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, interior lights, seat control, sun roof, window lifter, wiper control.

Contact Data	
Contact arrangement	2 form C, 2 CO
Rated voltage	12VDC
Maximum switching voltage	16VDC
	NO/NC
Rated current[1)]	30/25A
Limiting continuous current[1)]	
23°C	30/25A
85°C	20/15A
105°C	15/10A
125°C	on request

Contact Data (continued)	
Contact material	silver alloy
Min. contact load[2)]	1A 5VDC
Initial voltage drop	
NO contact at 10A, typ./max.	30/300mV
NC contact at 10A, typ./max.	30/300mV
Operate time[3)]	typ. 3ms
Release time[3)]	typ. 1.5ms
Mechanical endurance	>5x10^6 ops.

Electrical Endurance 12VDC Coil

Load voltage/ coil voltage	Load type			Load current 1 form C NO	Load current 1 form C NC	On / off ratio	Electrical endurance[4)]
14VDC	resistive		make	20A		0.12s/4.88s	>1x10^5 ops.
			break	20A			
	Motor reverse blocked	L=0.77mH	make	25A		0.12s/4.88s	>1x10^5 ops.
			break	25A			
	Wiper	L=1mH	make	25A	20A	0.12s/4.88s	>1x10^5 ops.
			break	5A	0A		

All tests performed with cyclic temperature -40 to 85°C

1) Measured on 70x70x1.5mm epoxy PCB FR4 with 25cm^2 (double layer 105µm) copper area. Connecting cable cross section 6 mm^2. Boundary conditions: 180°C coil temperature;130°C solder joint.
2) See Definitions for automotive relays https://relays.te.com/definitions/ and chapter Diagnostics of Relays in our Application Notes at https://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.
4) According Weibull

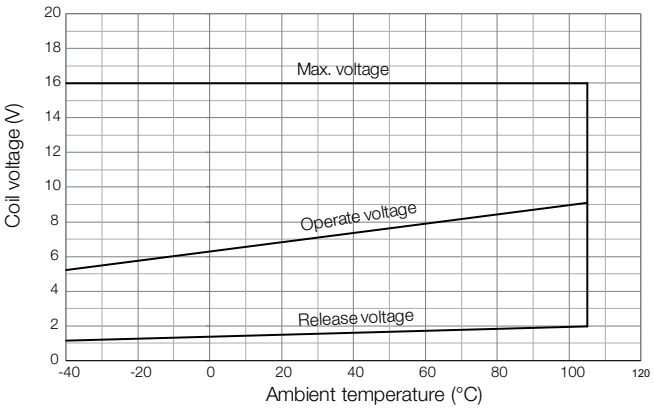
Double Micro Relay K (THT – THR) (Continued)

Coil Data

Coil code	Rated voltage [VDC]	Must Operate voltage [VDC]	Must Release voltage [VDC]	Coil resist. ±10% [Ω]	Rated coil power [W]
001	12	6.9	1.50	254	0.57
801	12	6.9	1.50	254	0.57
802	12	5.7	1.25	181	0.80

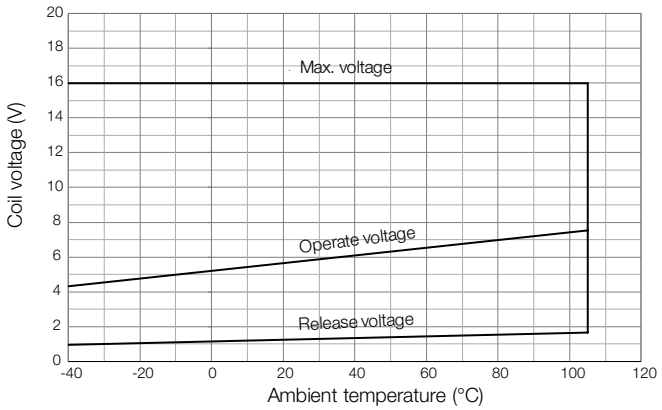
All figures are given for coil without pre-energization, at ambient temperature +23°C.

