

Thermoelectric Conversion Efficiency Evaluation System for Small Modules

Mini-PEM



Measure thermoelectric conversion efficiency for thermoelectric material alone and a pair of thermoelectric material

◆ General Description

This system can evaluate not only power generation but also conversion efficiency of thermoelectric modules. The conversion efficiency is evaluated from current dependency of power generation measured with four-probe method and heat flow measured with heat flow meter. High temperature part can reach up to 500 °C (standard specifications), while low temperature part is cooled with water flow.

◆ Features

1. Capable of measuring data of heat flow and power generation and then measuring conversion efficiency.
2. Capable of evaluating the output characteristics of small module with 2 to 10 mm (square) x 1 to 20 mm (height).
3. High temperature part can reach up to 500 °C.
4. Simple operation with control software

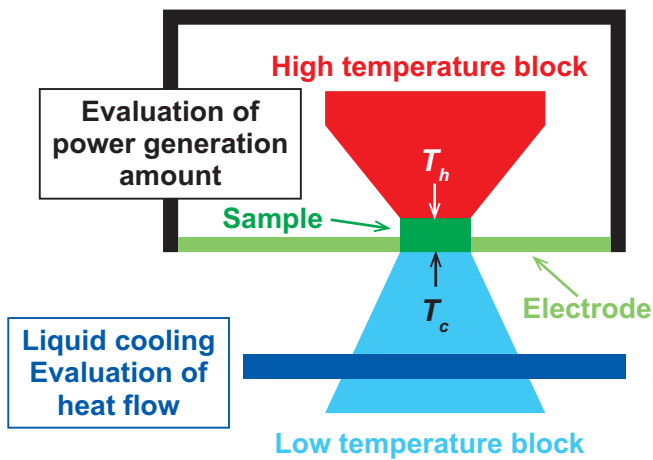
◆ Applications

1. Evaluation of power generation amount and heat flow.
2. Evaluation of module conversion efficiency calculated from power generation and heat flow.
3. Evaluation of power generation amount and heat flow with thermoelectric material alone.
4. Performance and lifetime evaluation of thermoelectric module.

Thermoelectric Conversion Efficiency Evaluation System for Small Modules

Mini-PEM

◆ Sample system chart



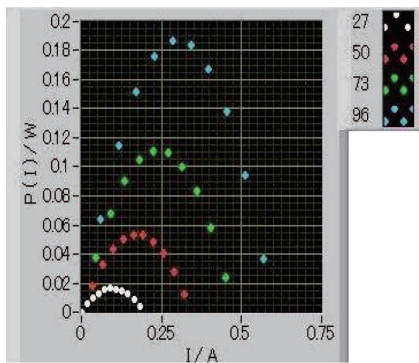
Temperature difference of sample

T_h : Sample temperature on high temperature part
 T_c : Sample temperature on low temperature part

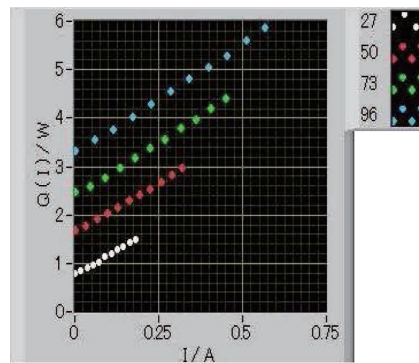
◆ Specifications

- | | |
|---|---|
| 1. Measurement Properties | Power generation amount, Heat flow, Conversion efficiency |
| 2. Temperature range on high temperature part | 50 °C to 500 °C |
| 3. Sample size | 2 to 10 mm (square) x 1 to 20* mm (height) *maximum |
| 4. Contact area dimension of high temperature block | 10 mm (square) |
| 5. Atmosphere | In vacuum |

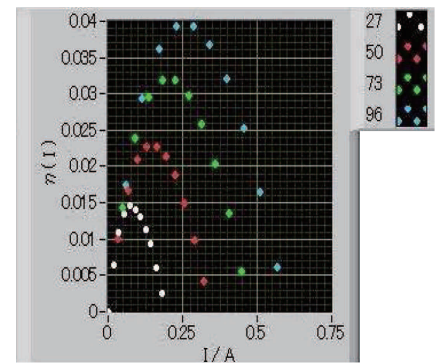
◆ Examples of measurement data (measurement of module with 8 mm square commercially available)



Power generation amount



Heat flow



Conversion efficiency

※Specification and appearance are subject to change without notice for performance improvement.

ULVAC

Agent

ULVAC-RIKO, Inc.

HEAD OFFICE

4388 IKONOBE-CHO, TSUZUKI-KU, YOKOHAMA, 224-0053 JAPAN

TEL : +81-45-931-2285 FAX : +81-45-933-9973

URL <http://www.ulvac-riko.co.jp/en>