

### **Abstract**

The  $\text{Ge}_2\text{Sb}_2\text{Te}_5$  (GST) thin film is well known to play a critical role in PRAM (Phase Change Random Access Memory). Through device simulation, we found that high-resistive GST is indispensable to minimize the writing current of PRAM. For the first time, we tried to increase the GST resistivity by doping nitrogen. Doping nitrogen to GST successfully reduces writing current. Also, the cell endurance has been enhanced with grain growth suppression effect of dopant nitrogen.