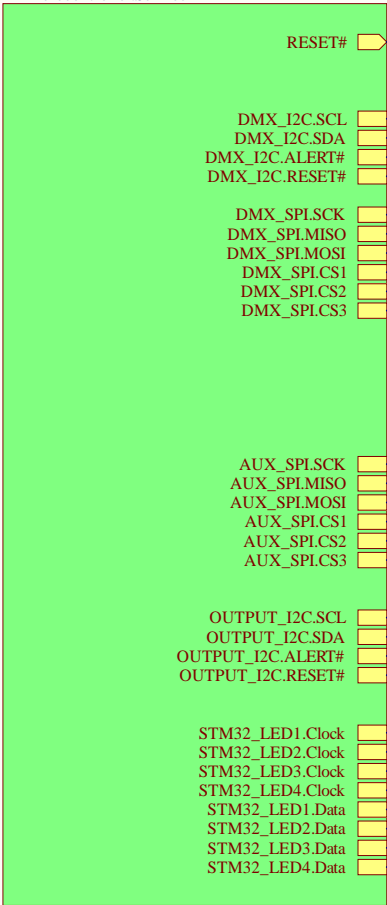
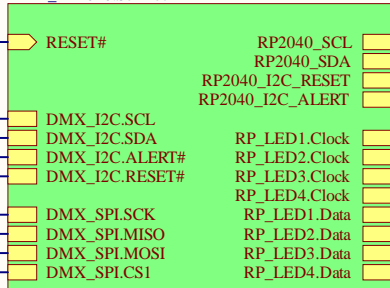


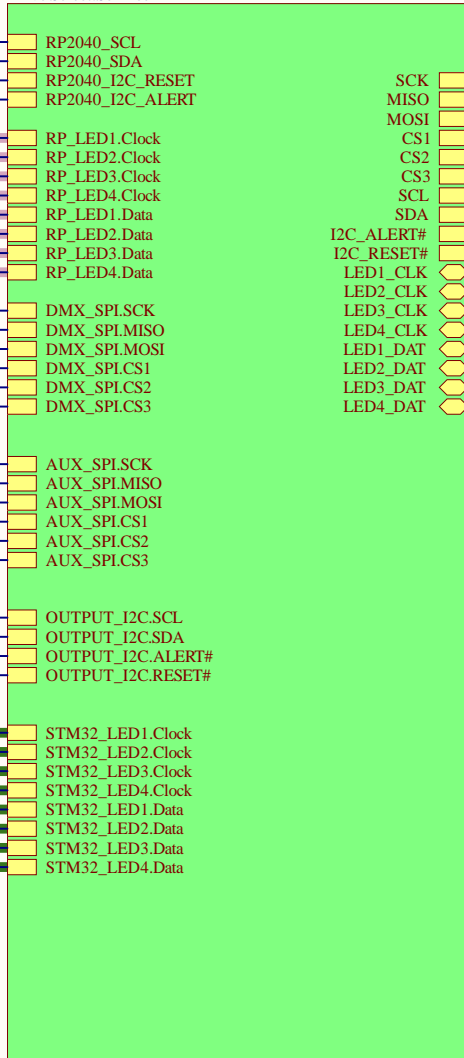
STM32_Micro
Microcontroller.SchDoc



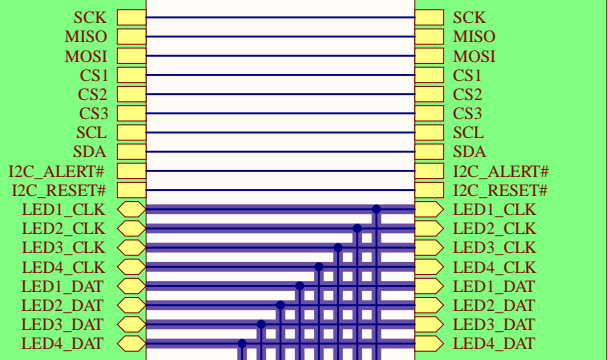
DMX_RP2040
DMX_RP2040.SchDoc



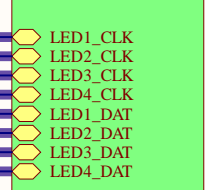
DS
Drive Select.SchDoc



MC
Module Connector Female.SchDoc



SL
SmartLED.SchDoc



Low Power LED Module
LED_low_side_control.SchDoc



HP_LED
LED_high_power.SchDoc



AC/DC Power Supply

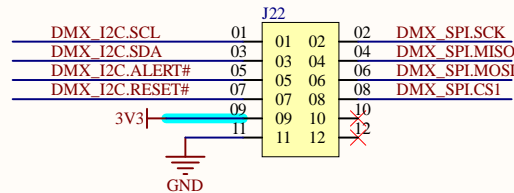
5V 200W (194.0mm x 55.0mm x 20.0mm)
<https://www.digikey.com/en/products/detail/mean-well-usa-inc/UHP-200A-5/7707187>

12V 162W (194.0mm x 55.0mm x 20.0mm)
<https://www.digikey.com/en/products/detail/mean-well-usa-inc/LSP-160-12T/11689253>

