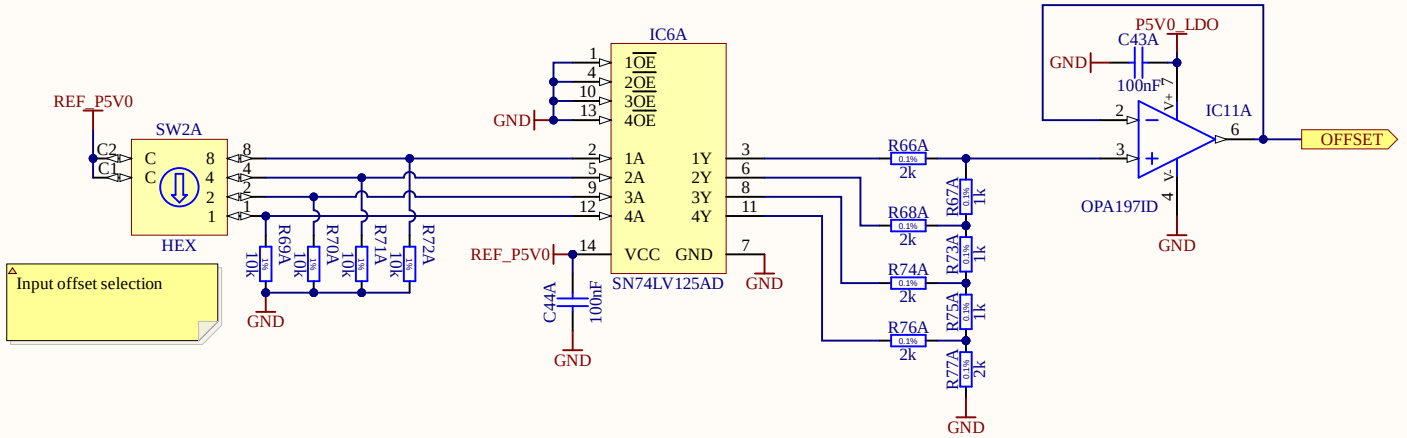

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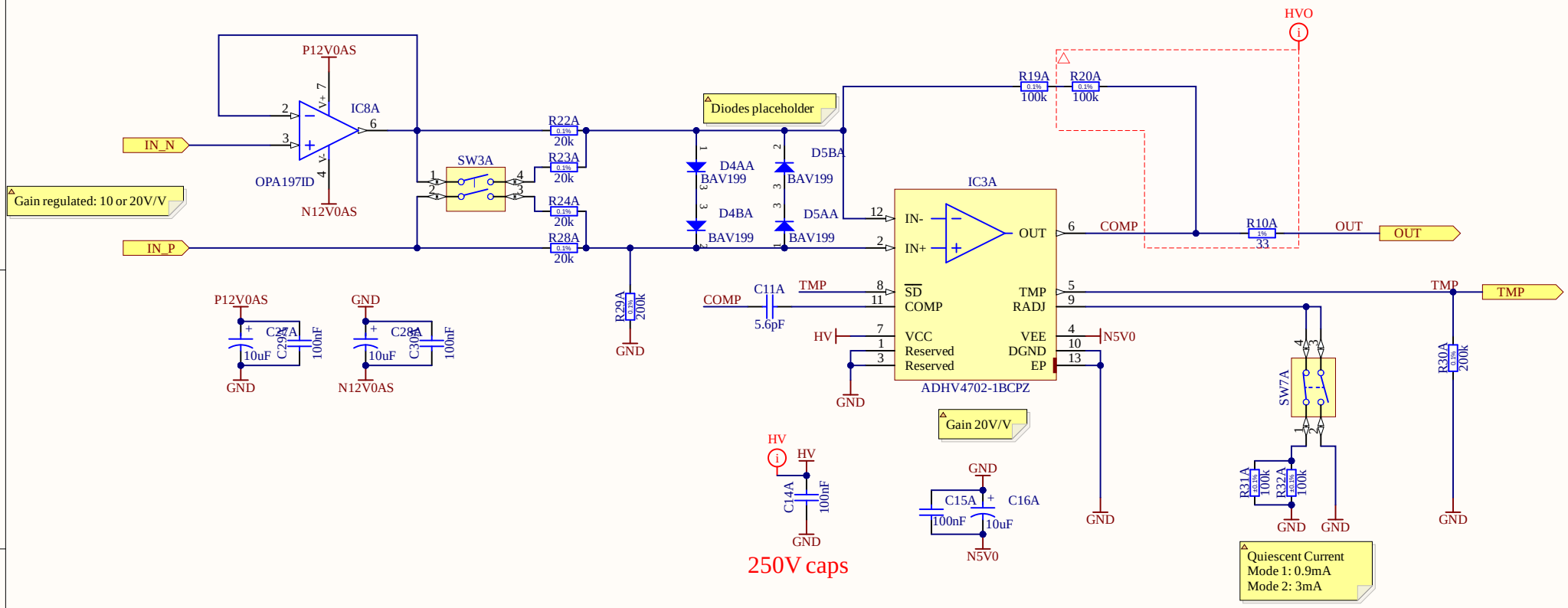
Date: 6.16.2021		Sheet of
File: C:\Users\..\Offset_Selector.SchDoc		Drawn By:



