Heeger Materials Inc.

Bi2Te3-Based Thermoelectric Ingot

Specification of Bi_2Te_3-Based Thermoelectric Ingot (TIG-BiTe-P/N-2) for Making Power Generation Modules

Description

The TIG-BiTe-P/N-2 thermoelectric ingot is grown with the alloy of Bi, Sb, Te, Se, special doping and our unique crystallizing processes. The Bi_2Te_3-based thermoelectric ingot is grown specially and optimized for making the thermoelectric modules that used for converting heat source ranging from 100℃(373K) to 350℃(623K) into electricity. Generally, the average figure of merit ZT of our p-type and n-type ingots over the temperature range 300K to 600K is larger than 0.7. The module made with such ingots can achieve 5% efficiency with 250℃ Delta T. Meanwhile, our ingot is featured with good mechanical strength and highly stable property, providing the key stone for producing the high performance and reliable power generation modules.

Features

- Silver-white Color
- p-Type and n-type ingot ZT≥0.7@300K~600K

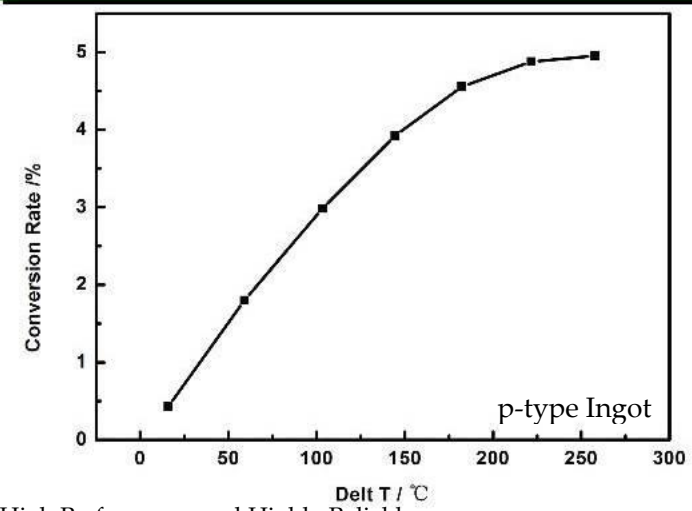
Application

- High performance and reliable power generation modules
- Below is the conversion efficiency of Power
- Generation Module made from the Ingots

Peformance Specification Sheet

Performance Specification	p-Type	n-Type	Note
Type Number	TIG-BiTe-P-2	TIG-BiTe-N-2	
Diameter (mm)	31±2	31±2	
Length (mm)	250±30	250±30	
Density (gcm^{-3})	6.8	7.8	
Electrical Conductivity $\sigma(10^2 \Omega^{-1} m^{-1})$	2000~2600	2000~2600	300K
Seebeck Coefficient $\alpha(\mu VK^{-1})$	≥140	≥140	300K
Thermal Conductivity $\kappa(Wm^{-1}K^{-1})$	2.0~2.5	2.0~2.5	300K
Power Factor $P(WmK^{-2})$	≥0.005	≥0.005	300K
ZT value	≥0.7	≥0.7	300K

(in millimeters)



