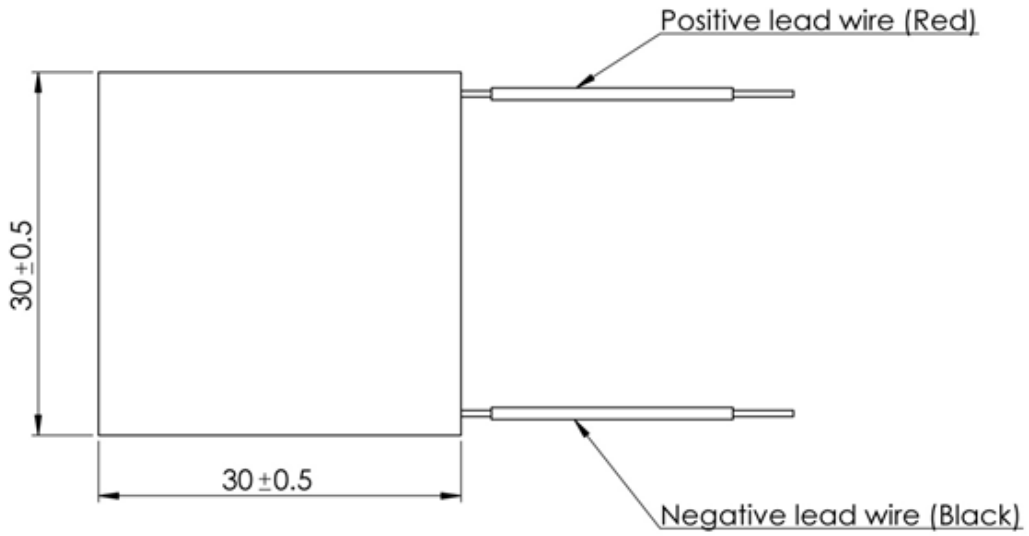
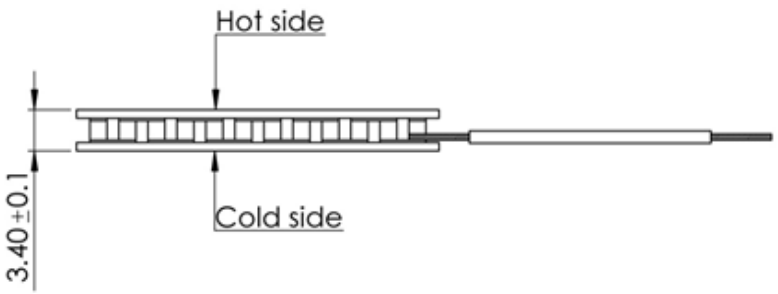
GM250-71-14-16

Thermoelectric generator module





Parameters for hot side temp 250°C and cold side temp 30°C

Matched load output power	4.17W
Matched load resistance	2.05Ω ± 15%
Open circuit voltage	5.85V
Matched load output	1.43A
Matched load output voltage	2.93V
Heat flow through module	~ 83.4W
Maximum compress (non-destructive)	1.2MPa
Maximum operation temperature	Hot side - 250°C. Cold side - 175°C

Features

- Compact structure (no moving parts)
- Reliable performance
- Maintenance-free
- Noise-free operation
- Low-carbon, green technology

