

## **LEAKAGE CURRENT BEHAVIOR OF Al/Ba<sub>0.5</sub>Sr<sub>0.5</sub>TiO<sub>3</sub>/Pt THIN FILM CAPACITOR**

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### **ABSTRACT**

Ba<sub>0.5</sub>Sr<sub>0.5</sub>TiO<sub>3</sub> ferroelectric ceramic thin film is prepared via sol-gel technique and fabricated as Al/BST/Pt capacitor. The leakage current mechanism has been studied under positive bias using semiconductor parameter analyzer. The results show that the leakage current is Ohmic conduction at low applied electric field, space charge limited conduction at higher applied field, and it is Schottky emission for all applied electric field regions. The leakage current density increases from  $3.63 \times 10^{-8}$  to  $7.66 \times 10^{-8}$  A/cm as the electric field increases from  $2.39 \times 10^4$  V/cm up to  $3.91 \times 10^4$  V/cm, these values quite low compared to the values reported in the literature for the same value of applied field. Furthermore, the breakdown strength of BST thin film has been discussed; the results show that it has high breakdown strength.

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