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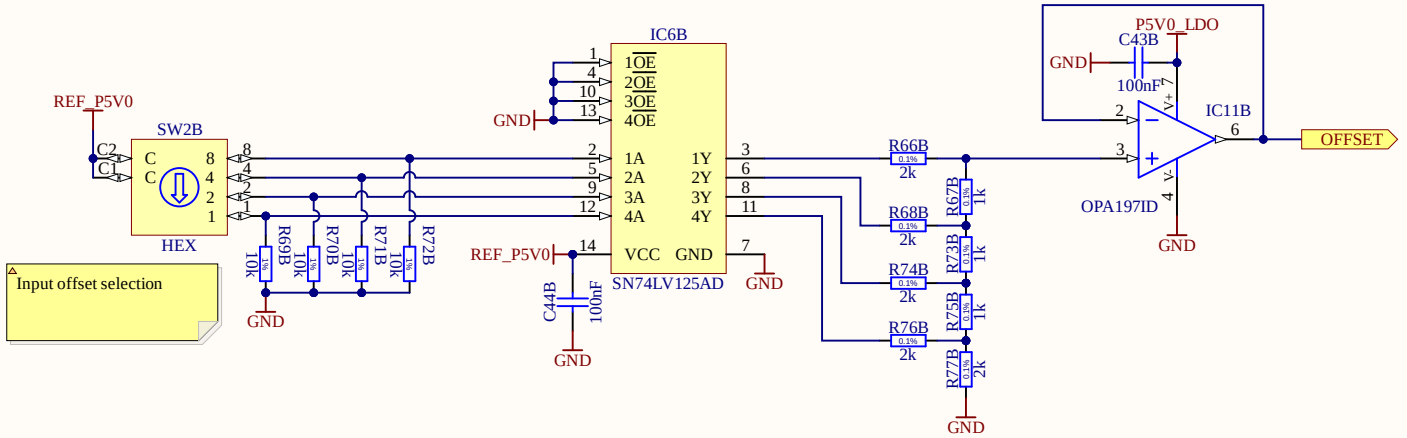

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Date: 6.16.2021		Sheet of
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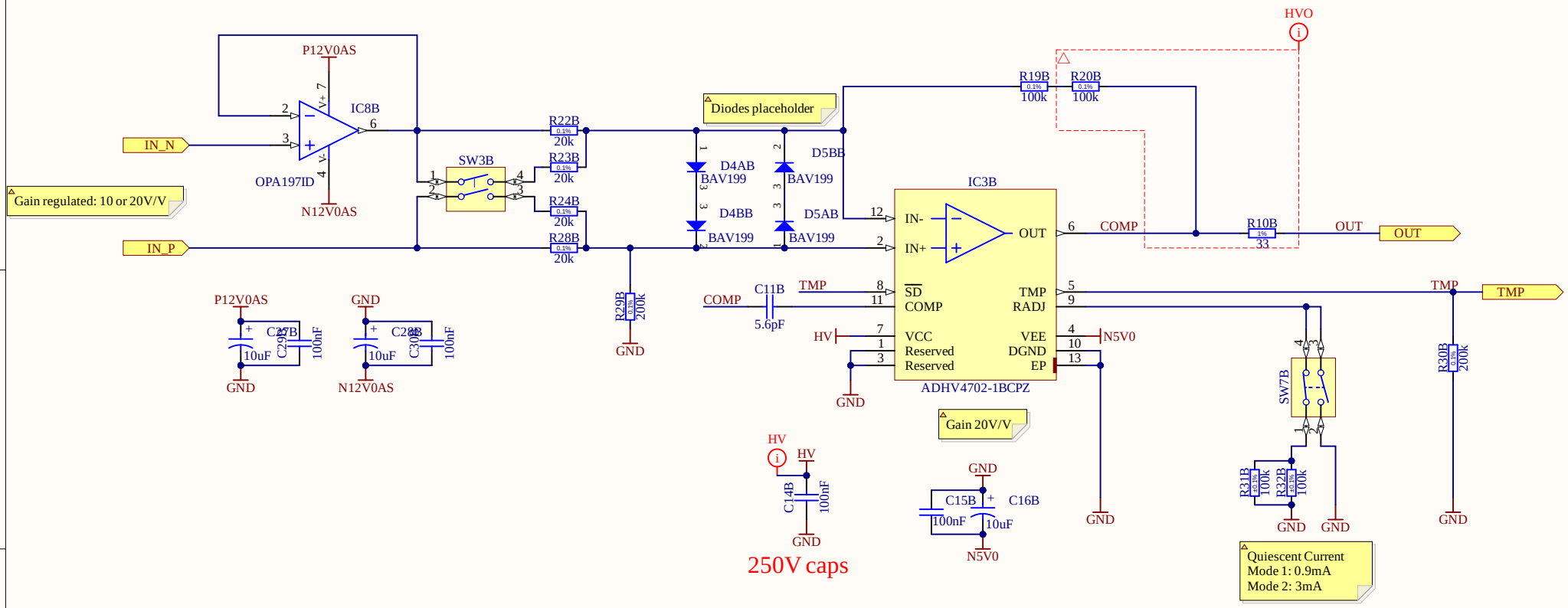

