

A Silicon Controlled Rectifier-Based ESD Protection Circuit with High Holding Voltage and High Robustness Characteristics

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Abstract : In this paper, a Silicon Controlled Rectifier (SCR)-based Electrostatic Discharge (ESD) protection circuit with high holding voltage and high robustness characteristics is proposed. Unlike conventional SCR, the proposed circuit has low trigger voltage and high holding voltage and provides effective ESD protection with latch-up immunity. In addition, the TCAD simulation results show that the proposed circuit has better electrical characteristics than the conventional SCR. A stack technology was used for voltage-specific applications. Consequentially, the proposed circuit has a trigger voltage of 17.60 V and a holding voltage of 3.64 V.

Keywords : ESD, SCR, latch-up, power clamp, holding voltage

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