

Fig. 1. (a) Device Structure in Silvaco TCAD of β -Ga₂O₃ Schottky diode, (b) forward bias current-voltage characteristics (c) electric field profile at V=1500V before radiation

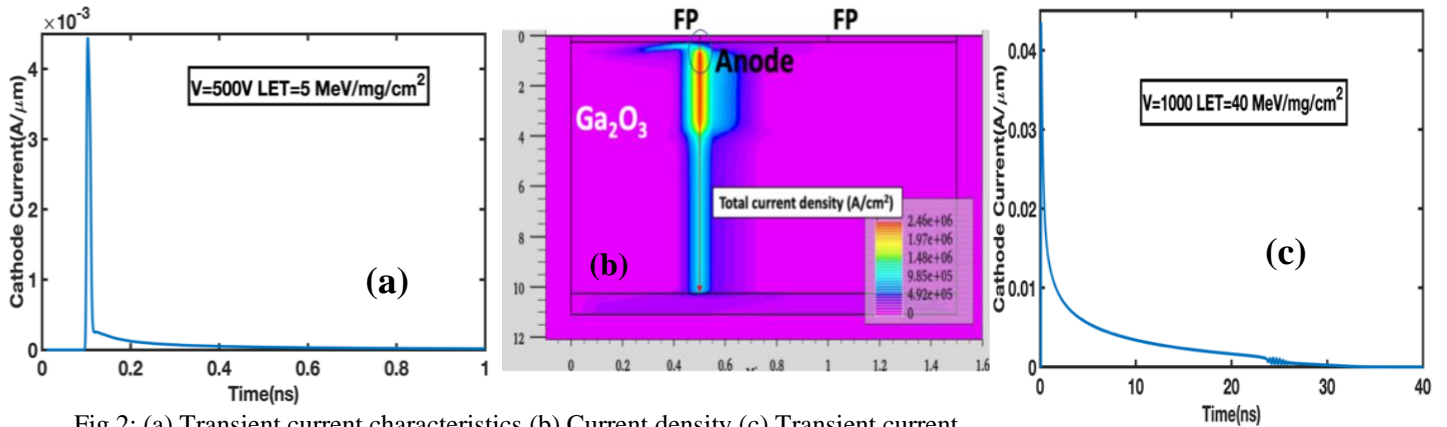


Fig 2: (a) Transient current characteristics (b) Current density (c) Transient current characteristics under different radiation conditions. **For higher voltages and LET the current takes a longer time to recover to the initial state.**

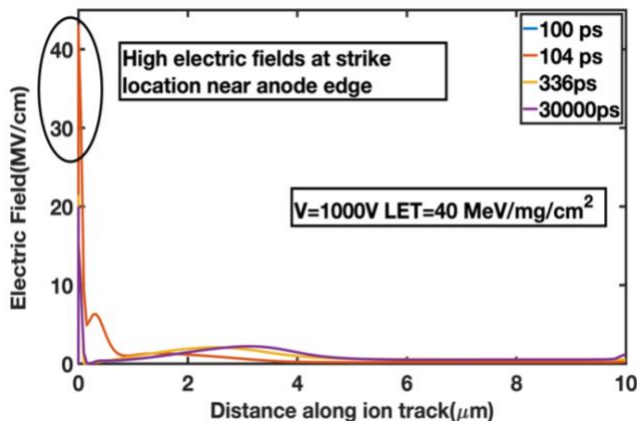


Fig. 3: Electric field profile for different time instants for V=1000V LET=40 MeV/mg/cm². The instantaneous electric field exceeds the critical electrical field of Ga₂O₃.

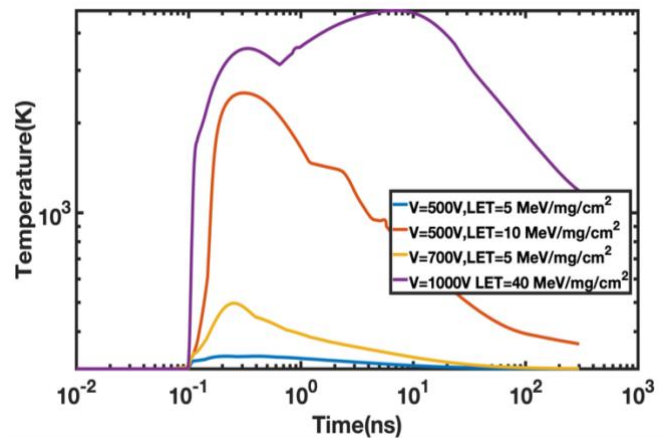


Fig 4: Variation of global device temperature with time for various radiation conditions

Radiation Condition	Energy dissipated in Ga ₂ O ₃ Schottky diode	Energy dissipated in SiC Schottky diode
V=700V LET=5 MeV/mg/cm ²	0.03 nJ	-
V=500V LET=10 MeV/mg/cm ²	0.349 nJ	2nJ
V=1000V LET=40 MeV/mg/cm ²	2.29 nJ	-

Table: Comparison of energy dissipation