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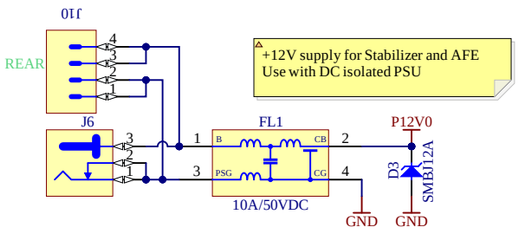
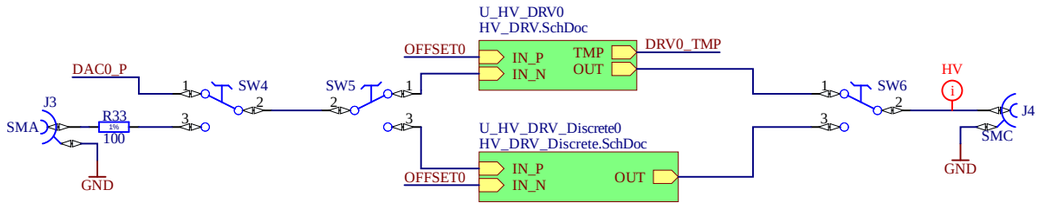
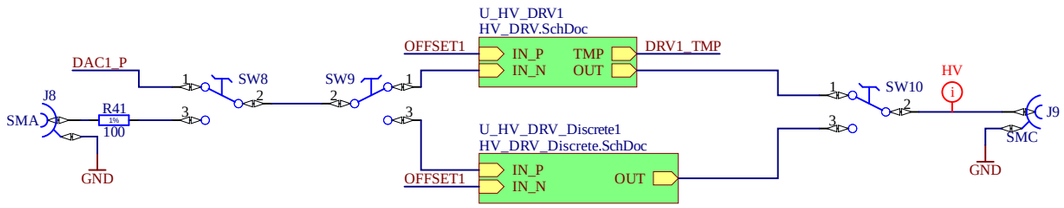
Size A4	Number	Revision
Date: 6.16.2021		Sheet of
File: C:\Users\..\HV_DRV.SchDoc		Drawn By:

