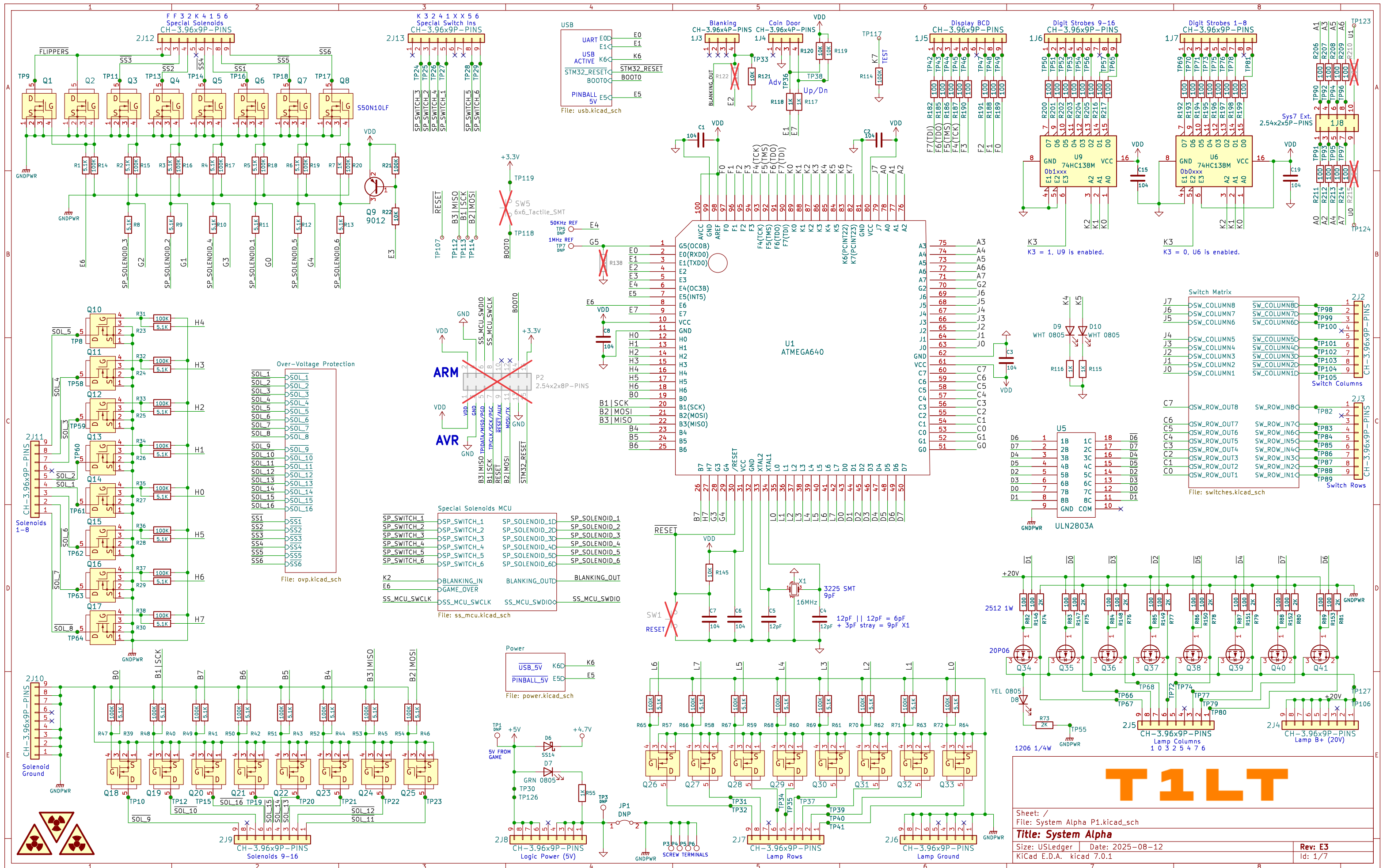
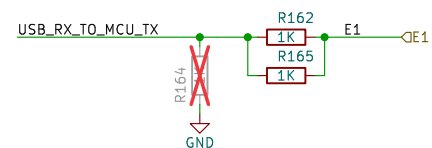
