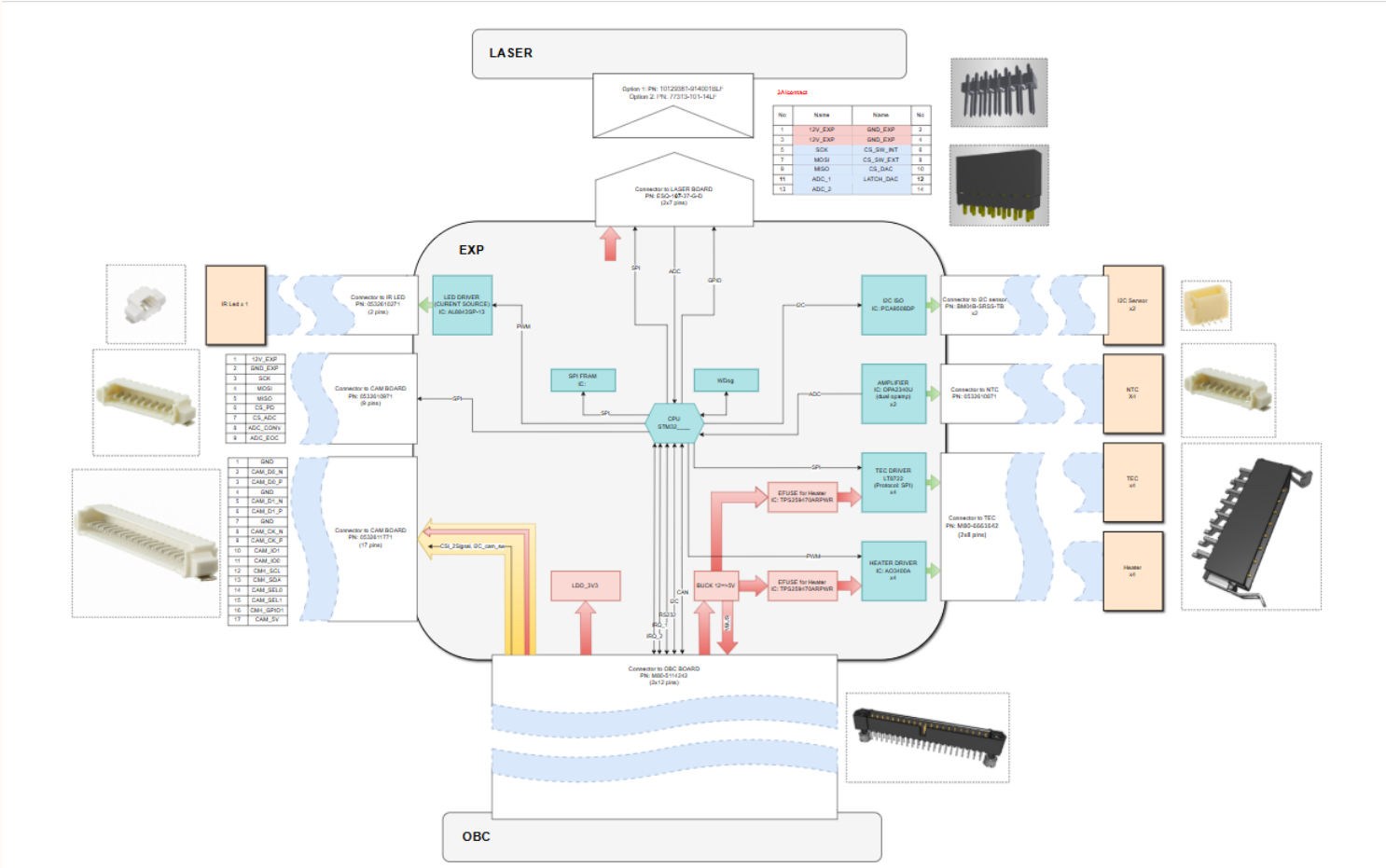


Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: Block_Diagram.SchDoc	Sheet 1 of 13
Checked by: BAO BUI Q.	Document No: 1	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025

