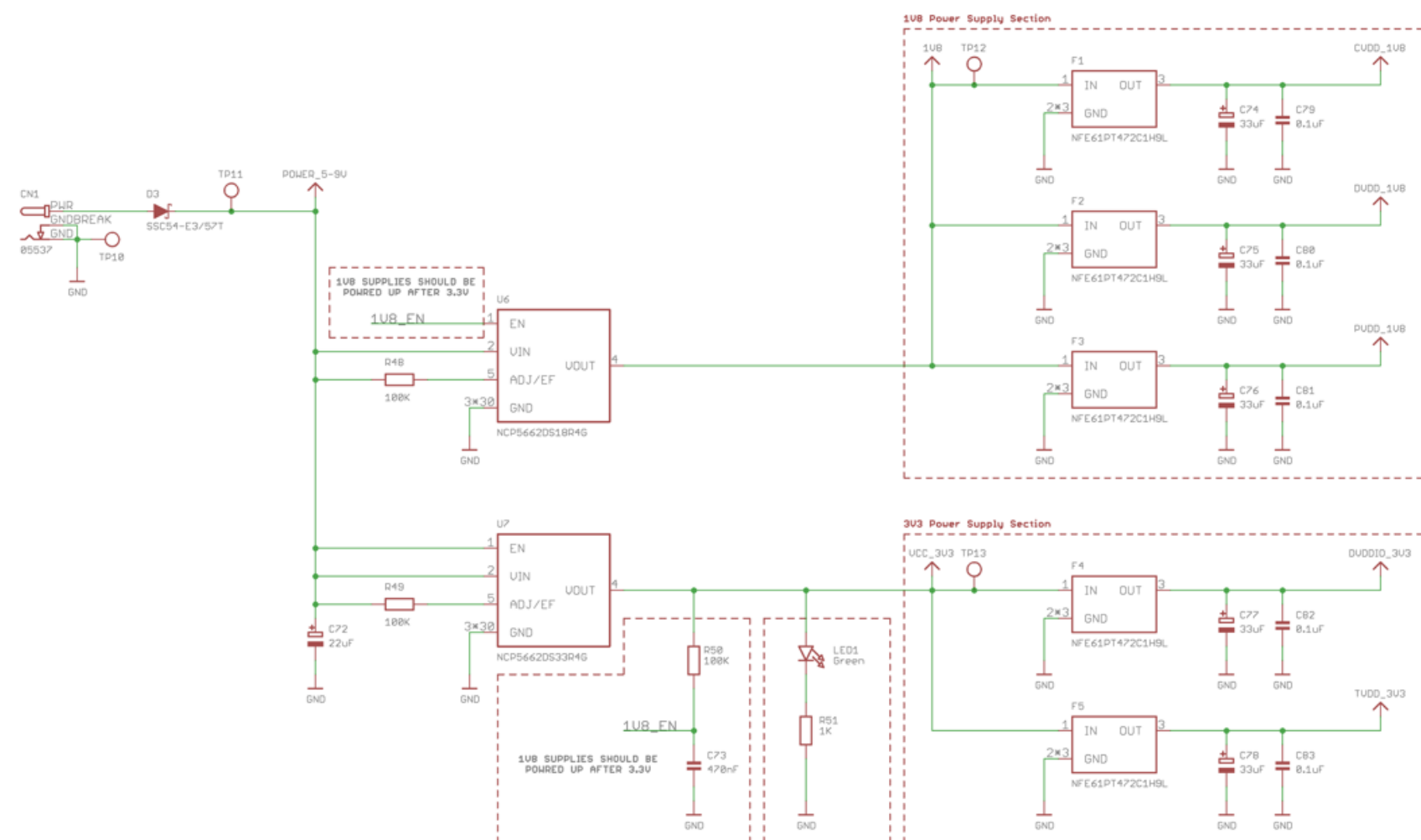


Standard Tolerance: (Unless otherwise specified)		NEWHAVEN DISPLAY INTERNATIONAL	
Linear: ±0.3mm		Drawing/Part Number: NHD-10.1-HDMI-A-SCH	
Unless otherwise specified: • Dimensions are in Millimeters • Third Angle Projection		Drawn By: Z.Palrang Drawn Date: 08/12/2021	Revision: - Size: A3 Scale: NS
		Approved By: Z.Palrang Approved Date: 08/12/2021	
		Do Not Scale Drawing	
		Sheet 1 of 1	
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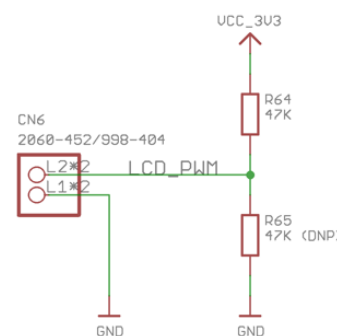
LCD Interface



