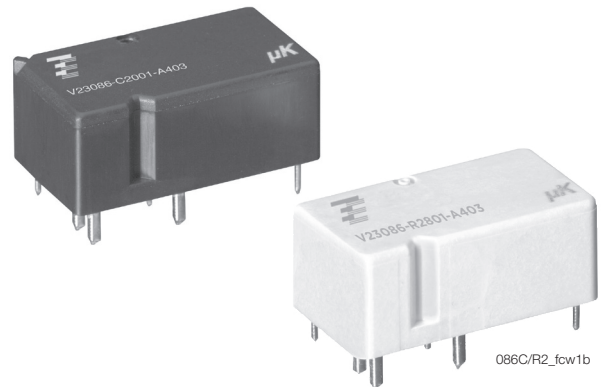


**Double Micro Relay K (THT – THR)**

- Small power relay
- Limiting continuous current 20A at 85°C
- Minimal weight
- Low noise operation
- Wave (THT) and reflow (THR/pin-in-paste) solderable versions
- For single version refer to Single Micro Relay K



Typical applications

Door lock, heated front/rear screen, lamps front/rear/fog light, interior lights, seat control, sun roof, window lifter, wiper control.

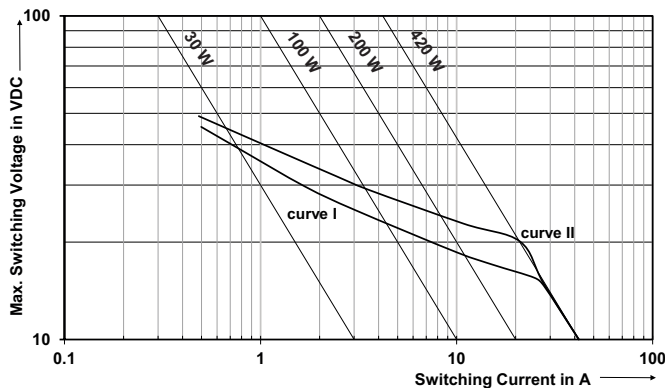
| Contact Data   |   |
|--|---|
| Contact arrangement  | 2 form C, 2 CO  |
| Rated voltage  | 10/12VDC  |
| Rated current <sup>1)</sup>  | NO/NC<br>30A/25A  |
| Limiting continuous current <sup>1)</sup>  |   |
| 23°C   | 30/25A  |
| 85°C   | 20/15A  |
| 105°C  | 15/10A  |
| Limiting making current  | 40A <sup>2)</sup>   |
| Limiting breaking current  | 30A   |
| Contact material   | AgSnO <sub>2</sub>  |
| Min. contact load  | 1A at 5VDC <sup>3)</sup>  |
| Initial voltage drop at 10A, typ./max.   | 30/300 mV   |
| Operate/release time   | typ. 3/1.5ms <sup>4)</sup>  |
| Electrical endurance   |   |
| -40°C, +25°C, +85°C and 14 VDC, form C (CO), cyclic temperature motor reverse blocked, 25A, 0.77mH wiper 25A make/5A break, generator peak -20A on NC, L=1.0mH form A contact (NO), cyclic temperature resistive 20A | >1x10 <sup>5</sup> ops.<br>>1x10 <sup>6</sup> ops.<br>>1x10 <sup>5</sup> ops. |

| Contact Data (continued)   |                          |
|--|--------------------------|
| Mechanical endurance   | > 5x10 <sup>6</sup> ops. |
| 1) Measured on 70x70x1.5mm epoxy PCB FR4 with 25cm <sup>2</sup> (double layer 105µm) copper area. Connecting cable cross section 6 mm <sup>2</sup> . Boundary conditions: 180°C coil temperature; 130°C solder joint. Only one relay energized.            |                          |
| 2) The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5VDC for 12VDC load voltages. For a load current duration of maximum 3s for a make/break ratio of 1:10.   |                          |
| 3) See chapter Diagnostics of Relays in our Application Notes or consult the internet at <a href="http://relays.te.com/appnotes/">http://relays.te.com/appnotes/</a>   |                          |
| 4) Measured at nominal voltage without coil suppression unit. A low resistive suppression device in parallel to the relay coil increases the release time and reduces the lifetime caused by increased erosion and/or higher risk of contact tack welding. |                          |

