

Specification of Bi₂Te₃-Based Thermoelectric Ingot (TIG-BiTe-P/N-3)

Description

The TIG-BiTe-P/N-3 thermoelectric ingot is grown by Thermonamic with the alloy of Bi, Sb, Te, Se, special doping and our unique crystallizing processes. It is grown up specially for optimizing its good performance in low temperature range and used in producing high performance thermoelectric modules for cooling and heating applications. Generally, the figure of merit ZT of our p-type and n-type ingots is larger than 1.1 at 300 K, and the good feature attracts many high-end customers. Meanwhile, our ingot is featured with good mechanical strength and highly stable property, providing the key stone for producing the high performance and reliable Peltier cooling modules.

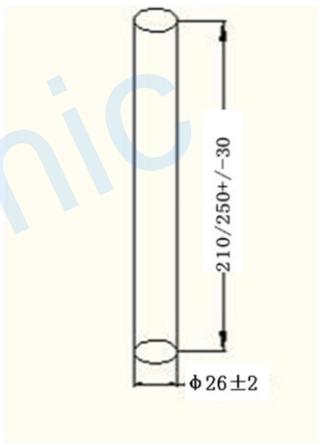
Features and Application

- Silver-white Color
- p-Type and n-type ingot $ZT \geq 1.1$ @ 300K
- High performance and reliable Peltier cooling modules

Performance Specification Sheet

| Performance Specification | p-Type | n-Type | Note |
|--|--------------|--------------|-------|
| Type Number | TIG-BiTe-P-3 | TIG-BiTe-N-3 | |
| Diameter (mm) | 26 ± 2 | 26 ± 2 | |
| Length (mm) | 250 ± 30 | 210 ± 30 | |
| Density (g cm ⁻³) | 6.75 | 7.83 | |
| Electrical Conductivity ($\sigma / 10^2 \text{ S m}^{-1}$) | 850 ~ 1250 | 850 ~ 1250 | 300 K |
| Seebeck Coefficient ($\alpha / \mu\text{V K}^{-1}$) | 200 ~ 230 | 200 ~ 230 | 300 K |
| Thermal Conductivity ($\kappa / \text{W m}^{-1} \text{ K}^{-1}$) | 1.2 ~ 1.6 | 1.2 ~ 1.6 | 300 K |
| Power Factor ($P / \text{W m K}^{-2}$) | ≥ 0.005 | ≥ 0.005 | 300 K |
| ZT value | ≥ 1.1 | ≥ 1.1 | 300 K |

Geometric Characteristics (in millimeters)

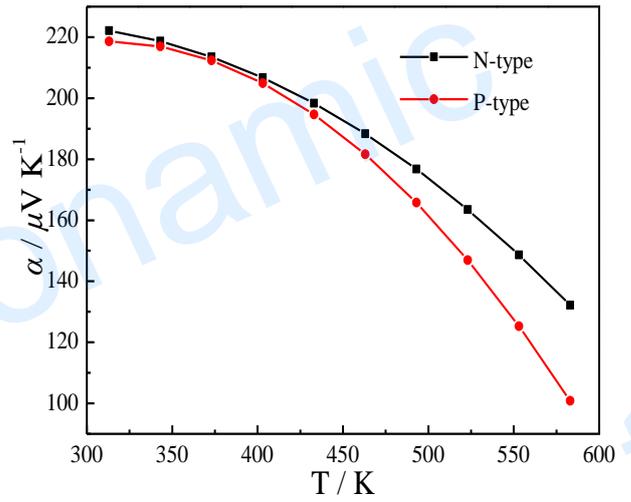
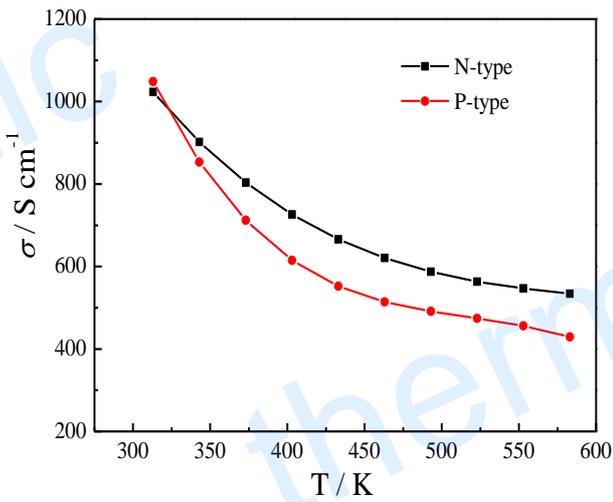