Project Name: EXP

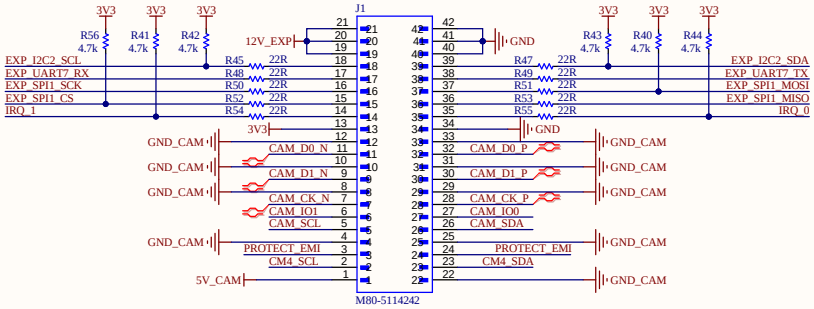
Document Version: V111

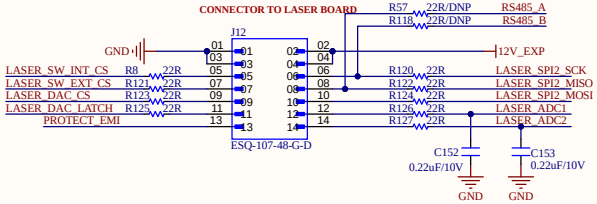
Version History

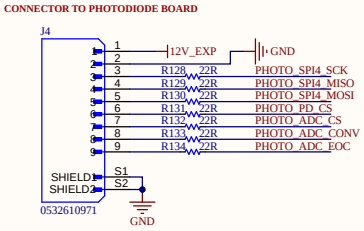
Version	Release Date	Author	Description
V1.0.0	29/10/2024	SANG HUYNH	Initial release
V1.0.1	19/01/2025	SANG HUYNH	Added experiment control functions (laser + photo)
V1.1.0	18/02/2025	SANG HUYNH	Added forward signal for the Camera board
V1.1.1	26/03/2025	SANG HUYNH	Removed isolation IC, replaced CAN with SPI
V1.2.0	01/04/2026	SANG HUYNH	
V1.1.1	30/06/2025	SANG HUYNH	

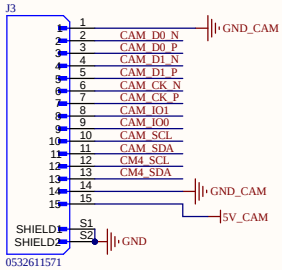
SpaceTinTech

Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: History.SchDoc	Sheet 2 of 13
Checked by: BAO BUI Q.	Document No: 2	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 6/30/2025



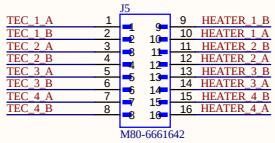


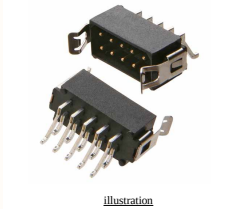




Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: HEADER_1.SchDoc	Sheet 3 of 13
Checked by: BAO BUI Q.	Document No: 3	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 6/29/2025

CONNECTOR TO TEC & HEATER



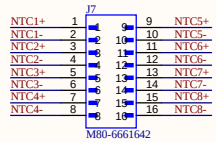


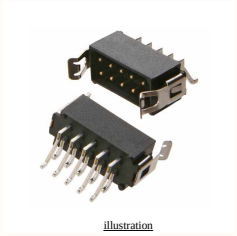
illustration

Harwin Inc. M80-6661642

- ELECTRICAL:
  CURRENT RATING: 2.2A/CONTACT
  VOLTAGE RATING: 800V/CONTACT
- ENVIRONMENTAL:
  TEMPERATURE RANGE: -55°C TO +125°C
- PHYSICAL:
  PITCH-MATING: 0.079" (2.00mm)
- WIRE:
  WIRE SIZE: 24 AWG
  MAX CURRENT: 2A per Wire
  ISULATION MATERIAL: PTFE
- MATING:
  Harwin Inc. M80-8881606

