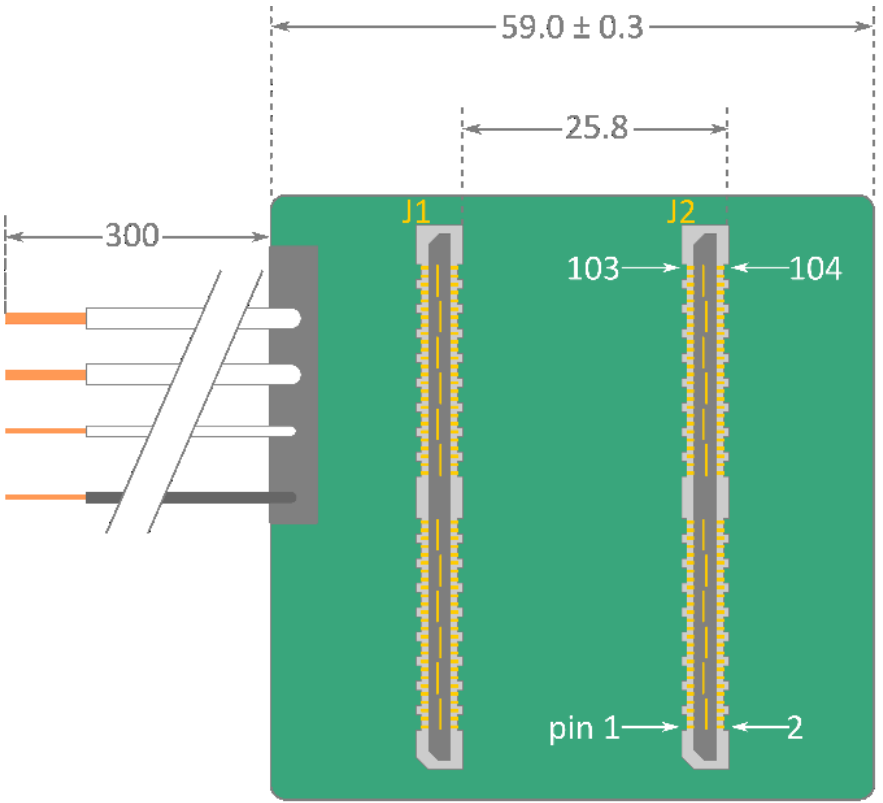
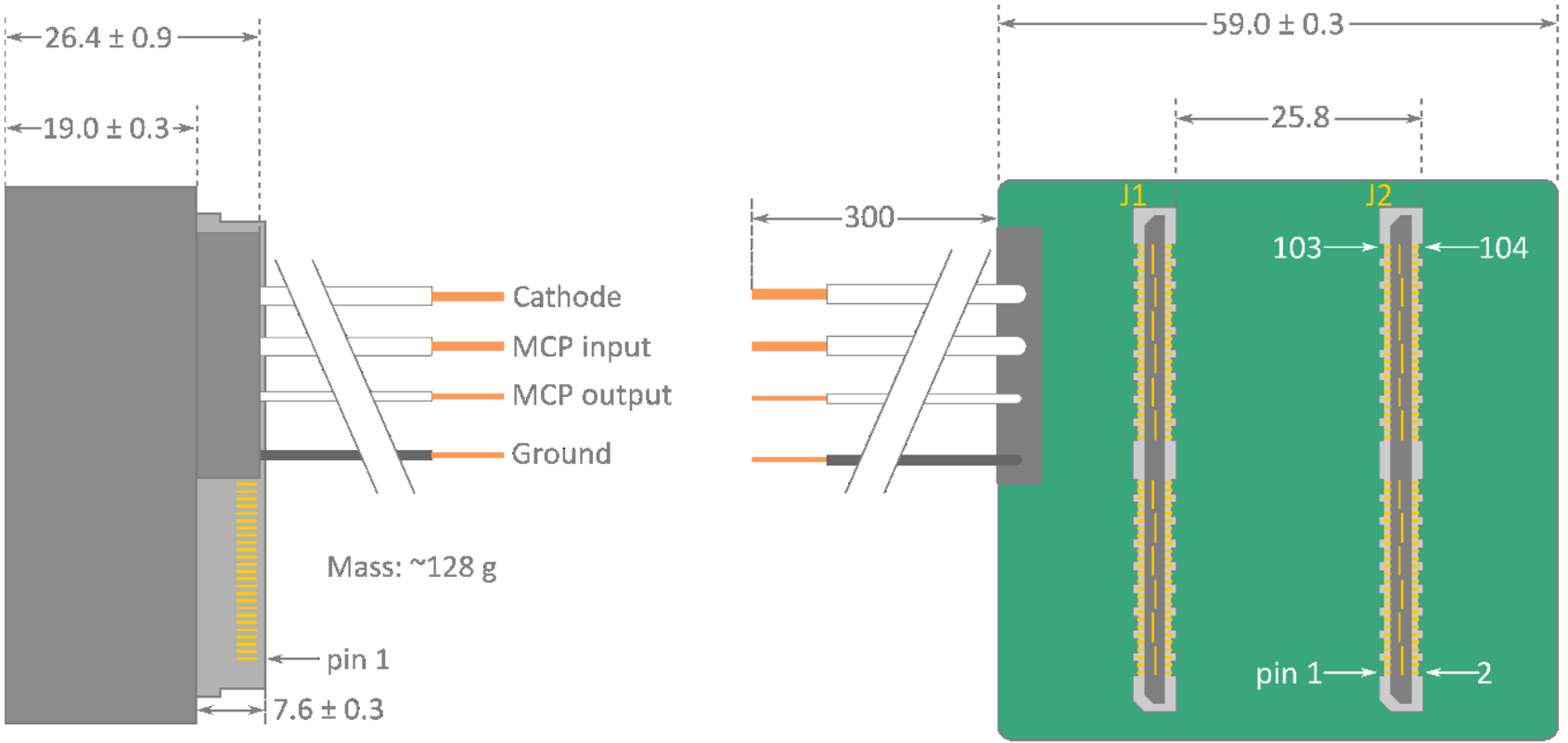
Status of the DiRICH Backplane