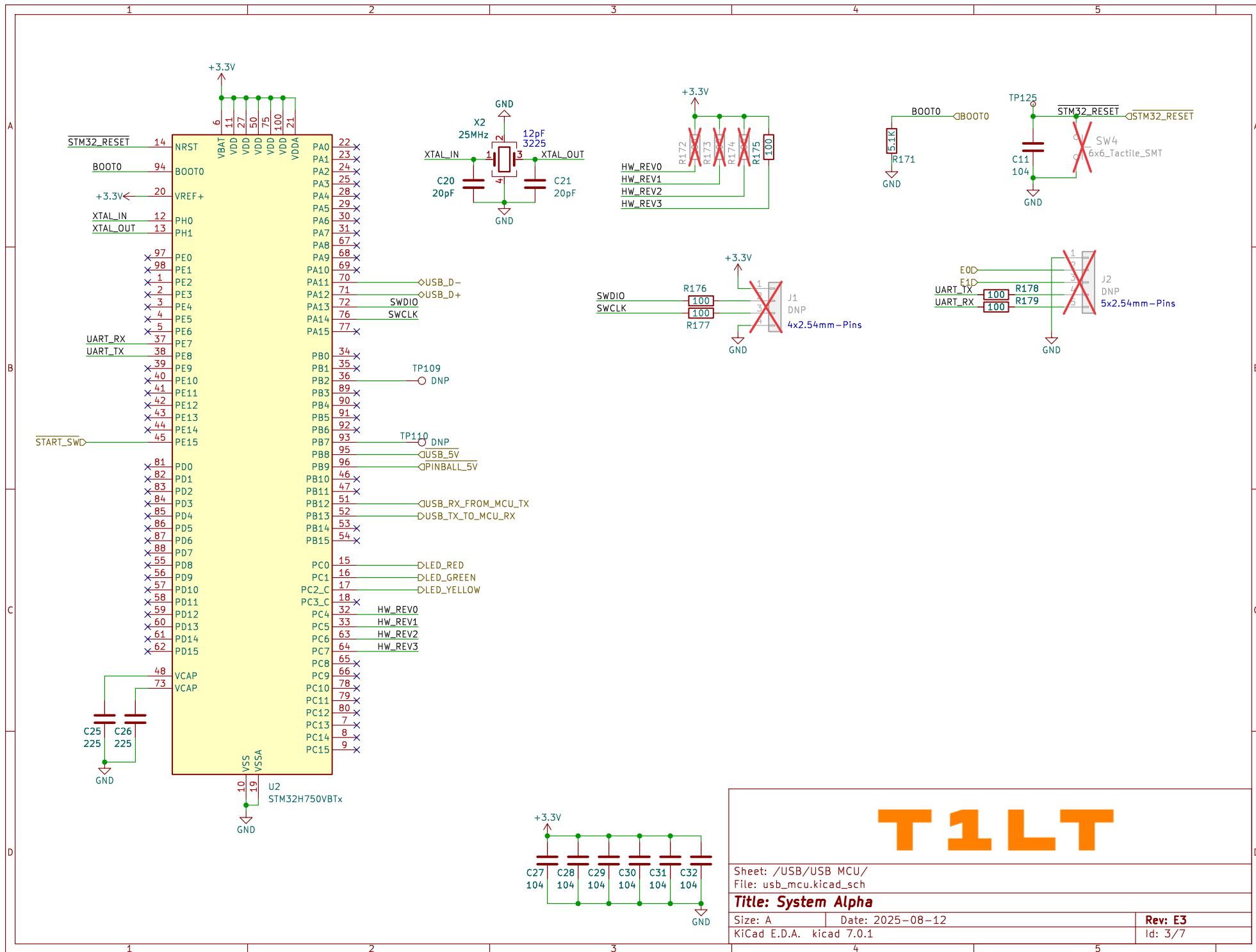