CONNECTOR TO NTC





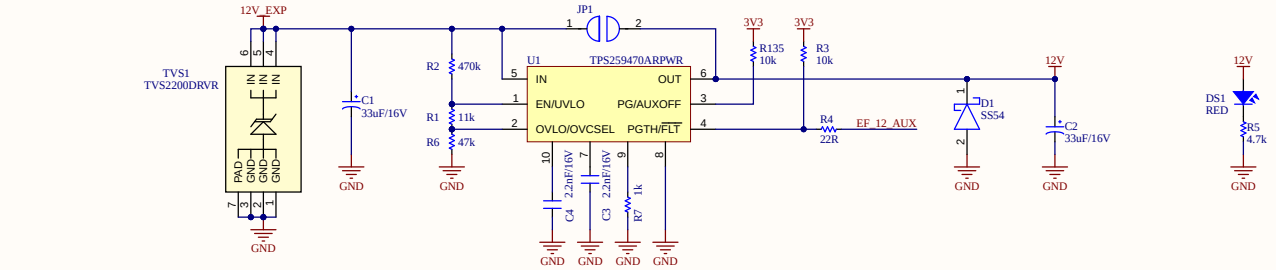
illustration

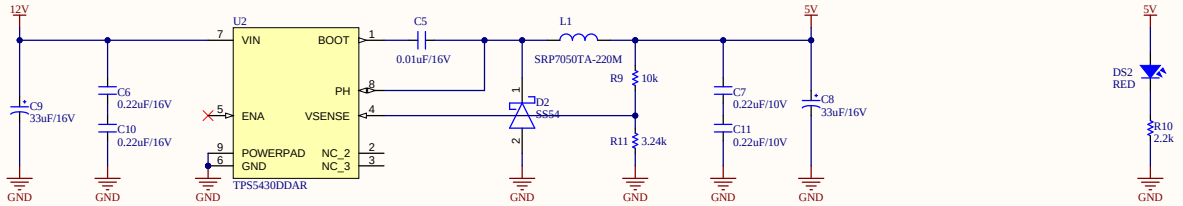
Harwin Inc. M80-6661642

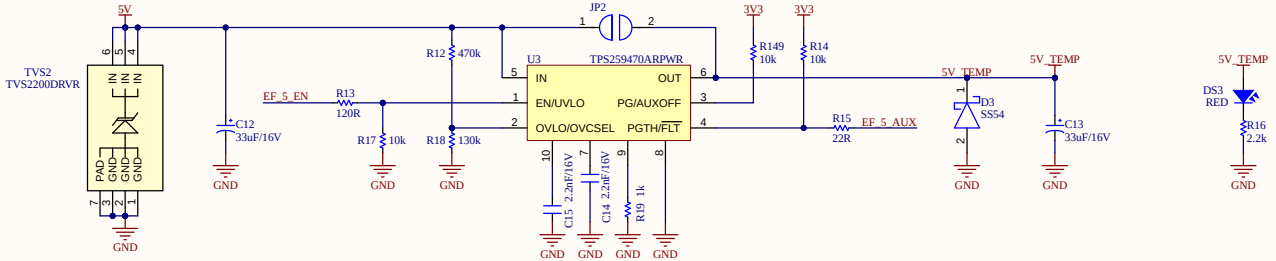
- ELECTRICAL:
  CURRENT RATING: 2.2A/CONTACT
  VOLTAGE RATING: 800V/CONTACT
- ENVIRONMENTAL:
  TEMPERATURE RANGE: -55°C TO +125°C
- PHYSICAL:
  PITCH-MATING: 0.079" (2.00mm)
- WIRE:
  WIRE SIZE: 24 AWG
  MAX CURRENT: 2A per Wire
  ISULATION MATERIAL: PTFE
- MATING:
  Harwin Inc. M80-8881606

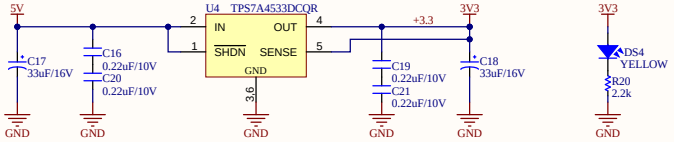
MOUNTING HOLE

Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: HEADER_2.SchDoc	Sheet 4 of 13
Checked by: BAO BUI Q.	Document No: 4	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025