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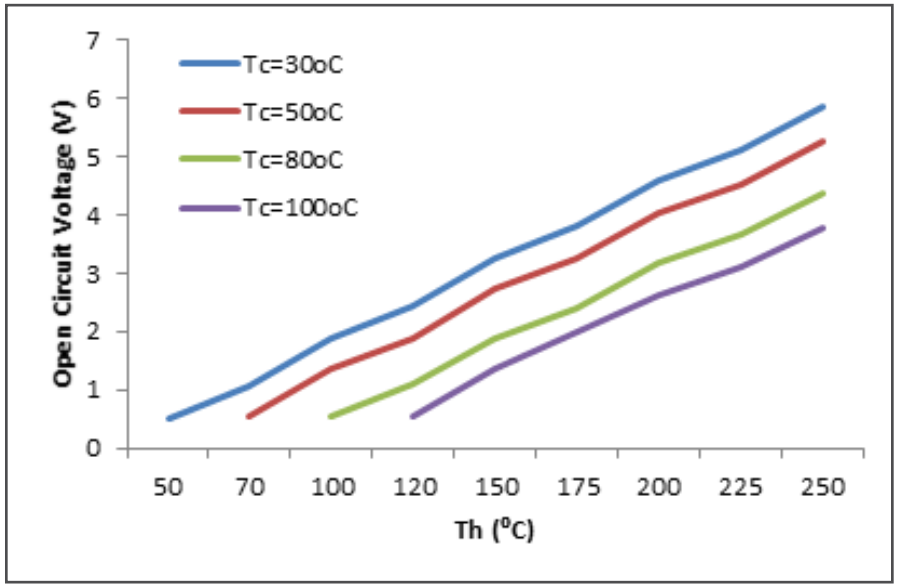
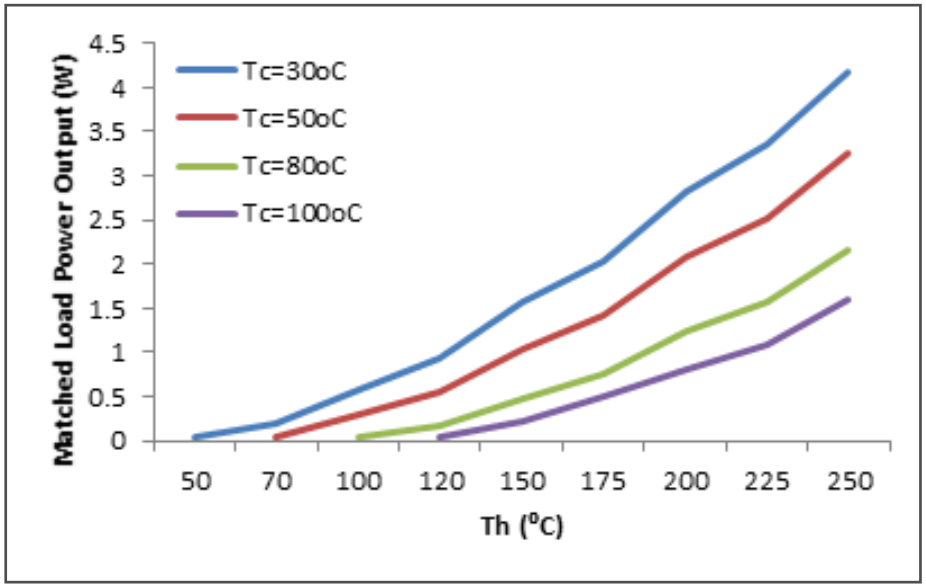
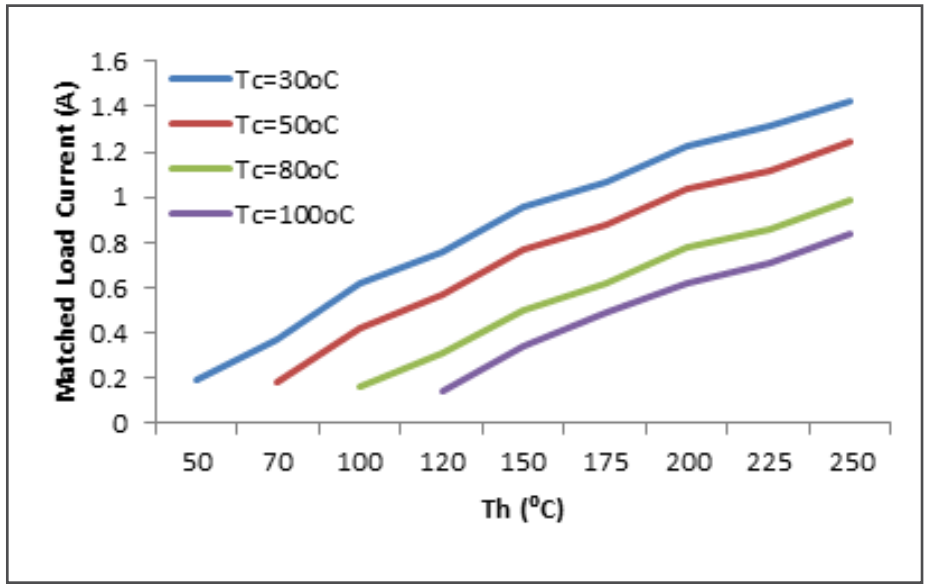
Thermoelectric generator module