Coil operating range coil 001/801



Does not take into account the temperature rise due to the contact current

Coil operating range coil 802



Does not take into account the temperature rise due to the contact current

Insulation Data

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

Other Data

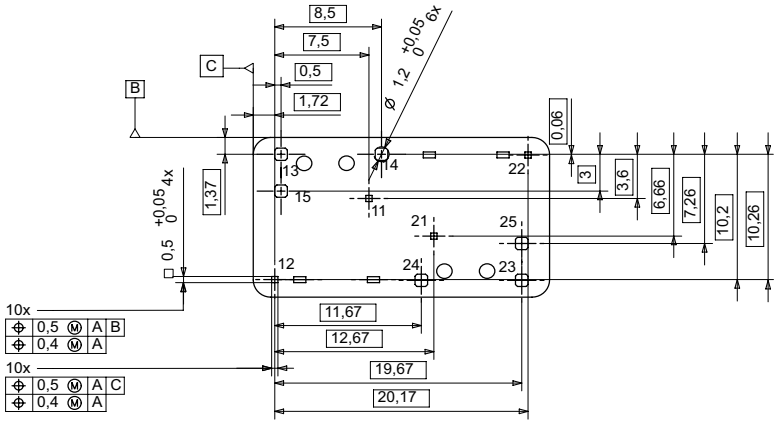
EU RoHS/ELV compliance		compliant
Ambient temperature		-40 to +105°C
Cold storage		
IEC 60068-2-1 (2007-03)		1000h; -40°C
Dry heat		
IEC 60068-2-2 (2007-07)		1000h; +125°C
Rapid change of temperature (thermal shock),		
IEC 60068-2-14 (2009-01)		
Na		100 cycles, -40°C /+125°C
Damp heat cyclic,		
IEC 60068-2-30 (1985-08)		
Db, variant 1		6 cycles 25°C/55°C/93%RH
Category of environmental protection		
IEC 61810 (2008-01)	THT:	RT III
	THR:	RT II
Sealing test		
IEC 60068-2-17 (1994-07)	THT:	Qc, method 2, 1min, 70°C
	THR:	n.a. - vented
Vibration resistance (functional)		
IEC 60068-2-6 (2007-12)		10 to 500Hz, 6g
sine sweep		No change of switching state >10µs
Shock resistance (functional) half sine		
IEC 60068-2-27 (2008-02)		
open NO contact will not close >10µs		6ms, up to 30g[6]
Solderability (aging 3: 4h/155°C)		
IEC 60068-2-20 (2008-07)		Ta, method 1, hot dip 5s, 215°C
Resistance to soldering heat THT		Tb, method 1A, hot dip 10s,
IEC 60068-2-20 (2008-07)		260°C with thermal screen
Resistance to soldering heat THR		Tb, method 1A, hot dip 10s,
IEC 60068-2-58 (2017-07)		260°C; preheating min 130°C
Terminal type		PCB: THT, THR
Weight		approx. 8g (0.28oz)
Storage conditions[7]		according IEC 60068-1 (2017-07)
Packaging unit		990 pcs.

6) Depending on mounting position: no change in switching state >10µs.

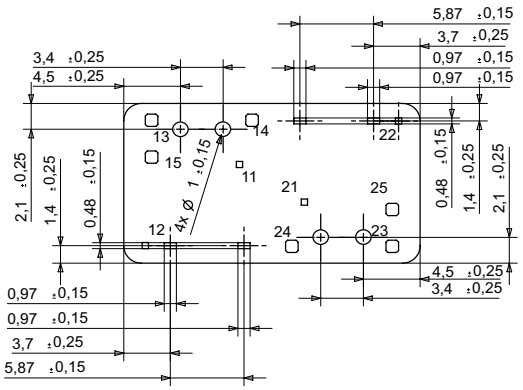
7) For general storage and processing recommendations please refer to our Application Notes and especially to Storage in the Definitions or at https://relays.te.com/appnotes/

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

View of the Terminals
Bottom view on solder pins



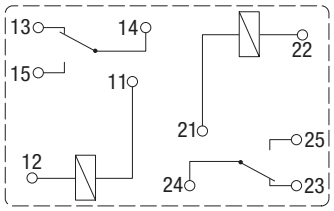
View of Stand-Offs
Bottom view on solder pins



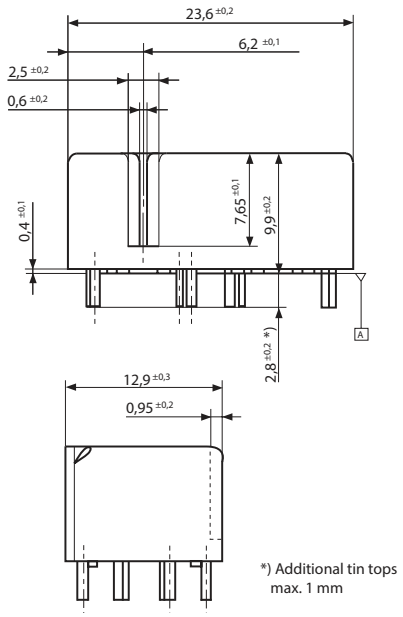
Remark:
Positional tolerances according to DIN EN ISO 5458

Terminal Assignment
Bottom view on solder pins

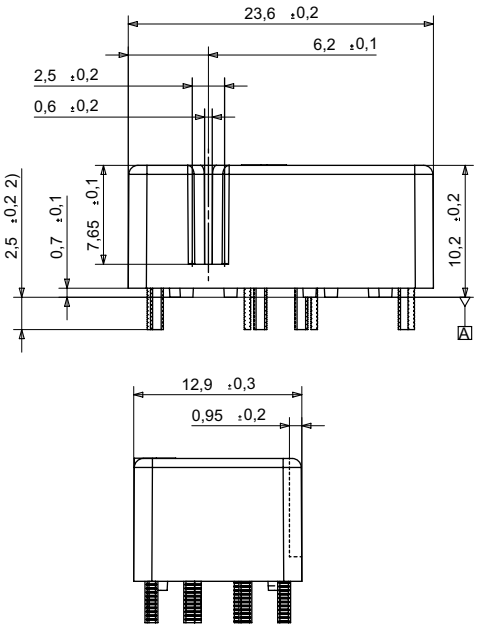
2 form C, 2 CO



Dimensions
Double Micro Relay THT



Dimensions
Double Micro Relay THR



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	Silver alloy	**8**	Wiper load
Contact arrangement index			
03	1 form C (CO)		

Product Code	Version	Design	Coil	Contact	Arrangement	Part Number
V23086-C2001-A403	PCB THT, cleanable	Double	Standard	Single	2 form C, 2 CO (standard)	1413009-9
V23086-R2801-A403	PCB THR, vented					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.