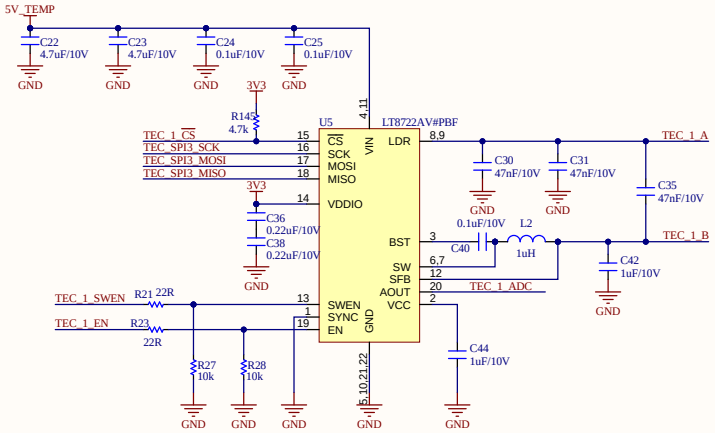


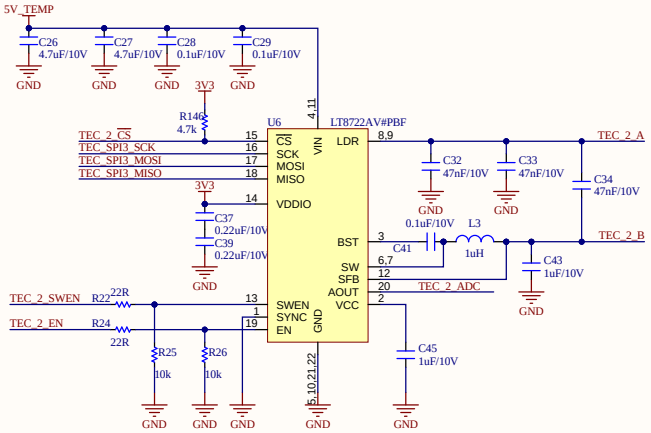


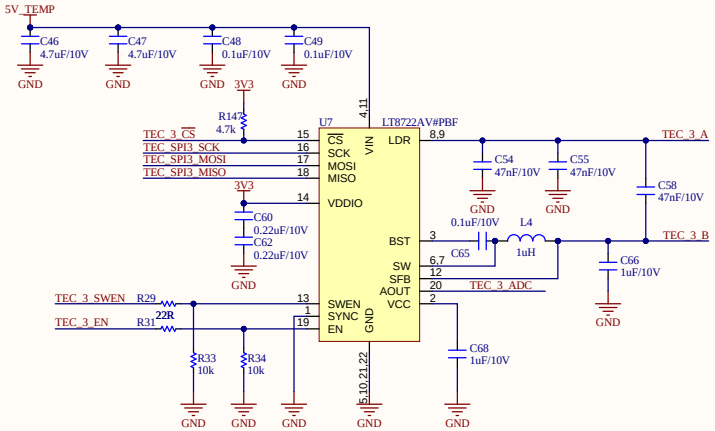


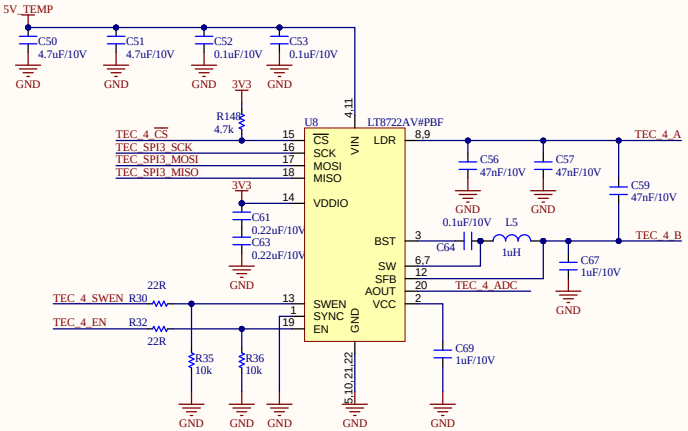


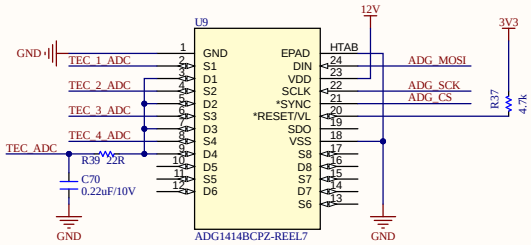
Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: POWER.SchDoc	Sheet 5 of 13
Checked by: BAO BUI Q.	Document No: 5	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025



