

Double Micro Relay K (THT – THR)

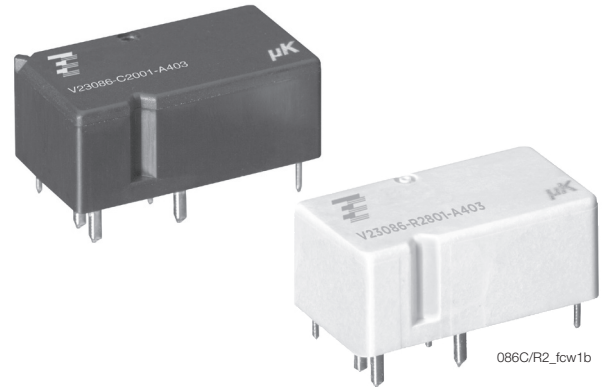
- Small power relay
- Limiting continuous current 20A at 85°C
- Minimal weight
- Low noise operation
- Wave (THT) and reflow (THR/pin-in-paste) solderable versions
- For single version refer to Single Micro Relay K

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 ¹⁾	NO/NC 30A/25A
Limiting continuous current ¹⁾	
23°C	30/25A
85°C	20/15A
105°C	15/10A
Limiting making current	40A ²⁾
Limiting breaking current	30A
Contact material	AgSnO ₂
Min. contact load	1A at 5VDC ³⁾
Initial voltage drop at 10A, typ./max.	30/300 mV
Operate/release time	typ. 3/1.5ms ⁴⁾
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	>1x10 ⁵ ops.



Contact Data (continued)

- Mechanical endurance > 5x10⁶ ops.
- 1) Measured on 70x70x1.5mm epoxy PCB FR4 with 25cm² (double layer 105µm) copper area. Connecting cable cross section 6 mm². 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

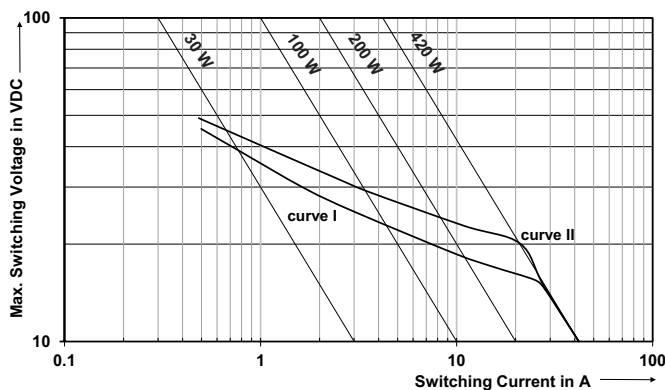
Rated coil voltage	12VDC
--------------------	-------

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

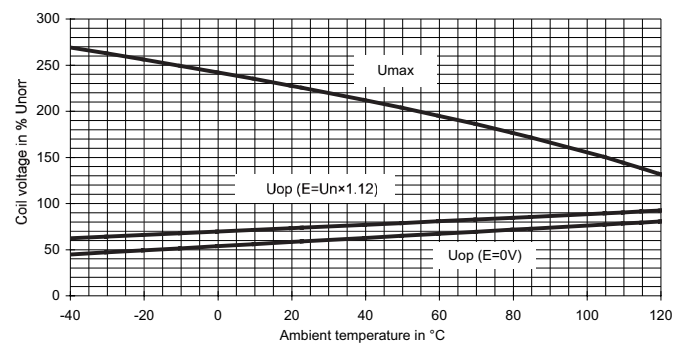


Load limit curve I: safe shutdown, arc extinguishes during transit time.

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 _{rms}
between contact and coil	500VAC _{rms}

Other Data

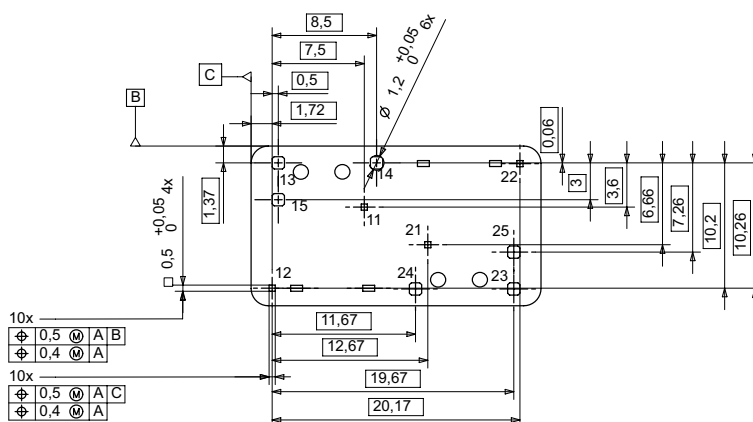
EU RoHS/ELV compliance	compliant
Ambient temperature	-40 to +105°C
Cold storage, IEC 60068-2-1	1000h; -40°C
Dry heat, IEC 60068-2-2	1000h; +125°C
Climatic cycling with condensation, EN ISO 6988	20 cycles, storage 8/16 h
Temperature cycling (shock), IEC 60068-2-14, Na	100 cycles; -40/+125°C
Temperature 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 ⁵⁾
Shock resistance (functional) IEC 60068-2-27 (half sine)	6ms, up to 30g ⁵⁾
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 ⁶⁾
Packaging unit	990 pcs.

