

Table of Content

PAGE	COMPONENT/ FUNCTION
001	INDEX
002	BLOCK_DIAGRAM
003	POWER SWITCH AND LDO
004	COMMUNICATION
005	CURRENT_SOURCE
006	SWITCHING

NANORACK LASER

Schematic V1.1.0



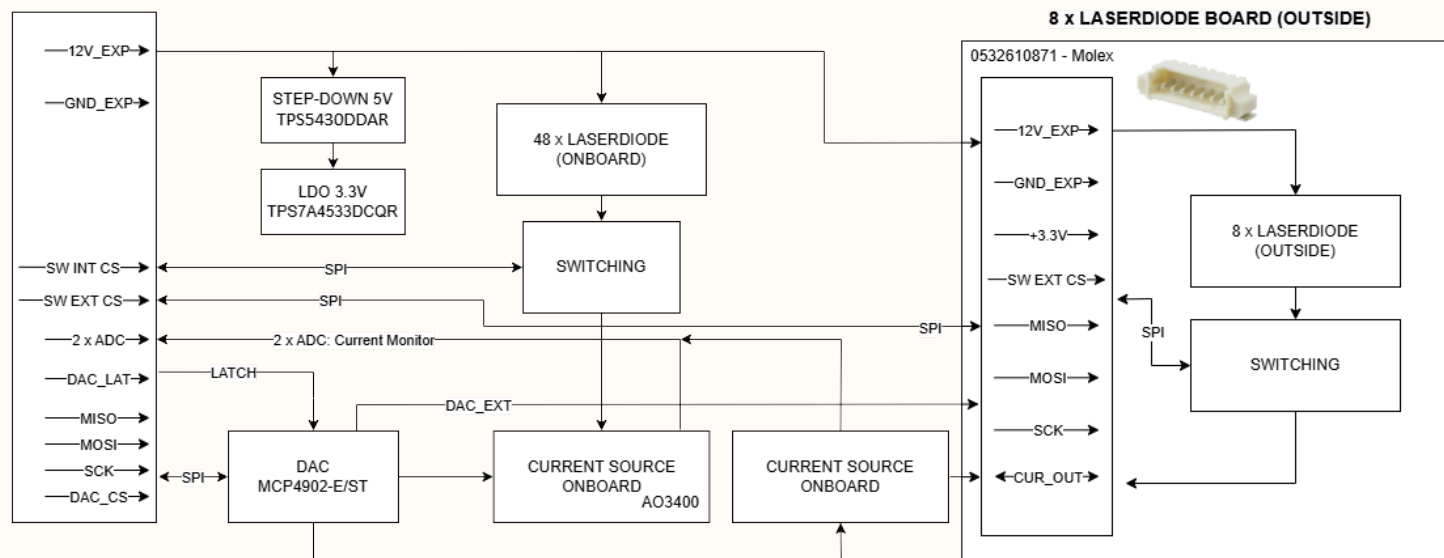
Project: BEE-PC1	Sub-system: NANORACK_LASER.PrjPcb	
Design by: Hung Nguyen D.	Sheet title: INDEX.SchDoc	Sheet 1 of 6
Checked by: Bao Bui Q.	Document No: 1	Size: A3
Approved by: Vu Pham	Revision: V1.1.0	Date: 1/15/2025

LASERDIODE

2x7 PIN
CONNECTOR
board to board

+12V_EXP	+12V_EXP
GND_EXP	+12V_EXP
GND_EXP	SPI_MISO
SPI_SCK	SPI_MOSI
DAC_CS	SW_INT_CS
DAC_LATCH	SW_EXT_CS
ADC_1	ADC_2

77313-101-14LF - Amphenol ICC (FCI)



