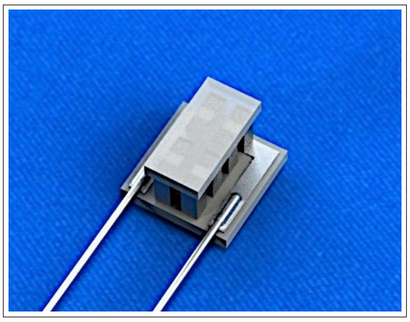
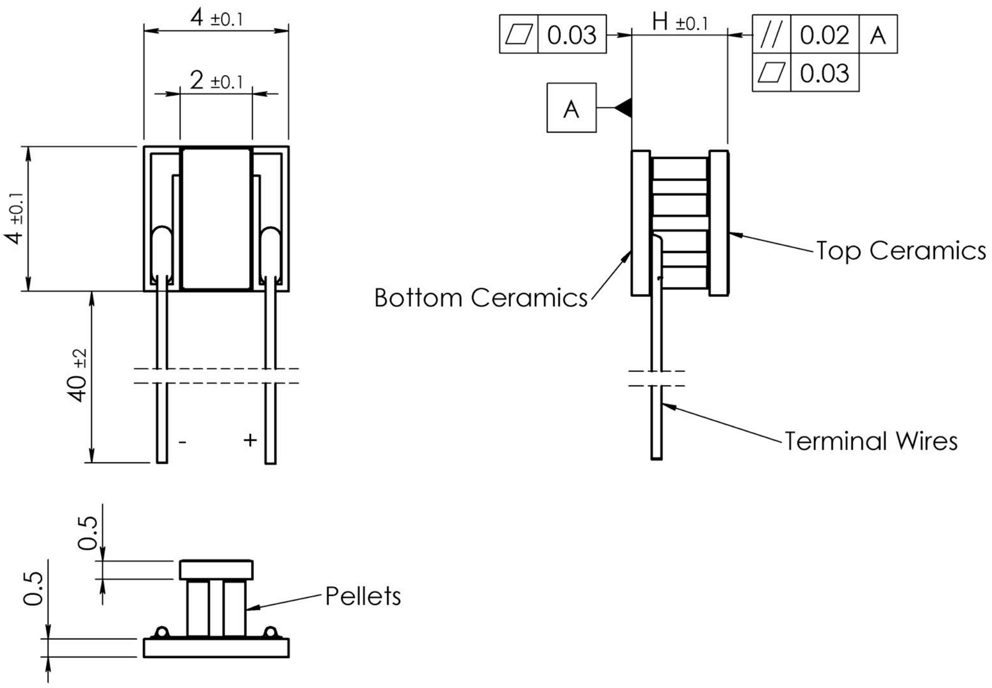
Performance Parameters — 1MC06-004-XX

Type	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V	AC R Ohm	H mm
1MC06-004-xx (N=4)						
1MC06-004-03	68	1.52	5.2	0.5	0.04	1.4
1MC06-004-05	70	0.97	3.3		0.11	1.6
1MC06-004-08	71	0.63	2.1		0.18	1.9
1MC06-004-10	71	0.51	1.7		0.22	2.1
1MC06-004-12	71	0.43	1.4		0.26	2.3
1MC06-004-15	72	0.35	1.2		0.33	2.6

Performance data are given for 300K, vacuum



Dimensions



Manufacturing options

A. TEC Assembly:

* 1. Solder SnSb (T_{melt}=230°C)

2. Solder AuSn (T_{melt}=280°C)

B. Ceramics:

* 1.Pure Al_2O_3(100%)

2.Alumina (Al_2O_3- 96%)

3.Aluminum Nitride (AlN)

** - used by default*

C. Ceramics Surface Options:

1. Blank ceramics (not metallized)
2. Metallized (Au plating)
3. Metallized and pre-tinned with:
   - 3.1 Solder 117 (In-Sn, T_{melt} =117°C)
   - 3.2 Solder 138 (Sn-Bi, T_{melt} = 138°C)
   - 3.3 Solder 143 (In-Ag, T_{melt} = 143°C)
   - 3.4 Solder 157 (In, T_{melt} = 157°C)
   - 3.5 Solder 183 (Pb-Sn, T_{melt} =183°C)
   - 3.6 Optional (specified by Customer)

D. Thermistor (optional)

Can be mounted to cold side ceramics edge. Calibration is available by request.

