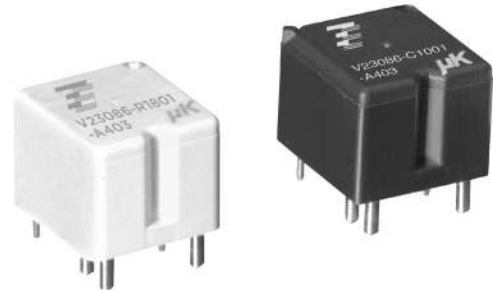


Micro Relay K (THT – THR)

- 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 ¹⁾	NO/NC 30/25A	NO/NC 30/25A	NO 30A
Limiting continuous current ¹⁾			
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 ²⁾	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 ³⁾	typ. 3ms	typ. 3ms	typ. 3ms
Release time ³⁾	typ. 1.5ms	typ. 1.5ms	typ. 1.5ms
Mechanical endurance	>5x10 ⁶ ops.	>5x10 ⁶ ops.	>5x10 ⁶ ops.

Electrical Endurance 12VDC Coil

Load voltage/ coil voltage	Load type		Load current			On / off ratio	Electrical endurance ⁴⁾
			1 form A	1 form C			
			NO	NC			
14VDC	resistive		make			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	0.12s/4.88s	>1x10 ⁶ ops.
			break		5A		

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

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.

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

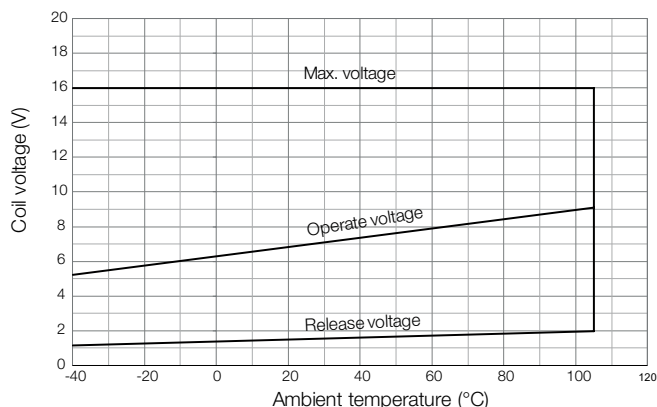
Micro Relay K (THT – THR) (Continued)

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

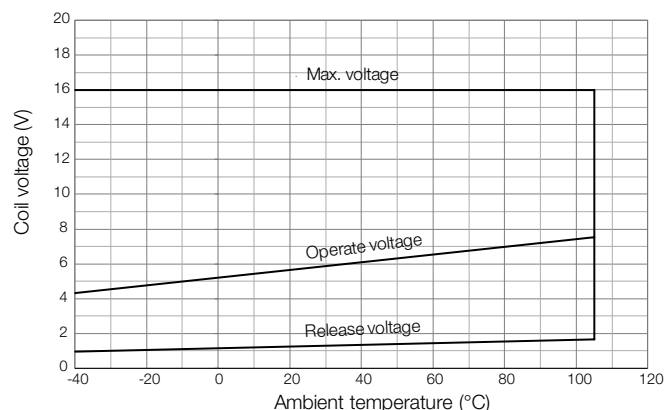
All figures are given for coil without pre-energization, at ambient temperature +23°C.

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

Other Data

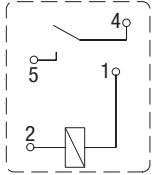
EU RoHS/ELV compliance	compliant	
Ambient temperature	-40 to +105°C	
Cold storage		
IEC 60068-2-1 (2007-03)	1000h;	-40°C
Dry heat		
IEC 60068-2-2 (2007-07)	1000h;	+125°C
Rapid change of temperature (thermal shock),		
IEC 60068-2-14 (2009-01)		
Na	100 cycles,	-40°C / +125°C
Damp heat cyclic,		
IEC 60068-2-30 (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 ⁵⁾	
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 ⁶⁾	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 http://relays.te.com/appnotes/		

Micro Relay K (THT – THR) (Continued)

Terminal Assignment

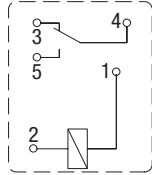
Bottom view on solder pins

1 form A, 1 NO



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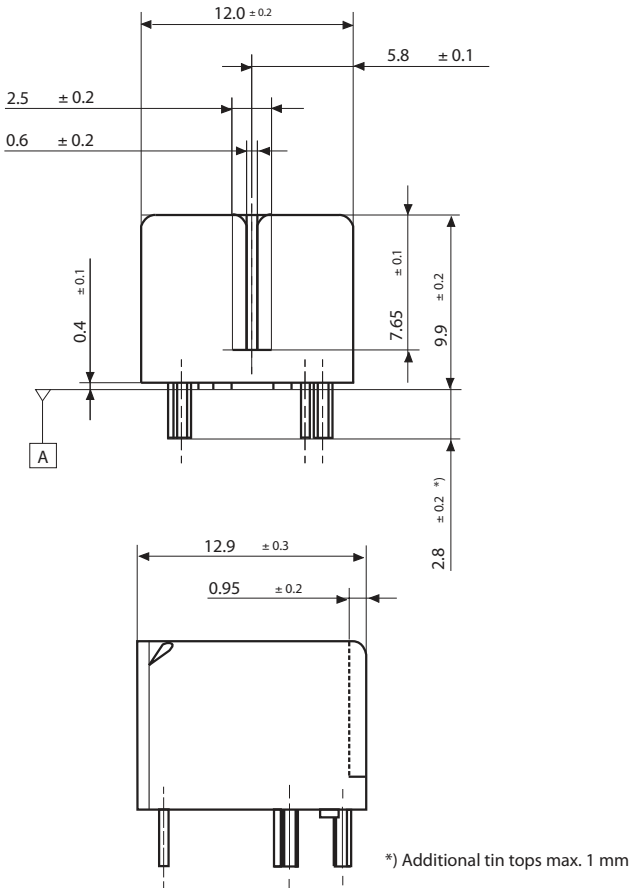
1 form C, 1 CO



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Dimensions

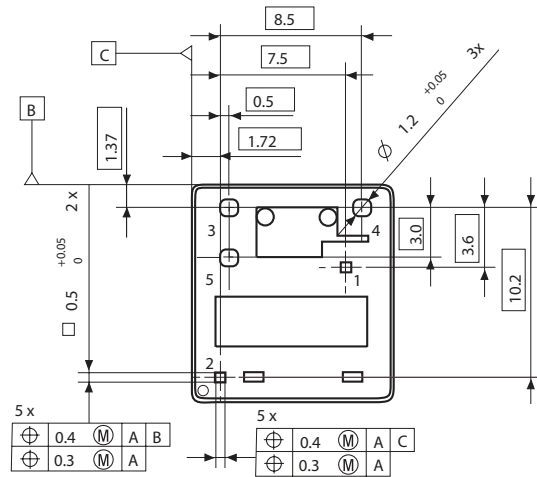
Micro Relay K, THT version



*) Additional tin tops max. 1mm

Mounting Hole Layout

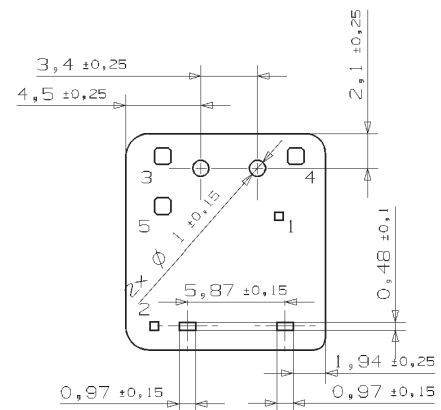
Bottom view on solder pins



Remark: Positional tolerances according to DIN EN ISO 5458

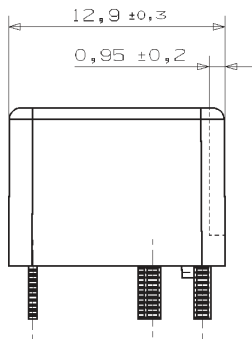
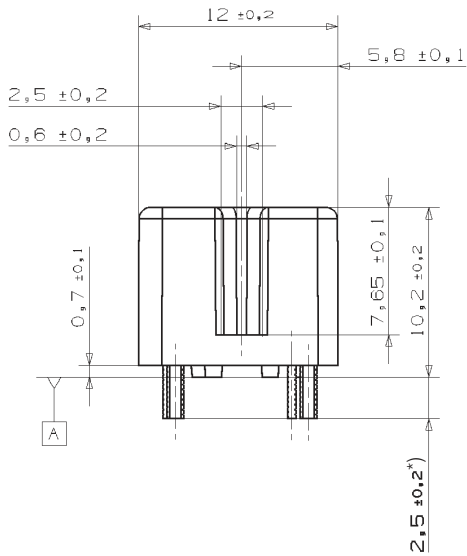
View of Stand-Offs

Bottom view on solder pins

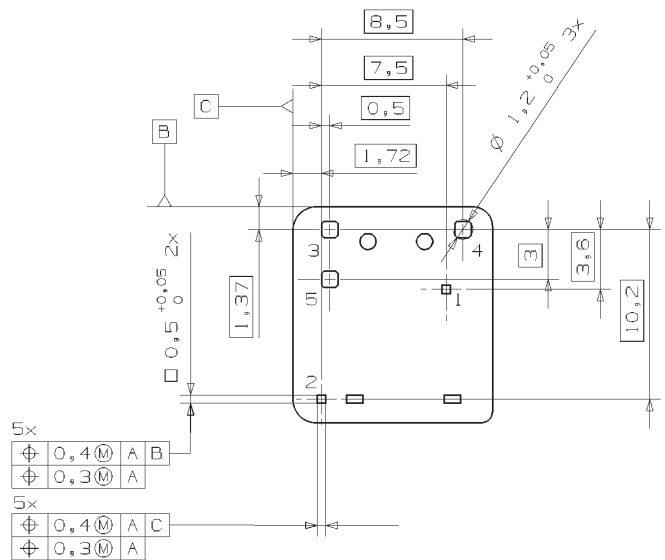


Micro Relay K (THT – THR) (Continued)

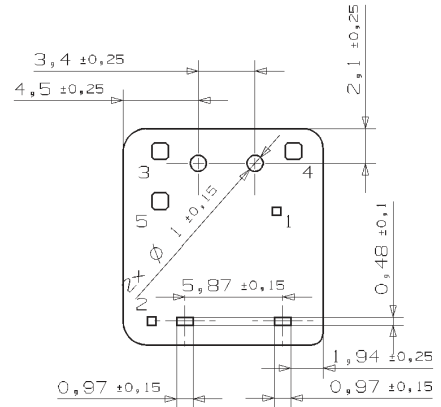
Dimensions
Micro Relay K, THR version



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)

Product Code Structure		Typical product code		V23086	-C	1	001	-A	4	03
Type	V23086 Micro Relay K (THT – THR)									
Terminal and enclosure	C PCB version THT, sealed		R PCB version THR, vented							
Design	1 Single relay									
Coil	001 Standard (THT)		002 Sensitive (THT)							
	801 Standard (THR)		802 Sensitive (THR)							
Contact type	A Single contact									
Contact material index	4 Silver alloy standard		8 Silver alloy wiper load							
Contact arrangement index	02 NO		03 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.