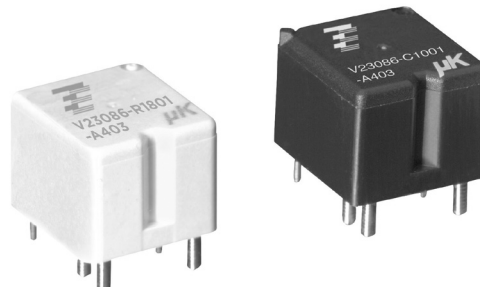


## Micro Relay K (THT – THR)

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



### Typical applications

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

### Contact Data

Typical load	Inductive load V23086-*1*01-A403	Wiper load V23086-*1*02-A803	Resistive/inductive load V23086-*1*01-A402
Contact arrangement	1 form C, 1 CO	1 form C, 1 CO	1 form A, 1 NO
Rated voltage	12VDC	12VDC	12VDC
Maximum switching voltage	16VDC	16VDC	16VDC
Rated current <sup>1)</sup>	NO/NC 30/25A	NO/NC 30/25A	NO 30A
Limiting continuous current <sup>1)</sup>			
23°C	30/25A	30/25A	30A
85°C	20/15A	20/15A	20A
105°C	15/10A	15/10A	15A
125°C	on request	on request	on request
Contact material	silver alloy	silver alloy	silver alloy
Min. contact load <sup>2)</sup>	1A 5VDC	1A 5VDC	1A 5VDC
Initial voltage drop			
NO contact at 10A, typ./max.	30/300mV	30/300mV	30/300mV
NC contact at 10A, typ./max.	30/300mV	30/300mV	
Operate time <sup>3)</sup>	typ. 3ms	typ. 3ms	typ. 3ms
Release time <sup>3)</sup>	typ. 1.5ms	typ. 1.5ms	typ. 1.5ms
Mechanical endurance	>5x10 <sup>6</sup> ops.	>5x10 <sup>6</sup> ops.	>5x10 <sup>6</sup> ops.

### Electrical Endurance 12VDC Coil

Load voltage/ coil voltage	Load type		Load current			On / off ratio	Electrical endurance <sup>4)</sup>
			1 form A	1 form C			
			NO	NC			
14VDC	resistive		make			0.12s/4.88s	>1x10 <sup>5</sup> ops.
			break	20A			
	Motor reverse blocked	L=0.77mH	make		25A	0.12s/4.88s	>1x10 <sup>5</sup> ops.
			break		25A		
	Wiper	L=1mH	make		25A	0.12s/4.88s	>1x10 <sup>6</sup> ops.
			break		5A		

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

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.

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

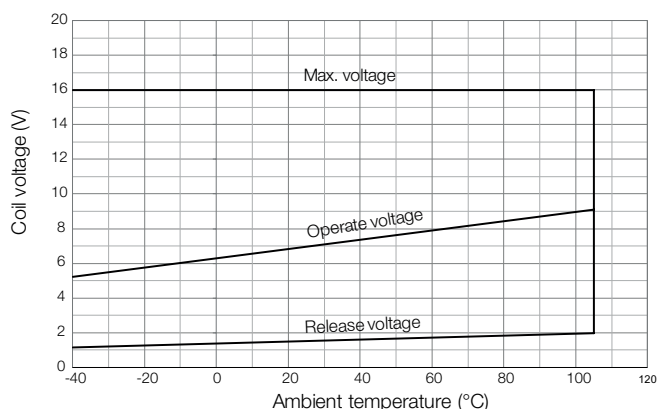
## Micro Relay K (THT – THR) (Continued)

### Coil Data

Coil code	Rated voltage [VDC]	Must Operate voltage [VDC]	Must Release voltage [VDC]	Coil resist. ±10% [Ω]	Rated coil power [W]
001/801	12	6.9	1.50	254	0.57
002/802	12	5.7	1.25	181	0.80

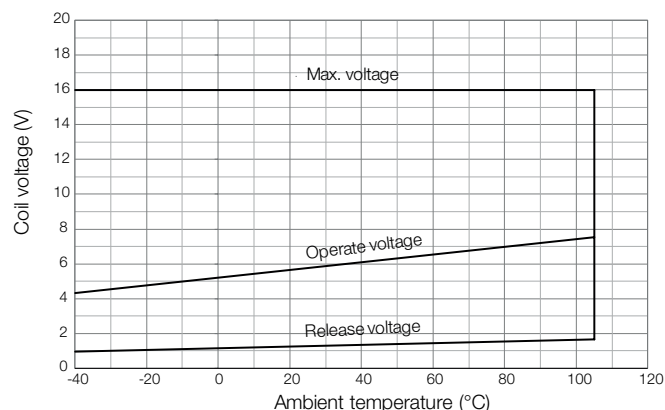
All figures are given for coil without pre-energization, at ambient temperature +23°C.