Front Panel Connectors

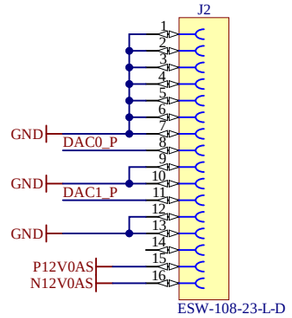


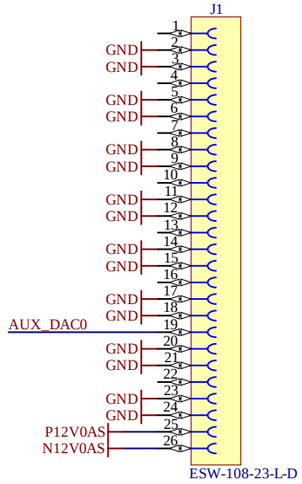




CPU ADC/DAC Header

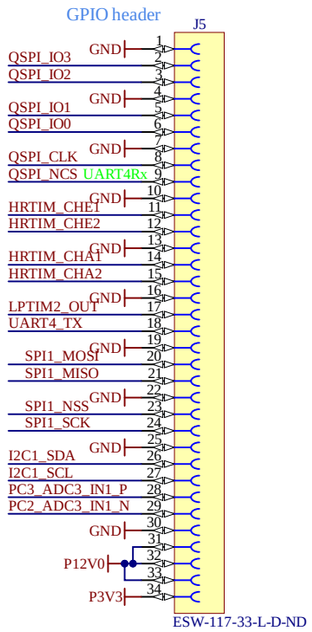
ADC and DAC header

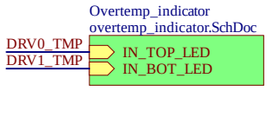


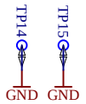


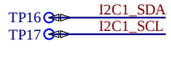
To ensure reliable contact, mount board-board connectors 1.25mm +-0.25mm from board surface

GPIO Header

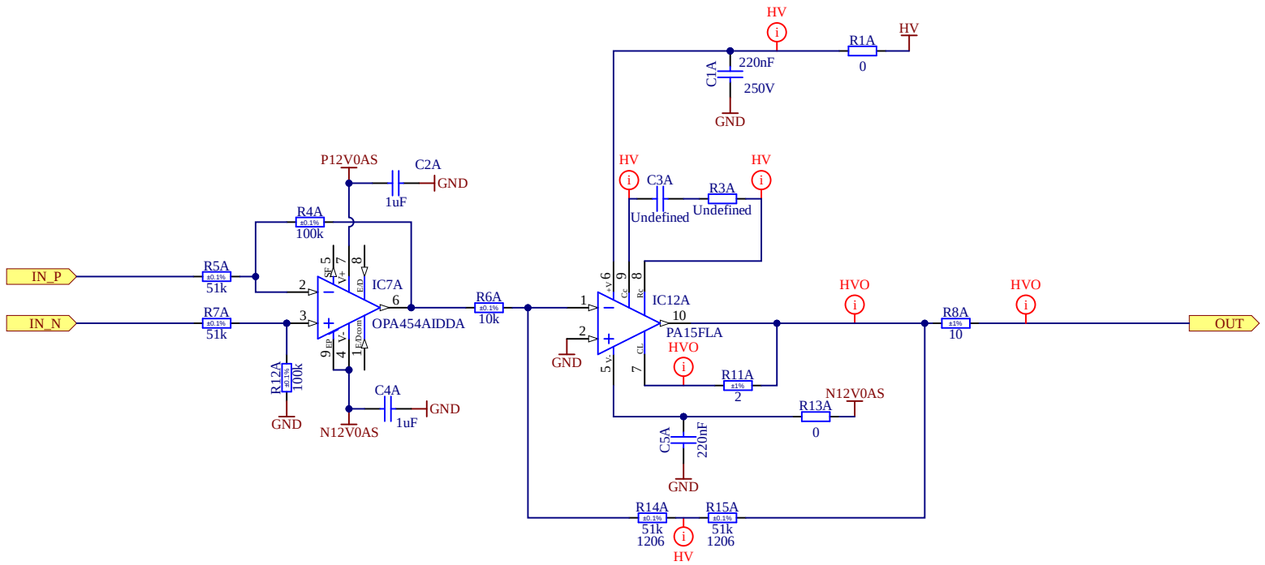








Title	***Stabilizer Current Sense Mezzanine***		*Ion Trapping Group* *Department of Physics* *University of Oxford* *UK*
Size: A3	Number: 1	Revision: 1.0	
Date: 16.06.2021	Time: 01:29:48	Sheet 1 of 5	
File: C:\Users\JakubKajzer\Dropbox\Thesis\Project\pcb\Stabilizer_Piezo_Driver.SchDoc			