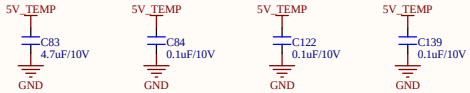


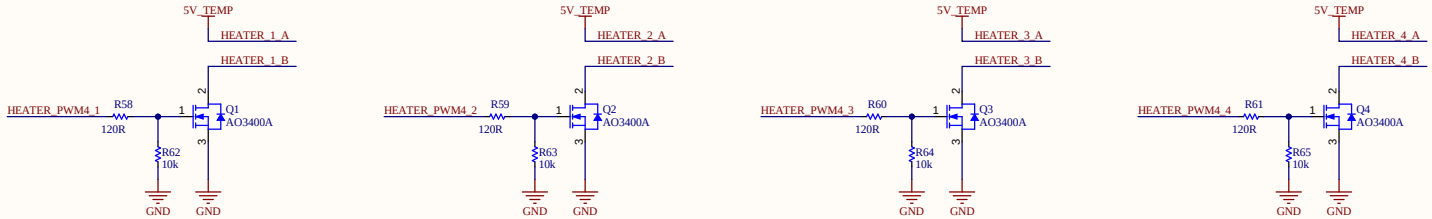




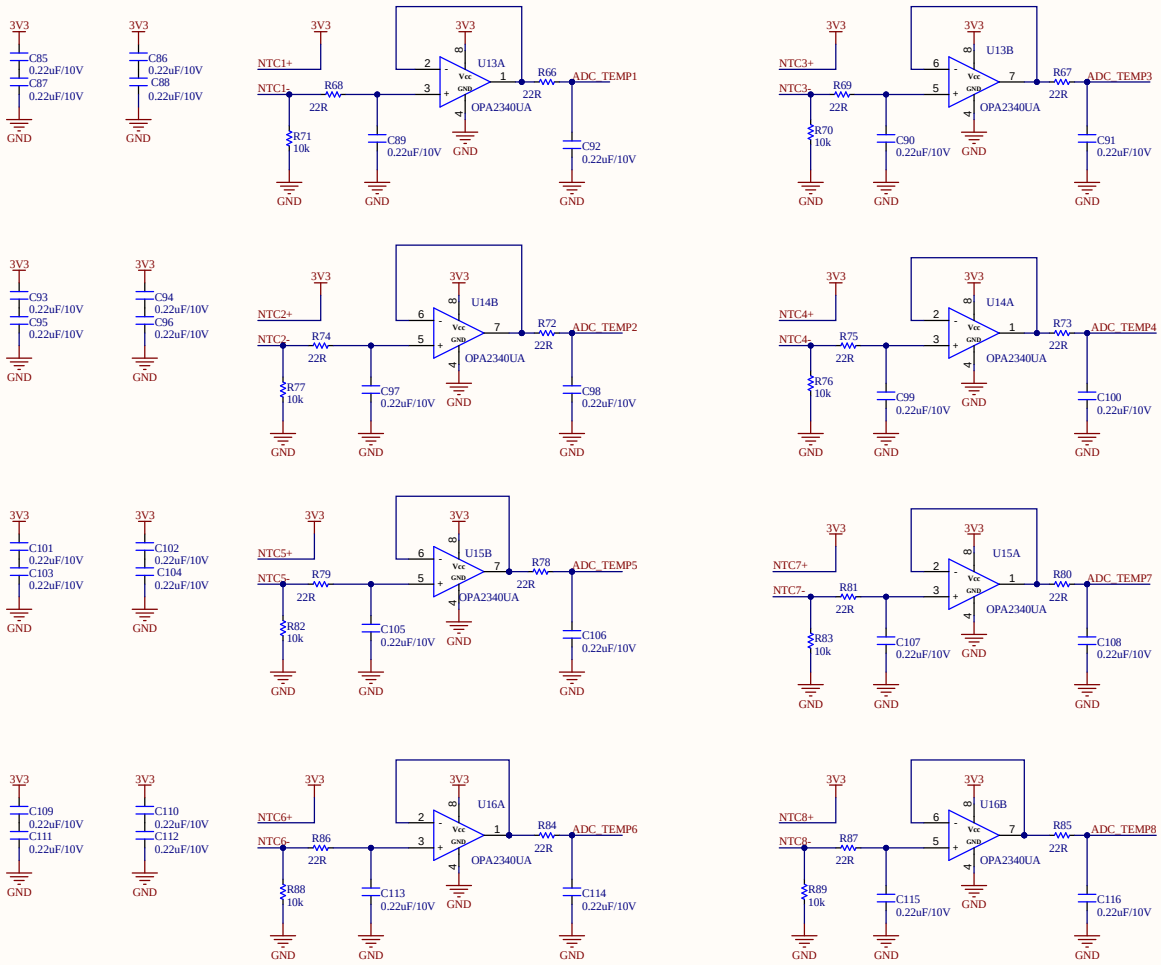


Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: TEC_DRV.SchDoc	Sheet 6 of 13
Checked by: BAO BUI Q.	Document No: 6	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025

