

DIODE AND MEMORY DEVICE HAVING A DIODE**ABSTRACT**

5 A diode and a memory device having a diode are provided. The diode includes a semiconductor layer and phase change material layer. The semiconductor layer and the phase change material layer have different energy bandgaps and different carrier concentrations such that an isotype heterojunction is formed at a boundary interface between the semiconductor layer and the phase change material layer.

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Figure 1