

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

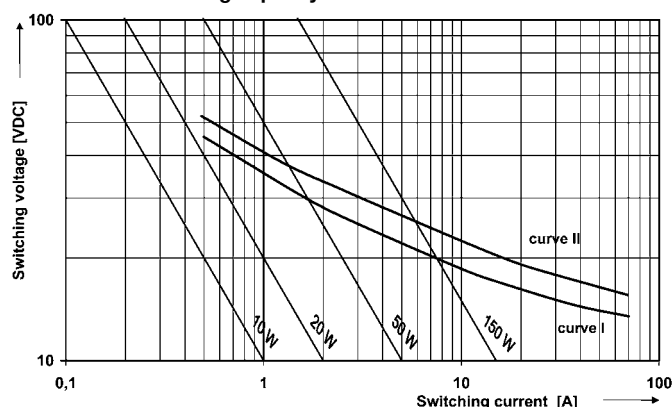
Typical applications

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.

Contact Data

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

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.



086C/R2_fw1b

Contact Data (continued)

- Mechanical endurance > 5x10⁶ ops.
- 1) 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.
 - 2) See chapter Diagnostics of Relays in our Application Notes or consult the internet at <http://relays.te.com/appnotes/>
 - 3) 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

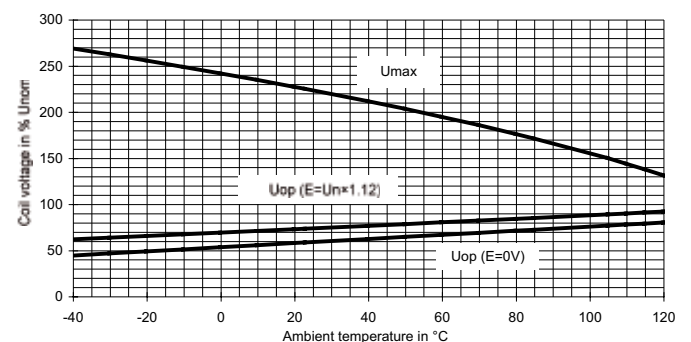
Rated coil voltage	12VDC
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Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$	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.

Coil operating range



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

Insulation Data

Initial dielectric strength	
between open contacts	500VAC _{rms}
between contact and coil	500VAC _{rms}

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

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 ⁽⁶⁾
Shock resistance (functional) IEC 60068-2-27 (half sine)	6ms, up to 30g ⁽⁶⁾
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 ⁷⁾
Packaging unit	990 pcs.

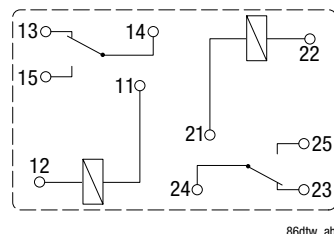
6) Depending on mounting position: no change in the switching state $> 10\mu\text{s}$.

