

フレキシブルな熱電発電モジュール

Flexible thermoelectric module

高い設置自由度と高い熱起電力で、IoTセンサーの電池交換作業低減に貢献！

With high installation flexibility and high thermoelectromotive force, contributes to reducing battery replacement work for IoT sensors!

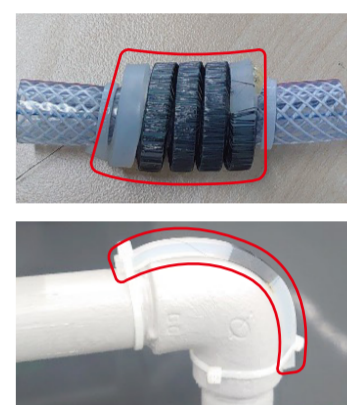
特徴 | Characteristics

- **TPR製カーボンナノチューブ(CNT)は半導体特性**
TPR carbon nanotubes (CNTs) have semiconductor properties.
- **熱電素子がCNTヤーンなど、フレキシブル素材を用いることにより複雑な熱源形状に対し、多様な設置が可能**
By using flexible materials such as CNT yarn for thermoelectric elements, a variety of installations are possible for complex heat source shapes.
- **高密度なセル配置により、1.5V、3Vへ対応可能**
High-density cell arrangement allows support for 1.5V and 3V

● 熱電発電モジュール
Thermoelectric module



● 設置例
Example



技術紹介 | Technology introduction

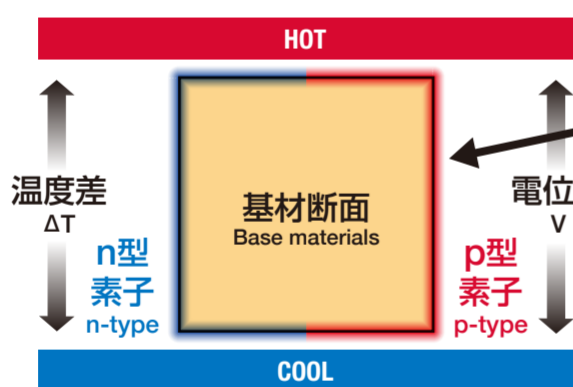
● 発電原理

Power generation principle

各素子の両端に温度差がある

→ 起電力(熱起電力)が発生

Electromotive force is generated when there is a temperature difference between both ends of each element



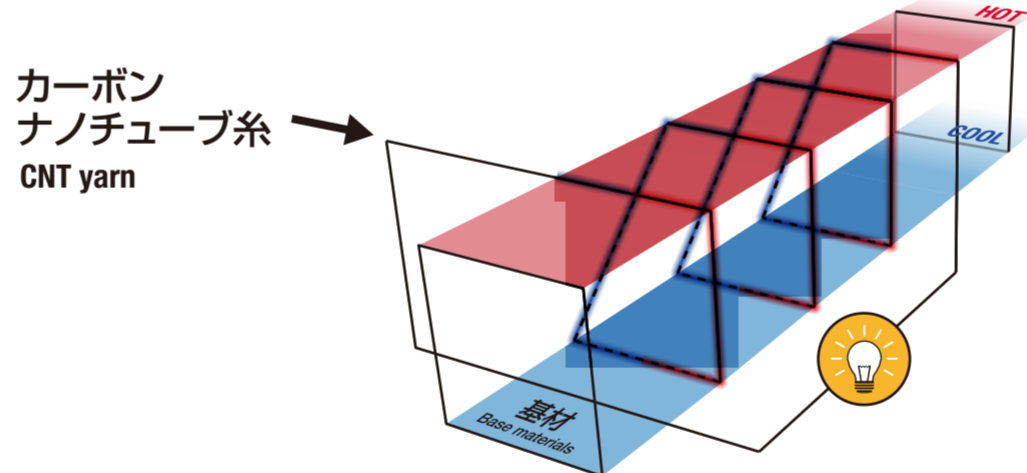
● モジュール構造

Modular structure

温度差発電素子を基材に巻き付ける

→ 上下の温度差で発電

Generates electricity from temperature difference between top and bottom around the base



