

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059314 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Lead-Free Cs₃Bi₂I₉-Based Resistive Switching Memory Device Fabricated Using a Sequential Spin-Coating Method

(51) International classification :H10N0070000000, H10N0070200000, B82Y0010000000, H10B0063000000, H01L0029660000 (86) International Application No :NA Filing Date :NA (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA		(71)Name of Applicant : 1)National Institute of Technology Durgapur Address of Applicant :M G Avenue, Durgapur, West Bengal, 713209 Durgapur ----- Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Subhasish Chanda Address of Applicant :National Institute of Technology Durgapur, M G Avenue, A-Zone, Durgapur, West Bengal, PIN- 713209, India Durgapur ----- 2)Iman Biswas Address of Applicant :National Institute of Technology Durgapur, M G Avenue, A-Zone, Durgapur, West Bengal, PIN- 713209, India Durgapur ----- 3)Rabindra Nath Barman Address of Applicant :National Institute of Technology Durgapur, M G Avenue, A-Zone, Durgapur, West Bengal, PIN- 713209, India Durgapur ----- 4)Aniruddha Mondal Address of Applicant :National Institute of Technology Durgapur, M G Avenue, A-Zone, Durgapur, West Bengal, PIN- 713209, India Durgapur -----
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(57) Abstract :

A Lead-Free Cs₃Bi₂I₉-Based Resistive Switching Memory Device Fabricated Using a Sequential Spin-Coating Method The present invention (200) is a lead-free resistive switching memory device utilizing Cs₃Bi₂I₉ (107), an inorganic halide perovskite, fabricated via a cost-effective sequential spin-coating technique. The present deposition method employs two distinct precursor solutions to precisely control iodine vacancy distribution, leading to ultra-low operating voltage at 0.28V and enhanced device stability. The fabricated device exhibits bipolar resistive switching behaviour, reliably transitioning between high-resistance and low-resistance states, making it ideal for non-volatile memory applications. It demonstrates excellent endurance, retaining 36.35% of its original memory after 100 cycles, ensuring reliable performance for long-term data storage. Figure 1 and Figure 2

No. of Pages : 20 No. of Claims : 7