Note: Th = hot side temperature

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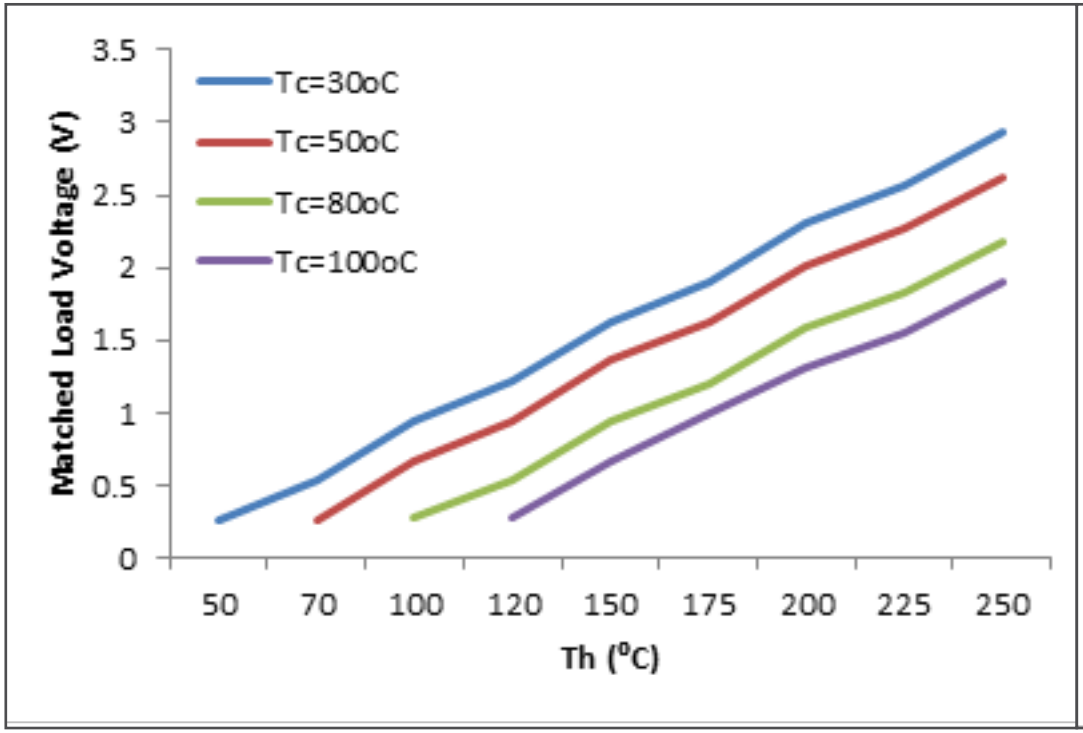
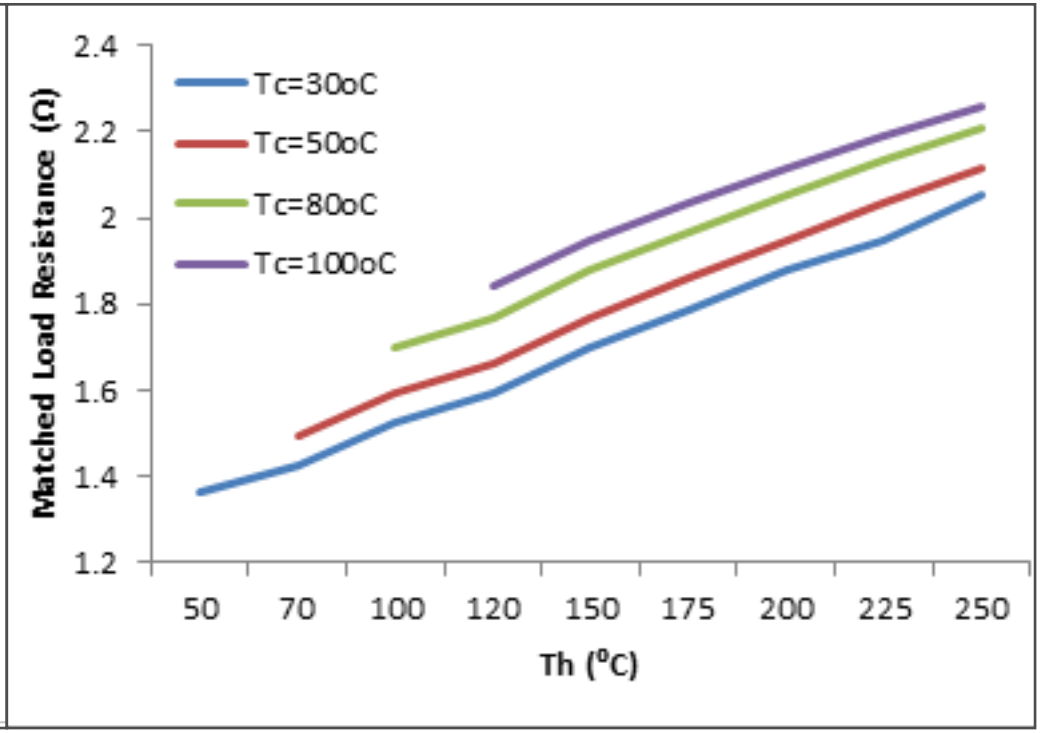
Thermoelectric generator module