Project: **BEE-PC1**

Sub-system: **NANORACK_LASER.PrjPcb**

Design by: **Hung Nguyen D.**

Sheet title: **BLOCK_DIAGRAM.SchDoc**

Sheet **2** of **6**

Checked by: **Bao Bui Q.**

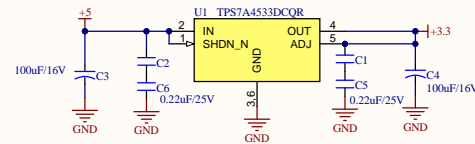
Document No: **2**

Size: **A3**

Approved by: **Vu Pham**

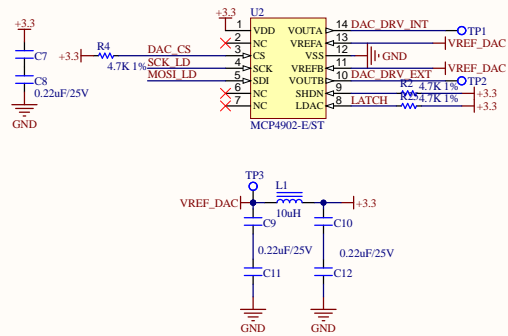
Revision: **V1.1.0**

Date: **1/15/2025**

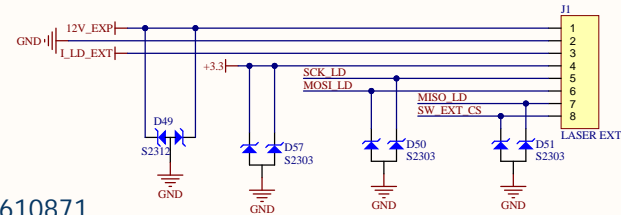


Project: BEE-PC1	Sub-system: NANORACK_LASER.PrjPcb	
Design by: Hung Nguyen D.	Sheet title: POWER SWITCH AND LDO.SchDoc	Sheet 3 of 6
Checked by: Bao Bui Q.	Document No: 3	Size: A3
Approved by: Vu Pham	Revision: V1.1.0	Date: 1/15/2025

DAC

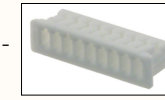
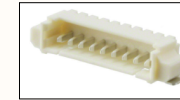


LASER EXT CONNECTOR

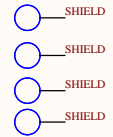


Molex - 0532610871

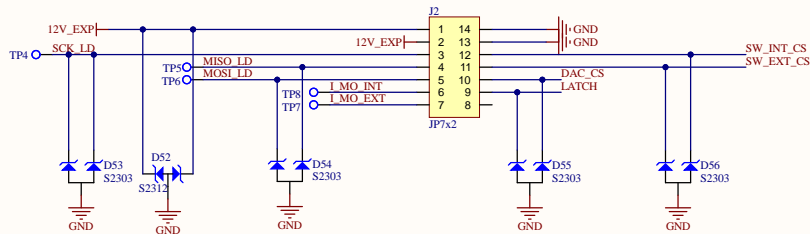
- ELECTRICAL:
CURRENT RATING: 1A/CONTACT
VOLTAGE RATING: 125V/CONTACT
- ENVIRONMENTAL:
TEMPERATURE RANGE: -40°C TO +105°C
- PHYSICAL:
PITCH-MATING: 0.049" (1.25mm)
- WIRE:
WIRE SIZE: 24 AWG
MAX CURRENT: 1A per Wire
ISULATION MATERIAL: PTFE
- MATING:
Molex - 0510210800



0510210800

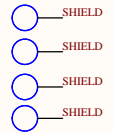


BOARD TO BOARD CONNECTOR TO EXP BOARD



Amphenol ICC - 77313-101-14LF

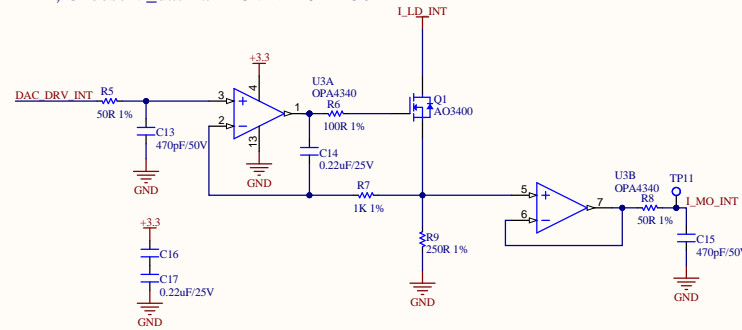
- ELECTRICAL:
CURRENT RATING: 3A/CONTACT
VOLTAGE RATING: 1500VAC/CONTACT
- ENVIRONMENTAL:
TEMPERATURE RANGE: -65°C TO +130°C
- PHYSICAL:
PITCH-MATING: 0.1" (2.54mm)
- MATING:
MAX CURRENT: 5.7A/CONTACT
Samtec Inc. - ESQ-107-37-G-D



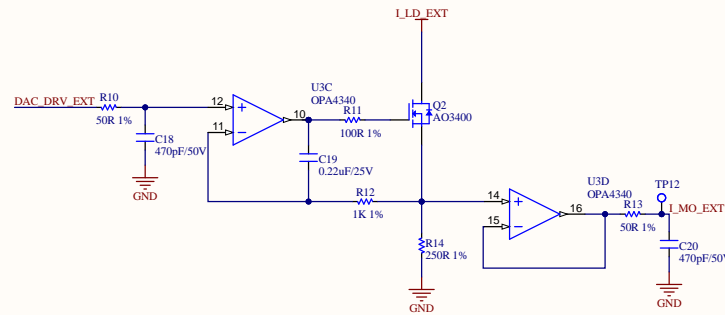
Project: BEE-PC1	Sub-system: NANORACK_LASER.PrjPcb	
Design by: Hung Nguyen D.	Sheet title: COMMUNICATION.SchDoc	Sheet 4 of 6
Checked by: Bao Bui Q.	Document No: 4	Size: A3
Approved by: Vu Pham	Revision: V1.1.0	Date: 1/16/2025