E. Terminal contacts

1. Blank, tinned Copper
2. Insulated Wires
3. Insulated, color coded

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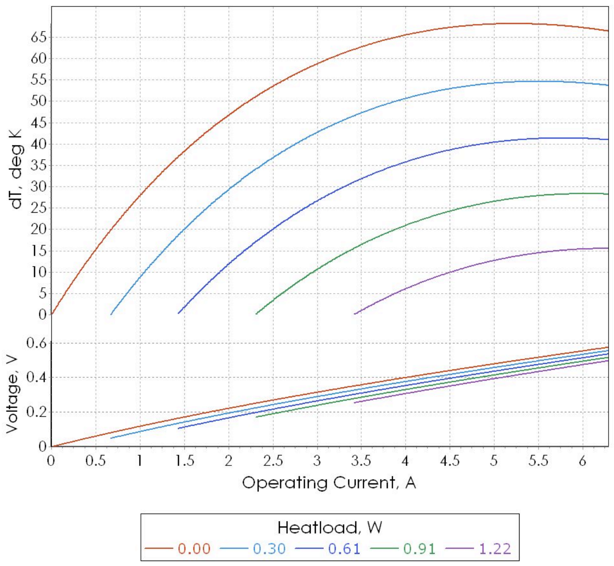
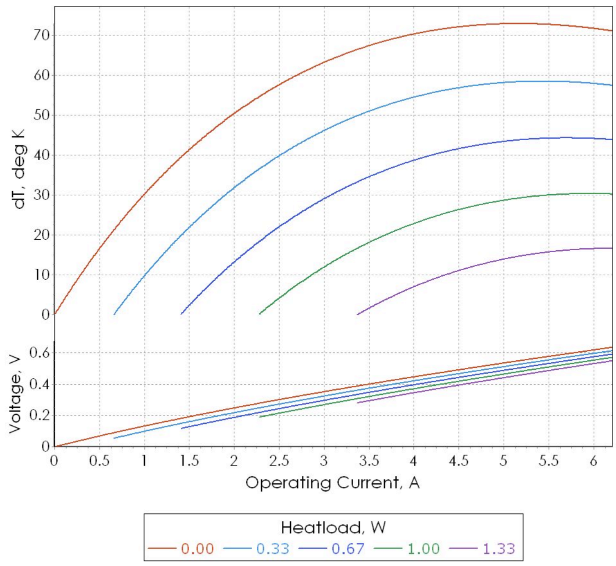
Performance Data — 1MC06-004-03

@ 27ºC, Vacuum	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-03	68	1.52	5.2	0.5

@50ºC, N2	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-03	73	1.66	5.2	0.5