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Thermoelectric generator module

Formulae for calculating thermoelectric properties (best fit derived from measured material characteristics)

Thermal conductivity

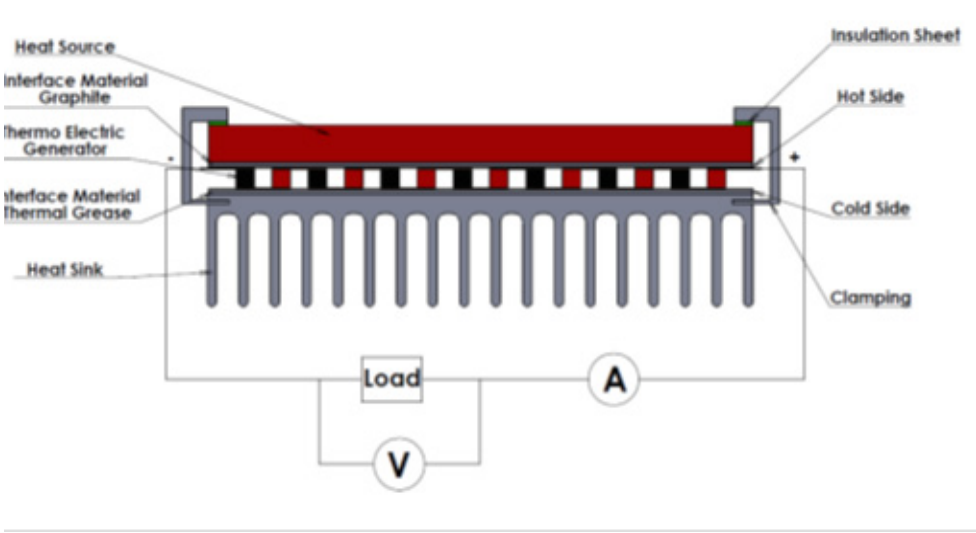
- $k_n = (0.0000334545 \times T^2 - 0.023350303 \times T + 5.606333)$ W/mK
- $k_p = (0.0000361558 \times T^2 - 0.026351342 \times T + 6.22162)$ W/mK

Seebeck coefficient

- $a_n = (0.001530736 \times T^2 - 1.08058874 \times T - 28.338095) \times 10^{-6}$ V/K
- $a_p = (-0.003638095 \times T^2 + 2.74380952 \times T - 296.214286) \times 10^{-6}$ V/K

Electrical conductivity

- $o_p = (0.015601732 \times T^2 - 15.708052 \times T + 4466.38095) \times 10^2$ S/m
- $o_n = (0.01057143 \times T^2 - 10.16048 \times T + 3113.71429) \times 10^2$ S/m



Where the subscript *n* refers to the n-type thermoelement and the subscript *p* refers to the p-type thermoelement.It should be noted here that the electrical conductivity relates to the electrical resistivity as follows: p= 1/o Thus, where electrical resistivity is needed, one can calculate the electrical conductivity through the aforementioned formulae and then reverse to calculate the electrical resistivity.

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