

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

Project Name: EXP

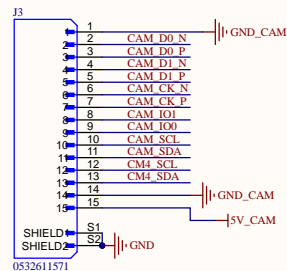
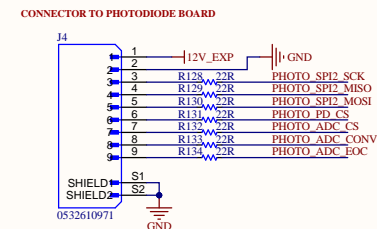
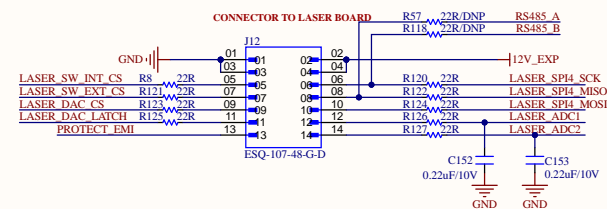
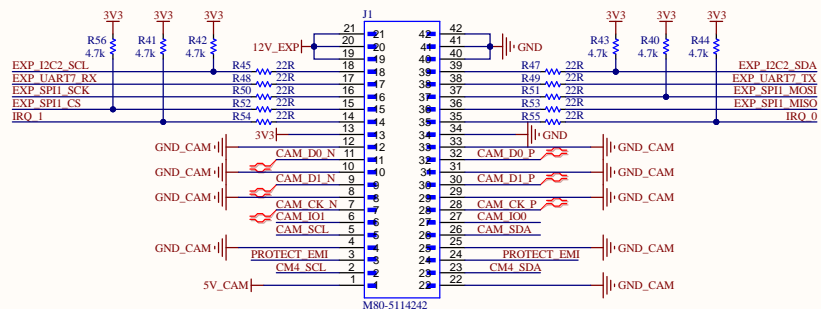
Document Version: V111

Version History

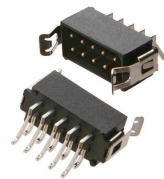
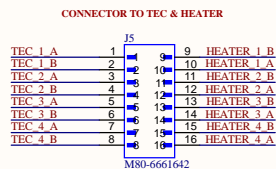
Version	Release Date	Author	Description
V1.0.0	29/10/2024	SANG HUYNH	Initial release
V1.0.1	19/01/2025	SANG HUYNH	Added experiment control functions (laser + photo)
V1.1.0	18/02/2025	SANG HUYNH	Added forward signal for the Camera board
V1.1.1	26/03/2025	SANG HUYNH	Removed isolation IC, replaced CAN with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



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: 3/26/2025



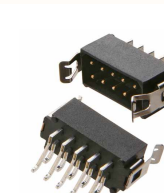
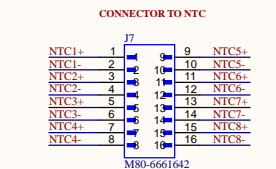
Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: HEADER_1.SchDoc	Sheet 3 of 13
Checked by: BAO BUI Q.	Document No: 3	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 4/14/2025



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



illustration

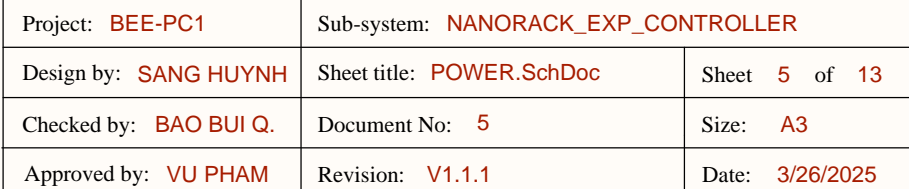
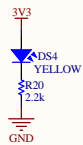
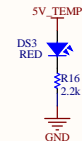
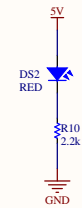
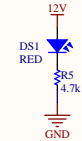
## Harwin Inc. M80-6661642