### Coil operating range coil 001/801



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

### Coil operating range coil 002/802



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

### Insulation Data

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

### Other Data

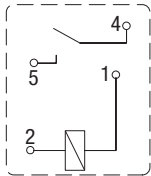
EU RoHS/ELV compliance	compliant	
Ambient temperature	-40 to +105°C	
Cold storage		
IEC 60068-2-1 (2007-03)	1000h;	-40°C
Dry heat		
IEC 60068-2-2 (2007-07)	1000h;	+125°C
Rapid change of temperature (thermal shock),		
IEC 60068-2-14 (2009-01)		
Na	100 cycles,	-40°C / +125°C
Damp heat cyclic,		
IEC 60068-2-30 (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 <sup>5)</sup>	
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. 4g (0.14oz)	
Storage conditions <sup>6)</sup>	according IEC 60068-1 (2017-07)	
Packaging unit	2000 pcs.	
5) Depending on mounting position: no change in 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 <a href="http://relays.te.com/appnotes/">http://relays.te.com/appnotes/</a>		

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

**Terminal Assignment**

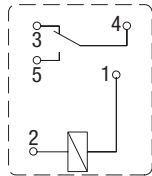
Bottom view on solder pins

1 form A, 1 NO



86ets\_ab

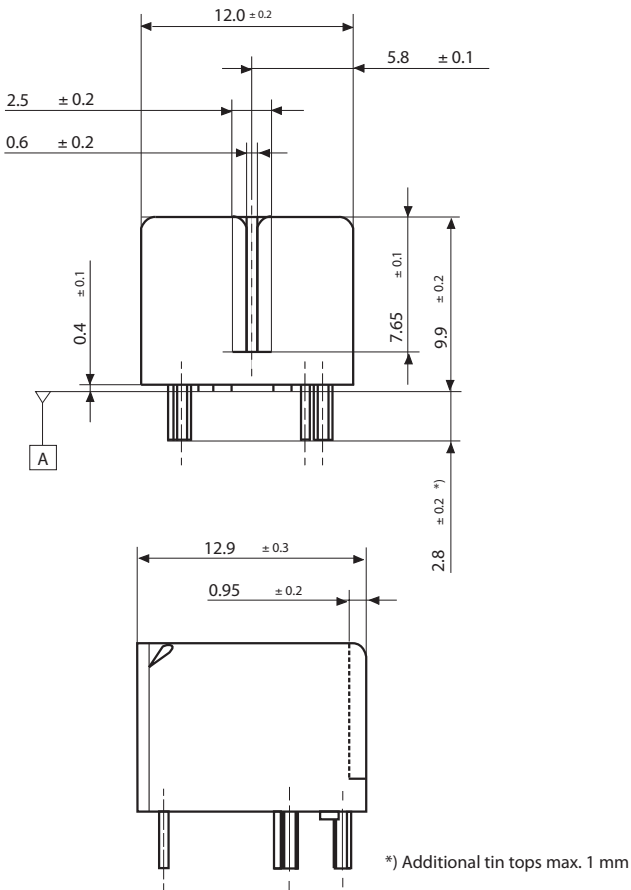
1 form C, 1 CO



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**Dimensions**

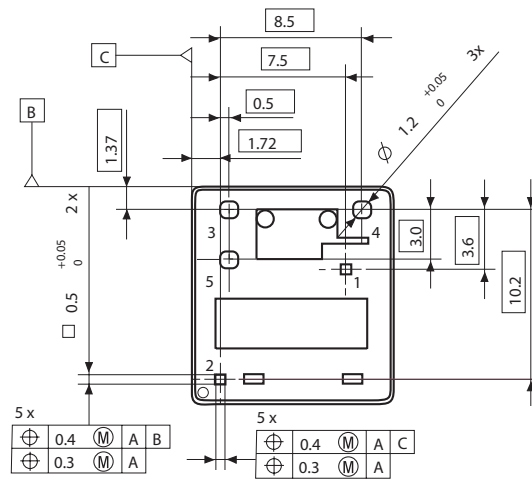
Micro Relay K, THT version



\*) Additional tin tops max. 1 mm

**Mounting Hole Layout**

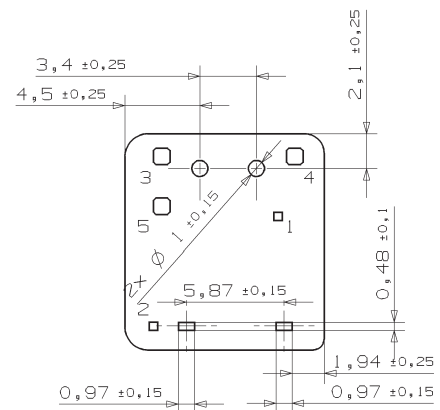
Bottom view on solder pins



Remark: Positional tolerances according to DIN EN ISO 5458

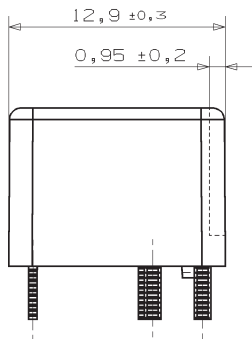
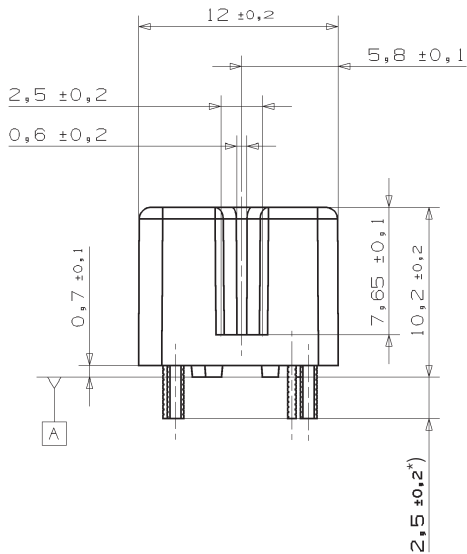
**View of Stand-Offs**

Bottom view on solder pins

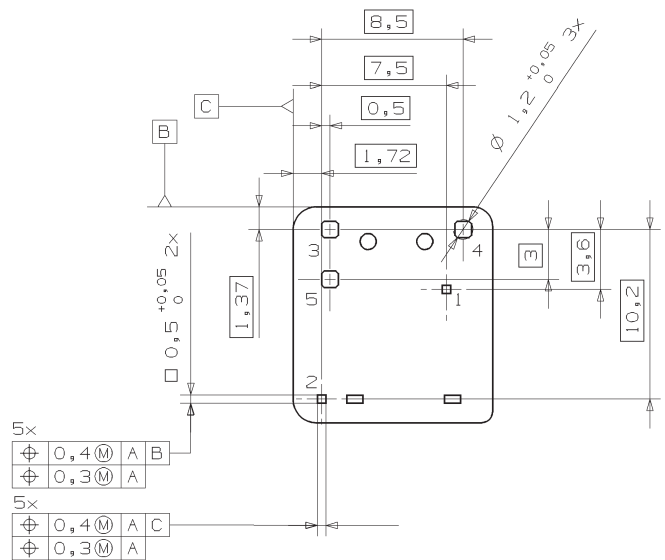


**Micro Relay K (THT – THR)** (Continued)

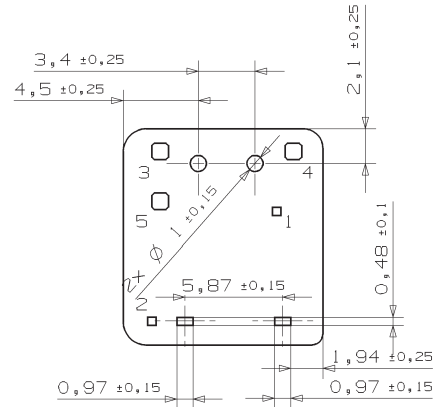
**Dimensions**  
Micro Relay K, THR version



**Mounting Hole Layout**  
Bottom view on solder pins



**View of Stand-Offs**  
Bottom view on solder pins



\*) Additional tin tops max. 1mm

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

<b>Product Code Structure</b>		Typical product code		<b>V23086</b>	<b>-C</b>	<b>1</b>	<b>001</b>	<b>-A</b>	<b>4</b>	<b>03</b>
<b>Type</b>	<b>V23086</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>1</b> Single relay									
<b>Coil</b>	<b>001</b> Standard (THT)		<b>002</b> Sensitive (THT)							
	<b>801</b> Standard (THR)		<b>802</b> Sensitive (THR)							
<b>Contact type</b>	<b>A</b> Single contact									
<b>Contact material index</b>	<b>4</b> Silver alloy standard		<b>8</b> Silver alloy wiper load							
<b>Contact arrangement index</b>	<b>02</b> NO		<b>03</b> CO							

Product Code	Version	Design	Coil	Contact	Arrangement	Part Number
V23086-C1001-A402	PCB THT, cleanable	Single	Standard	Single	1 form A, 1 NO	0-1393280-5
V23086-C1001-A403					1 form C, 1 CO	0-1393280-6
V23086-C1002-A803			Sensitive		1 form C, 1 CO	2-1414987-3
V23086-R1801-A402	PCB THR,		Standard		1 form A, 1 NO	2-1904093-2
V23086-R1801-A403	vented				1 form C, 1 CO	6-1414920-0
V23086-R1802-A803			Sensitive		1 form C, 1 CO	7-1414967-8

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