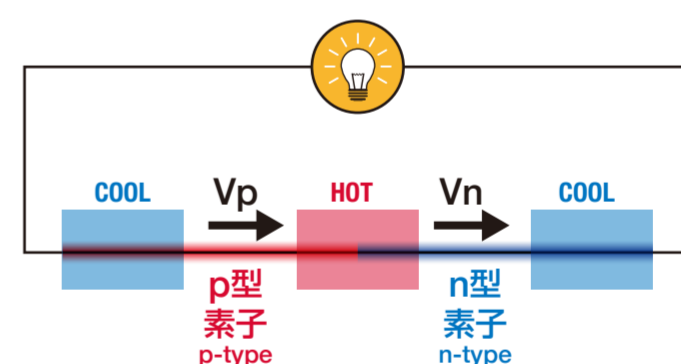
● モジュールの回路イメージ

Electric circuits

巻き数を増やすことで直列数が増える

→ 熱起電力が向上

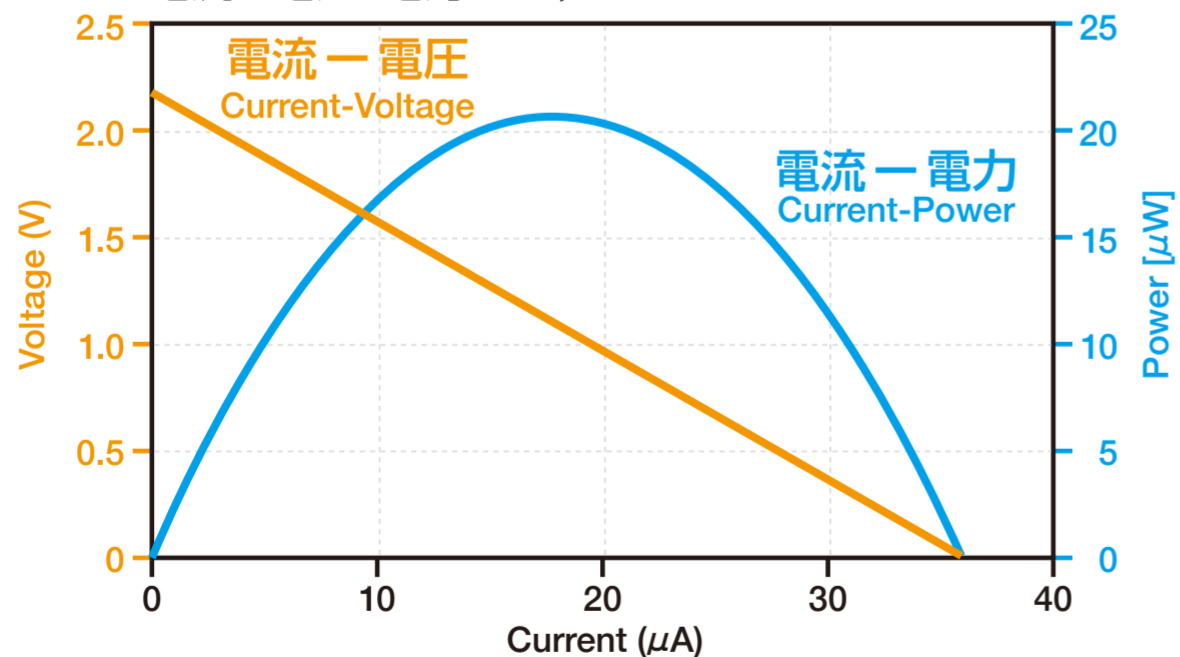
By increasing the number of turns, the number of series increases and the electromotive force is improved