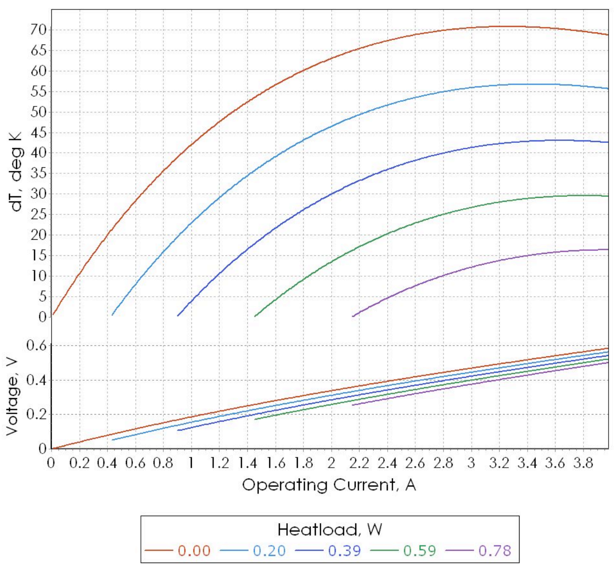


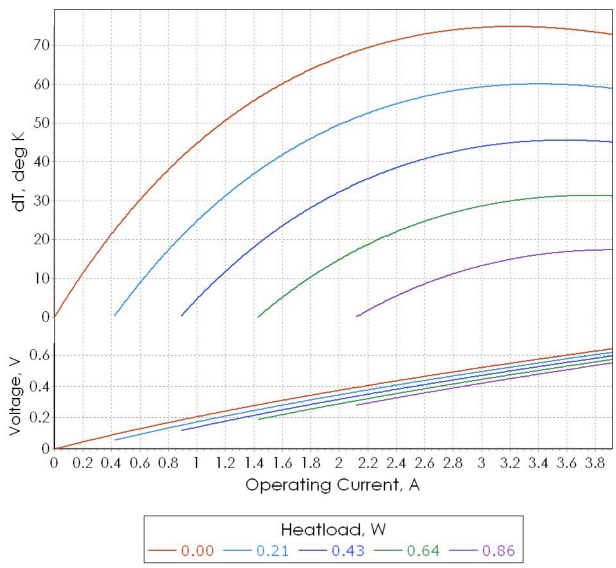
Note: Performance data is specified for optimal optimal conditions (TEC hot side is stabilized at ambient temperature). Heatsink thermal resistance is not included into estimations. Use TECCad Software for estimations under different conditions.

Performance Data — 1MC06-004-05

@ 27ºC, Vacuum	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-05	70	0.97	3.3	0.5

@50ºC, N2	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-05	74	1.07	3.3	0.5



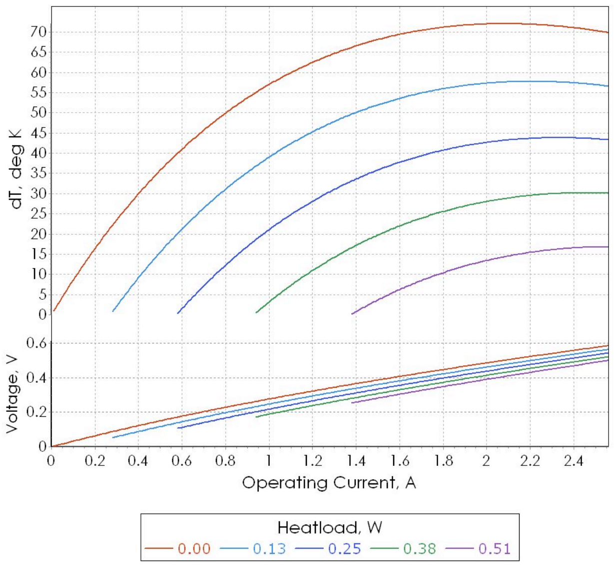


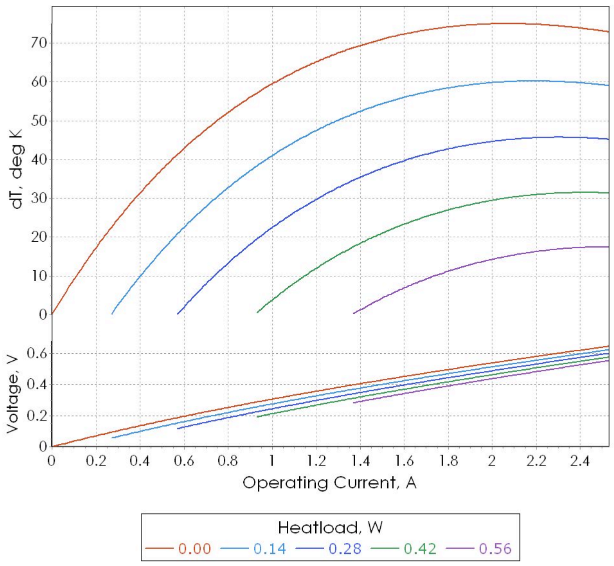
Note: Performance data is specified at optimal optimal conditions (TEC hot side is stabilized at ambient temperature). Any heatsink thermal resistance is not included into estimations. Use TECCad Software for estimations under different conditions.