Power Supply



PWM LED Backlight



Standard Tolerance:
(Unless otherwise specified)

Linear: $\pm 0.3\text{mm}$

Unless otherwise specified:

- Dimensions are in Millimeters
- Third Angle Projection

NEWHAVEN DISPLAY
INTERNATIONAL

Drawing/Part Number:
NHD-10.1-HDMI-A-SCH

Revision:
-

Size:
A3

Scale:
NS

Do Not Scale Drawing

Sheet 1 of 1

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HDMI Port A - Connector and ESD Suppression

The diagram illustrates the HDMI Port A connector and its associated ESD suppression circuitry. The connector (CN2) is a 19-pin D-sub connector. The signal pins are connected to the HDMI_A_5V supply and the HDMI_A_5V signal. The DDC A circuitry includes a DDC A_5V supply and a DDC A_5V signal. The CEC circuitry includes a CEC1 signal and a CEC1 supply. The ESD suppression circuitry includes a DDC A_5V supply and a DDC A_5V signal. The diagram also shows the connection of the HDMI_A_5V supply to the HDMI_A_5V signal and the connection of the DDC A_5V supply to the DDC A_5V signal.

Connector Pinout:

Pin	Signal
10	RX_CLK_P
12	RX_CLK_N
7	RX_DATA0_P
9	RX_DATA0_N
4	RX_DATA1_P
6	RX_DATA1_N
1	RX_DATA2_P
3	RX_DATA2_N
15	DDCA_SCL
16	DDCA_SDA
18	HDMI_A_5V
19	HDA_A/INT2
14	UTILITY
13	CEC1
11	CLKS
8	D0S
5	D1S
2	D2S
17	GND

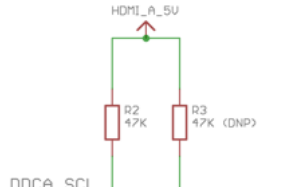
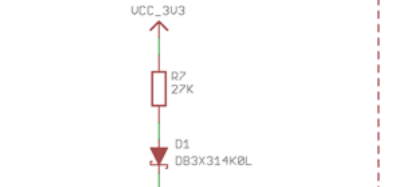
ESD Suppression Components:

- U1:** TP08S089DSMR (ESD Suppressor)
- U2:** RCLAMP05B4PATCT (ESD Suppressor)
- C1:** 10uF (Decoupling Capacitor)
- C2:** 0.1uF (Decoupling Capacitor)
- R1:** 1K (Resistor)
- R2:** 47K (Resistor)
- R3:** 47K (Resistor)
- R4:** 1K (DNP) (Resistor)
- R5:** 1K (Resistor)
- R6:** 0 (Resistor)
- R7:** 27K (Resistor)