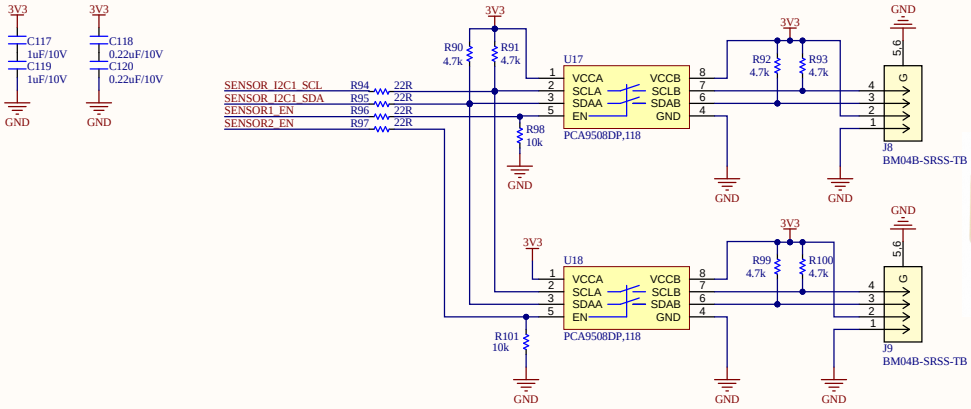


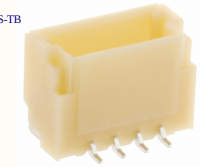


Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: HEATER.SchDoc	Sheet 7 of 13
Checked by: BAO BUI Q.	Document No: 7	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/27/2025



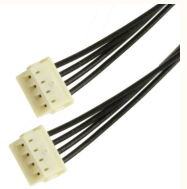
Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: NTC.SchDoc	Sheet 8 of 13
Checked by: BAO BUI Q.	Document No: 8	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025



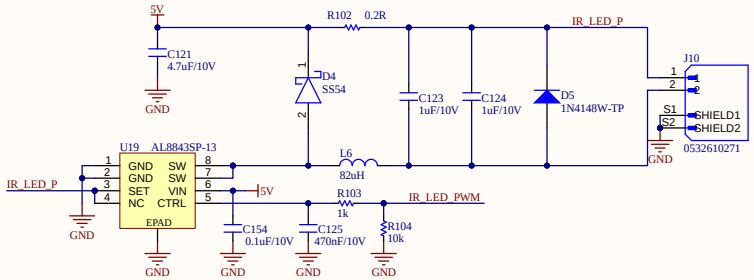


JST Sales America Inc.
BM04B-SRSS-TB

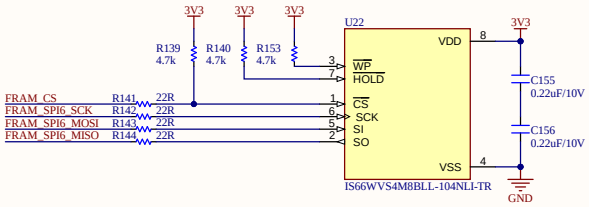
- ELECTRICAL:
  CURRENT RATING: 1.0A AC/DC/CONTACT
  VOLTAGE RATING: 50V AC/DC/CONTACT
- ENVIRONMENTAL:
  TEMPERATURE RANGE: -25°C ~ 85°C
- PHYSICAL:
  PITCH-MATING: 0.039" (1.00mm)
- WIRE:
  WIRE SIZE: 26 AWG
  MAX CURRENT: 0.1A per Wire
  ISULATION MATERIAL: PTFE
- MATING:
  JST Sales America Inc.
  A04SR04SR30K152B