High Performance and Highly Reliable Ingot for Power Generation Modules

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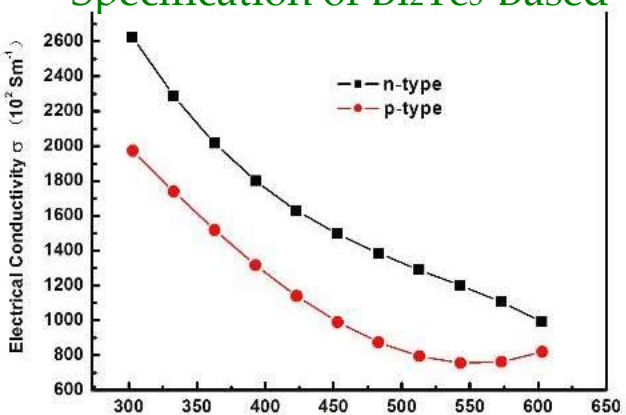
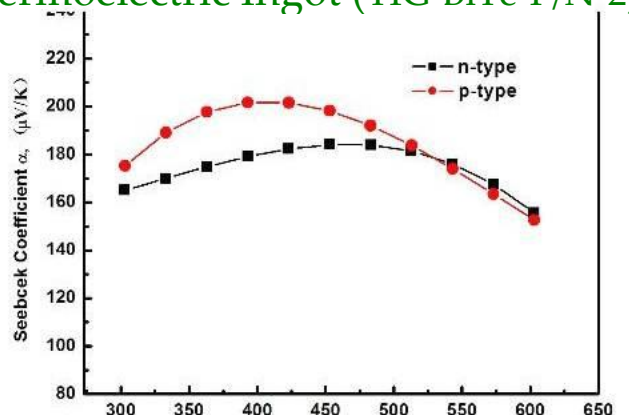
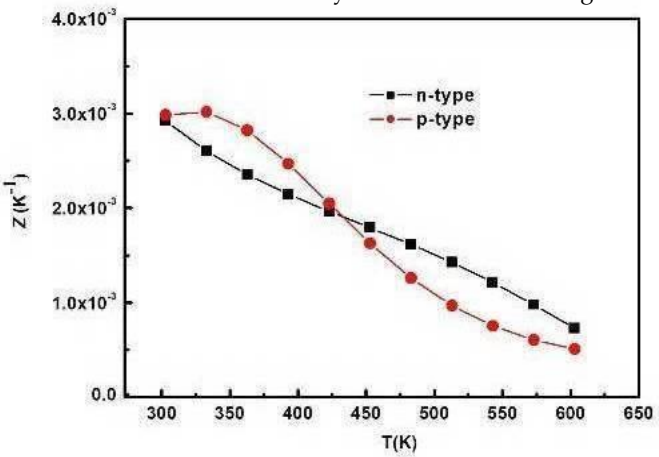
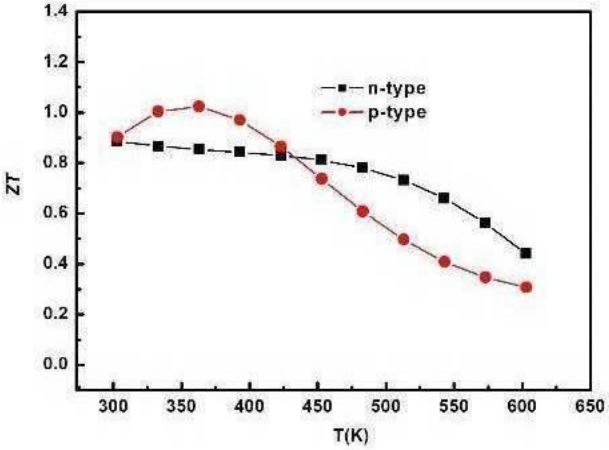




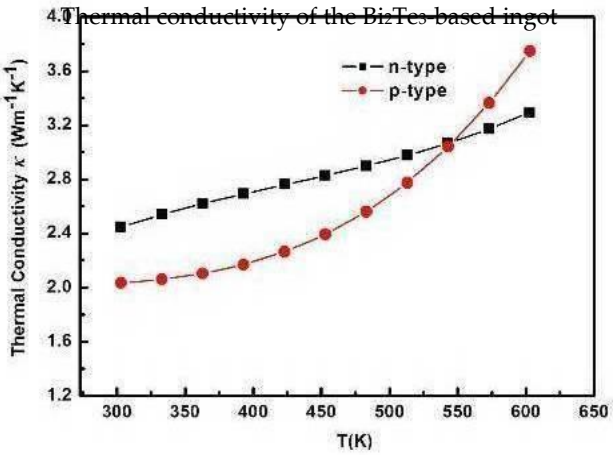
Electrical conductivity of the Bi_2Te_3-based ingot



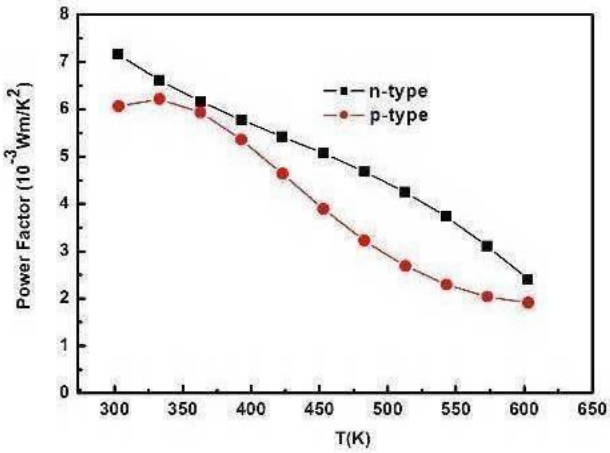
Seeback coefficients of the Bi_2Te_3-based ingot



Thermal conductivity of the Bi_2Te_3-based ingot



Power factors of the Bi_2Te_3-based ingot



Z values of the Bi_2Te_3-based ingot

ZT values of the Bi_2Te_3-based ingot

Operation Cautions

- Caution on handling
- Storage in dry environment