| Coil Data              |                   |                     |                     |                       |                |
|------------------------|-------------------|---------------------|---------------------|-----------------------|----------------|
| Rated coil voltage     | 12VDC             |                     |                     |                       |                |
| Coil versions, DC coil |                   |                     |                     |                       |                |
| Coil code              | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance Ω±10% | Rated power mW |
| 001                    | 12                | 6.9                 | 1.5                 | 254                   | 567            |
| 002                    | 10                | 5.7                 | 1.25                | 181                   | 552            |

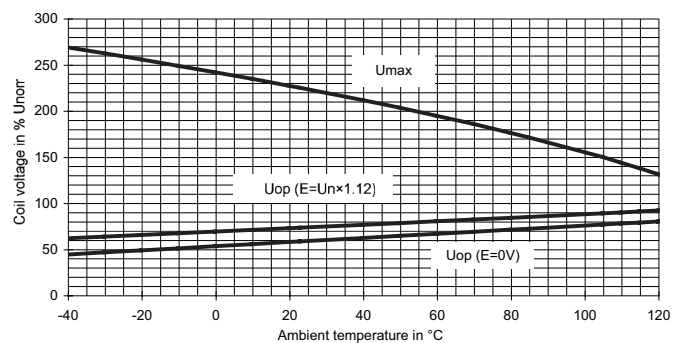
All figures are given for coil without pre-energization, at ambient temperature +23°C.

Max. DC load breaking capacity



Load limit curve I: safe shutdown, arc extinguishes during transit time.  
Load limit curve II: safe shutdown, no stationary arc.  
Load limit curves measured with low inductive resistors verified for 1000 switching events.

Coil operating range



Does not take into account the temperature rise due to the contact current  
E = pre-energization

**Double Micro Relay K (THT – THR)** (Continued)

**Insulation Data**

|                             |                       |
|-----------------------------|-----------------------|
| Initial dielectric strength |                       |
| between open contacts       | 500VAC <sub>rms</sub> |
| between contact and coil    | 500VAC <sub>rms</sub> |

**Other Data**

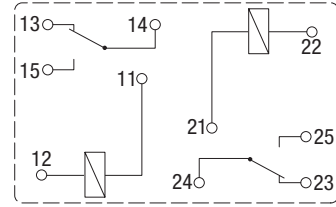
|   |  |
|---|--|
| EU RoHS/ELV compliance                          | compliant  |
| Ambient temperature                             | -40 to +105°C  |
| Cold storage, IEC 60068-2-1                     | 1000h; -40°C   |
| Dry heat, IEC 60068-2-2                         | 1000h; +125°C  |
| Climatic cycling with condensation, EN ISO 6988 | 20 cycles, storage 8/16 h                              |
| Temperature cycling (shock), IEC 60068-2-14, Na | 100 cycles; -40/+125°C                                 |
| Temperature cycling, IEC 60068-2-14, Nb         | 35 cycles; -40/+125°C                                  |
| Damp heat cyclic, IEC 60068-2-30, Db, Variant 1 | 6 cycles 25°C/55°C/93%RH                               |
| Damp heat constant, IEC 60068-2-3 method Ca     | 56 days 40°C/95%RH                                     |
| Degree of protection                            |  |
| THT:  | RT III (61810)   |
| THR:  | RT II (61810)  |
| Corrosive gas, IEC 60068-2-17: THT              | Qc, method 2, 1min, 70°C                               |
| IEC 60068-2-42                                  | 10 days  |
| IEC 60068-2-43                                  | 10 days  |
| Vibration resistance (functional)               |  |
| IEC 60068-2-6 (sine sweep)                      | 10 to 500Hz; 6g <sup>5)</sup>                          |
| Shock resistance (functional)                   |  |
| IEC 60068-2-27 (half sine)                      | 6ms, up to 30g <sup>5)</sup>                           |
| Terminal type                                   | PCB:THT, THR   |
| Weight  | approx. 8g (0.28oz)                                    |
| Solderability (aging 3: 4h/155°C) THT,          |  |
| IEC 60068-2-20                                  | Ta, method 1, hot dip 5s, 215°C                        |
| Resistance to soldering heat THT,               |  |
| IEC 60068-2-20                                  | Tb, method 1A, hot dip 10s, 260°C, with thermal screen |
| Resistance to soldering heat THR,               |  |
| IEC 60068-2-58                                  | 260°C; preheating min 130°C                            |
| Storage conditions                              | according IEC 60068-1 <sup>6)</sup>                    |
| Packaging unit                                  | 990 pcs.   |