7) 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

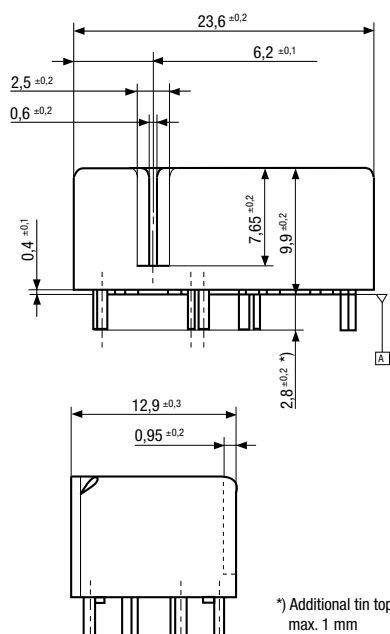
Bottom view on solder pins

2 form C, 2 CO



Dimensions

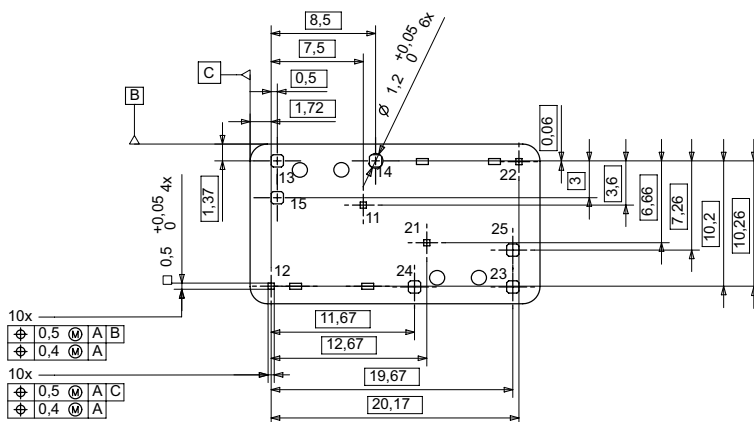
Double Micro Relay THT



*) Additional tin tops
max. 1 mm

View of the Terminals

Bottom view on solder pins



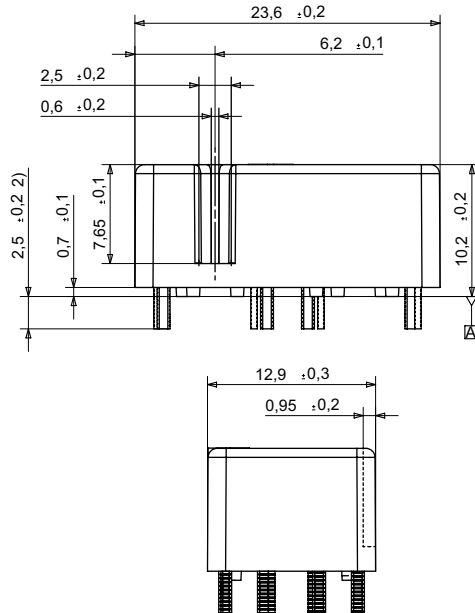
Remark:

Positional tolerances according to DIN EN ISO 5458

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

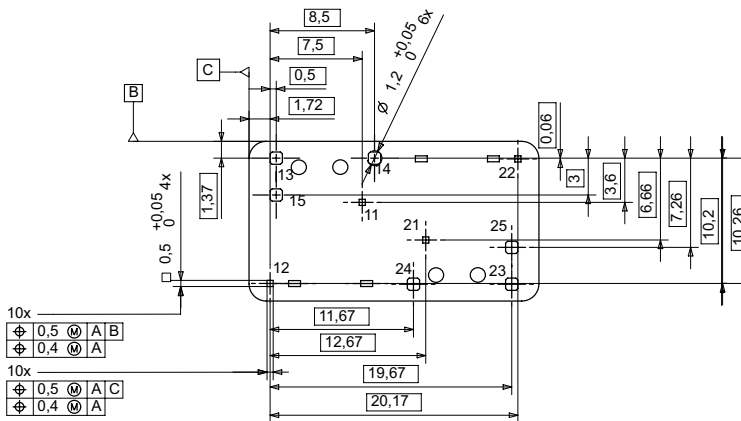
Dimensions

Double Micro Relay THR



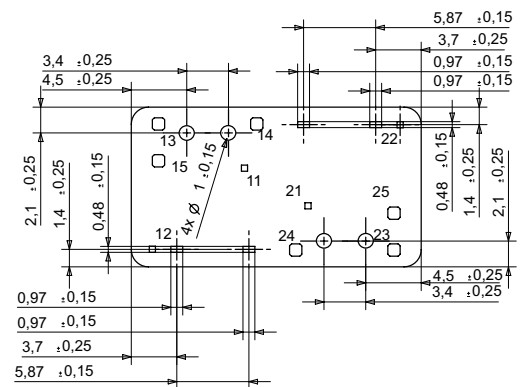
View of the Terminals

Bottom view on solder pins



View of Stand-Offs

Bottom view on solder pins



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

Product code structure			Typical product code		V23086	-C	20	01	-A	4	03
Type			V2086		Micro Relay K (THT-THR)						
Terminal and enclosure			C		PCB version THT, sealed		R		PCB version THR, vented		
Design			20		Double relay (THT)		28		Double relay (THR)		
Coil			01		Standard		02		Sensitive		
Contact type			A		Single contact						
Contact material index			4		AgSnO2 standard		8		Wiper load		
Contact arrangement index			03		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 ₂	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.