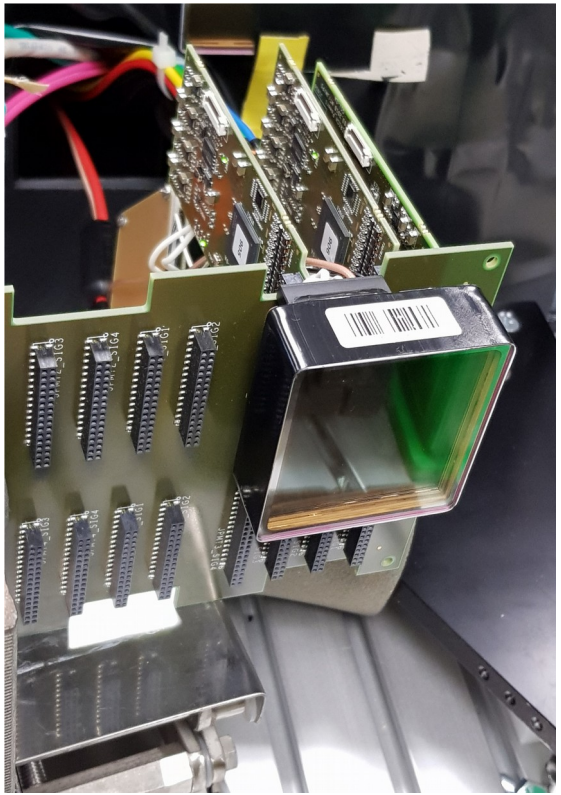


PHOTONIS
XP85112-S-BA

New configuration with SAMTEC plugs nedd a new backplane

https://www.samtec.com/products/qrm8-052-05.0-l-d-a-k-tr





Solution with HV-dividers on detector side
is considered as suboptimal:

Bleeder resistors heat the detectors. (5W/det)