Performance Data — 1MC06-004-08

@ 27ºC, Vacuum	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-08	71	0.63	2.1	0.5

@50ºC, N2	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-08	74	0.70	2.1	0.5



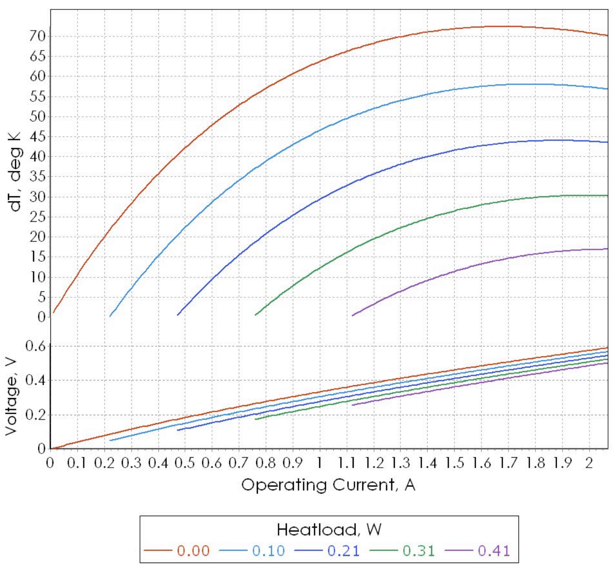


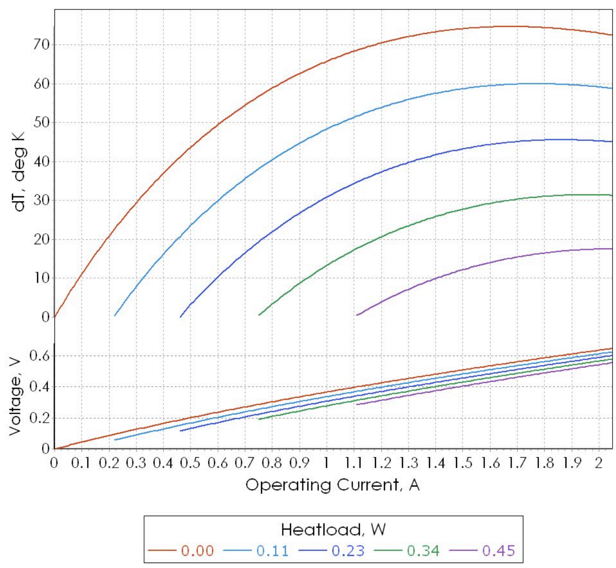
Note: Performance data is specified for optimal optimal conditions (TEC hot side is stabilized at ambient temperature). Heatsink thermal resistance is not included into estimations. Use TECCad Software for estimations under different conditions.

Performance Data — 1MC06-004-10

@ 27ºC, Vacuum	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-10	71	0.51	1.7	0.5

@50ºC, N2	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-10	74	0.57	1.7	0.5



