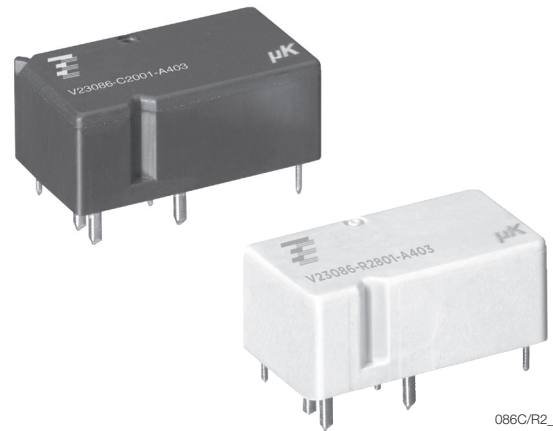


## Double Micro Relay K (THT – THR)

- Small power relay
- Limiting continuous current 30A
- 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

Car alarm, door control, door lock, hazard warning signal, heated front/rear screen, immobilizer, lamps front/rear/fog light, interior lights, seat control, sun roof, turn signal, window lifter, wiper control.



086C/R2\_fw1b

### Contact Data

Contact arrangement	2 form C, 2 CO
Rated voltage	10/12VDC
Rated current <sup>1)</sup>	NO/NC 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. >1x10 <sup>6</sup> ops. >3x10 <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 <http://relays.te.com/appnotes/>
  - 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

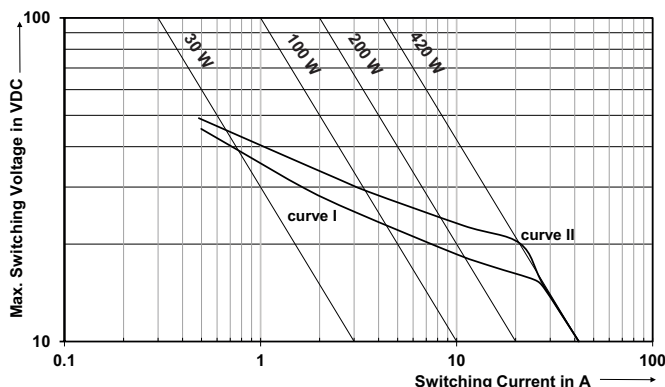
Rated coil voltage	12VDC
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### Coil versions, DC coil

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

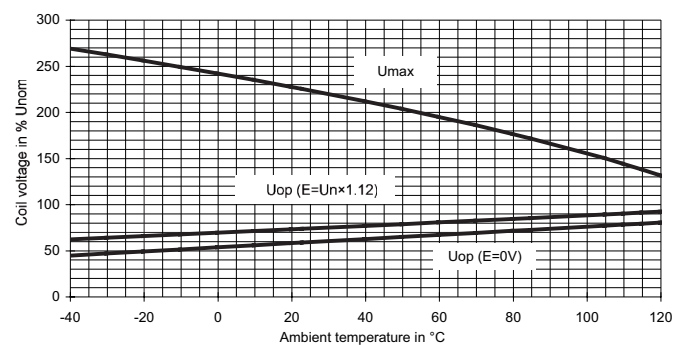
All figures are given for coil without pre-energization, at ambient temperature +23°C.

### 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**

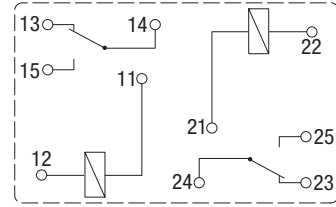
EU RoHS/ELV compliance	compliant
Ambient temperature	-40 to +105°C
Cold storage, IEC 60068-2-1	1000h; -40°C
Dry heat, IEC 60068-2-2	1000h; +125°C
Climatic cycling with condensation, EN ISO 6988	20 cycles, storage 8/16 h
Temperature cycling (shock), IEC 60068-2-14, Na	100 cycles; -40/+125°C
Temperature 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), IP67 (IEC 60529)
THR:	RT II (61810), IP56 (IEC 60529)
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 600688 <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