5) Depending on mounting position: no change in the switching state >10µs.  
6) For general storage and processing recommendations please refer to our Application Notes and especially to Storage in the Definitions or at <http://relays.te.com/appnotes/>

**Terminal Assignment**

Bottom view on solder pins

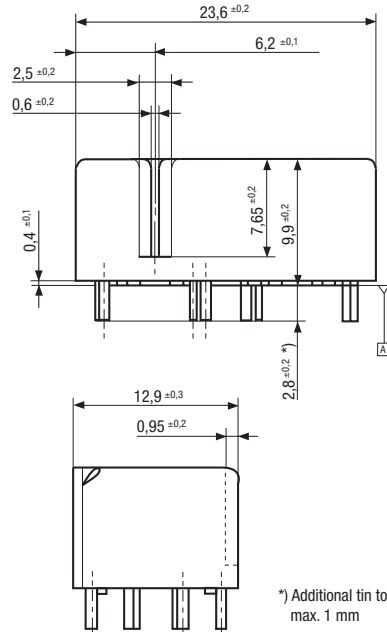
2 form C, 2 CO



86dtw\_ab

**Dimensions**

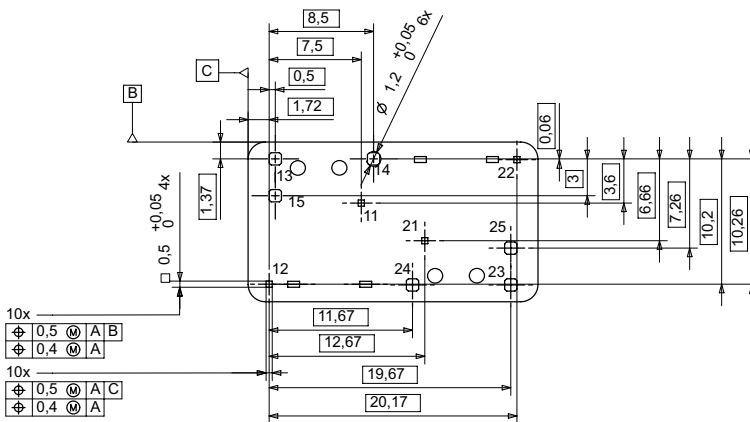
Double Micro Relay THT



\*) Additional tin tops max. 1 mm

**View of the Terminals**

Bottom view on solder pins

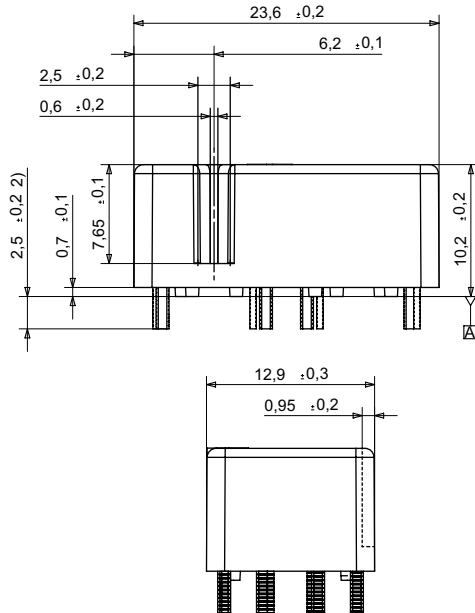


Remark:  
Positional tolerances according to DIN EN ISO 5458

**Double Micro Relay K (THT – THR)** (Continued)

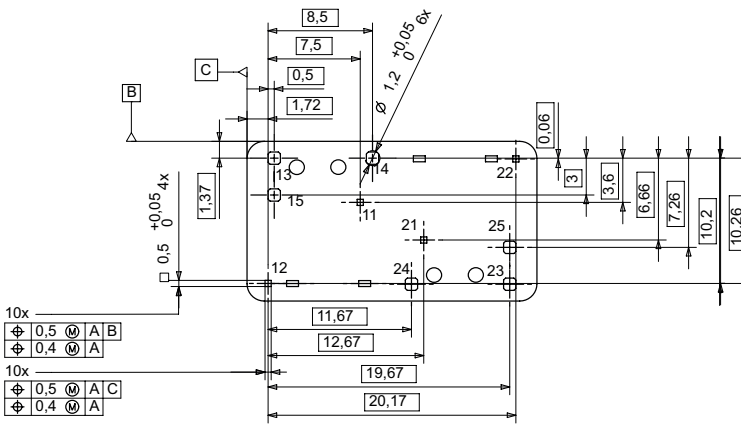
**Dimensions**

Double Micro Relay THR



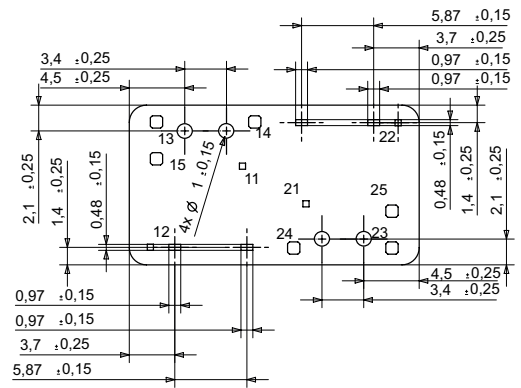
**View of the Terminals**

Bottom view on solder pins



**View of Stand-Offs**

Bottom view on solder pins



**Double Micro Relay K (THT – THR) (Continued)**

|                                  |  |                                      |  |                                  |           |           |           |           |          |           |
|----------------------------------|--|--------------------------------------|--|----------------------------------|-----------|-----------|-----------|-----------|----------|-----------|
| <b>Product code structure</b>    |  | Typical product code                 |  | <b>V23086</b>                    | <b>-C</b> | <b>20</b> | <b>01</b> | <b>-A</b> | <b>4</b> | <b>03</b> |
| <b>Type</b>                      |  | <b>V2086</b> Micro Relay K (THT-THR) |  |                                  |           |           |           |           |          |           |
| <b>Terminal and enclosure</b>    |  | <b>C</b> PCB version THT, sealed     |  | <b>R</b> PCB version THR, vented |           |           |           |           |          |           |