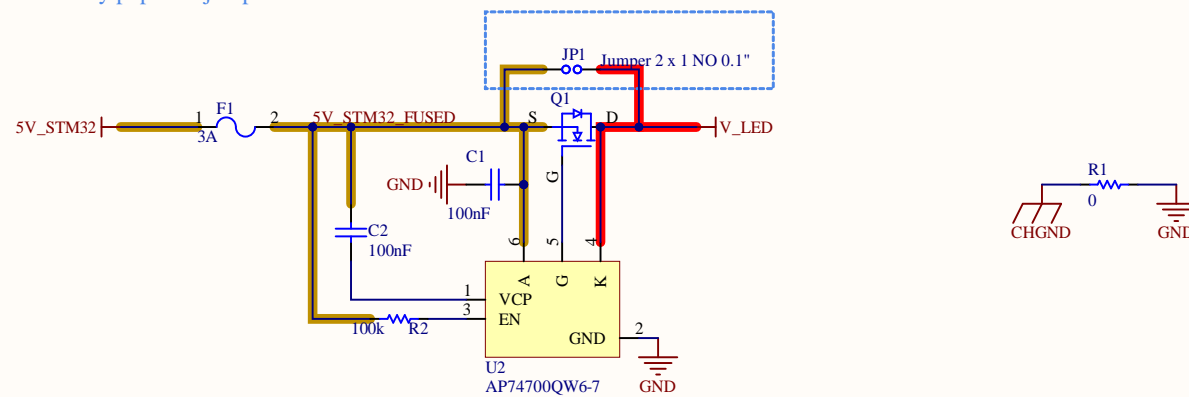
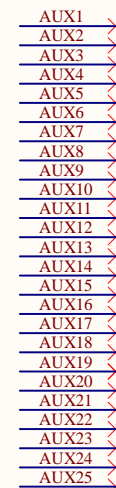
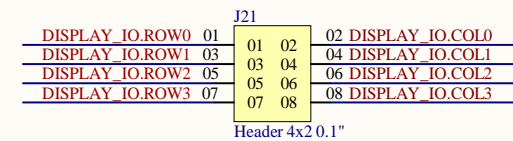
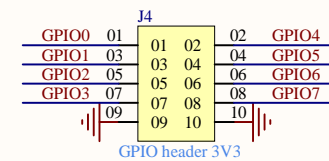
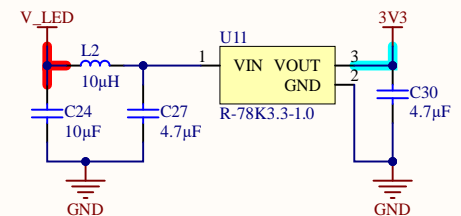
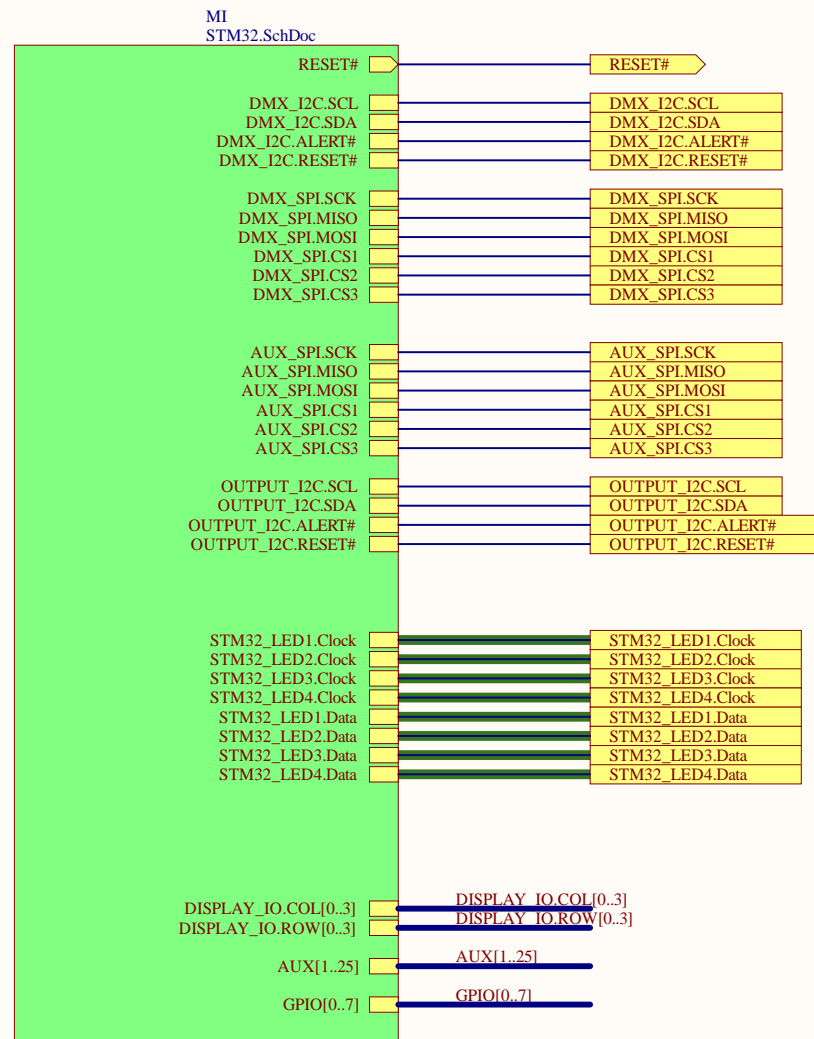
12V 200W (194.0mm x 55.0mm x 20.0mm)
<https://www.digikey.com/en/products/detail/mean-well-usa-inc/UHP-200-12/7707237>

24V 162W (194.0mm x 55.0mm x 20.0mm)
<https://www.digikey.com/en/products/detail/mean-well-usa-inc/LSP-160-24T/11689249>

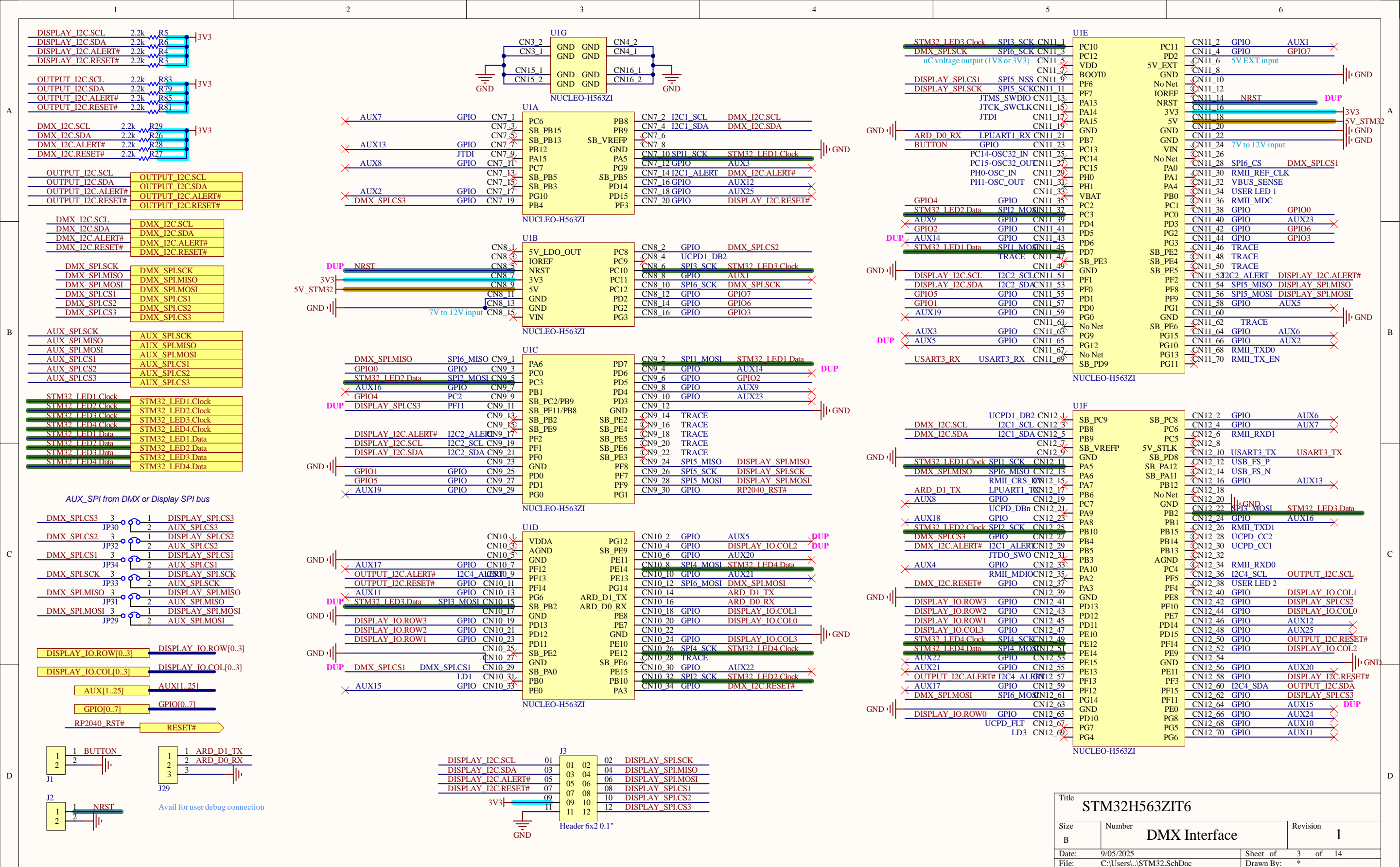
24V 200W (194.0mm x 55.0mm x 20.0mm)
<https://www.digikey.com/en/products/detail/mean-well-usa-inc/UHP-200-24/7707239>

