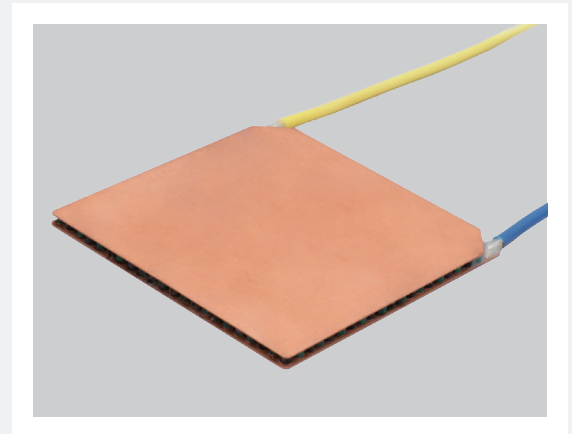


Peltier Module

Rapid cooling and heating system developed based on Kyocera's proprietary advanced ceramic technology; applications range widely, from improving the usage lifetime and safety of HEV batteries to use in seat temperature control systems.

01 Features

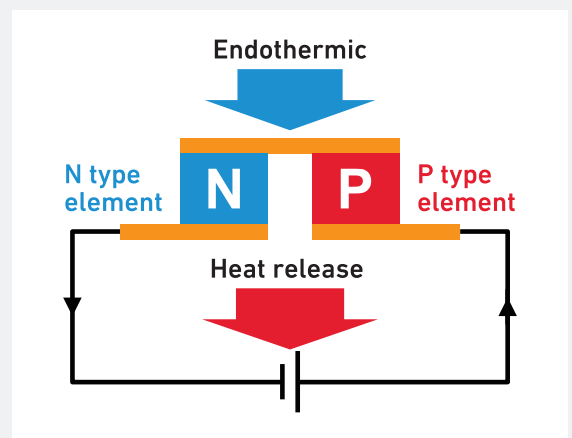
- Rapid cooling and heating
 - $-10^{\circ}\text{C} \leftrightarrow 120^{\circ}\text{C}$ (max.)
- High equilibrium heat characteristics
 - Within $\pm 0.1^{\circ}\text{C}$
- High reliability by original element design
 - Over 2x usage lifetime compared to conventional products (in-vehicle cycle)



Peltier Module

02 Mechanism

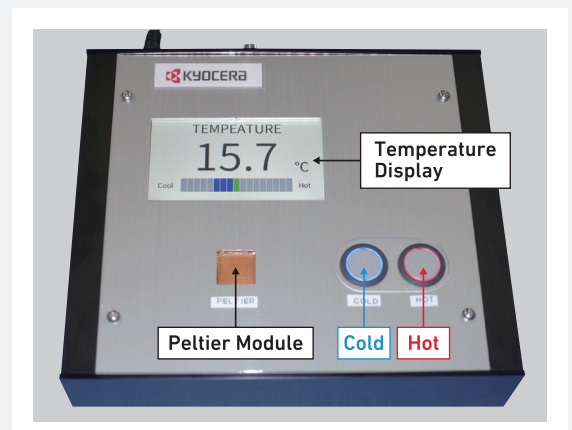
- Temp. difference caused by Peltier effect; heat transport from N-type and P-type thermoelectric semiconductor element junction
- Temp. controlled by current direction using thermoelectric semiconductors
- Modularization increases heat absorption; adjustable through the junction logarithm



Peltier Mechanism

03 Applications

- Improved usage lifetime and safety for HEV batteries
- Rapid cooling and heating for automotive seat temperature control
- Drink temperature control in automobiles
- Precise temperature control of various analyzers, e.g. temperature control of $\pm 1^{\circ}\text{C}$ for blood tests



Peltier Demo Instructions