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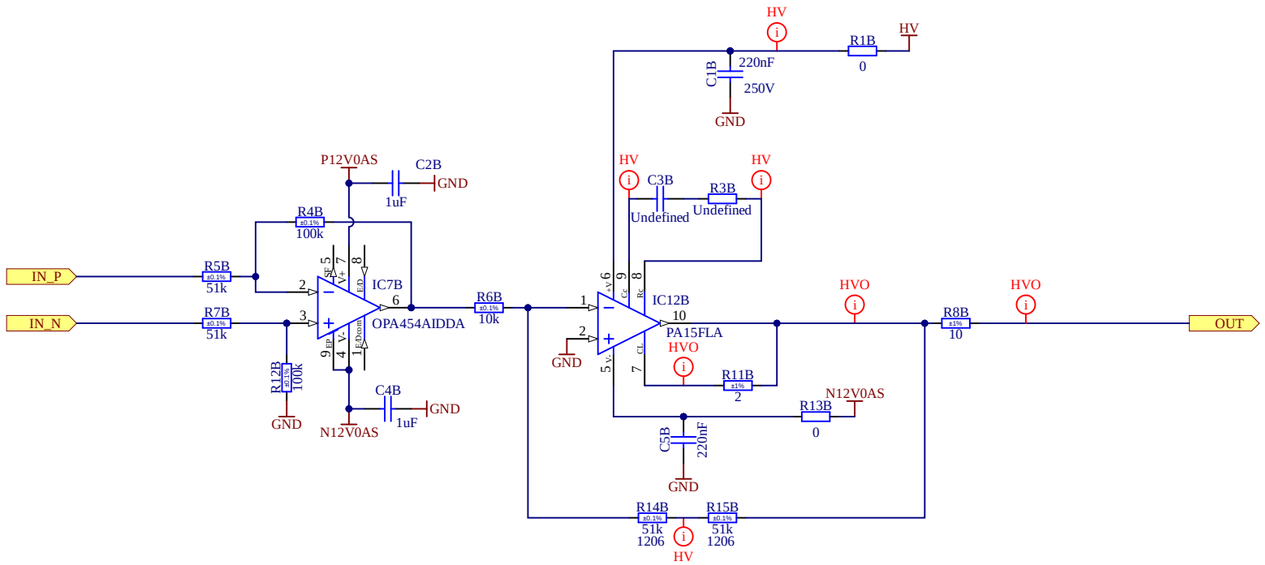
Project/Equipment	Stabilizer_Piezo_Driver.PrjPCB		
Document	**Power Stage**	Designer G.Kasprowicz	
		Drawn by G.Kasprowicz	
		Check.by	-
		Last Mod. -	14.06.2021
		File HV_DRV_Discrete.SchDoc	
		Print Date 16.06.2021 01:29:48	Sheet 2 of 5

PW ISE
Nowowiejska 15/19 00-665 Warsaw
Contact gkasprow@gmail.com

Size A3 | Rev 2



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Project/Equipment: Stabilizer_Piezo_Driver.PrjPCB

Document: **Power Stage**

Designer	G.Kasprowicz
Drawn by	G.Kasprowicz
Check.by	-
Last Mod.	- 14.06.2021
File	HV_DRV_Discrete.SchDoc
Print Date	16.06.2021 01:29:48
Sheet	2 of 5

PW ISE
Nowowiejska 15/19 00-665 Warsaw
Contact gkasprow@gmail.com

Size A3 | Rev 2

HV rail	12V rail	5V rail	3V3 rail	-5V rail	
ADHV4702-1 x2					
Quiescent current*	6mA				6mA
Load max**	19mA				20mA
OPA197 x4					
Quiescent current			4mA		4mA
Load max**			40mA		40mA
AD8397					
Quiescent current			18mA		18mA
LM75A x2					
Supply current				1mA	
Sink current				0.33mA	
Total current	25mA	0mA	62mA	1.33mA	88mA
Power from rail	5.00W	0.00W	0.31W	0.00W	0.44W
Conv. Eff.	82%	100%	60%	28%	60%
Power loses	1.10W	0.00W	0.21W	0.01W	0.29W
Rail power	6.10W	0.00W	0.52W	0.02W	0.73W
Total power loses	1.61W				
Total Power	7.36W	613.63mA@12V			

*Max
**Max constant load

330mA/10W

IC5
NMJ1205SC

IC1
ADP7102ARDZ-5.0-R7

R12-100B: 50..135V
R12-150B: 92...200V

IC2
R12-150B

250V caps 250V caps

IC4
ADR435BRZ

SW1
Decimal

Output voltage selector

This circuit ensures that VREF-VADJ - COM divider is roughly 5k

HV caps DISCHARGE circuit

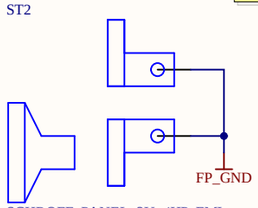
Title	Supplies		
Size: A3	Number: 1	Revision: 1.0	
Date: 16.06.2021	Time: 01:29:48	Sheet 4 of 5	
File: C:\Users\JakubKajzer\Dropbox\Thesis\Project\pcb\power_supplies.SchDoc			

Ion Trapping Group
Department of Physics
University of Oxford
UK

Altium

Populate to connect panel ground to circuit ground if a ground connection is not present elsewhere.