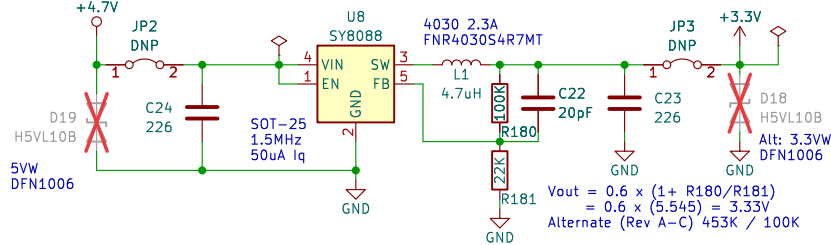




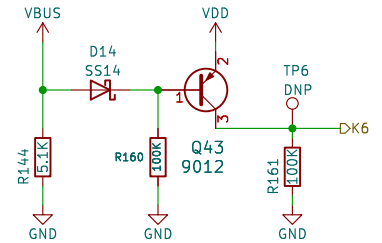
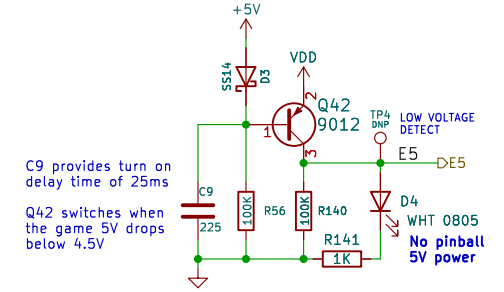
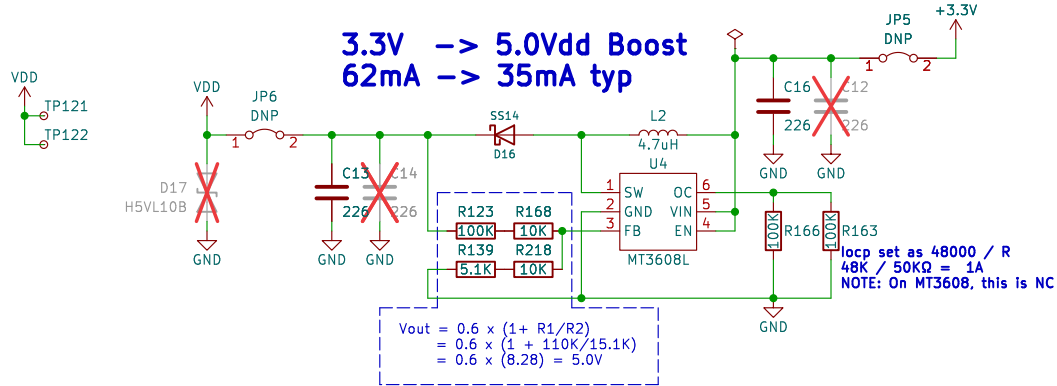
Rev: E3
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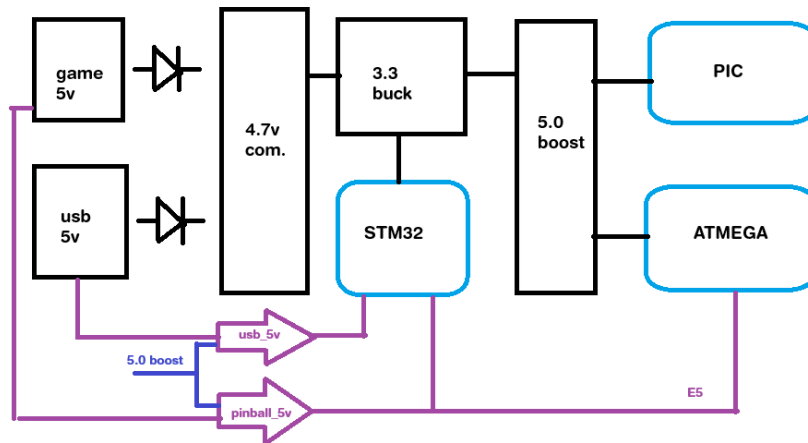
4.7V -> 3.3V Buck
100mA -> 125mA typ



