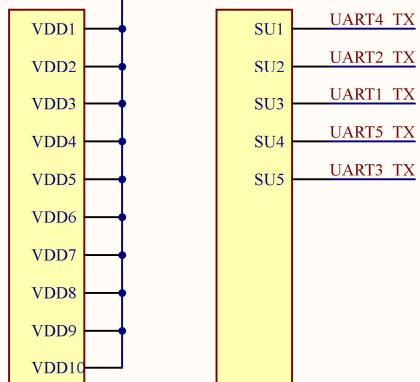
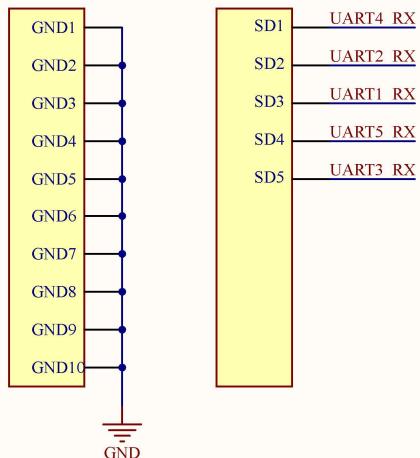


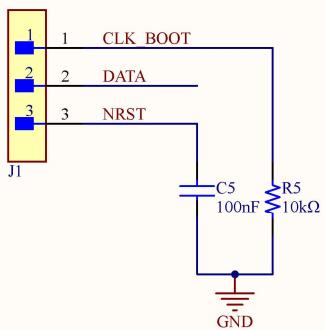
A



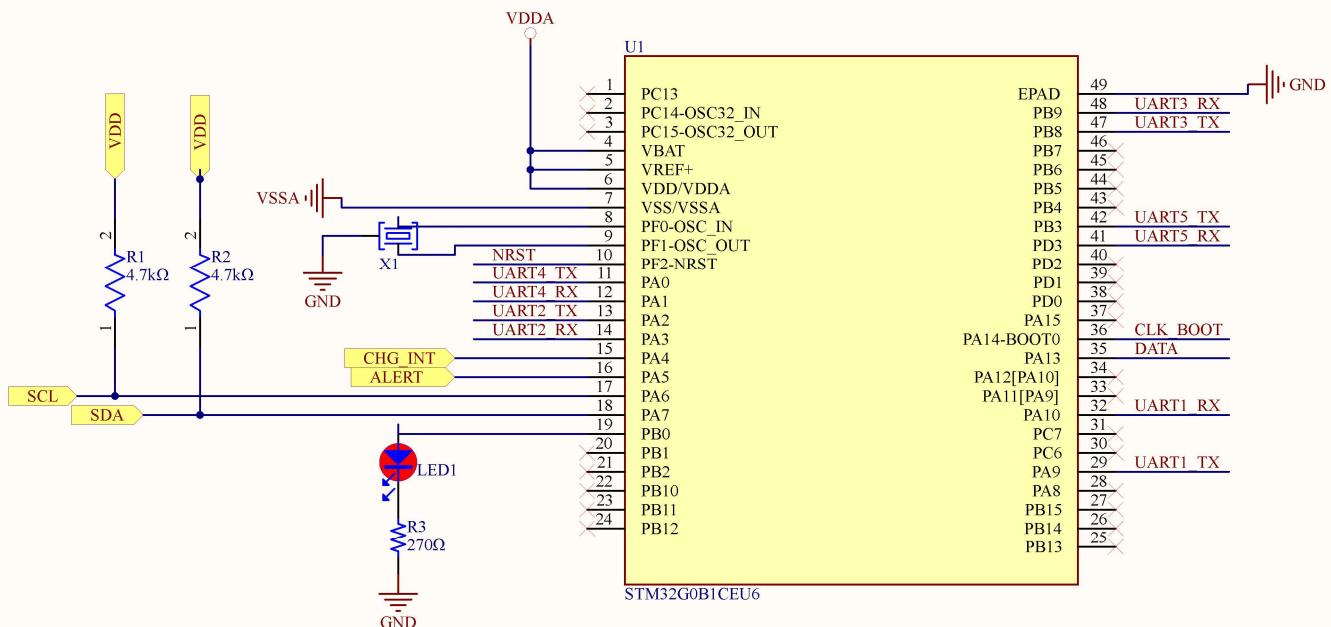
B



C



D



Module: H05R1

Title: H05R1\_Backend.SchDoc

Description:  
USB-C PD LiPo charger

Revision: 0

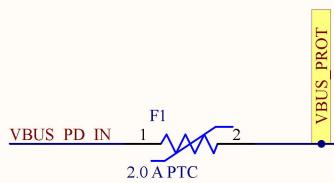
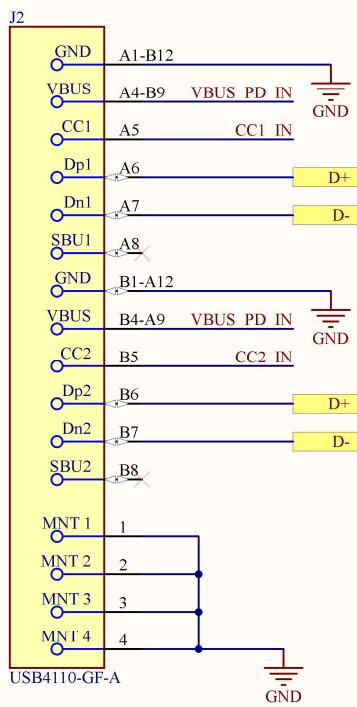
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Date: 12/1/2025

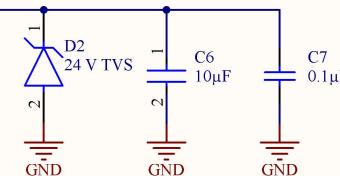
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A

## USB-C CONNECTOR



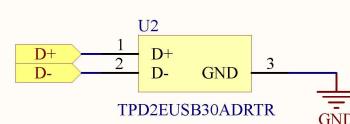
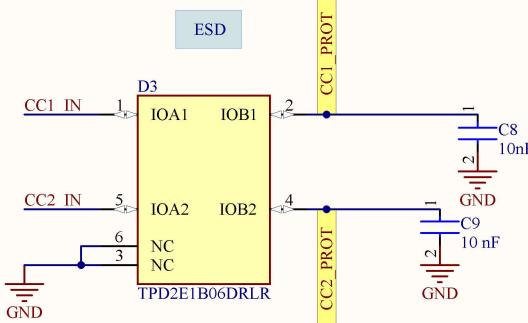
## PROTECTION ON VBUS



## Design Notes:

1. **VBUS\_PD\_IN** is 5–12 V from USB-C PD source.
2. USB4110-GF-A SBU1 and SBU2 pins unused (USB2-only design).
3. For the TPD2E1B06, pins labeled NC may be left floating, grounded, or connected to VCC per TI datasheet guidance. In this design, NC pins are tied to GND to provide a low-inductance return path and improve ESD performance.
4. VBUS\_PROT routed to USB-C PD sink controller U5 (STUSB4500QTR) VIN/VSYS pin and to buck charger U3 (BQ25895RTWR) VIN/PMID pins on HO5R1\_Frontend\_2.
5. CC1\_PROT routed to CC1 pin of USB-C PD sink controller U5 (STUSB4500QTR) on HO5R1\_Frontend\_2.
6. CC2\_PROT routed to CC2 pin of USB-C PD sink controller U5 (STUSB4500QTR) on HO5R1\_Frontend\_2.
7. D+ routed to DP pin of buck charger U3 (BQ25895RTWR) on HO5R1\_Frontend\_2 for USB BC1.2 detection.
8. D- routed to DM pin of buck charger U3 (BQ25895RTWR) on HO5R1\_Frontend\_2 for USB BC1.2 detection.
9. GND is a global power net shared between HO5R1\_Frontend\_1, HO5R1\_Frontend\_2, and HO5R1\_Backend sheets.

B

Module: **H05R1**

Title: H05R1\_Frontend\_1.SchDoc

Description:  
USB-C PD LiPo charger

Revision: 0

Size: Letter

Date: 12/1/2025

Time: 11:19:30 AM