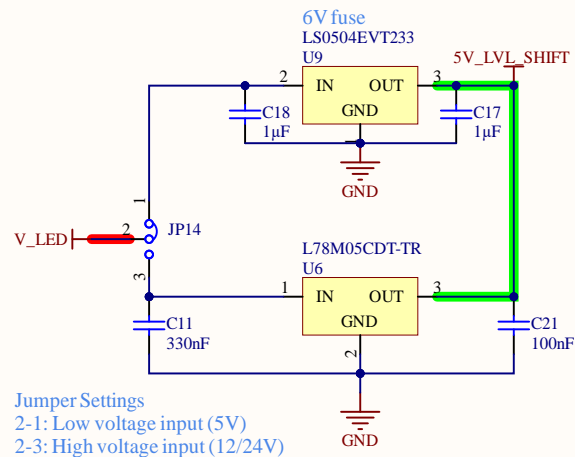
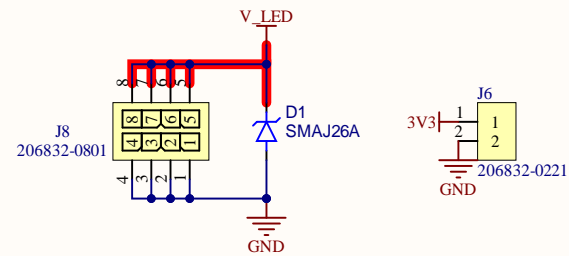


Title			
Block Diagram			
Size	Number	Revision	
B	DMX Interface	1	
Date:	9/05/2025	Sheet of	1 of 14
File:	C:\Users\...\Block Diagram.SchDoc	Drawn By:	*

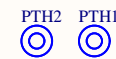
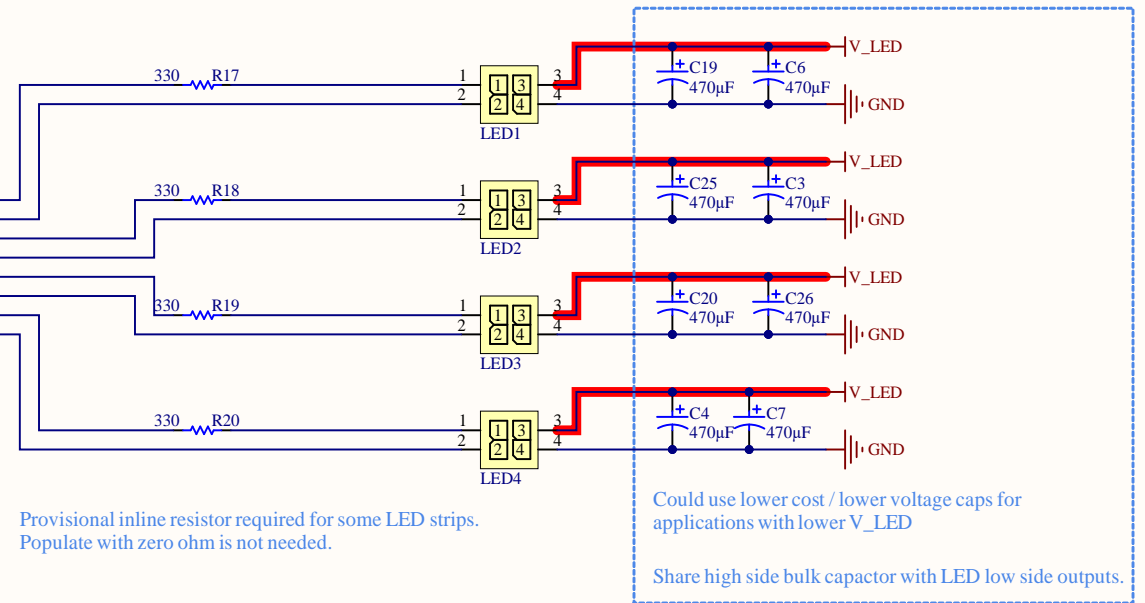
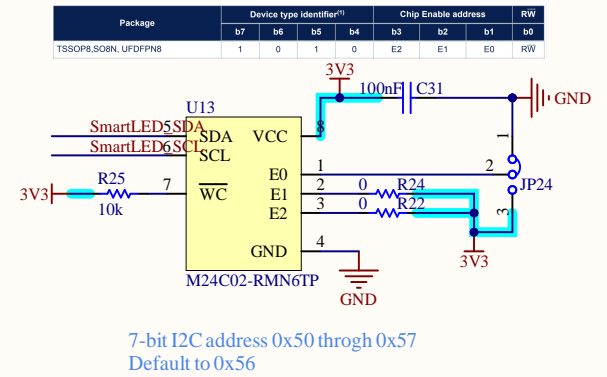
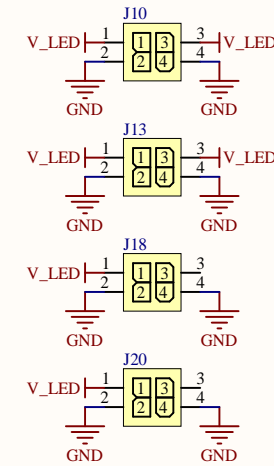
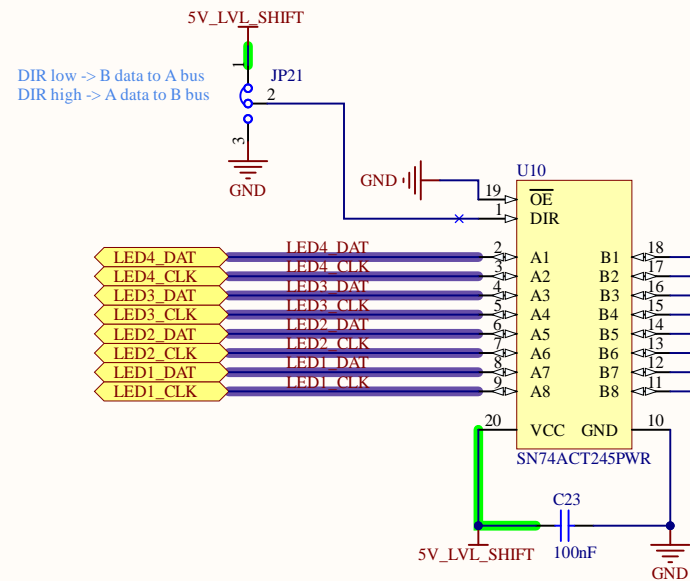
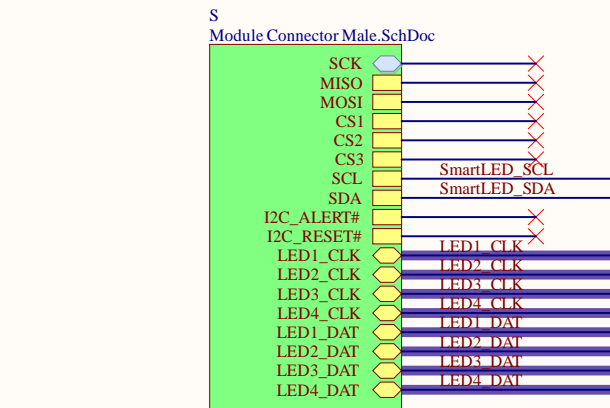