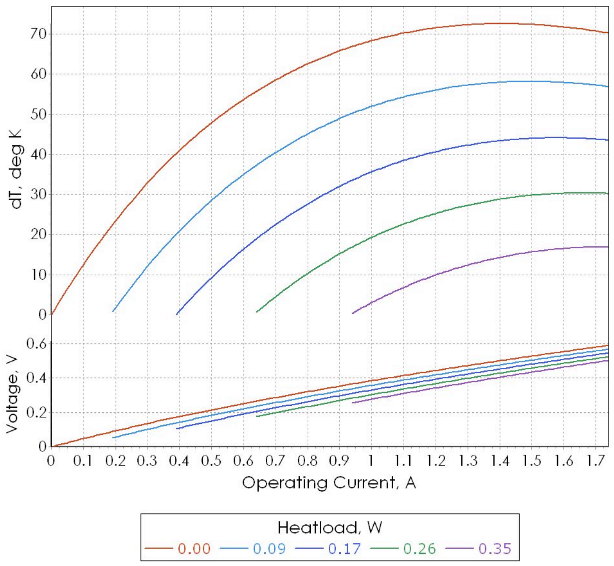


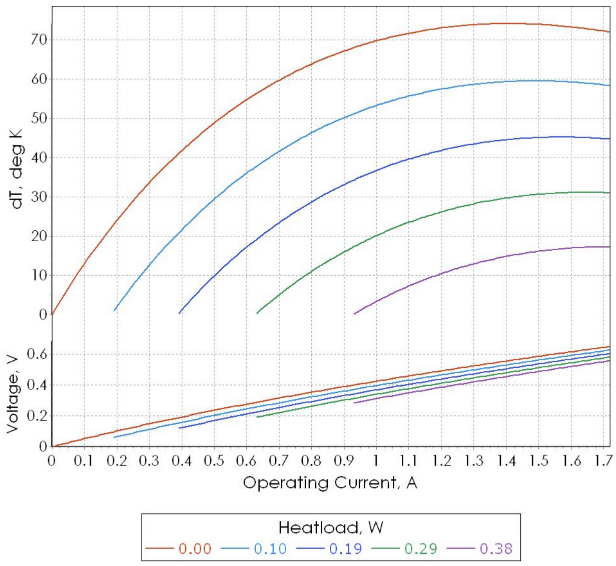
Note: Performance data is specified for optimal optimal conditions (TEC hot side is stabilized at ambient temperature). Heatsink thermal resistance is not included into estimations. Use TECCad Software for estimations under different conditions.

Performance Data — 1MC06-004-12

@ 27ºC, Vacuum	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-12	71	0.43	1.4	0.5

@50ºC, N2	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-12	73	0.48	1.4	0.5



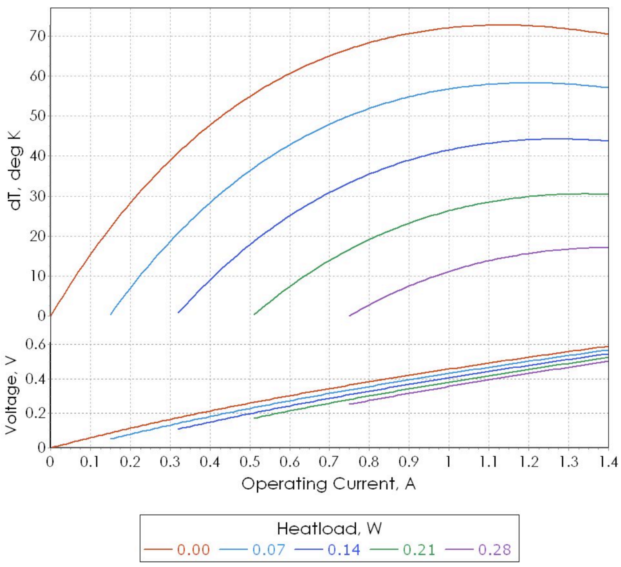


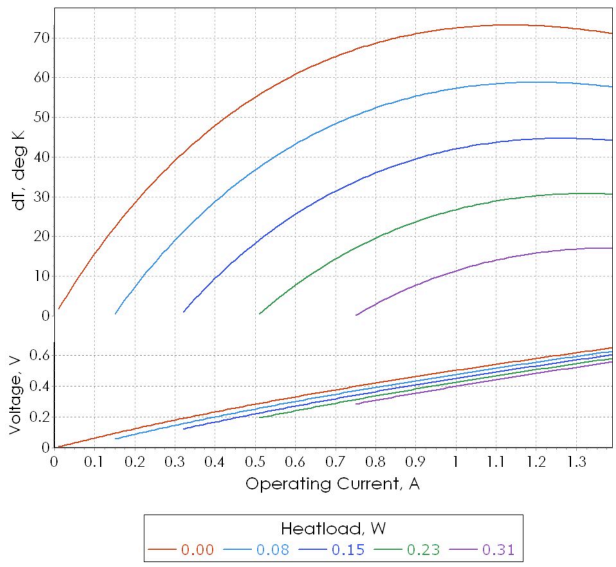
Note: Performance data is specified for optimal optimal conditions (TEC hot side is stabilized at ambient temperature). Heatsink thermal resistance is not included into estimations. Use TECCad Software for estimations under different conditions.

Performance Data — 1MC06-004-15

@ 27ºC, Vacuum	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-15	72	0.35	1.2	0.5

@50ºC, N2	ΔTmax K	Qmax W	Imax A	Umax V
1MC06-004-15	72	0.39	1.2	0.5





Note: Performance data is specified for optimal optimal conditions (TEC hot side is stabilized at ambient temperature). Heatsink thermal resistance is not included into estimations. Use TECCad Software for estimations under different conditions.