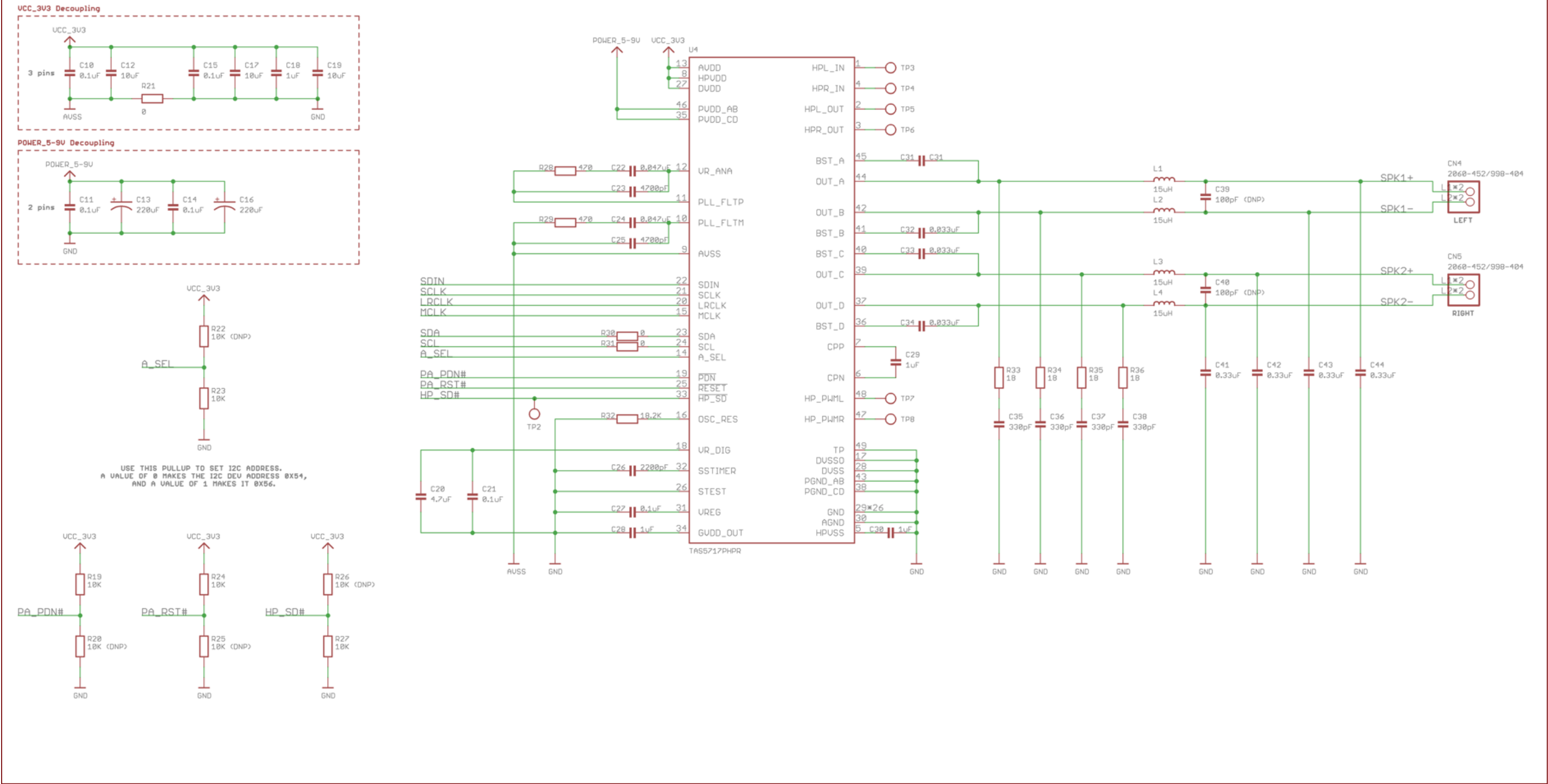
Circuitry Details:

- DDC A Circuitry:** The DDC A circuitry is connected to the DDC A_5V supply and the DDC A_5V signal. The DDC A_5V supply is connected to the DDC A_5V signal through a 47K resistor (R2) and a 47K resistor (R3) in parallel.
- CEC Circuitry:** The CEC circuitry is connected to the CEC1 signal and a CEC1 supply. The CEC1 signal is connected to the CEC1 supply through a 27K resistor (R7) and a 0 resistor (R6) in parallel.
- ESD Suppression:** The ESD suppression circuitry is connected to the DDC A_5V supply and the DDC A_5V signal. The DDC A_5V supply is connected to the DDC A_5V signal through a 1K resistor (R4) and a 1K resistor (R5) in parallel.

Mounting Holes 3.2mm Plated

F			<table> <tr> <td data-bbox="2101 1667 2326 1755"> Standard Tolerance: (Unless otherwise specified) </td><td colspan="2" data-bbox="2326 1667 2837 1755">  NEWHAVEN DISPLAY INTERNATIONAL </td></tr> <tr> <td data-bbox="2101 1755 2326 1789"> Linear: ±0.3mm </td><td colspan="2" data-bbox="2326 1755 2837 1789"> <table> <tr> <td data-bbox="2338 1755 2763 1787"> Drawing/Part Number: NHD-10.1-HDMI-A-SCH </td><td data-bbox="2763 1755 2837 1787"> Revision: - </td></tr> <tr> <td data-bbox="2338 1787 2763 1806"> Drawn By: Z.Palrang </td><td data-bbox="2763 1787 2837 1806"> Approved By: Z.Palrang </td></tr> <tr> <td data-bbox="2338 1806 2763 1822"> Drawn Date: 08/12/2021 </td><td data-bbox="2763 1806 2837 1822"> Approved Date: 08/12/2021 </td></tr> <tr> <td colspan="2" data-bbox="2338 1822 2837 1839"> Do Not Scale Drawing </td></tr> </table> </td></tr> <tr> <td colspan="3" data-bbox="2101 1839 2837 1858"> Sheet 1 of 1 </td></tr> </table>	Standard Tolerance: (Unless otherwise specified)	 NEWHAVEN DISPLAY INTERNATIONAL		Linear: ±0.3mm	<table> <tr> <td data-bbox="2338 1755 2763 1787"> Drawing/Part Number: NHD-10.1-HDMI-A-SCH </td><td data-bbox="2763 1755 2837 1787"> Revision: - </td></tr> <tr> <td data-bbox="2338 1787 2763 1806"> Drawn By: Z.Palrang </td><td data-bbox="2763 1787 2837 1806"> Approved By: Z.Palrang </td></tr> <tr> <td data-bbox="2338 1806 2763 1822"> Drawn Date: 08/12/2021 </td><td data-bbox="2763 1806 2837 1822"> Approved Date: 08/12/2021 </td></tr> <tr> <td colspan="2" data-bbox="2338 1822 2837 1839"> Do Not Scale Drawing </td></tr> </table>		Drawing/Part Number: NHD-10.1-HDMI-A-SCH	Revision: -	Drawn By: Z.Palrang	Approved By: Z.Palrang	Drawn Date: 08/12/2021	Approved Date: 08/12/2021	Do Not Scale Drawing		Sheet 1 of 1			F
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10-W Digital Audio Power Amplifier