Title Microcontroller			
Size B	Number DMX Interface		Revision 1
Date:	9/05/2025	Sheet of	2 of 14
File:	C:\Users\...\Microcontroller.SchDoc	Drawn By:	*

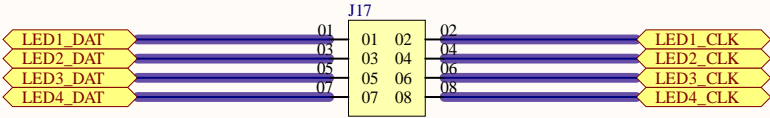
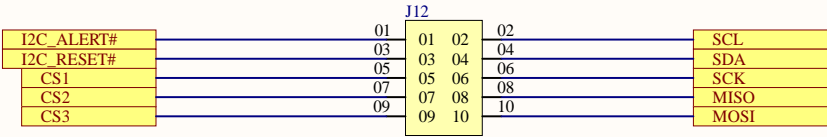
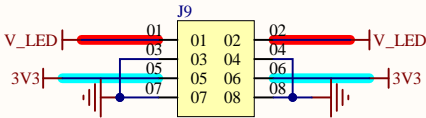




Alternate C93 cap 1uF 0603
CL10B105KB8NQNC

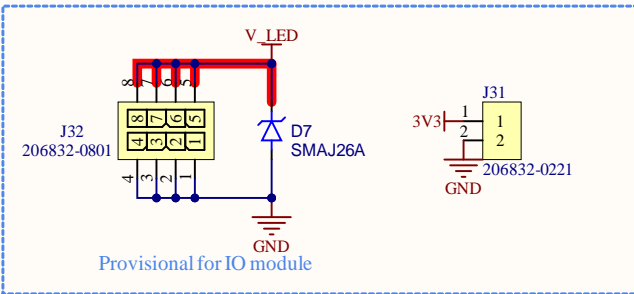
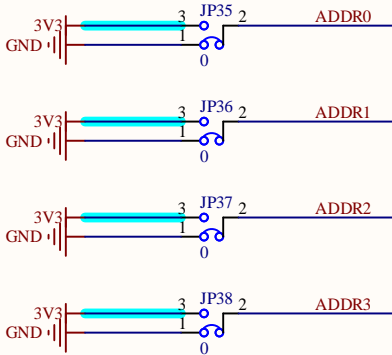
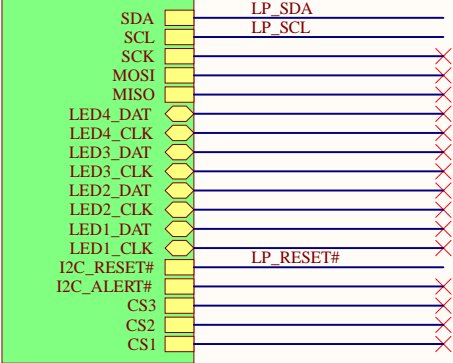


<div> <div>Title</div> <div>Smart LED</div> </div>			
<div> <div>Size</div> <div>B</div> </div>	<div> <div>Number</div> <div>DMX Interface</div> </div>	<div> <div>Revision</div> <div>1</div> </div>	
<div> <div>Date:</div> <div>9/05/2025</div> </div>	<div> <div>Sheet of</div> <div>4 of 14</div> </div>		
<div> <div>File:</div> <div>C:\Users\...\SmartLED.SchDoc</div> </div>	<div> <div>Drawn By:</div> <div>*</div> </div>		

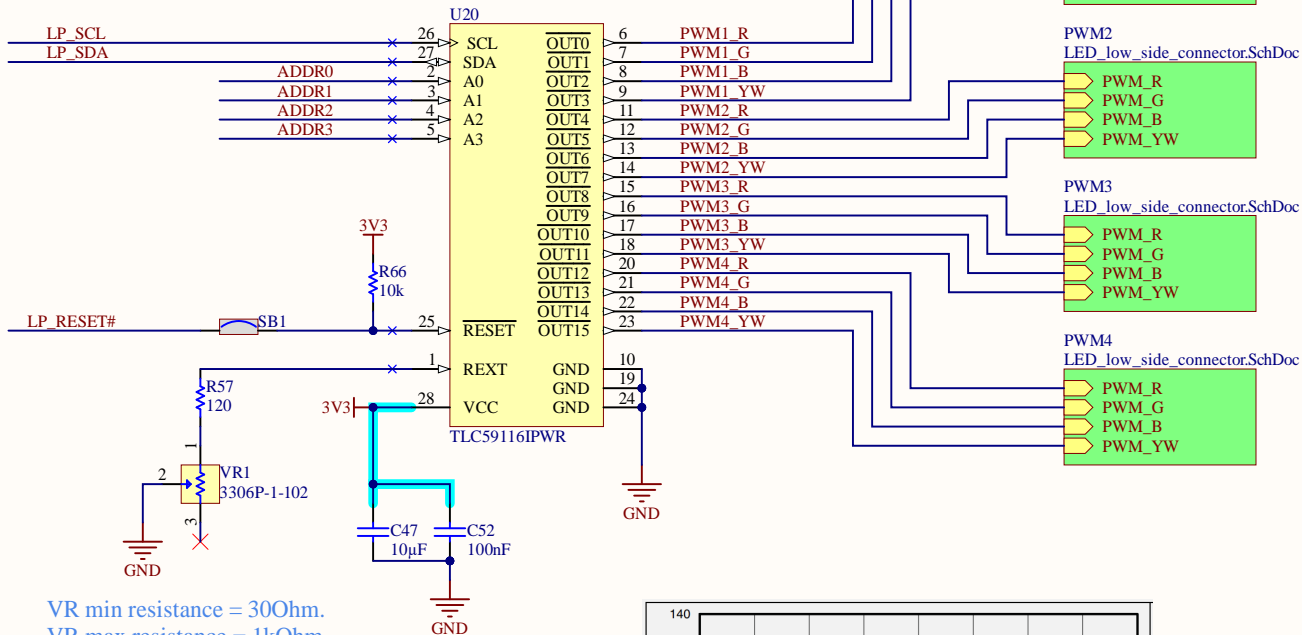


Title			Module Connector Male		
Size	Number		Revision		1
B	DMX Interface				
Date:	9/05/2025		Sheet of	5	of 14
File:	C:\Users\...\Module Connector Male.SchDoc		Drawn By:	*	

L
Module Connector Male.SchDoc

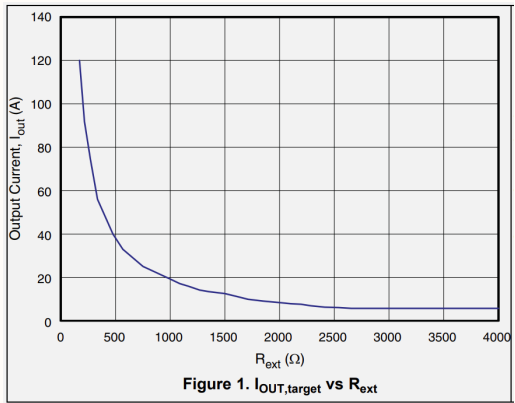


Constant current LED sink driver
(12V 3W)
<https://www.ti.com/product/TLC59108>
<https://www.ti.com/product/TLC59116>



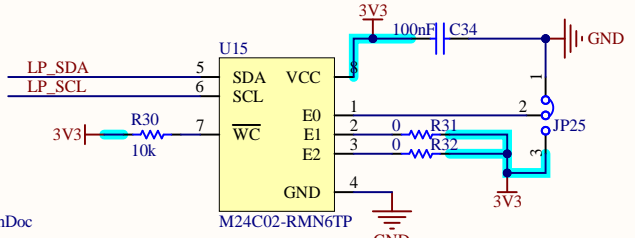
VR min resistance = 300hm.
VR max resistance = 1kOhm.

