

Punch through protection of heavily irradiated ATLAS07 mini-sensors.

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Protection of AC coupling capacitors from beam splashes has been studied on the heavy irradiated HPK ATLAS07 mini-sensors with special structures, BZ4A,B,C and D, for p-stop ion concentrations 2×10^{12} , 4×10^{12} and 1×10^{13} ion/cm². Punch through voltage is rapidly increasing with neutron fluence from 4×10^{14} neq/cm² to 2×10^{15} neq/cm² for all tested ion concentrations and for 1×10^{13} ion/cm² it is significantly higher than 50V. Measurement prefers PT structure BZ4A and ion concentration $\sim 4 \times 10^{12}$ ion/cm².

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