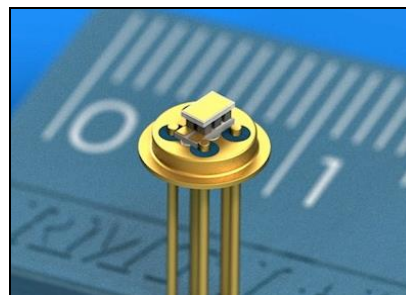


Performance Parameters

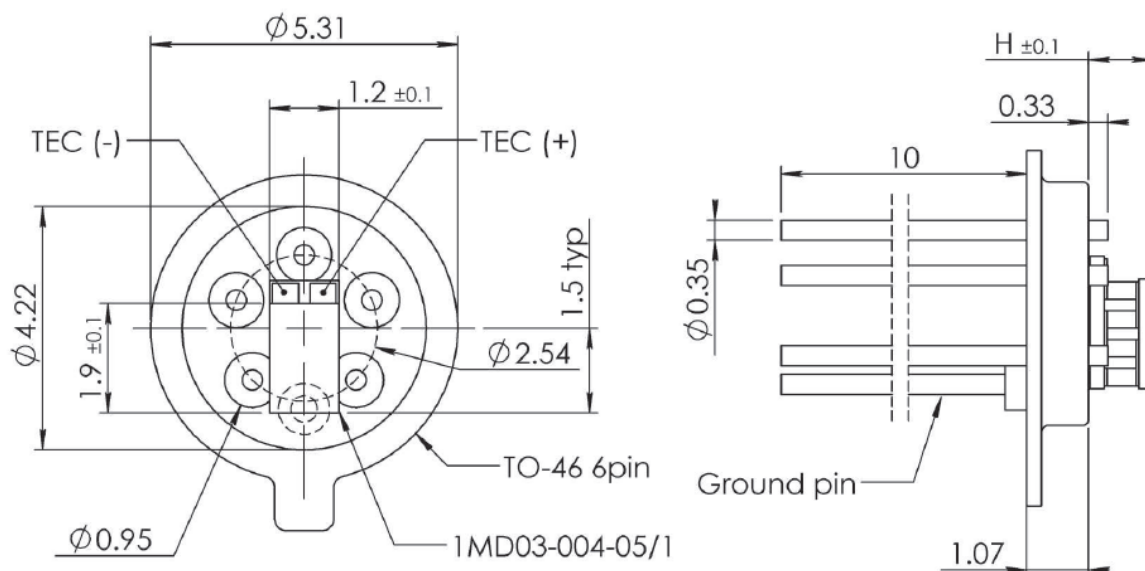
TO4606.1MD03004xx/1

Mounted TEC Type	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V	R_t K/W	H mm
1MD03-004-xx/1 (n=4)						
1MD03-004-04/1	66	0.3	1.0	0.5	13.65	1.0
1MD03-004-05/1	67	0.2	0.8			1.1
1MD03-004-08/1	70	0.2	0.5			1.4

Performance data is specified at 300K, vacuum (thermal resistance incl.)



Dimensions



Manufacturing options

A. Header material:

Kovar

B. Header surface finish:

Au coating (base and pins)

C. TEC to Header mounting:

Solder 206 ($T_{melt}=206^{\circ}\text{C}$,
Sn-Ag-In, flux-free process)

D. TEC Ceramics Material:

1. Pure Al_2O_3 (100%) – used by default
2. Alumina (Al_2O_3 – 96%)
3. Aluminum Nitride (AlN)

E. TEC Cold Side Finish:

1. Blank ceramics (not metallized)
2. Metallized (Au coating)
3. Metallized and pre-tinned (various solder for pre-tinning available)

F. Thermistor (optional)

Can be mounted to cold side ceramics edge.

