原子能科学技术 2009 43 (9): 855-859 ISSN: 1000-6931 CN: 11-2044/TL

技术及应用

反熔丝型现场可编程门阵列单粒子锁定实验研究

田〓恺 1 ，曹〓洲 1 ，薛玉雄 1 ，杨世宇 1 ，周新发 2 ，刘〓群 2 ，彭〓飞 2
（1. 兰州物理研究所，真空低温技术与物理国家级重点实验室，甘肃 兰州〓730000
[JZ]2. 北京控制工程研究所，北京〓100190）

收稿日期 修回日期 网络版发布日期:

摘要 利用单粒子效应脉冲激光和锎源模拟试验系统，对反熔丝型A42MX36现场可编程门阵列进行了单粒子锁定敏感性评估试验。脉冲激光试验确定了单粒子锁定脉冲激光阈值能量及其等效重离子LET、锁定电流等敏感参数；锎源模拟试验确定了单粒子锁定截面。对试验中出现的由单粒子绝缘击穿和单粒子伪锁定引起的电流跃变现象进行了讨论和分析。

关键词 A42MX36现场可编程门阵列；电流跃变；单粒子绝缘击穿；单粒子伪锁定
分类号

Experimental Study on Single Event Latchup of Anti fuse Field Programmable Gate Array

TIAN Kai 1 , CAO Zhou 1 , XUE Yu xiong 1 , YANG Shi yu 1 , ZHOU Xin fa 2 , LIU Qun 2 , PENG Fei 2
(1.Lanzhou Institute of Physics, National Laboratory of Vacuum & Cryogenics Technology and Physics, Lanzhou 730000, China; 2.Beijing Institute of Control Engineering, Beijing 100190, China)

Abstract Single event latchup sensitivity evaluation tests of anti fuse A42MX36 field programmable gate array were performed using pulsed laser and 252 Cf source single event effect simulation system. The sensitivity parameters such as pulsed laser threshold energy as well as its equivalent heavy ion LET and latchup current of device were determined in pulsed laser test. The latchup cross section was obtained in 252 Cf source test. The current jump phenomena induced by single event dielectric rupture (SEDR) and pseudo single event latchup (pSEL) in test was also discussed and analyzed.

Key words A42MX36 field programmable gate array current jump single event dielectric rupture pseudo single event latchup
DOI

通讯作者

扩展功能
本文信息
Supporting info
[PDF全文](1017KB)
[HTML全文](0KB)
参考文献
服务与反馈
把本文推荐给朋友
文章反馈
浏览反馈信息
相关信息
本刊中 包含“A42MX36现场可编程门阵列；电流跃变；单粒子绝缘击穿；单粒子伪锁定”的 相关文章
本文作者相关文章
· 田恺
· 曹洲
· 薛玉雄
· 杨世宇
· 周新发
· 刘群
· 彭飞