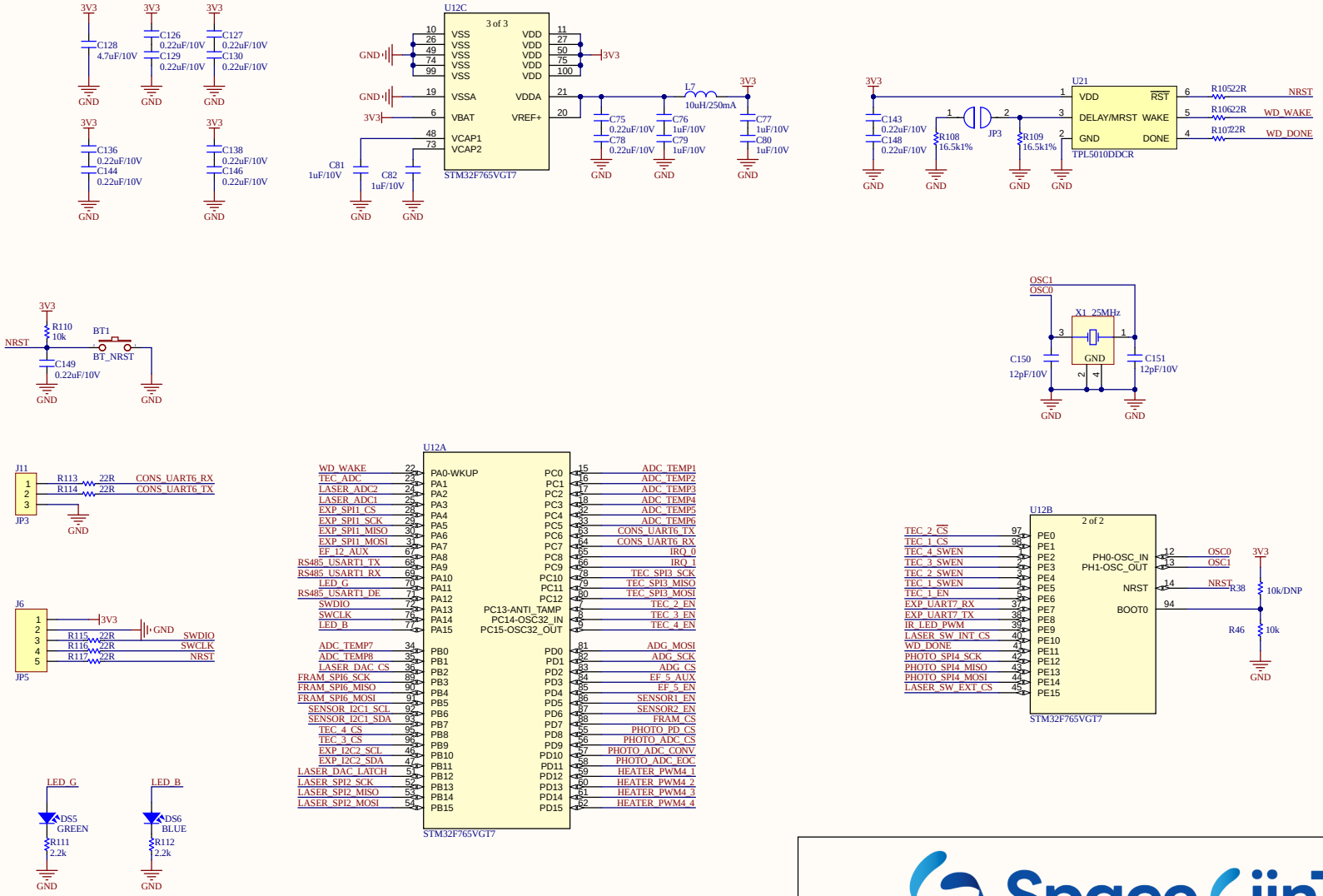
Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: I2C_Sensor.SchDoc	Sheet 9 of 13
Checked by: BAO BUI Q.	Document No: 9	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025



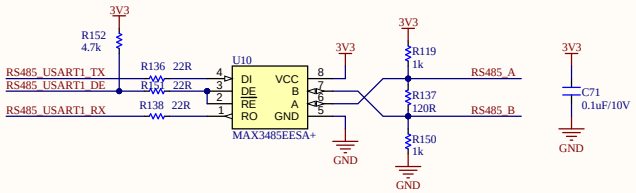
Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: IR_LED.SchDoc	Sheet 10 of 13
Checked by: BAO BUI Q.	Document No: 10	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025



Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: FRAM.SchDoc	Sheet 11 of 13
Checked by: BAO BUI Q.	Document No: 11	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 6/30/2025



Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: MCU.SchDoc	Sheet 12 of 13
Checked by: BAO BUI Q.	Document No: 12	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 6/29/2025



Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: RS485.SchDoc	Sheet 13 of 13
Checked by: BAO BUI Q.	Document No: 13	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 4/11/2025