p-type Ingot



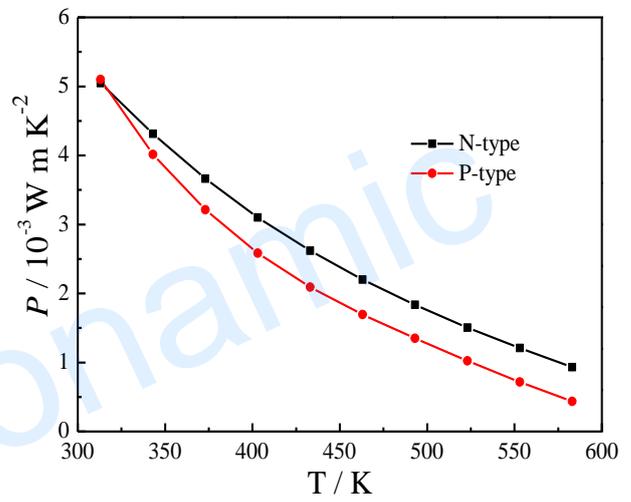
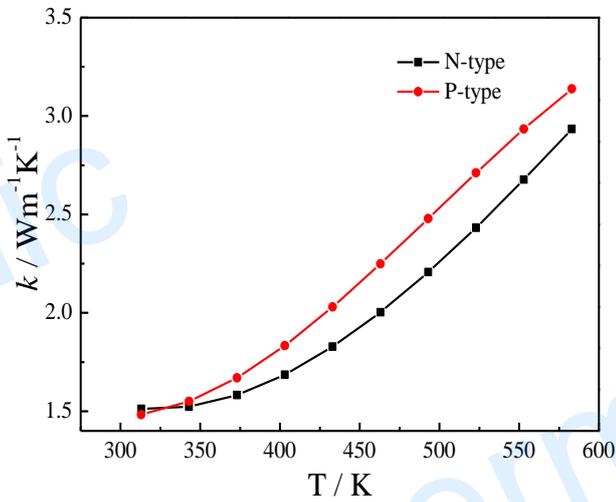
n-type Ingot

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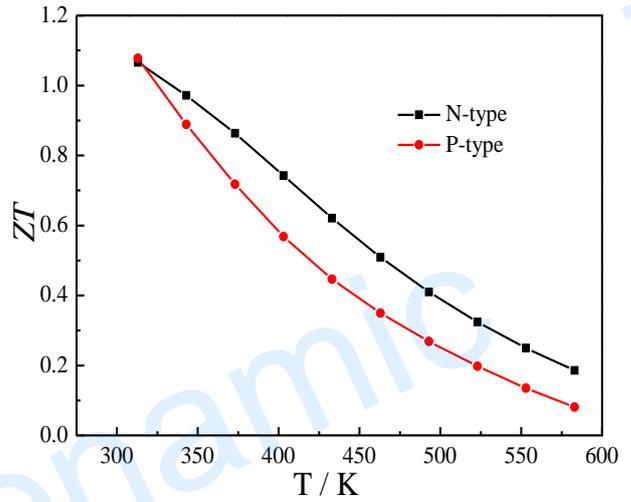
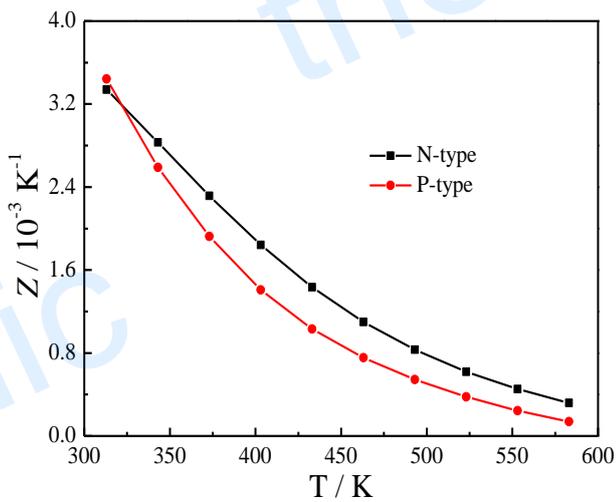
Electrical conductivity of the Bi₂Te₃-based ingot

Seebeck coefficients of the Bi₂Te₃-based ingot



Thermal conductivity of the Bi₂Te₃-based ingot

Power factors of the Bi₂Te₃-based ingot



Z values of the Bi₂Te₃-based ingot

ZT values of the Bi₂Te₃-based ingot

Operation Cautions

- Caution on handling
- Storage in dry environment