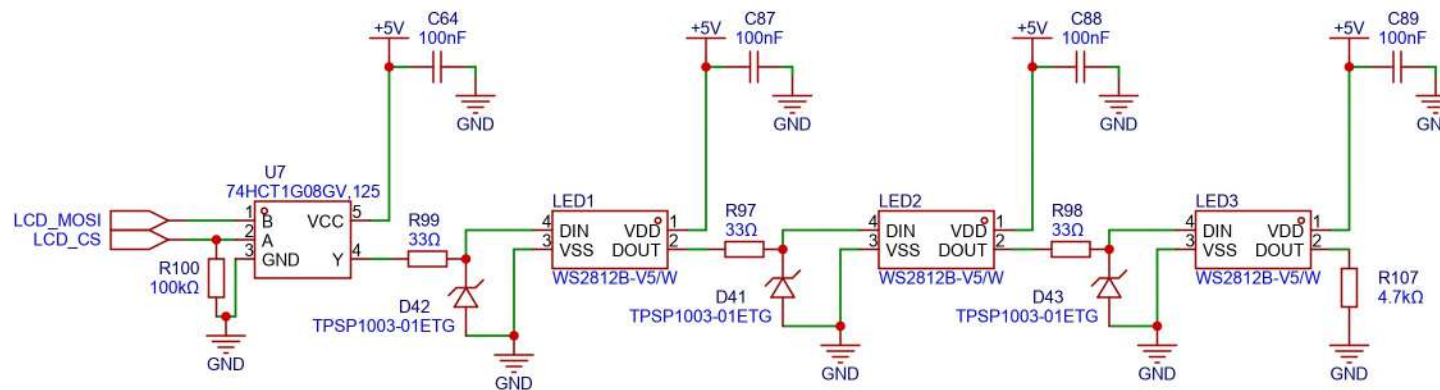


Schematic	Display			Update Date	2025-02-19
				Create Date	2025-01-14
Page	POWER			Part Number	xLCD-002
Drawn	jjsch-dev	Einsy-RAMBo			
Reviewed	jjsch-dev				
		VER	SIZE	PAGE	3 OF 7
EasyEDA		V0.1	A4	sudoTek	

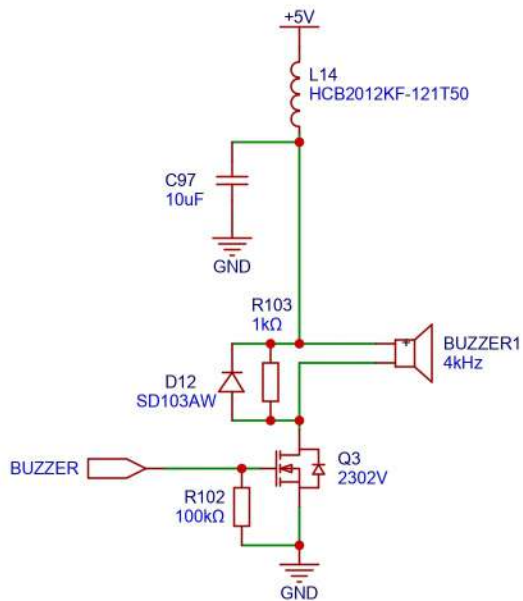


The AND gate allows sharing LCD\_MOSI with the display, and also acts as a 3V to 5V logic level converter. When LCD\_CS is high and the LED state needs to be updated, the firmware encodes (1-wire) through the MOSI pin the new color of the three LEDs.