Better solution: HV-cards on electronics side

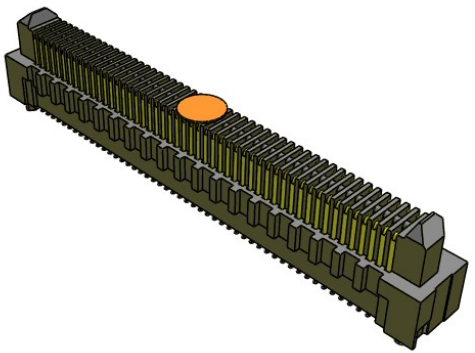
Better for upgrade
Better for cooling

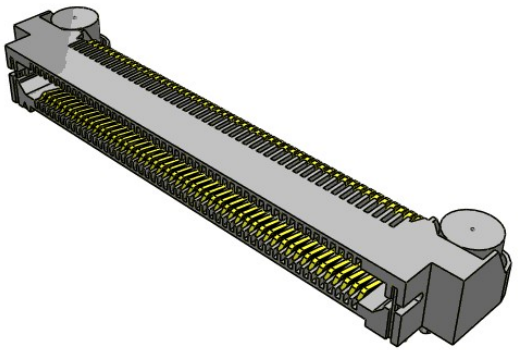
First attempt, not taken:

Plugs on electronics side

2x50 pin Plug Backplane

Socket HV-Board





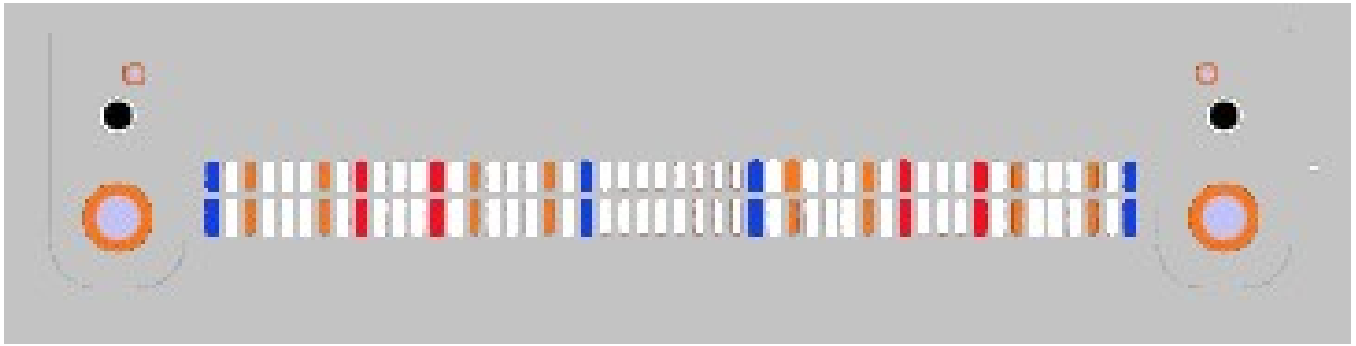
ERM8-050-05_0-S-DV-K-TR

ERF8-050-01-L-DR-RA-TR

Distance between adjacent pins: 0.1mm

First attempt, not taken:

0 HV1 HV2 0 0 HV3 HV4 0



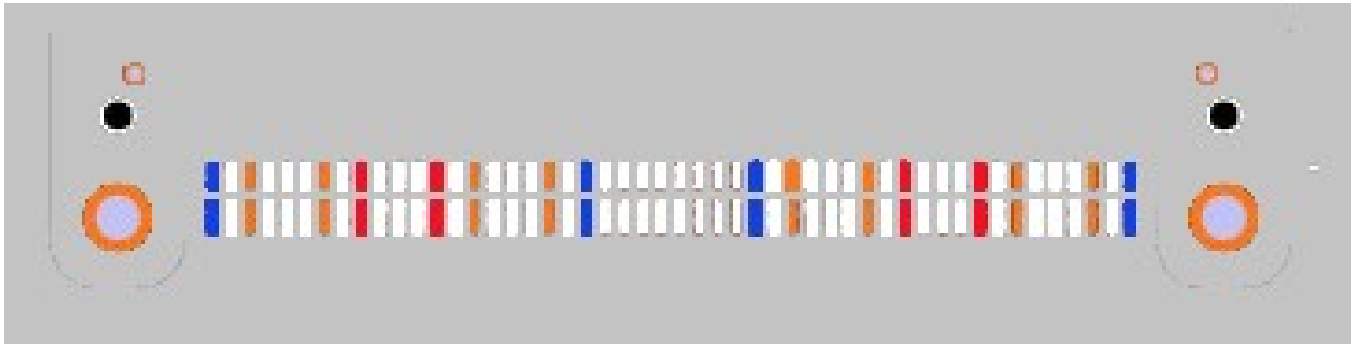
Voltage divider
4:10:1
560 V : 1400 V : 140 V = total 2100 V