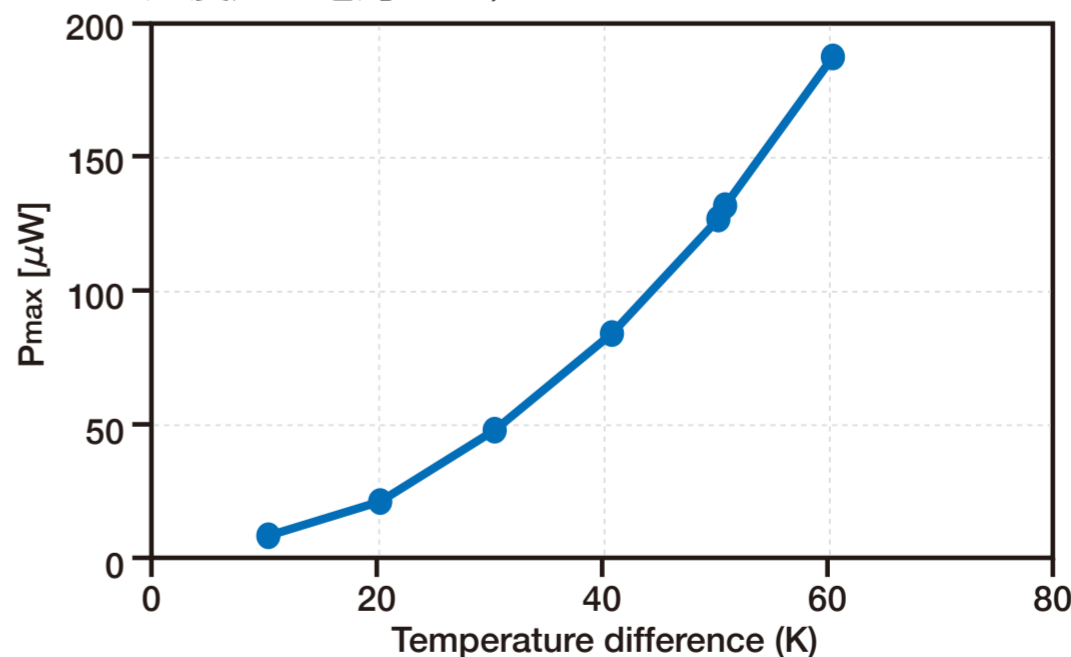
● 1モジュールの性能

Power generation performance

電流と電圧・電力 (@1,000巻き、Δ20℃) I-V, I-P (1,000 rolls, Δ20K)

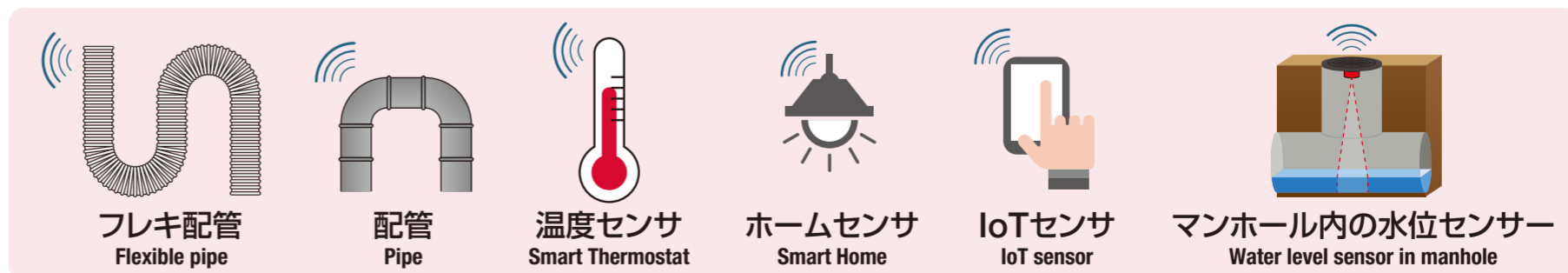


温度差と電力 (@1,000巻き) ΔT-Pmax (1,000 rolls)



用途例 | Applications

- 電池交換や配線が困難な場所でのセンサ用電源
Power supply for IoT sensors in locations where battery replacement or wiring is difficult



お問い合わせ
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