G. Thermistor mounting:

Epoxy gluing

H. Pinout configuration:

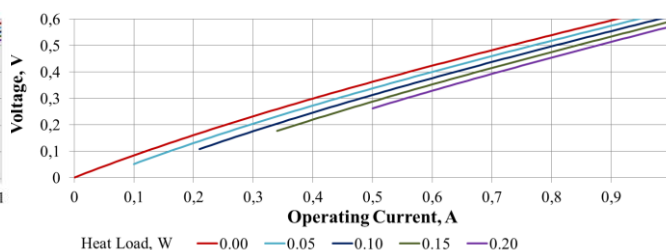
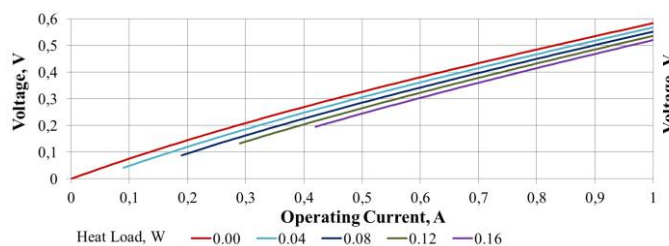
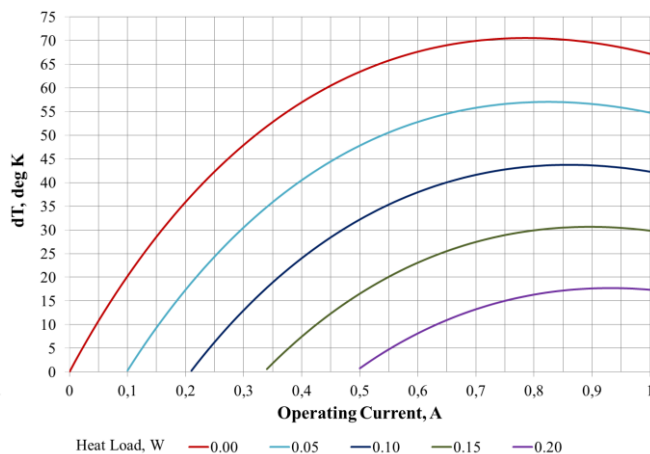
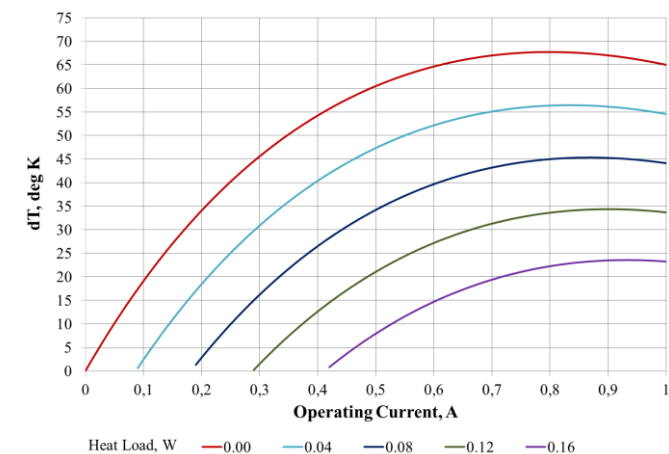
The drawing contains standard pinout, can be revised by request

Performance Data

1MD03-004-04/1

27°C, Vacuum	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V
1MD03-004-04/1	66	0.3	1.0	0.5

50°C, N ₂	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V
1MD03-004-04/1	69	0.3	1.0	0.5



Note: Performance data is specified at optimal heatsink. TO-46 Header thermal resistance is included into estimations. Use TECCad Software for estimations under different conditions or contact RMT Ltd or it's branches directly.

Performance Data

1MD03-004-05/1

27°C, Vacuum	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V
1MD03-004-05/1	67	0.2	0.8	0.5

50°C, N ₂	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V
1MD03-004-05/1	70	0.3	0.8	0.5

Note: Performance data is specified at optimal heatsink. TO-46 Header thermal resistance is included into estimations. Use TECCad Software for estimations under different conditions or contact RMT Ltd or it's branches directly.

