

Akademia Górniczo-Hutnicza im. Stanisława Staszica w Krakowie AGH University of Krakow

Designs of Kapton + feedback from Yan

ECAL working group meeting, 20.11.2024

GitLab: ECALp Mechanics / Mechanical design / 20241112 / 90. ECALp_layer_ 20241112.step.zip

Updated model of ECALp layer:

- Latest T-frame model
- CF-sensor-kapton sandwich from "ECALp-CSIS_sensor assembly" repository
- Updated kapton design

AGH



GitLab: ECALp Mechanics / Readout electronic models

Two kaptons (signal and HV) 3D models, each one in bend and flat version



AG H

GitLab: ECALp Mechanics / ECALp-CSIS_sensor assembly / ECALp-CSIS-FO_HV / ECALp-CSIS-SENSOR ASSEMBLY_FANOUT_MODEL.pdf



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Bend curvature modeled using an uniform kapton material (not fully realistic – no copper) to achieve lowest potential energy with three constrains:

- Bend start point (stiffener above connector)
- Bend end point (see next slide)
- T-frame chamfer edge:





AG H

Bend end point:

- HV: washer edge (btw. HV kapton sinks into the washer ???)
- Signal: t-frame post edge, since the hole in the kapton was specified to be exactly 6mm, so kapton surface have to be parallel to the t-frame around post



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GitLab: ECALp Mechanics / ECALp-CSIS_sensor assembly / ECALp-CSIS-FO_HV / ECALp-CSIS-SENSOR ASSEMBLY_FANOUT_MODEL.pdf



Flatten ("production mode") drawing of the signal kapton

All the upper cutouts (tabs / protrusions) can be adjusted – adjustable dimensions are shown with *italic* font

Fixed dimensions / constrains:

- Overall length (140.6 mm)
- Distance from the center of the holes to the connector horizontal center line (28.4 mm)
- Connectors vertical center lines have to be located as shown (13 mm from sensor center line, 21.4 mm between connector center lines).

Right side is mirror of the left one along the sensor center line! **GitLab:** ECALp Mechanics / ECALp-CSIS_sensor assembly / ECALp-CSIS-FO_HV / ECALp-CSIS-SENSOR ASSEMBLY_FANOUT_MODEL.pdf



Flatten ("production mode") drawing of the HV kapton

The upper cutout (tab / protrusion) can be adjusted – adjustable dimensions are shown with *italic* font

Fixed dimensions / constrains:

- Overall length (140.55 mm) It is not a bug that it is shorter than signal one – it is due to the shorter loop length
- Distance from the center of the holes to the connector horizontal center line (28.35 mm) also smaller than signal one!
- Connector vertical center lines aligned with sensor center line