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		Revision: - Size: A3 Scale: NS	
		Do Not Scale Drawing Sheet 1 of 1	
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Electrical Characteristics

Item	Symbol	Condition	Min.	Typical	Max.	Unit
Operating Temperature Range	T _{OP}	Absolute Max	-20	-	+50	°C
Storage Temperature Range	T _{ST}	Absolute Max	-30	-	+60	°C
Backlight PWM Voltage	V _{PWM}	-	2.5	3.3	5.5	V
Backlight PWM Frequency	f _{PWM}	V _{PWM} = 3.3V	1	-	20	kHz
Module Supply Voltage	V _{DD}	-	6.0	7.5	9.0	V
Module Supply Current	I _{DD}	V _{DD} = 6V	-	1.7	1.9	A
		V _{DD} = 9V	-	1.0	1.2	A

HDMI Receiver Information

On-board Analog Devices ADV7611 Low Power HDMI Receiver.

To view the full ADV7611 specification, please download it by accessing the link below:

<http://www.analog.com/media/en/technical-documentation/data-sheets/ADV7611.pdf>

Audio Amplifier Information

On-board Texas Instruments TAS5717 Digital Audio Power Amplifier.

To view the full TAS5717 specification, please download it by accessing the link below:

<http://www.ti.com/lit/ds/symlink/tas5719.pdf>

Technical Resource

3D Model	TFT Panel Used	Display Type	Luminance Rating	Optimal Viewing Angle	Touch Panel
NHD-10.1-1024600AF-ASXV#-CTP	NHD-10.1-1024600AF-ASXV#-CTP	Premium MVA	700 cd/m ²	75° all angles	PCAP (USB-HID)



EDID Array

```
const unsigned char NHD_HDMI10.1A[] = {
  0x00, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0x00, 0x39, 0x04, 0x03, 0x00, 0x00, 0x00, 0x00, 0x00,
  0x01, 0x1B, 0x01, 0x03, 0xA1, 0x16, 0x0D, 0x78, 0x02, 0xBB, 0xD0, 0x94, 0x57, 0x55, 0x91, 0x27,
  0x21, 0x50, 0x54, 0x00, 0x00, 0x00, 0x01, 0x00, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01, 0x01,
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};
```

EDID Timing

Pixel Clock:	50.40	☐ Interlaced
H. Active Pixels:	1024	V. Active Lines: 600
H. Blank:	320	V. Blank: 25
H. Front Porch:	48	V. Front Porch: 3
H. Sync Width:	32	V. Sync Width: 10
H. Image Size:	223	V. Image Size: 125
H. Border:	0	V. Border: 0
H. Clock: 37.50 kHz	V. Clock: 60.00 Hz	

Quality Information

Test Item	Content of Test	Test Condition	Note
High Temperature storage	Endurance test applying the high storage temperature for a long time.	+60°C, 240 hrs.	2
Low Temperature storage	Endurance test applying the low storage temperature for a long time.	-20°C, 240 hrs.	1,2
High Temperature Operation	Endurance test applying the electric stress (voltage & current) and the high thermal stress for a long time.	+50°C, 120 hrs.	2
Low Temperature Operation	Endurance test applying the electric stress (voltage & current) and the low thermal stress for a long time.	0°C, 120 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.	+50°C, 90% RH, 120 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 =±8KV, Contact: V _s =±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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Newhaven Display:

[NHD-10.1-HDMI-A-RSXV-CTU](#)