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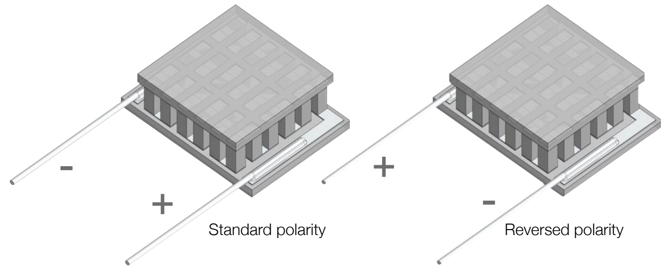
Additional Options

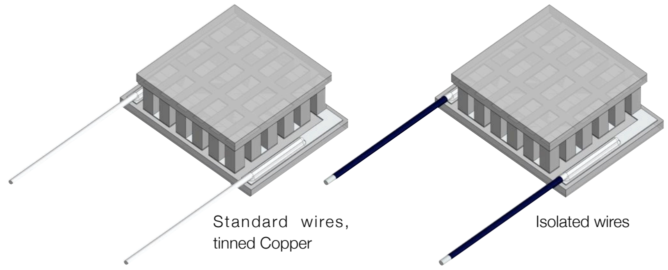
TEC Polarity

TEC Polarity can be modified by request. The specified polarity in this datasheet is typical.
It can be reversed in accordance to Customer application requirements.



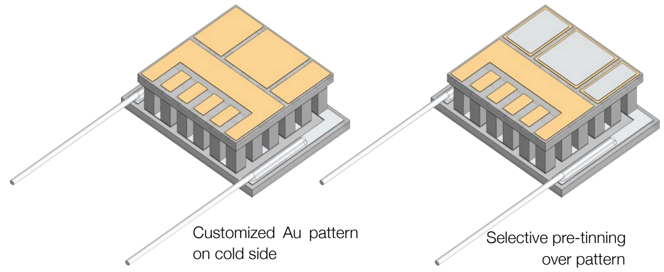
Terminal Wires Options

The wires are of tinned Copper, blank (not isolated) by default. Various options for isolated wires are available by request. The available solutions include isolated wires, isolated color-coded wires, flexible multicore wires and more.



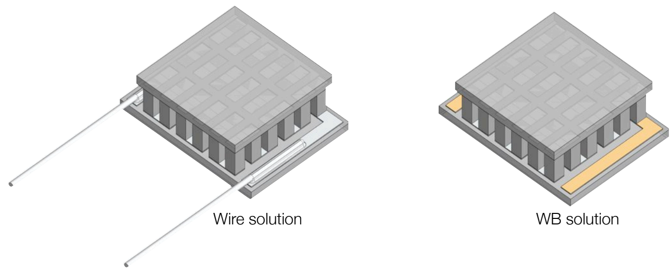
Customized Au Patterns

Customized Au patterns on thermoelectric cooler cold side are available by request. Selective Pre-tinning over pattern is also available. Please, contact RMT Ltd for additional information about customized Au patterns requirements.



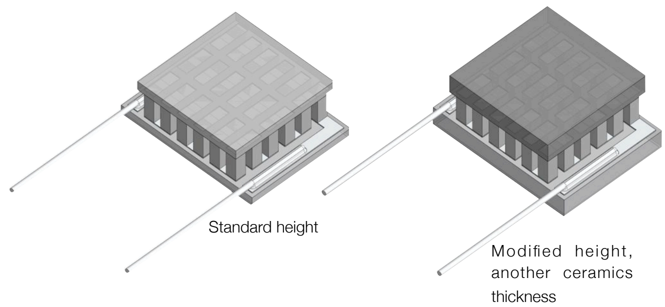
Modification for WB process

Thermoelectric coolers with classical shapes (with ceramics side porches for wires) can be modified for wire bonding (WB) process. Standard Terminal pads for wires can be plated with galvanic Au 1.5-2.0um thickness. The solution is available by request.