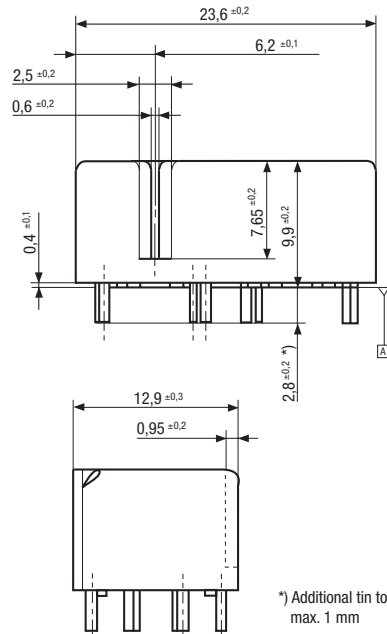
2 form C, 2 CO



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**Dimensions**

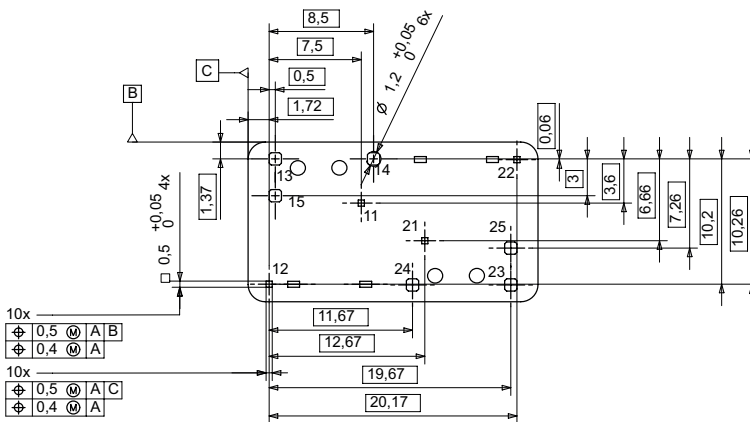
Double Micro Relay THT



\*) Additional tin tops max. 1 mm

**View of the Terminals**

Bottom view on solder pins

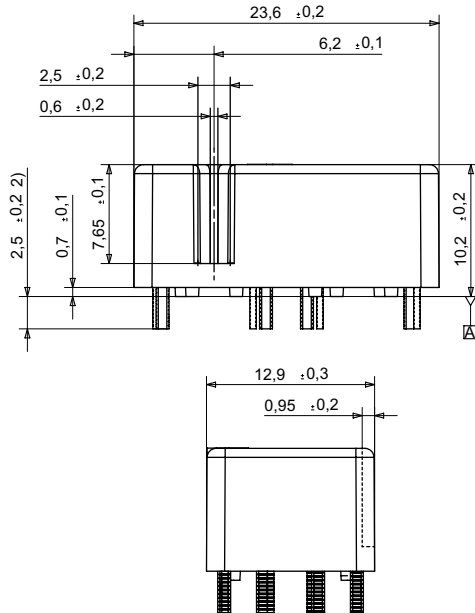


Remark:  
Positional tolerances according to DIN EN ISO 5458

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

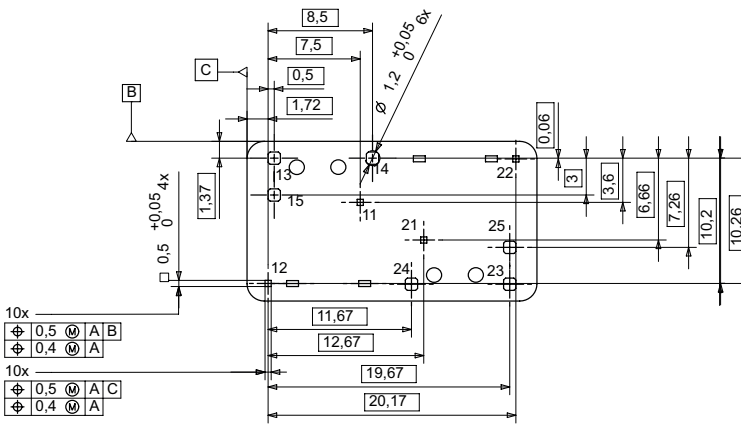
**Dimensions**

Double Micro Relay THR



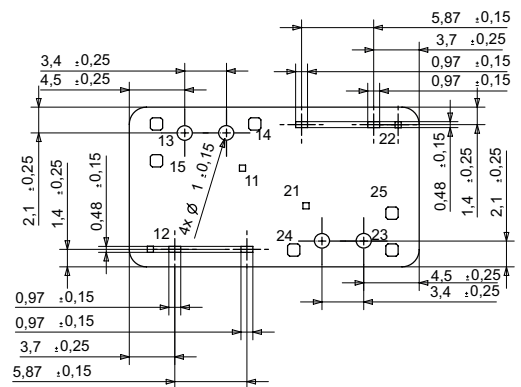
**View of the Terminals**

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.