Performance Data

1MD03-004-08/1

27°C, Vacuum	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V
1MD03-004-08/1	70	0.2	0.5	0.5

50°C, N ₂	ΔT_{max} K	Q_{max} W	I_{max} A	U_{max} V
1MD03-004-08/1	71	0.2	0.5	0.5

Note: Performance data is specified at optimal heatsink. TO-46 Header thermal resistance is included into estimations. Use TECCad Software for estimations under different conditions or contact RMT Ltd or it's branches directly.

Application Tips

1. Never heat up the sub-assembly more than 200°C.
2. Never use the sub-assembly without an attached heat sink. Header is NOT a heatsink by itself.

1. Connect TE cooler to DC power supply according to specified polarity.
2. Do not apply current/voltage higher than specified max values

Mounting to TEC cold side

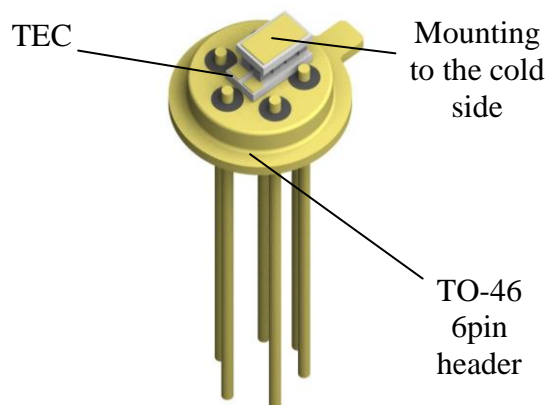
1. Soldering of object to be cooled.

Method is suitable for a TE module with the metallized cold side (Ordering Options. Item E). Soldering requires careful procedures:

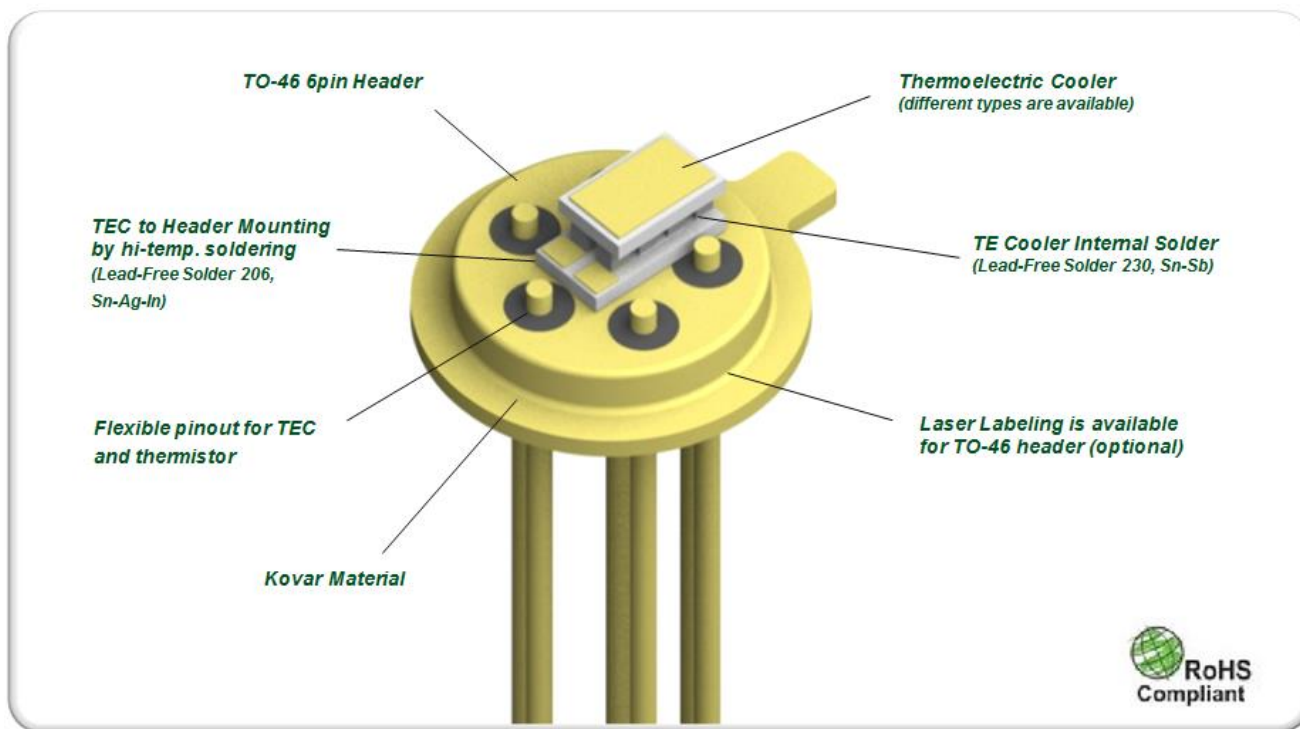
- A. Never overheat TEC (Application Tips. Item 1).
- B. Use solder with melting point less than 200°C.

2. Gluing of object to be cooled.

Method is available by glues with good thermoconductive properties. Not recommended for high vacuum applications and long operations at high temperature.



Sub-assembly Overview

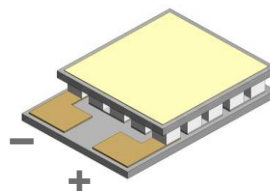


Additional Options for TEC

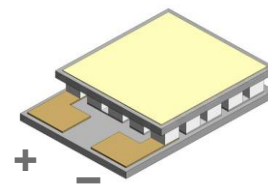
TEC Polarity

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.



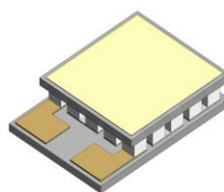
Standard polarity



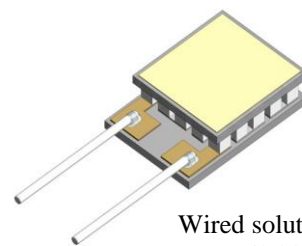
Reversed polarity

Terminal Wires Options

The standard solution is based on WB pads. Terminal wires can be attached by request. Various options for terminal wires are available: blank, isolated wires, isolated color-coded wires, flexible multicore wires and etc.



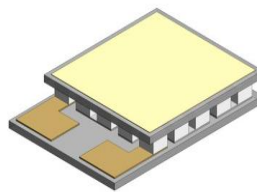
Standard solution
WB pads



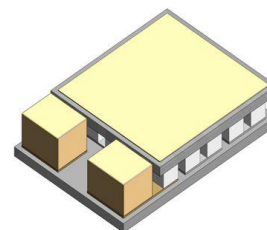
Wired solution,
available by
request

Optimization for WB process

The solution with WB pads (no posts) is provided by default. WB posts are available by request. The dimensions of WB pads can be modified and optimized for Customers application. WB posts are made of Copper, Au plated.



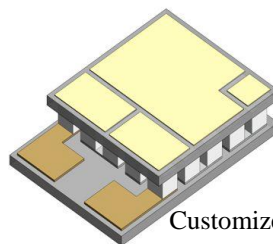
WB pads



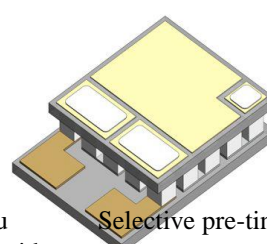
WB posts

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



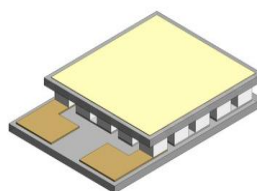
Customized Au
pattern on cold side



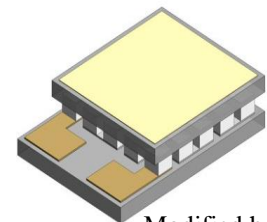
Selective pre-tinning
over pattern

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) can be modified by request.



Standard height



Modified height,
another ceramics
thickness

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