protection distance 1kV/mm

ERM8: 12 contacts / cm = 0.8333 cm / contact → 830 V

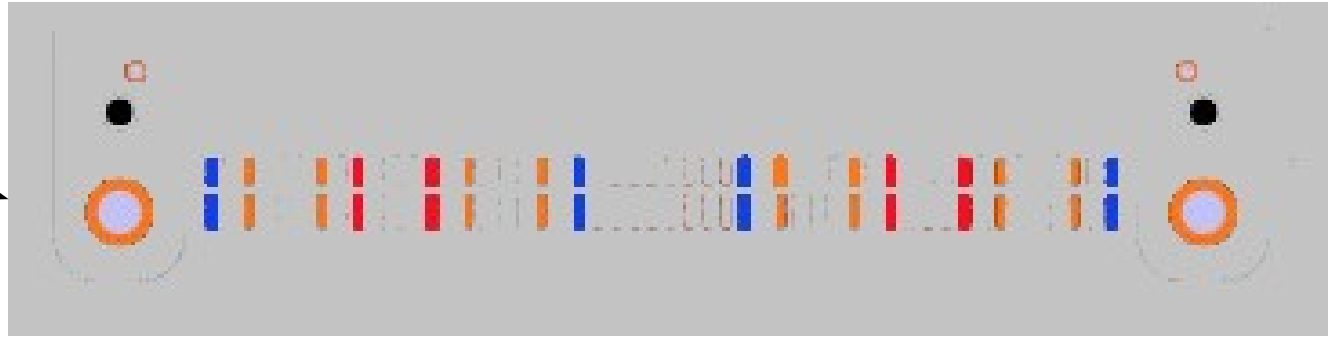
50 pins

Also possible: 60,70,75 pins



White pads will be removed...

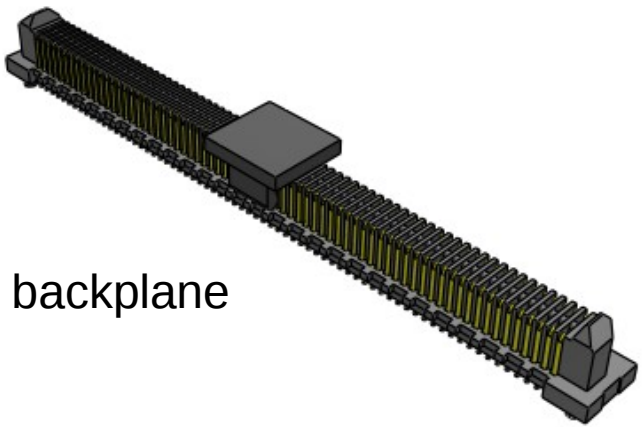
Not a screw hole



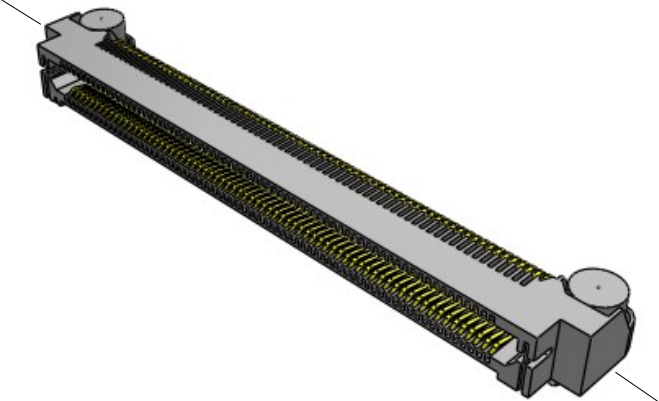
Options 2x 60, 70, 75 pins

Use 2x70 pins...