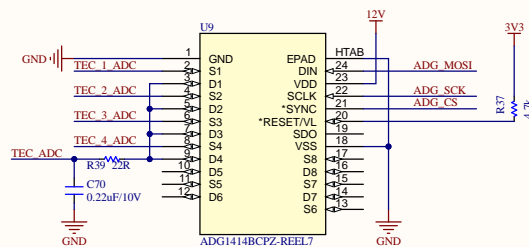
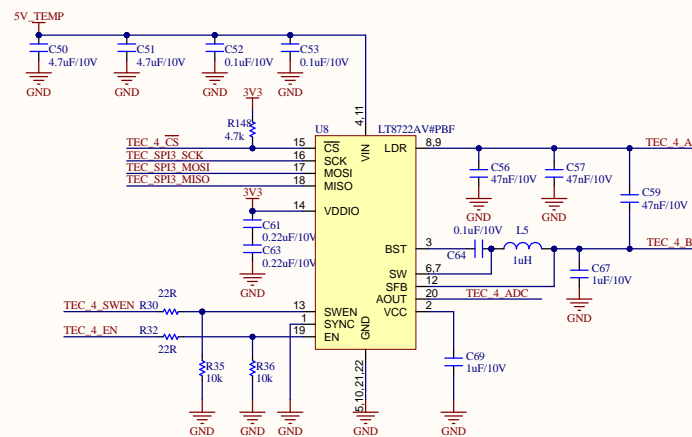
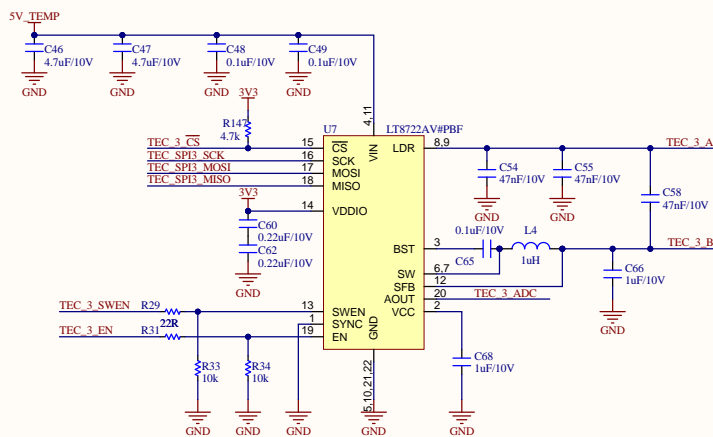
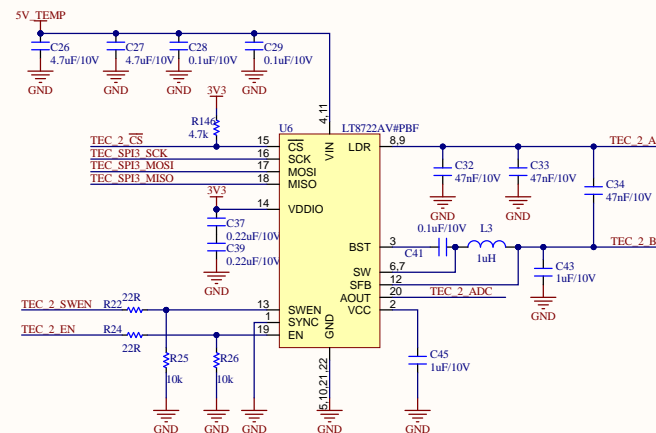
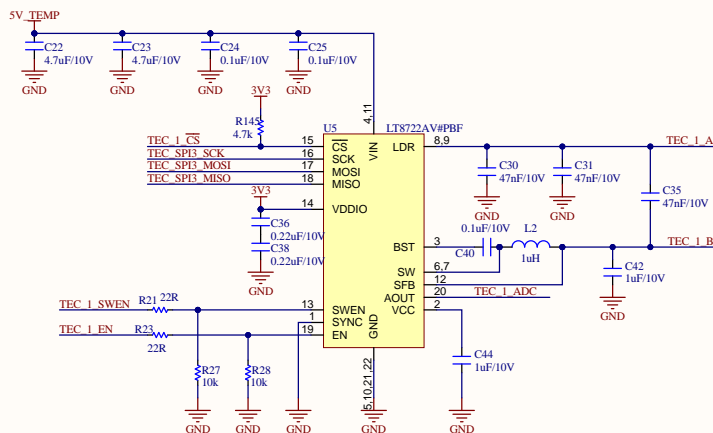
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CURRENT RATING: 2.2A/CONTACT  
VOLTAGE RATING: 800V/CONTACT
- ENVIRONMENTAL:  
TEMPERATURE RANGE: -55°C TO +125°C
- PHYSICAL:  
PITCH-MATING: 0.079" (2.00mm)
- WIRE:  
WIRE SIZE: 24 AWG  
MAX CURRENT: 2A per Wire  
ISULATION MATERIAL: PTFE
- MATING: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

## MOUNTING HOLE

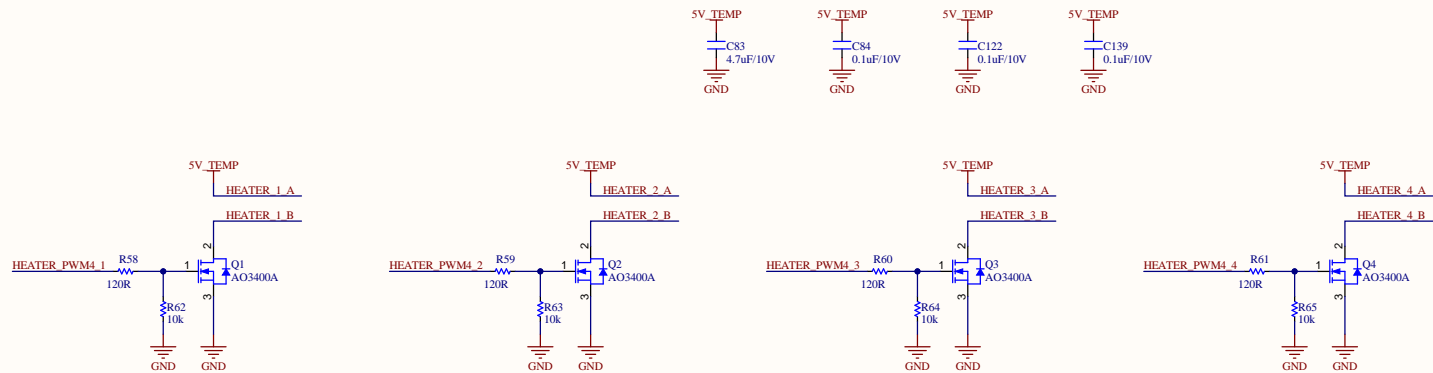


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Design by: SANG HUYNH	Sheet title: HEADER_2.SchDoc	Sheet 4 of 13
Checked by: BAO BUI Q.	Document No: 4	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025

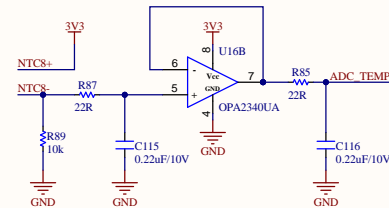
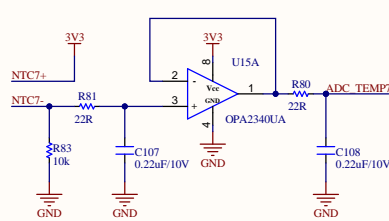
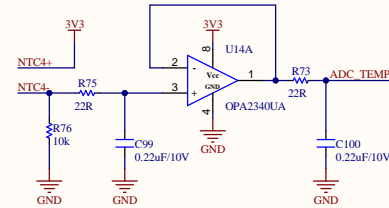
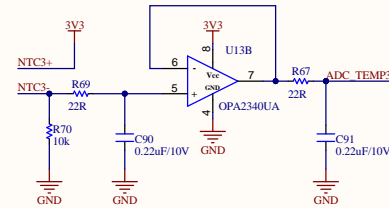
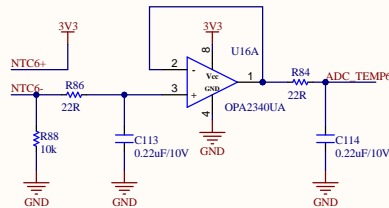
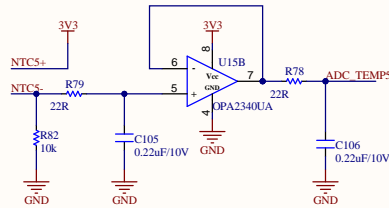
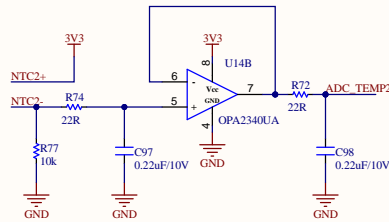
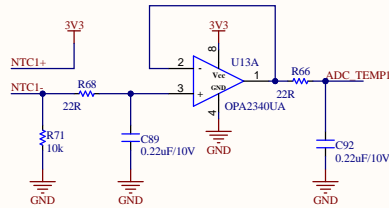
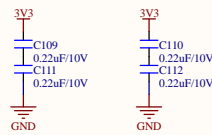
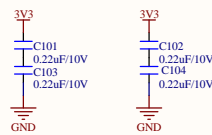
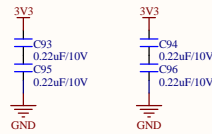
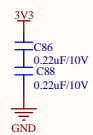
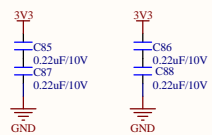




Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: TEC_DRV.SchDoc	Sheet 6 of 13
Checked by: BAO BUI Q.	Document No: 6	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025

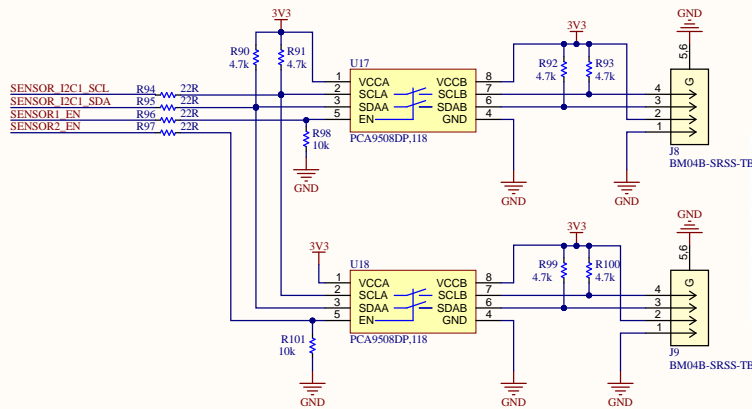
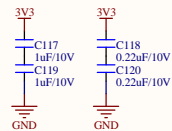


Project: <b>BEE-PC1</b>		Sub-system: <b>NANORACK_EXP_CONTROLLER</b>	
Design by: <b>SANG HUYNH</b>	Sheet title: <b>HEATER.SchDoc</b>	Sheet <b>7</b> of <b>13</b>	
Checked by: <b>BAO BUI Q.</b>	Document No: <b>7</b>	Size: <b>A3</b>	
Approved by: <b>VU PHAM</b>	Revision: <b>V1.1.1</b>	Date: <b>3/27/2025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



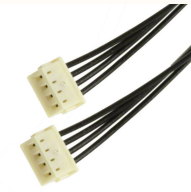
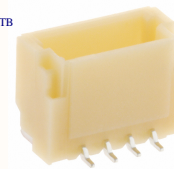
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Design by: SANG HUYNH	Sheet title: NTC.SchDoc	Sheet 8 of 13
Checked by: BAO BUI Q.	Document No: 8	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025



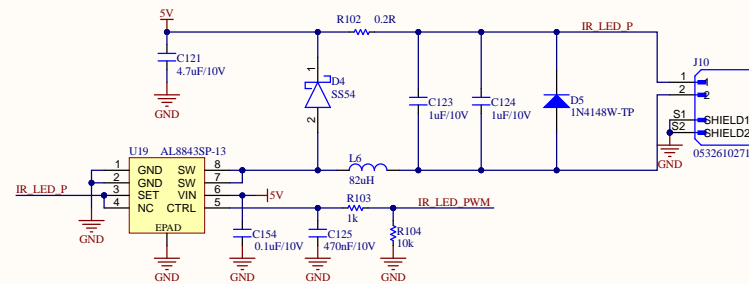


## JST Sales America Inc. BM04B-SRSS-TB

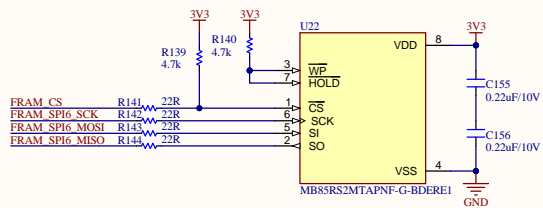
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VOLTAGE RATING: 50V AC/DC/CONTACT
- ENVIRONMENTAL:  
TEMPERATURE RANGE: -25°C ~ 85°C
- PHYSICAL:  
PITCH-MATING: 0.039" (1.00mm)
- WIRE:  
WIRE SIZE: 26 AWG  
MAX CURRENT: 0.1A per Wire  
ISULATION MATERIAL: PTFE
- MATING:  
JST Sales America Inc.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



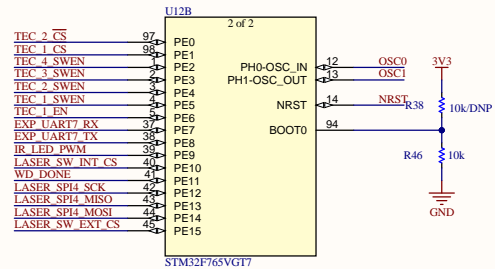
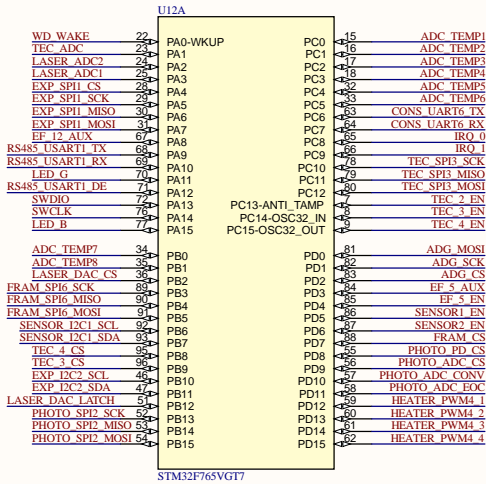
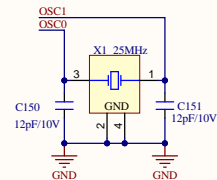
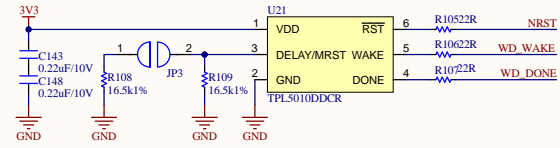
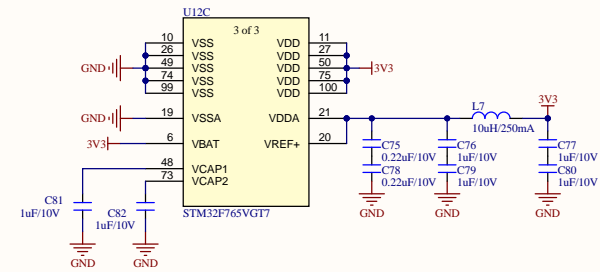
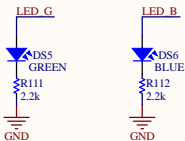
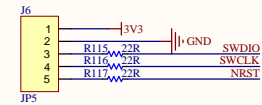
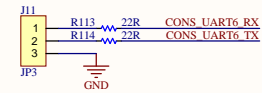
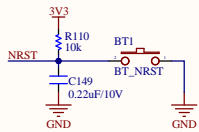
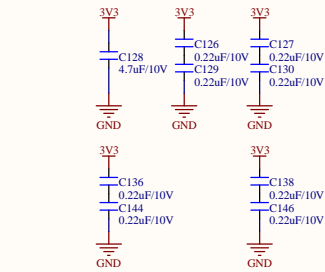
Project: BEE-PC1	Sub-system: NANORACK_EXP_CONTROLLER	
Design by: SANG HUYNH	Sheet title: I2C_Sensor.SchDoc	Sheet 9 of 13
Checked by: BAO BUI Q.	Document No: 9	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025



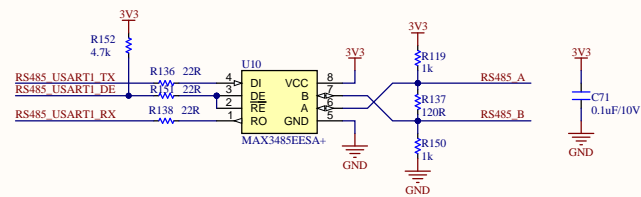
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Design by: SANG HUYNH	Sheet title: IR_LED.SchDoc	Sheet 10 of 13
Checked by: BAO BUI Q.	Document No: 10	Size: A3
Approved by: VU PHAM	Revision: V1.1.1	Date: 3/26/2025



Project: <b>BEE-PC1</b>		Sub-system: <b>NANORACK_EXP_CONTROLLER</b>	
Design by: <b>SANG HUYNH</b>	Sheet title: <b>FRAM.SchDoc</b>	Sheet <b>11</b> of <b>13</b>	
Checked by: <b>BAO BUI Q.</b>	Document No: <b>11</b>	Size: <b>A3</b>	
Approved by: <b>VU PHAM</b>	Revision: <b>V1.1.1</b>	Date: <b>3/26/2025</b>	



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: 4/10/2025



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	