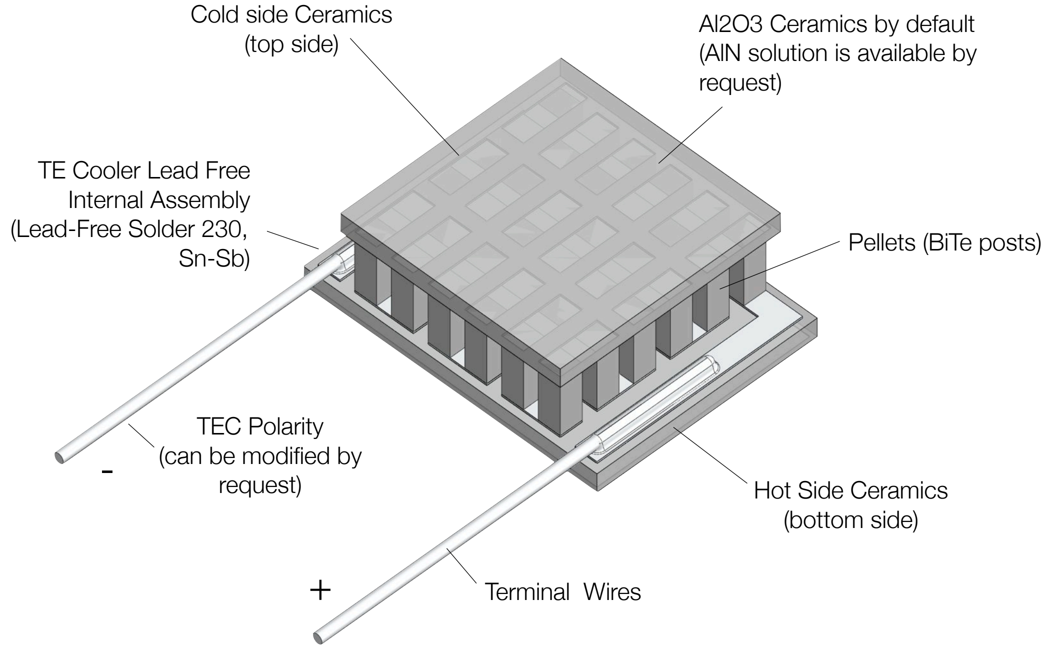


TEC Height modification

Standard TEC height can be modified without performance changes by using ceramics of different thickness. Standard thermoelectric cooler height (specified in the datasheet) may be modified in a range -0.5..+1.0mm for single-stage TEC by request.



Thermoelectric Cooler Overview



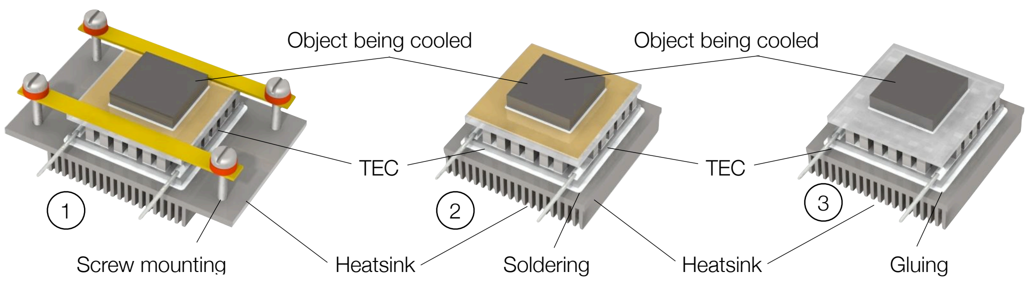
Application Tips

1. Never heat TE module more than 200°C (TEC assembled at 230°C).
2. Never use TE module without an attached heat sink at hot (bottom) side.

1. Connect TE module to DC power supply according to polarity.
2. Do not apply DC current higher than Imax.

Installation

1. Mechanical Mounting. TEC is placed between two heat exchangers . This construction is fixed by screws or in another mechanical way. It is suitable for large modules (with dimensions 30x30mm and larger). Miniature types require other assembling methods in most cases.
1. Soldering. This method is suitable for a TE module with metallized outside surfaces. RMT provides this option and also makes pre-tinning for TE modules.
2. Glueing. It is an up-to-date method that is used by many customers due to availability of glues with good thermoconductive properties. A glue is usually based on some epoxy compound filled with some thermoconductive material such as graphite or diamond powders, silver, SiN and others. The application of a specific type depends on application features and the type of a TE module.



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