| <b>Design</b>                    |  | <b>20</b> Double relay (THT)         |  | <b>28</b> Double relay (THR)     |           |           |           |           |          |           |
| <b>Coil</b>                      |  | <b>01</b> Standard                   |  | <b>02</b> Sensitive              |           |           |           |           |          |           |
| <b>Contact type</b>              |  | <b>A</b> Single contact              |  |                                  |           |           |           |           |          |           |
| <b>Contact material index</b>    |  | <b>4</b> AgSnO <sub>2</sub> standard |  | <b>8</b> Wiper load              |           |           |           |           |          |           |
| <b>Contact arrangement index</b> |  | <b>03</b> form C (CO)                |  |                                  |           |           |           |           |          |           |

| Product code      | Terminal/Encl.       | Design | Coil      | Contact | Cont. material     | Arrangement                 | Part number |
|-------------------|----------------------|--------|-----------|---------|--------------------|-----------------------------|-------------|
| V23086-C2001-A403 | PCB THT, imm., clean | Double | Standard  | Single  | AgSnO <sub>2</sub> | 2 form C, 2 CO (standard)   | 1413009-9   |
| V23086-R2801-A403 | PCB THR, vented      | relay  |           |         |                    |                             | 6-1414920-1 |
| V23086-R2802-A803 |                      |        | Sensitive |         |                    | 2 form C, 2 CO (wiper load) | 8-1414964-5 |

This list represents the most common types and does not show all variants covered by this datasheet.  
Other types on request.

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[A1001-X036](#)