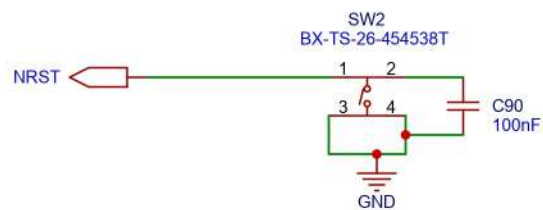
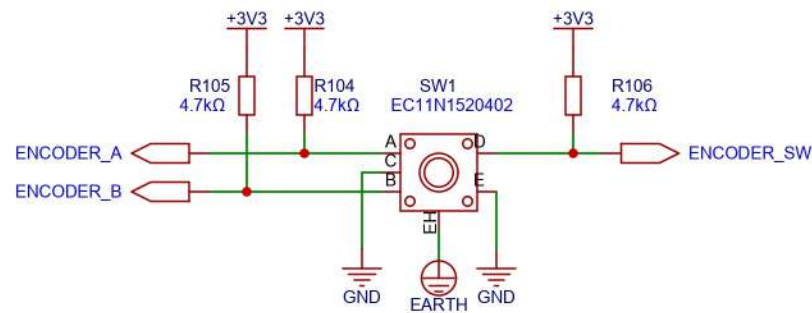
WS2812B-V5: A drop-in replacement for WS2812B-B/T, offering a 5050 integrated RGB LED with a built-in shift register and constant 18 mA drive. It requires no external capacitor, provides reverse polarity protection, handles 12V transients, maintains color consistency at 3.5V, and features a reduced signal threshold (<2.8V) with improved EMC/EMI performance.

Schematic	Display			Update Date	2025-02-19
				Create Date	2025-01-14
Page	LED_STRIP			Part Number	xLCD-002
Drawn	jjsch-dev	Einsy-RAMBo			
Reviewed	jjsch-dev				
		VER	SIZE	PAGE	4 OF 7
EasyEDA		V0.1	A4	sudoTek	

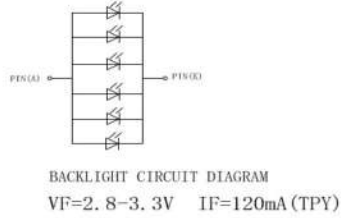
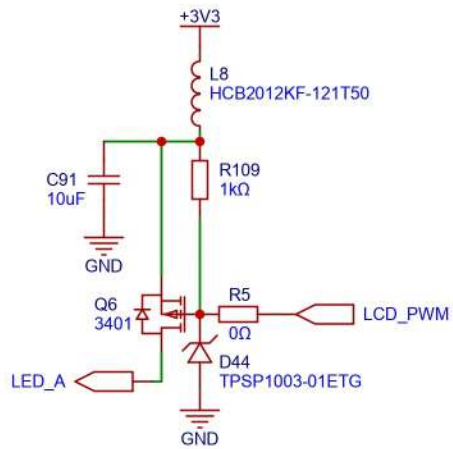




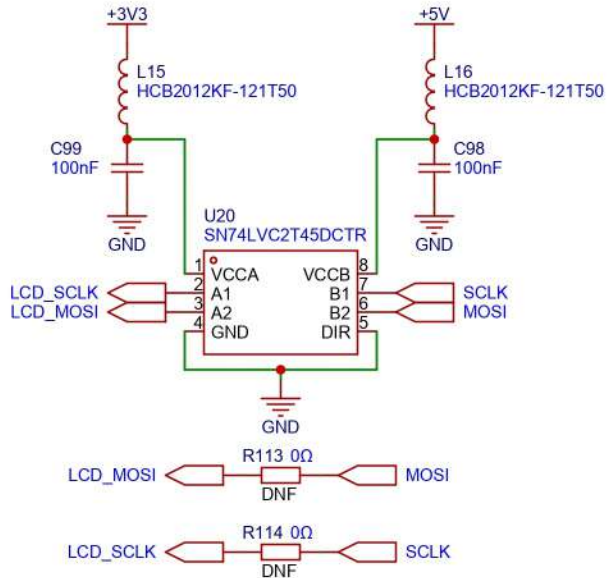
Schematic	Display			Update Date	2025-02-19
				Create Date	2025-01-14
Page	BUZZER			Part Number	xLCD-002
Drawn	jjsch-dev	Einsy-RAMBo			
Reviewed	jjsch-dev				
		VER	SIZE	PAGE	5 OF 7
EasyEDA		V0.1	A4	sudoTek	



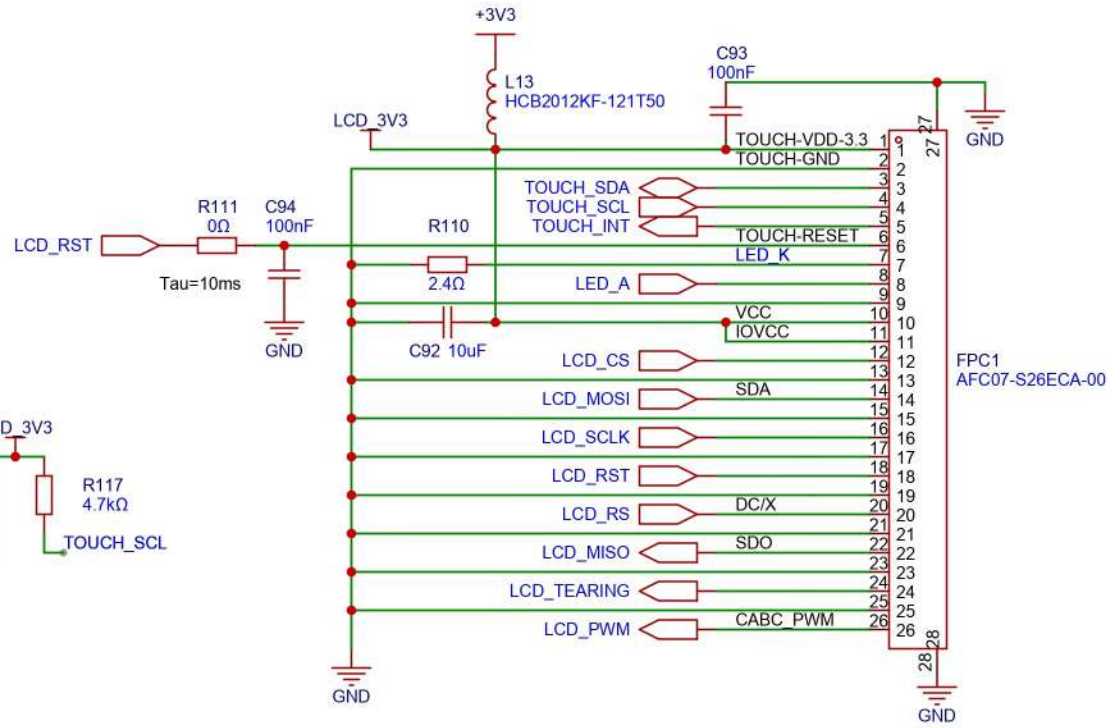
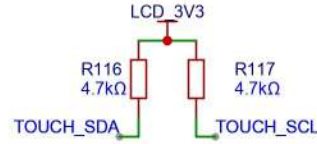
Schematic	Display			Update Date	2025-01-23
				Create Date	2025-01-14
Page	ENCODER_RESET			Part Number	xLCD-002
Drawn	jjsch-dev	Einsy-RAMBo			
Reviewed	jjsch-dev				
		VER	SIZE	PAGE	6 OF 7
EasyEDA		V0.1	A4	sudoTek	



Use a P-Channel, because the CABCCTRL2 (0xC8) of ILI9488 is configured (0b10110001) for inverted polarity of PWM signal, and the pin is always HIGH.



The original Prusa RS422 controller is the ST490 which supports 50MHz but cannot be powered from 3.3V, so they use the LSF0102 level shifter to translate from 5V to 3.3V because the ILI9488 needs 3V3 levels. For this build we will select the THVD1450 from Texas Instruments which is rated for 50MHz and accepts 3.3V to VDD. We decided to change the level translator because we don't know the actual input impedance of the custom LCD, and the SN74LVC2T45DCTR from Texas Instruments has a better output stage than the LSF0102 which can help to match the unknown impedance.



The LCD panel is the 3.5-inch Z35035-P26-ZC1 with a resolution of 480x320 pixels, with an ILI9488 controller configured for 4-wire SPI interface (MISO, MOSI, SCLK and DC/X) and a GT911 capacitive touch controller.

Schematic	Display		Update Date	2025-02-19
			Create Date	2025-01-14
Page	DISPLAY		Part Number	xLCD-002
Drawn	jjsch-dev	Einsy-RAMBo		
Reviewed	jjsch-dev			
		VER	SIZE	PAGE 7 OF 7
EasyEDA		V0.1	A4	sudoTek