

技术及应用

### 变温辐照加速评估方法在不同工艺的NPN双极晶体管上的应用

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收稿日期 修回日期 网络版发布日期:

**摘要** 对6种不同工艺的NPN双极晶体管进行了高、低剂量率及变温辐照的<sup>60</sup>Co γ辐照实验。结果显示, 6种工艺的NPN双极晶体管均有显著的低剂量率辐照损伤增强效应。而变温辐照损伤不仅明显高于室温高剂量率的辐照损伤, 且能很好地模拟并保守地评估不同工艺的NPN双极晶体管低剂量率的辐照损伤。对实验现象的机理进行了分析。

**关键词** [NPN双极晶体管](#) [<sup>60</sup>Co γ辐照](#) [低剂量率辐照损伤增强](#) [变温辐照](#) [加速评估方法](#)

分类号

### Application of Accelerated Simulation Method on NPN Bipolar Transistors of Different Technology

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**Abstract** With different radiation methods, ionizing radiation response of NPN bipolar transistors of six different processes was investigated. The results show that the enhanced low dose rate sensitivity obviously exists in NPN bipolar transistors of the six kinds of processes. According to the experiment, the damage of decreasing temperature in step during irradiation is obviously greater than the result of irradiated at high dose rate. This irradiation method can perfectly simulate and conservatively evaluate low dose rate damage, which is of great significance to radiation effects research of bipolar devices. Finally, the mechanisms of the experimental phenomena were analyzed.

**Key words** [NPN bipolar transistor](#) [<sup>60</sup>Co γ irradiation](#) [enhanced low dose rate sensitivity](#) [alter temperature irradiation](#) [accelerated evaluation method](#)

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