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

6) For general storage and processing recommendations please refer to our Application Notes and especially to Storage in the Definitions or at <http://relavs.te.com/appnotes>

View of the Terminals

Bottom view on solder pins



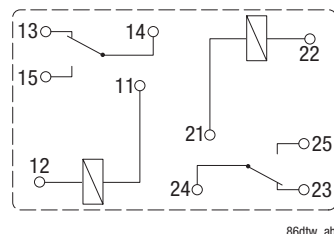
Remark:

Positional tolerances according to DIN EN ISO 5458

Terminal Assignment

Bottom view on solder pins

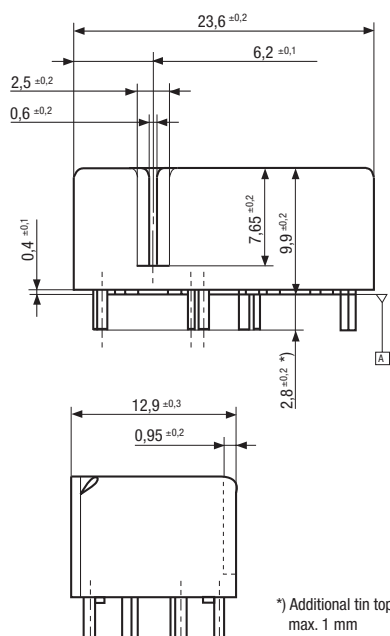
2 form C, 2 CO



86dtw at

Dimensions

Double Micro Relay THT

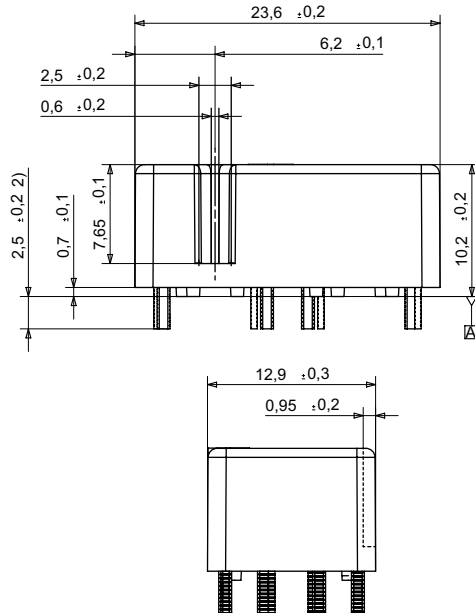


*) Additional tin tops
max. 1 mm

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

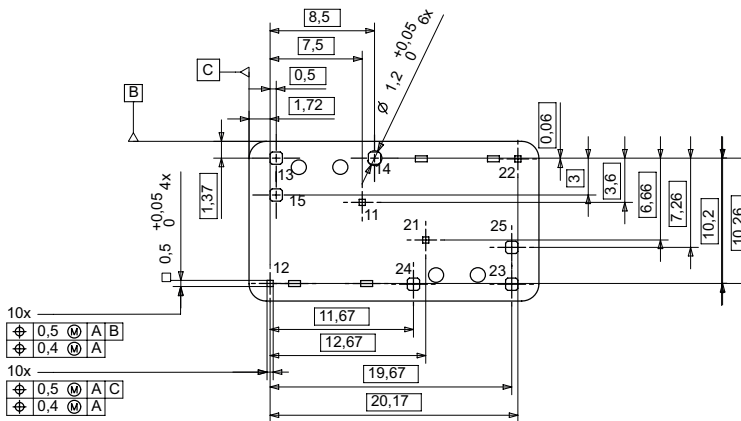
Dimensions

Double Micro Relay THR



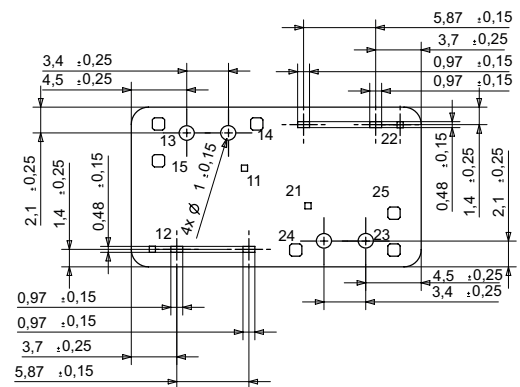
View of the Terminals

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	AgSnO ₂ 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.