HV-board



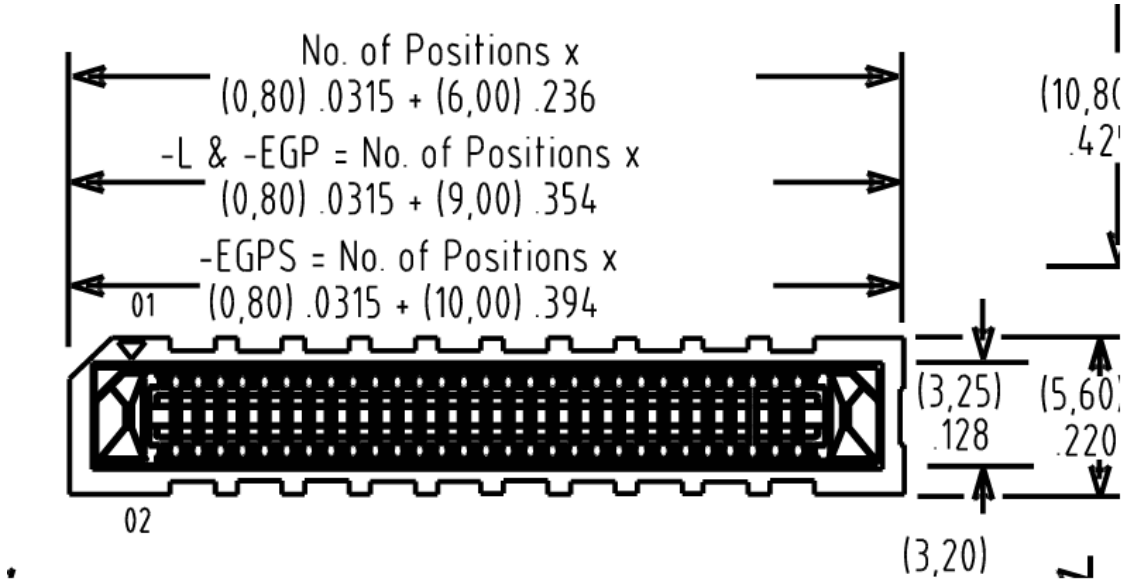
backplane

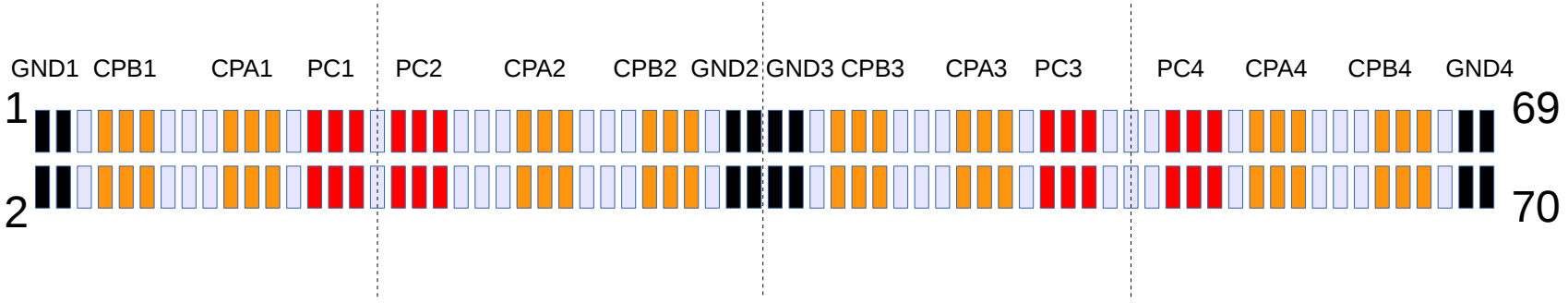


ERM8-70-05.0-S-DV-K-TR

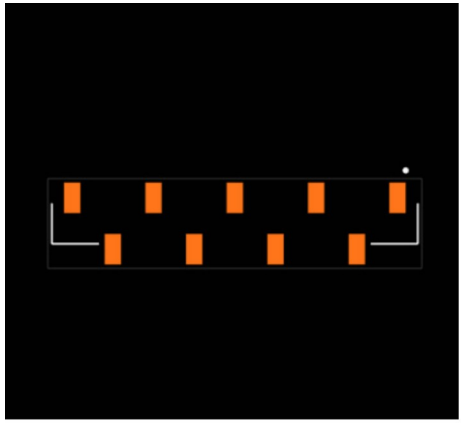
ERF8-70-01-L-D-RA-TR

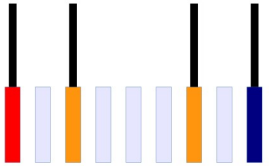
Second attempt,
current solution:



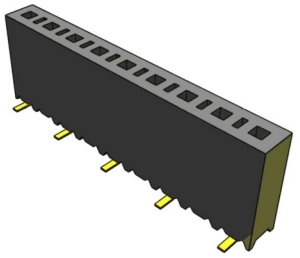


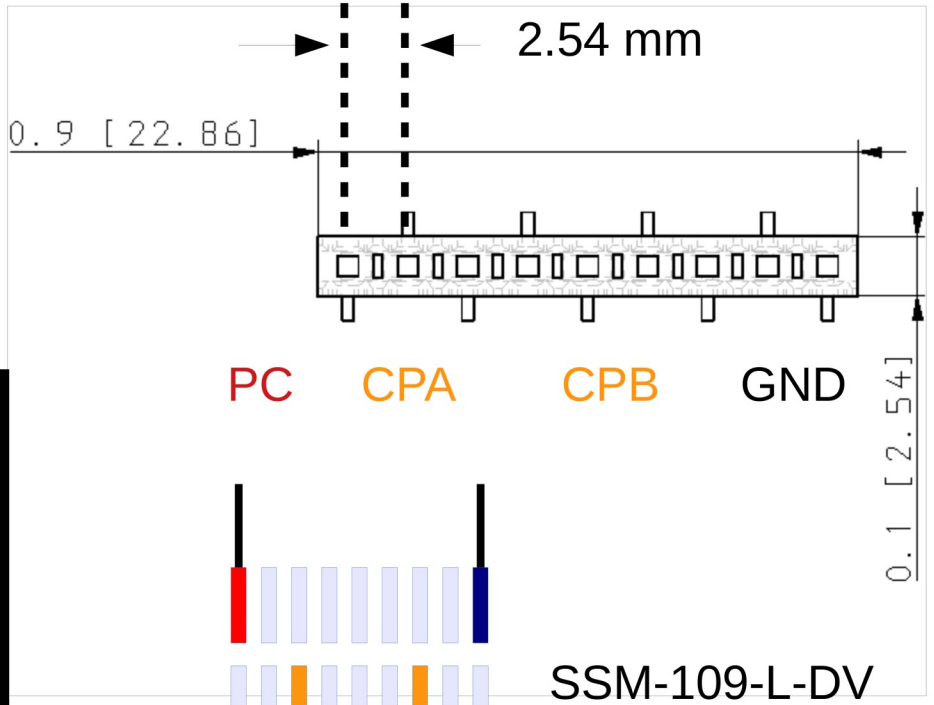
44/70 pins are soldered

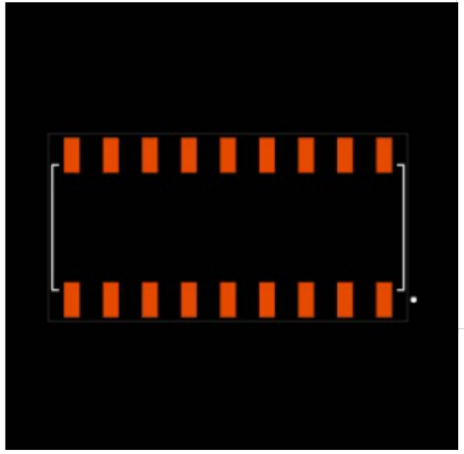




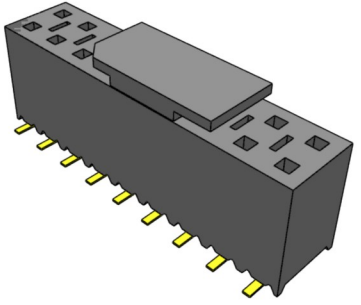
SSM-109-L-SV







SSM-109-L-DV



Summary

Separate HV-card on electronics side

→ better cooling options

→ simpler upgrade

Plugs are chosen

Next: 3d-model, discussion with the board router.