Rext_min = 150 -> ~117mA
Rext_max = 1120 -> ~16mA



$$R_{ext} = 1.25V * 15 / I_{out}$$

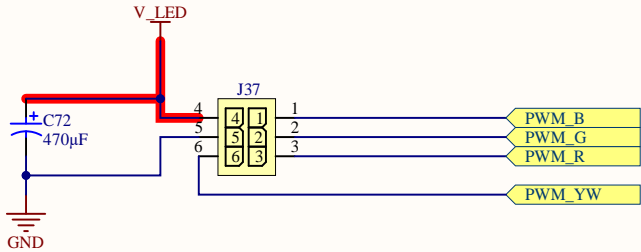
Package	Device type identifier ⁽¹⁾				Chip Enable address				RW
	b7	b6	b5	b4	b3	b2	b1	b0	
TSSOP8,S08N,UFDFFN8	1	0	1	0	E2	E1	E0	RW	



7-bit I2C address 0x50 through 0x57
Default to 0x56

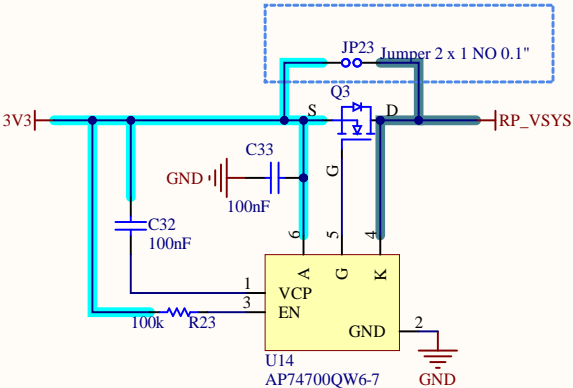
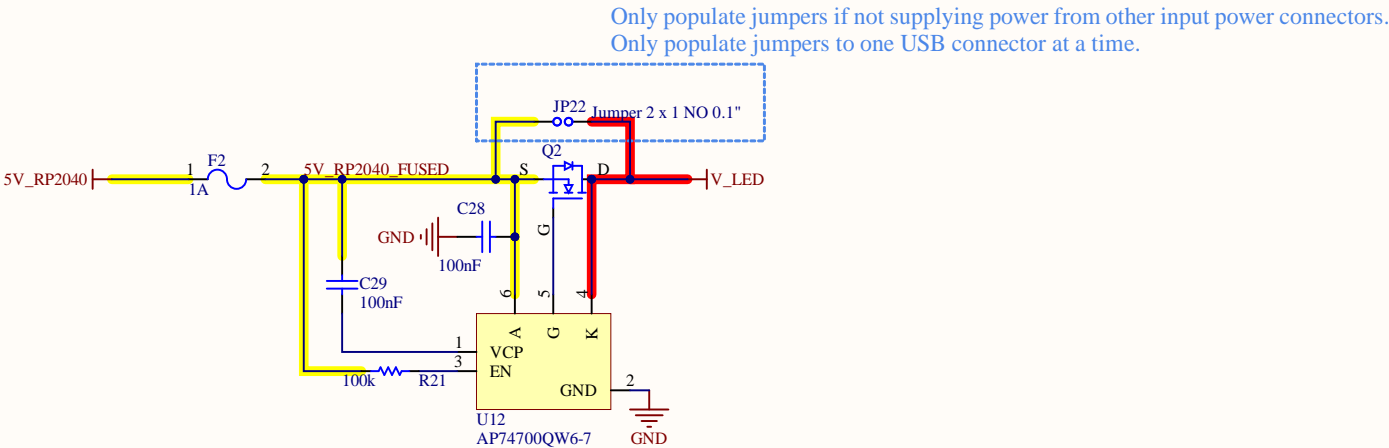
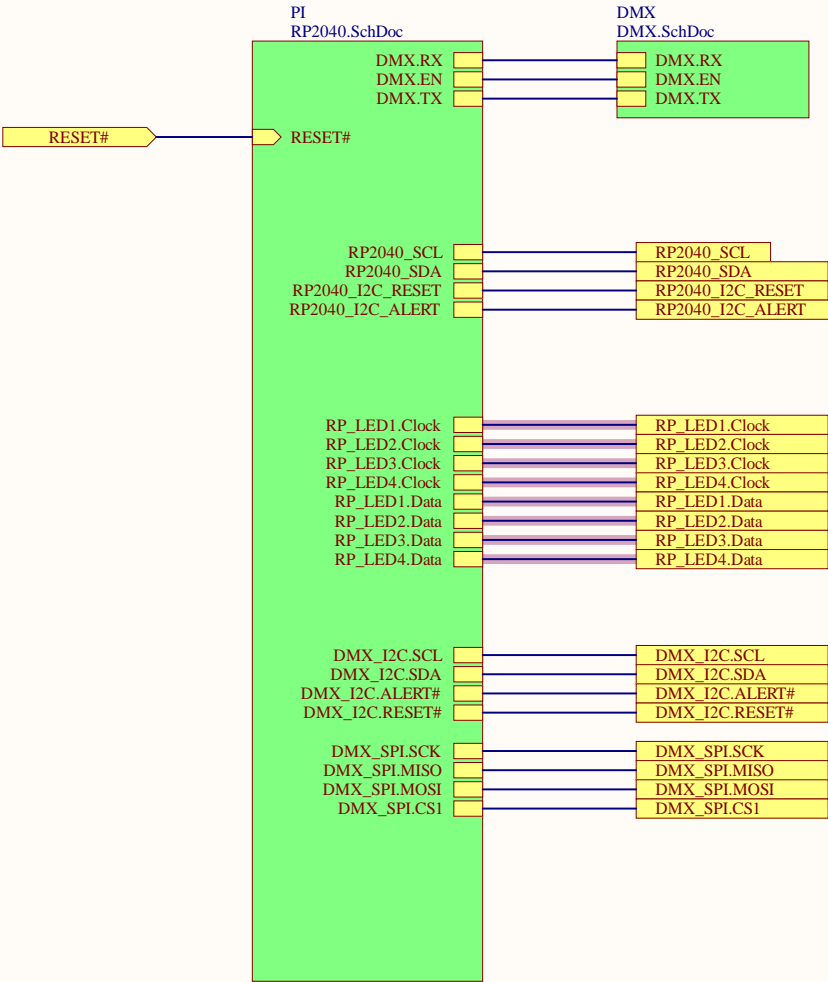


Title LED Low Power			
Size B	Number DMX Interface	Revision 1	
Date:	9/05/2025	Sheet of	6 of 14
File:	C:\Users\...LED_low_side_control.SchDoc	Drawn By:	*

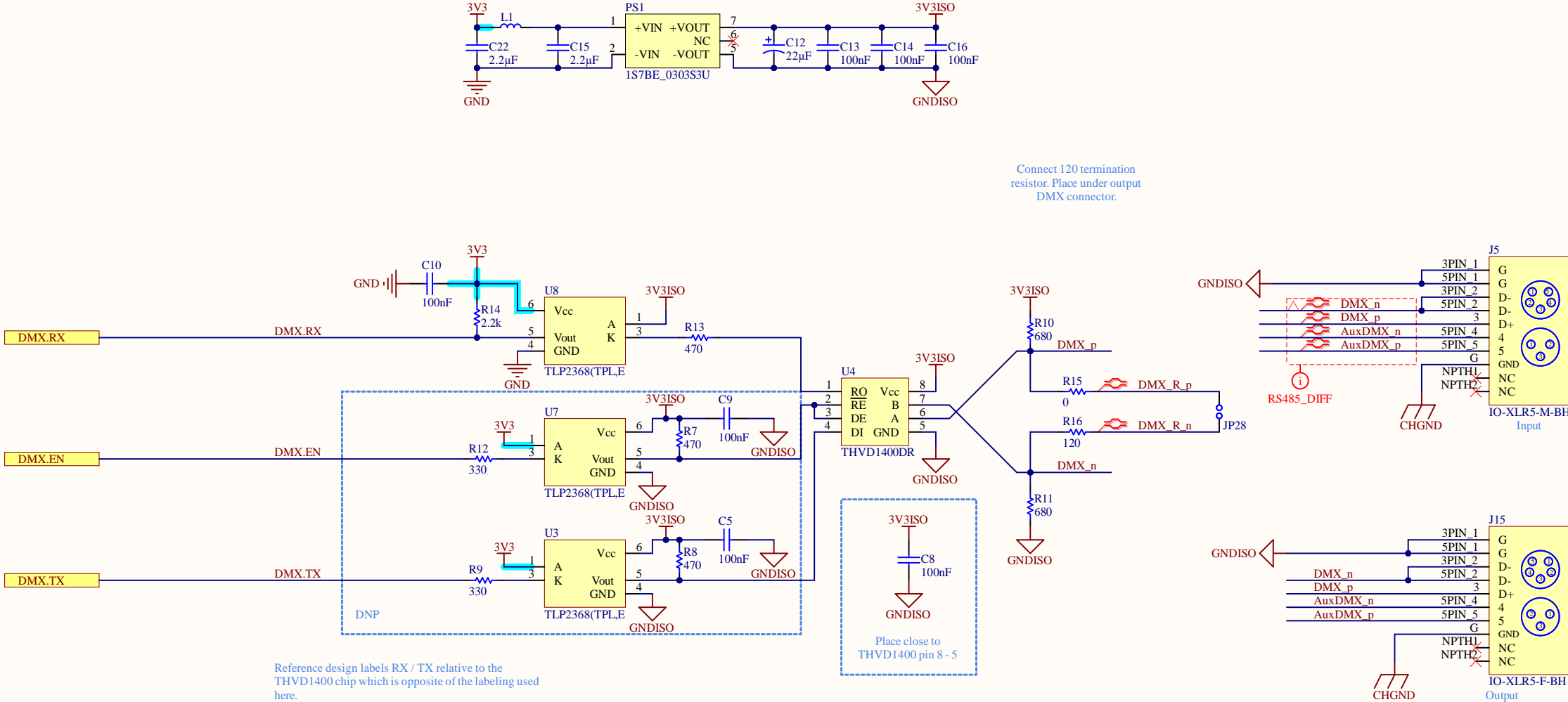


Share high side bulk capacitor with SmartLED outputs.

Title			LED Low Power Connector		
Size	Number		Revision		
B	DMX Interface		1		
Date:	9/05/2025		Sheet of	7	of 14
File:	C:\Users\...\LED_low_side_connector.SchDoc		Drawn By:	*	



Title		
DMX / RP2040		
Size	Number	Revision
B	DMX Interface	1
Date:	9/05/2025	Sheet of 8 of 14
File:	C:\Users\...\DMX_RP2040.SchDoc	Drawn By: *



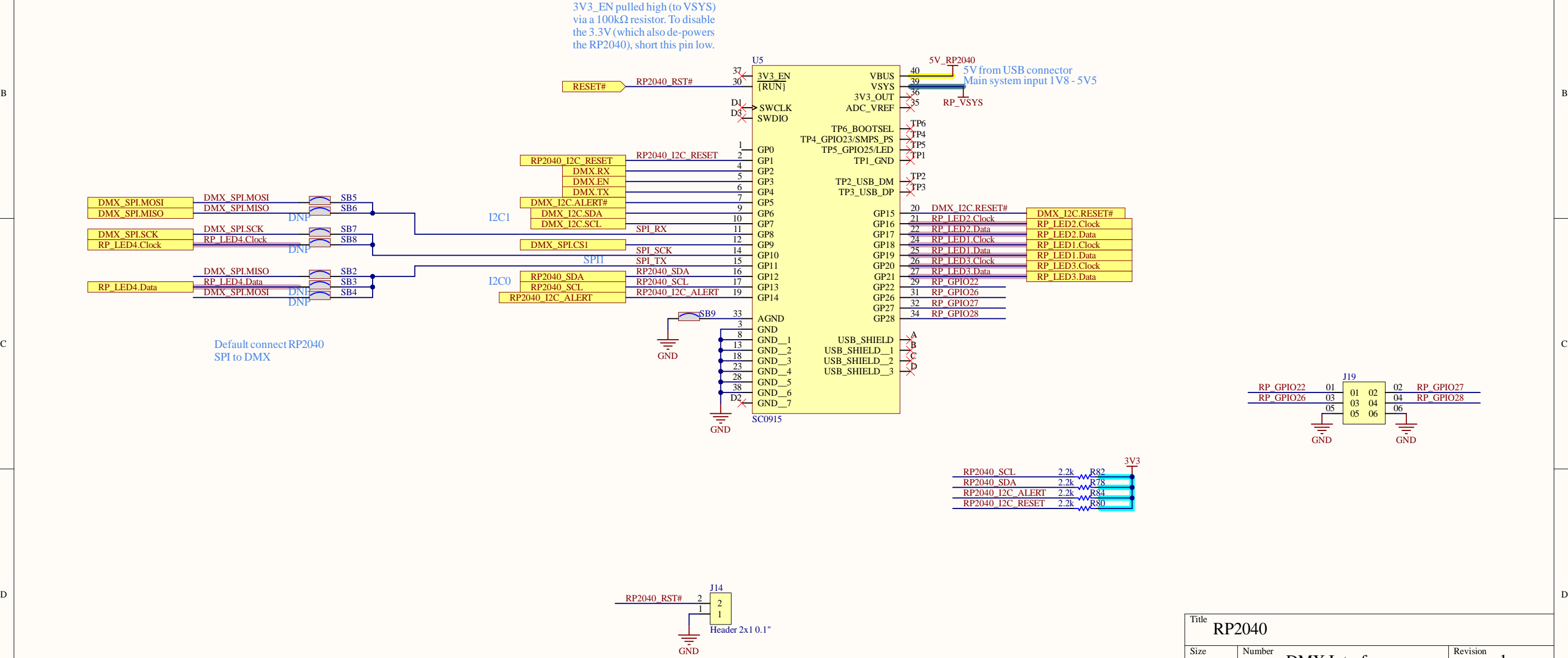
Title DMX / RS485			
Size B	Number DMX Interface	Revision 1	
Date:	9/05/2025	Sheet of	9 of 14
File:	C:\Users\...\DMX.SchDoc	Drawn By:	*

A

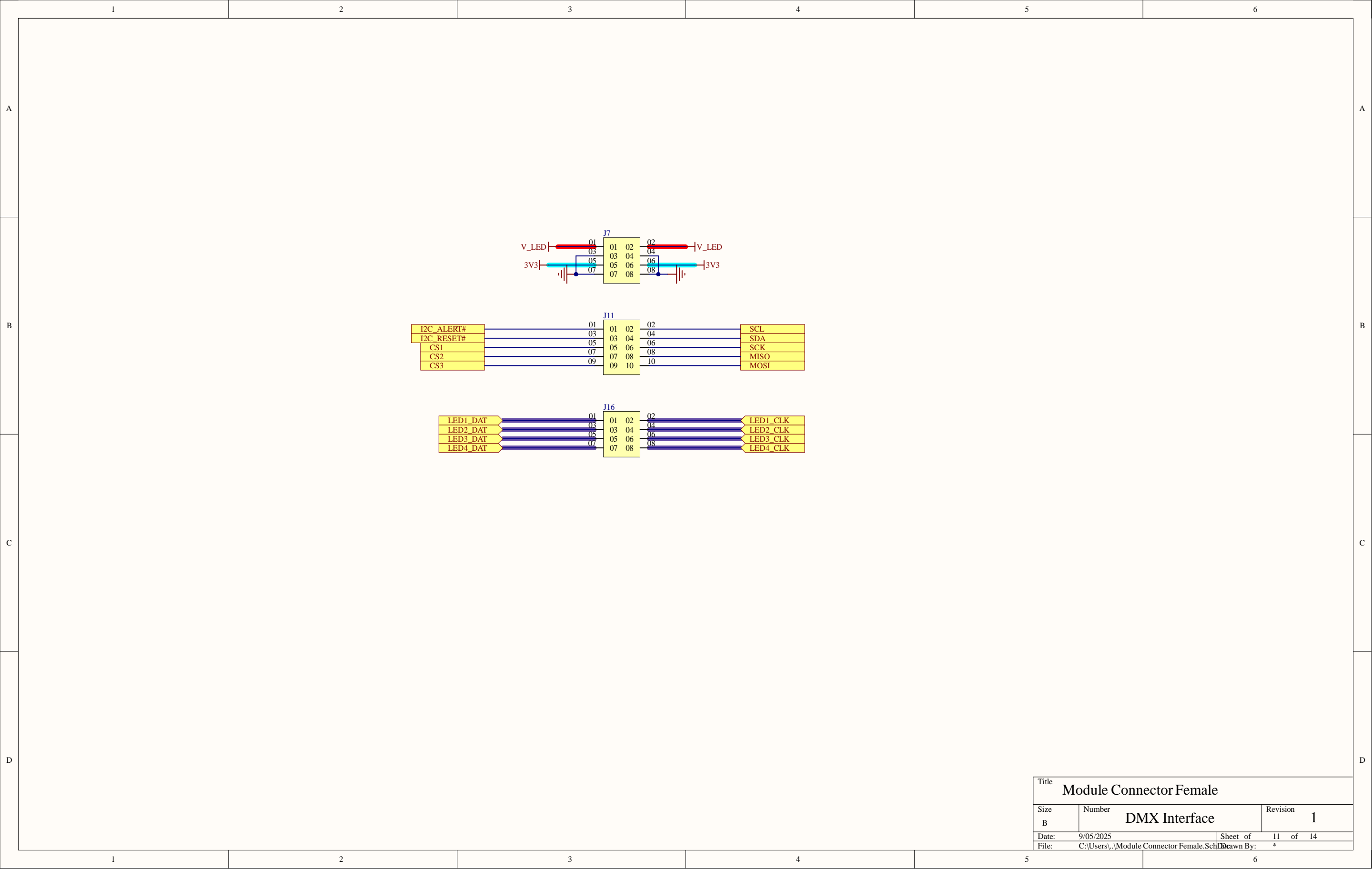
B

C

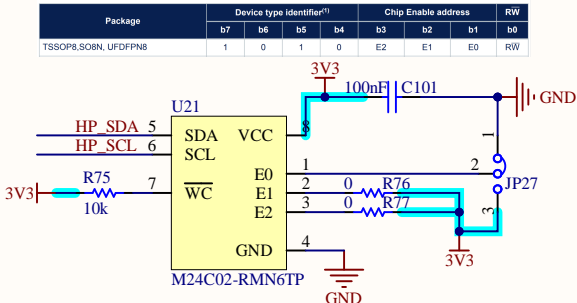
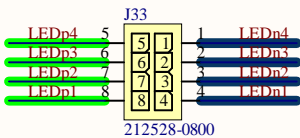
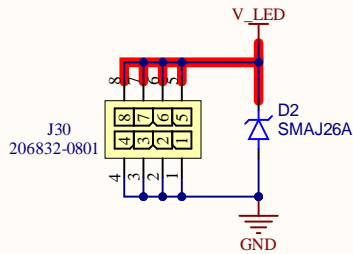
D



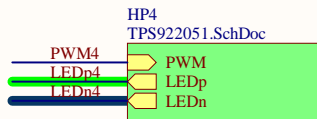
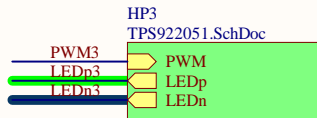
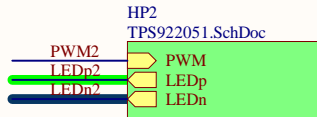
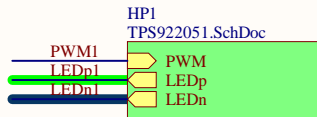
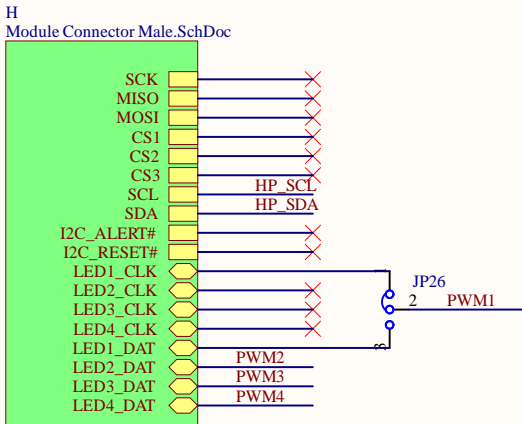
Title			
RP2040			
Size	Number	Revision	
B	DMX Interface	1	
Date:	9/05/2025	Sheet of	10 of 14
File:	C:\Users\...\RP2040.SchDoc	Drawn By:	*