$$I_{LD} = V_{dac} * R9$$

$$I_{LDmax} = 12mA, \text{ Choose } V_{dacmax} = 3V \rightarrow R9 = 250R$$



DRIVER_INT

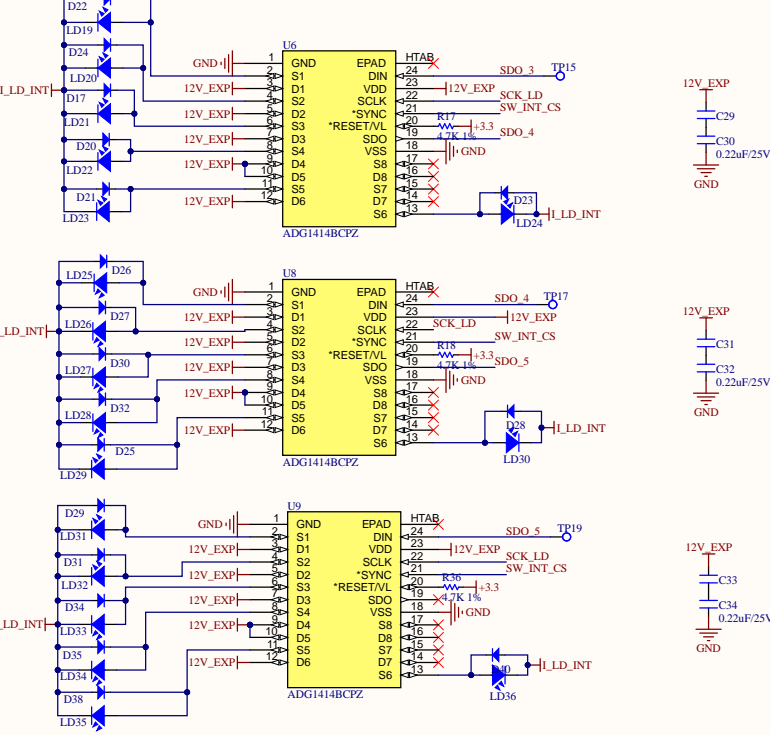
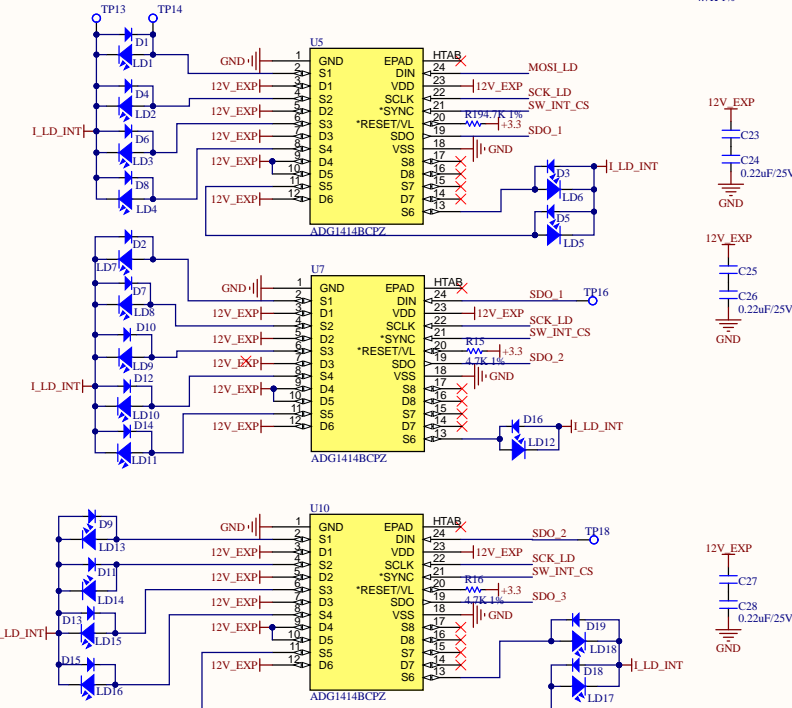


DRIVER_EXT



Project: BEE-PC1	Sub-system: NANORACK_LASER.PrjPcb	
Design by: Hung Nguyen D.	Sheet title: CURRENT_SOURCE.SchDoc	Sheet 5 of 6
Checked by: Bao Bui Q.	Document No: 5	Size: A3
Approved by: Vu Pham	Revision: V1.1.0	Date: 1/16/2025

+3.3 R20 SDO_1
4.7K 1%
+3.3 R21 SDO_2
4.7K 1%
+3.3 R22 SDO_3
4.7K 1%
+3.3 R23 SDO_4
4.7K 1%
+3.3 R24 SDO_5
4.7K 1%



Project: BEE-PC1	Sub-system: NANORACK_LASER.PrjPcb	
Design by: Hung Nguyen D.	Sheet title: SWITCHING.SchDoc	Sheet 6 of 6
Checked by: Bao Bui Q.	Document No: 6	Size: A3
Approved by: Vu Pham	Revision: V1.1.0	Date: 1/16/2025