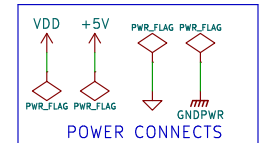
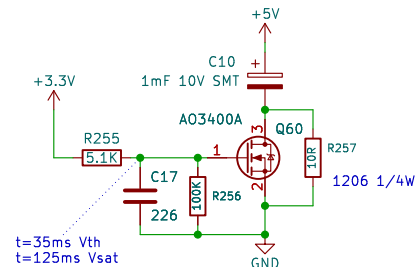
3.3V -> 5.0Vdd Boost
62mA -> 35mA typ



System Alpha - Rail Generation



5V Soft Start



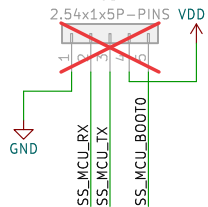
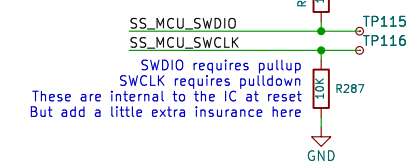
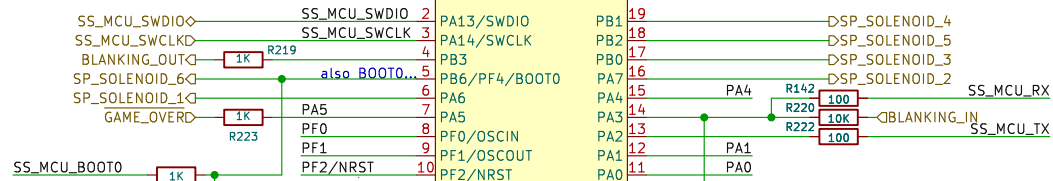
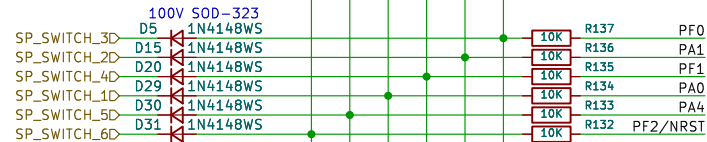
T1LT

Sheet: /Power/
 File: power.kicad_sch

Title: System Alpha

Size: A Date: 2025-08-12
 KiCad E.D.A. kicad 7.0.1

Rev: E3
 Id: 4/7



Connect BOOT0 pin HIGH at Power on or Reset to enter USART bootloader mode.

TILT

Sheet: /Special Solenoids MCU/
File: ss_mcu.kicad_sch

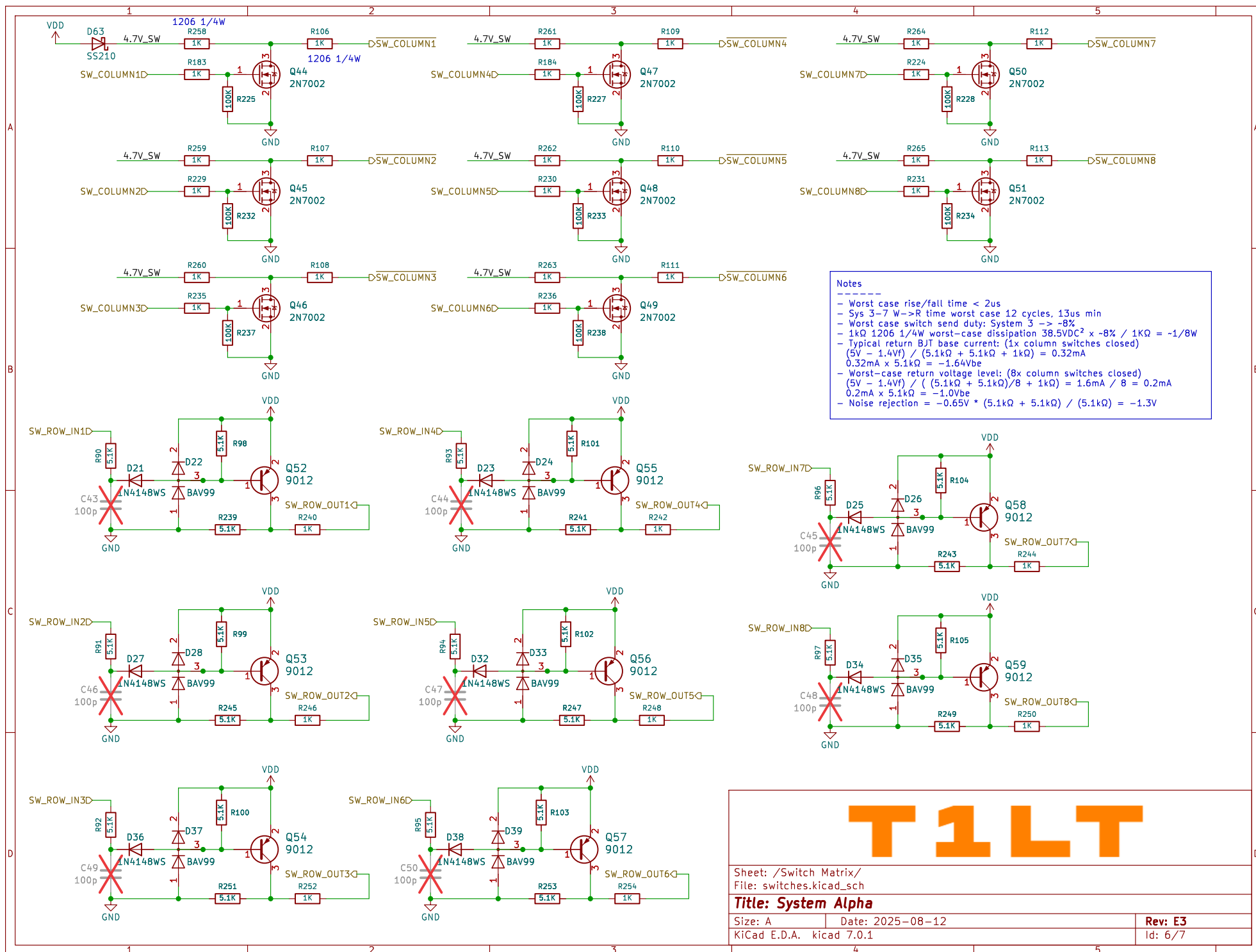
Title: System Alpha

Size: A	Date: 2025-08-12
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KiCad E.D.A.	kiCad 7.0.1
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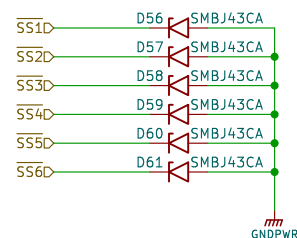
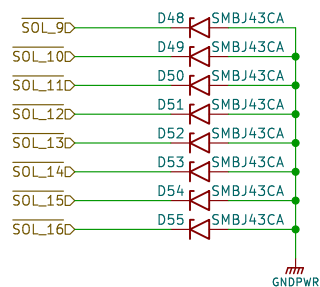
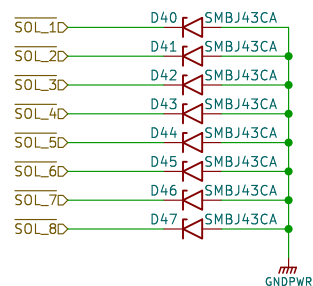
Rev: E3

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T1LT

Sheet: /Switch Matrix/ File: switches.kicad_sch	
Title: System Alpha	
Size: A	Date: 2025-08-12
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	Id: 6/7



Typical 23-850 coil:
 - Inductance 6mH
 - Resistance 4.1Ω
 - Peak DC Amps 38V / 4.1Ω = 9.3A
 - Peak Stored charge:

$$\frac{6\text{mH} \times 9.3\text{A}^2}{2} = 260\text{mJ}$$

 Typical clamping voltage: ~60V
 Clamping events: 0.3ms avg, 2ms max
 Temperature rise over ambient: max 6°C at 0.5Hz
 SMBJ43A is the unidirectional version

T1LT

Sheet: /Over-Voltage Protection/
 File: ovp.kicad_sch

Title: System Alpha

Size: A Date: 2025-08-12

KiCad E.D.A. kicad 7.0.1

Rev: E3

Id: 7/7