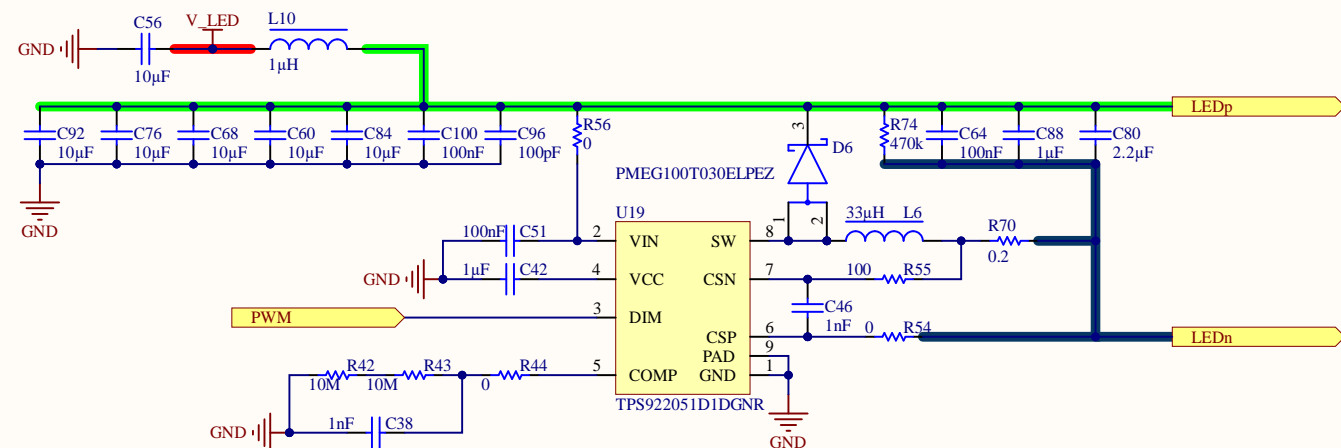
Title			Module Connector Female		
Size	Number		Revision		1
B	DMX Interface				
Date:	9/05/2025		Sheet of	11	of 14
File:	C:\Users\...\Module Connector Female.SchDoc		Drawn By:	*	



7-bit I2C address 0x50 through 0x57
Default to 0x56

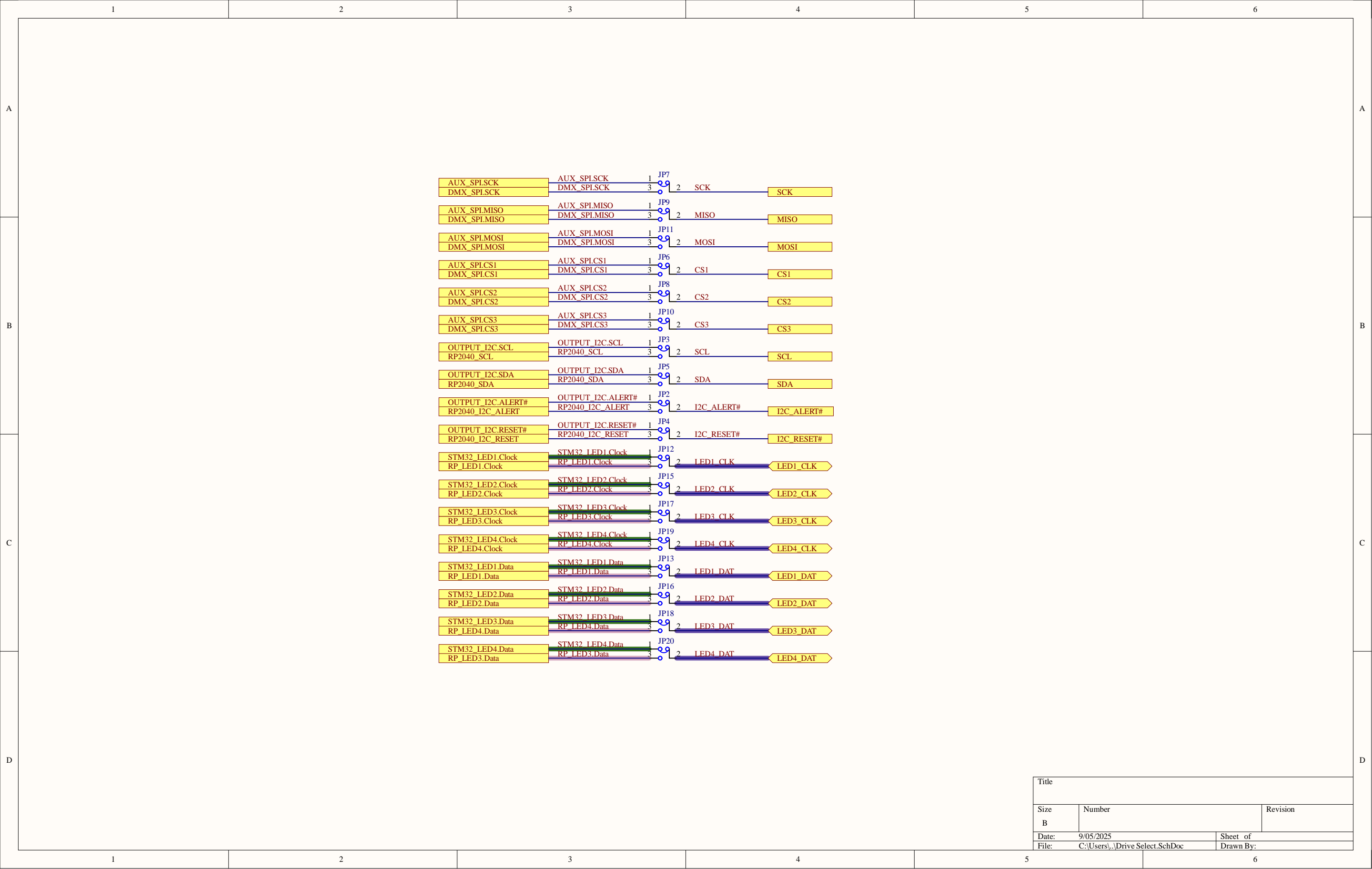


Title LED High Power		
Size B	Number DMX Interface	Revision 1
Date: 9/05/2025	Sheet of 12 of 14	
File: C:\Users\...\LED_high_power.SchDoc	Drawn By: *	



Alternate high power LED drivers:
<https://www.ti.com/product/TPS92201>
<https://www.ti.com/product/TPS92200>
<https://www.ti.com/product/TPS922051>
<https://www.ti.com/product/TPS922050>
Other higher power versions available as well.
<https://www.ti.com/power-management/led-drivers/illumination-led-drivers/overview.html>
These are PWM dimmed.

Title				LED High Power - TPS922051			
Size		Number		Revision		1	
B				DMX Interface			
Date:		9/05/2025		Sheet of		13 of 14	
File:		C:\Users\...\TPS922051.SchDoc		Drawn By:		*	



Title		
Size B	Number	Revision
Date:	9/05/2025	Sheet of
File:	C:\Users\...\Drive Select.SchDoc	Drawn By: