

P-N Junction Type 박막열전소자제작 및 특성

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Design of P-N Junction Type Thin-Film Thermoelectric Device and their Device Characteristics

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Abstract : Micro thermoelectric generator has been attractive for the alternative power source to operate the wireless sensor node. In this paper, we designed the column-type micro thermoelectric device and their device characteristics were measured. n-type Bi₂Te₃ and p-type BiSbTe₃ thermoelectric thin films were grown on (001) GaAs substrates by metal organic chemical vapour deposition (MOCVD) and they were patterned. The height of thermoelectric film were controlled by the deposition time, temperature and MO-x gas pressure. Seebeck coefficient was measured at room temperature and hole concentration and electrical resistivity of thermoelectric film were also characterized.

Key Words : Thermoelectric, thin film, MOCVD, BiTe