ST2



SCHROFF_PANEL_3U_4HP_EMI
20848-664

When mounting, ensure that AFE and Stabilizer panels are electrically connected (e.g. via connection to chassis)

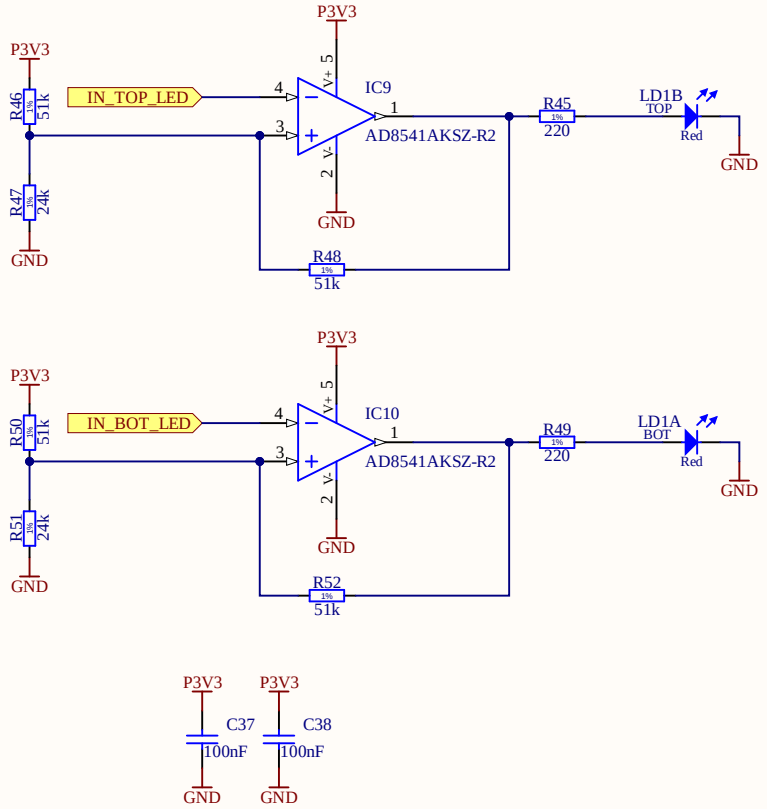
Stackup notes:
Top of Stabilizer to bottom of AFE: 5.08*4-1.6 = 18.72mm
Stabilizer to connector mating plane: 3.48mm
Required AFE board-board connector length: <=15.24mm (0.6in)
Samtec ESW-1xx-23-L-D has a connector length of 13.59mm (0.535in)

Stackup is 4HP=20.32mm
Top of stabilizer to bottom of AFE is 18.72mm
Spacer + washer gives 18.8mm

ST1	W1	SC1	SC5
M3 8mm	washer_M3_6mm_0.8mm	SCREW_M3_CAP_8mm	SCREW_M3_CAP_8mm
R30-1001802			
ST3	W2	SC2	SC6
M3 8mm	washer_M3_6mm_0.8mm	SCREW_M3_CAP_8mm	SCREW_M3_CAP_8mm
R30-1001802			
ST4	W3	SC3	SC7
M3 8mm	washer_M3_6mm_0.8mm	SCREW_M3_CAP_8mm	SCREW_M3_CAP_8mm
R30-1001802			
ST5	W4	SC4	SC8
M3 8mm	washer_M3_6mm_0.8mm	SCREW_M3_CAP_8mm	SCREW_M3_CAP_8mm
R30-1001802			

FTG1 FTG2
FTG3 FTG4
FTG5 FTG6

Title	**Mechanics**		*Ion Trapping Group* *Department of Physics* *University of Oxford* *UK* *
Size: A3	Number: 1	Revision: 1.0	
Date: 16.06.2021	Time: 01:29:49	Sheet 5 of 5	
File: C:\Users\JakubKajzer\Dropbox\Thesis\Project\pcb\mechanics.SchDoc			



Title		
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Date: 6.16.2021		Sheet of
File: C:\Users\..\overtemp_indicator.SchDoc		Drawn By: