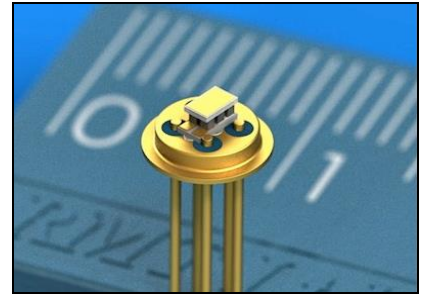


## Performance Parameters

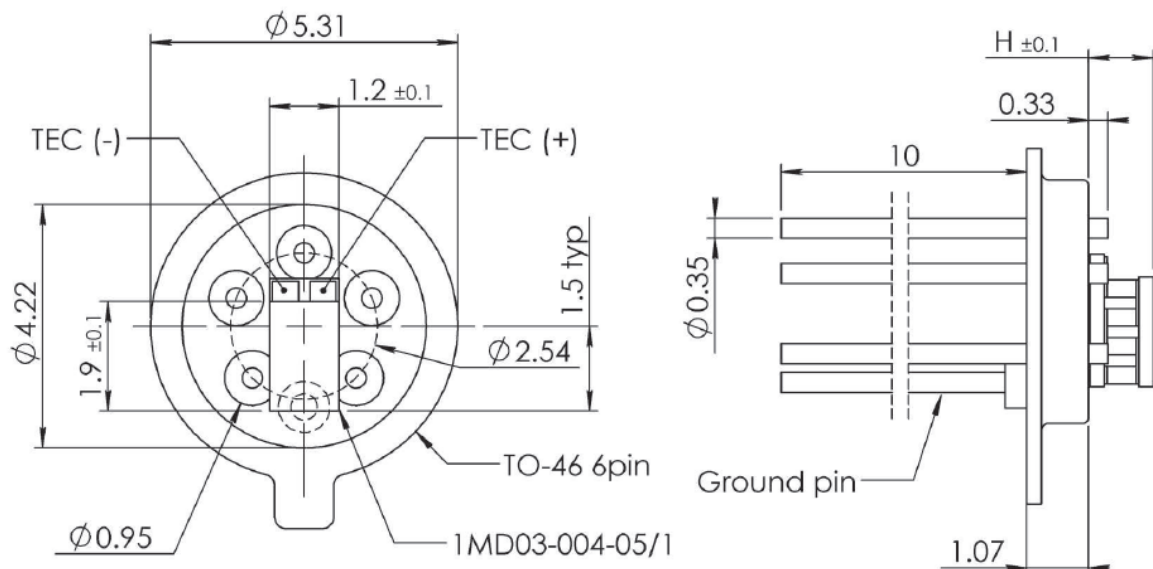
TO4606.1MD03004xx/1

Mounted TEC Type	$\Delta T_{max}$ 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  $\text{Al}_2\text{O}_3$  (100%) – used by default
2. Alumina ( $\text{Al}_2\text{O}_3$  – 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:**

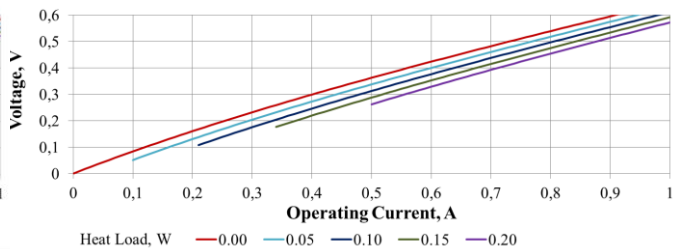
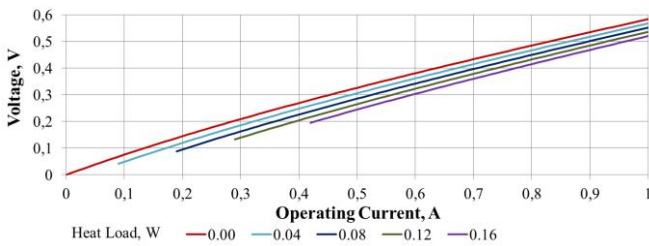
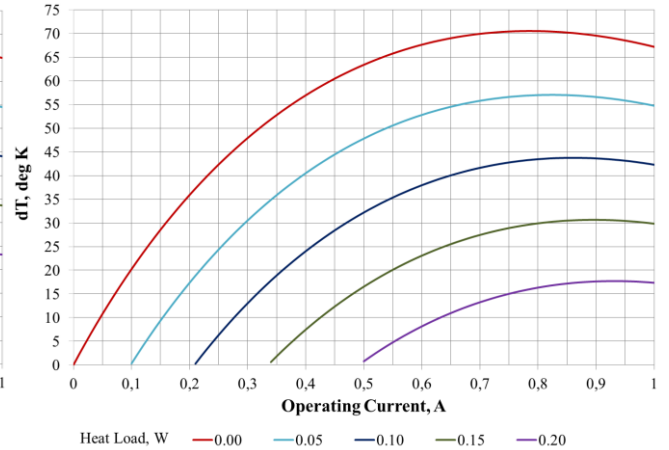
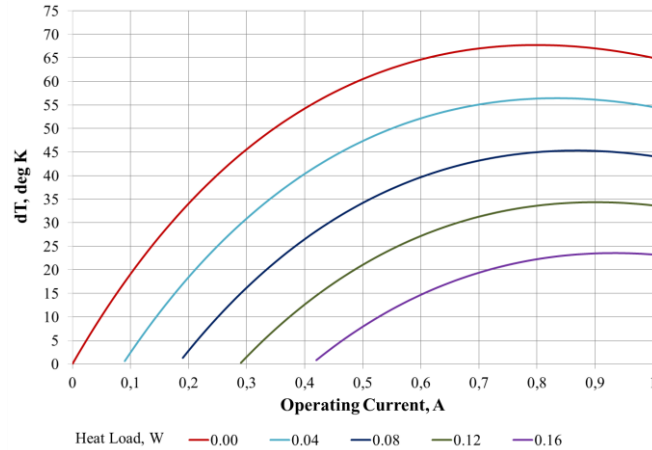
The drawing contains standard pinout, can be revised by request

## Performance Data

1MD03-004-04/1

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

50°C, N <sub>2</sub>	$\Delta T_{max}$ 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	$\Delta T_{max}$ K	$Q_{max}$ W	$I_{max}$ A	$U_{max}$ V
1MD03-004-05/1	67	0.2	0.8	0.5

50°C, N <sub>2</sub>	$\Delta T_{max}$ 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	$\Delta T_{max}$ K	$Q_{max}$ W	$I_{max}$ A	$U_{max}$ V
1MD03-004-08/1	70	0.2	0.5	0.5

50°C, N <sub>2</sub>	$\Delta T_{max}$ 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

---

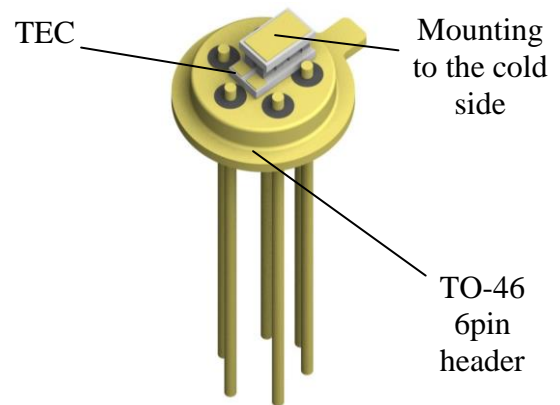
1. Soldering of object to be cooled.

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

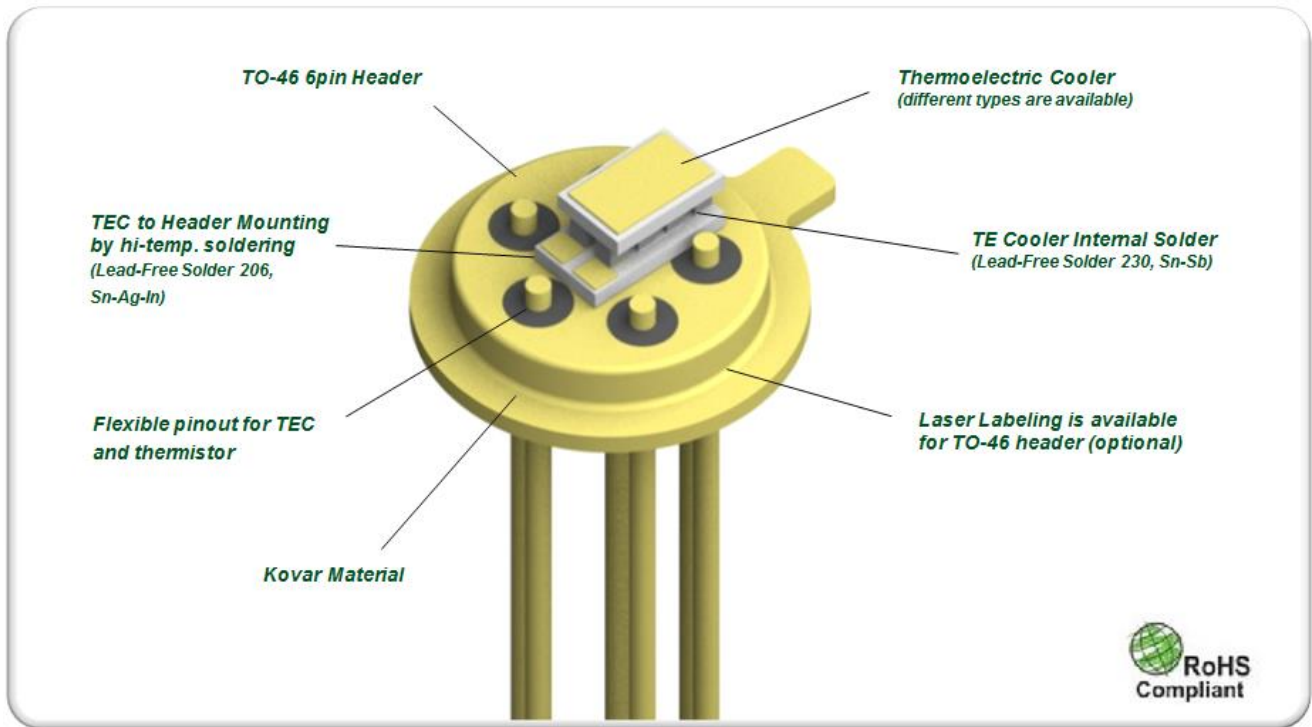
- A. Never overheat TEC (Application Tips. Item 1).
- B. Use solder with melting point less than 200°C.

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

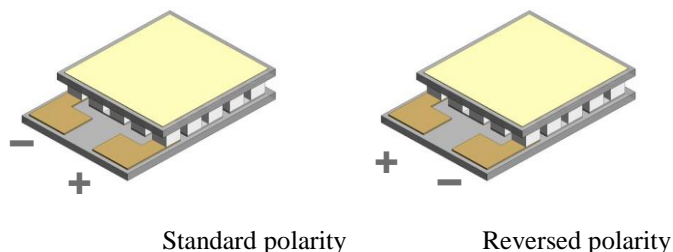


## Additional Options for TEC

### 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.

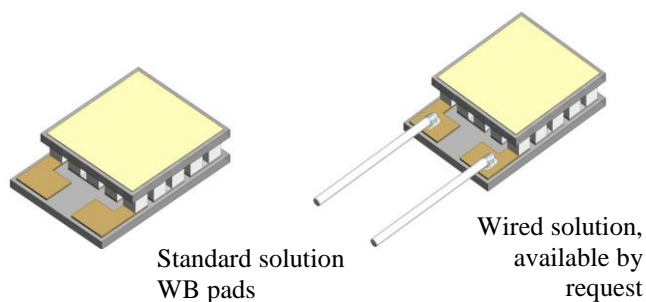


Standard polarity

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.

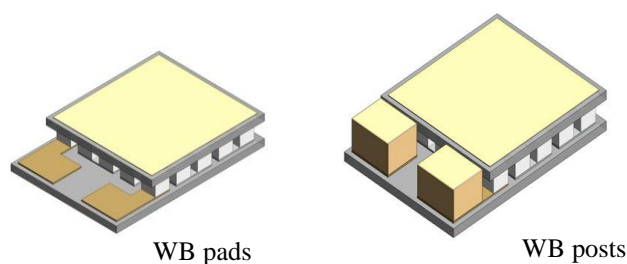


Standard solution  
WB pads

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.

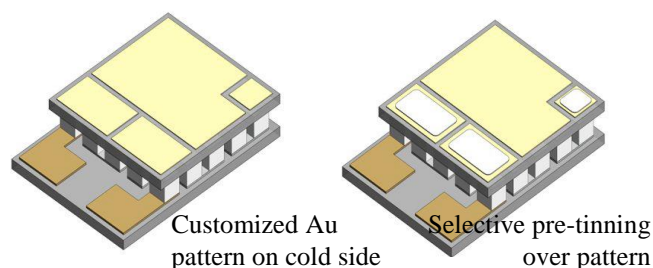


WB pads

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

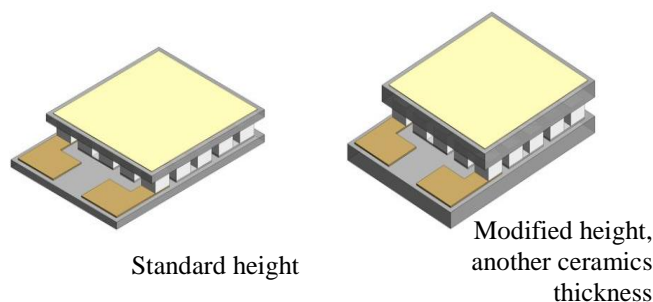


Customized Au  
pattern on cold side

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

## Contacts

### **RMT Ltd. HEAD OFFICE**

46 Warshavskoe shosse. Moscow 115230 Russia

Tel: +7-499-678-2082

Fax: +7-499-678-2083

Web: [www.rmtltd.ru](http://www.rmtltd.ru)

Email: [info@rmtltd.ru](mailto:info@rmtltd.ru)

### **CHINA**

翰铨科技香港有限公司

Hantech Technology

RM566,5/F,Hanjing Mansion,Nanshan District,Shenzhen,China

Tel:+86-0755-86215941

Fax:+86-0755-86053039

Cell: 13760105325

Email: [bob.han@protecltd.com](mailto:bob.han@protecltd.com)

XIAMEN ZIBO OPTOELECTRONIC CO. LTD.

Room 120, Chuanye Building Chuanye Park,

Xiamen Torch Hi-Tech Industrial Development Zone

Xiamen, China , 361006

Tel: +86-592-5654050

Fax: +86-15859204529

QQ: 1592337385

Email: [wuhang385@foxmail.com](mailto:wuhang385@foxmail.com) (Hardy Wu), [wentyliu@foxmail.com](mailto:wentyliu@foxmail.com) (Wenty Liu)

### **KOREA**

Sunflower Energy

1F, 665-6, Pungdeokcheon-dong, Suji-gu,

Yongin-si, Gyeonggi-do, Korea

Tel: +82 312767992

Fax: +82 312767993

Web: [www.sunfl.co.kr](http://www.sunfl.co.kr)

## Legal Notice

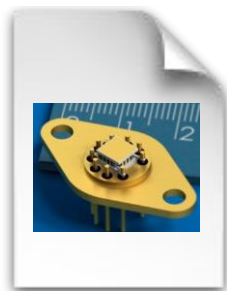
All logos, images, trademarks and product names (collectively Materials) are proprietary to RMT Ltd and/ or any of its affiliates, or subsidiaries, or other respective owners that have granted RMT Ltd the permission and/or license to use such Materials. All images are provided by RMT Ltd. and are subjects of copyright protection.

RMT Ltd, Hantech Technology, XIAMEN ZIBO OPTOELECTRONIC CO. LTD. and Sunflower Energy do not grant a copyright license (express or implied) to the Recipient, except that Recipient may reproduce the logos, images and text materials in this press-release without any alteration for non-promotional or editorial purposes only with a written note about materials owner.

## Copyright protection warning

Graphic materials and text from this datasheet may not be used commercially without a prior response in writing on company letterhead and signed by RMT Ltd authority.

Thank you for respecting the intellectual property rights protected by the International Copyright laws. All Images contain RMT hidden watermark for the immediate proof of their origin.



RMT Image



Hidden Watermark