

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 twin version refer to Double Micro Relay K
- For latching (bistable) version refer to Micro Relay K Latching
- For surface mounted technology refer to SMT versions

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.

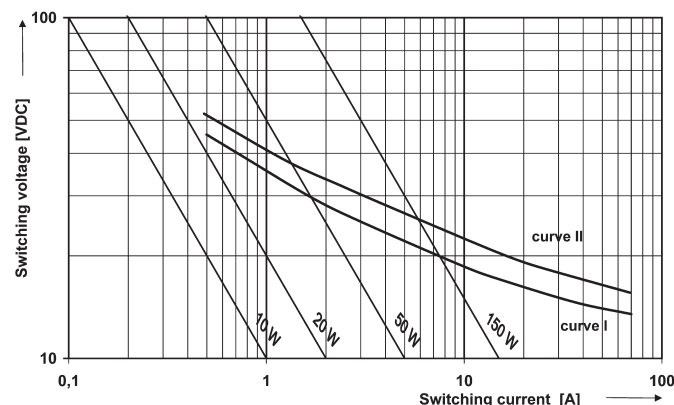


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Contact Data

Typical applications	Resistive/inductive load V23086-*100*-A403	Wiper load V23086-*1*02-A803	Flasher load V23086-C100*-A602	Lamp load V23086-***21-A502
Contact arrangement	1 form C, 1 CO	1 form C, 1 CO	1 form A, 1 NO	1 form A, 1 NO
Rated voltage	10/12VDC	10/12VDC	10/12VDC	10/12VDC
Rated current	NO/NC 30/25A	NO/NC 30/25A	30A	30A
Limiting continuous current				
23°C	30/25A	30/25A	30A	30A
85°C	20/15A	20/15A	20A	20A
Limiting making current	40A ¹⁾	40A ¹⁾	70A ²⁾	100A ²⁾
Limiting breaking current	30A	30A	30A	30A
Contact material	AgSnO ₂			
Min. recommended contact load	1A at 5VDC ³⁾			
Initial voltage drop at 10A, typ./max.	30/300mV			
Operate/release time	typ. 3/1.5ms ⁴⁾			
Electrical endurance				
cyclic temperature -40°C, +25°C, +85°C				
form C contact (CO) at 14VDC	motor reverse blocked, 25A, 0.77mH >1x10 ⁵ ops.	wiper, 25A make/5A break, generator peak, 20A on NC, 1mH >1x10 ⁶ ops.		
form A contact (NO) at 14VDC	resistive 20A >3x10 ⁵ ops.		flasher up to 3x21W, turn and hazard signal in sequence >2x10 ⁶ ops.	lamp 100A inrush, 10A steady state >1x10 ⁵ ops.
Mechanical endurance	>5x10 ⁶ ops.			

Max. DC load breaking capacity



Load limit curve 1: arc extinguishes, during transit time (changeover contact).

Load limit curve 2: safe shutdown, no stationary arc (make contact).

Load limit curves measured with low inductive resistors verified for 1000 switching events.

- 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) Corresponds to the peak inrush current on initial actuation (cold filament).
- 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.

Micro Relay K (THT – THR) (Continued)

Coil Data

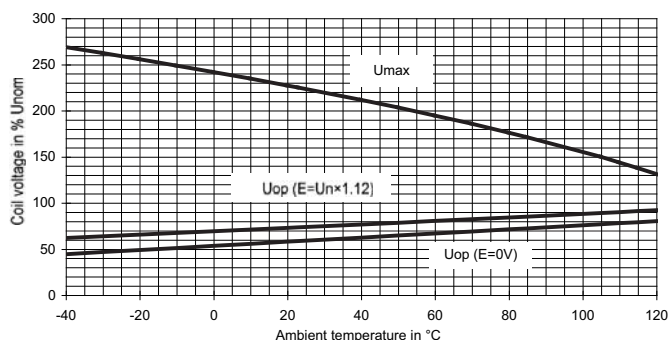
Rated coil voltage 12VDC

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
001/801	12	6.9	1.5	254	567
002/802	10	5.7	1.25	181	552
021/821	10	6.9	1.5	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}

Other Data

EU RoHS/ELV compliance	compliant
Ambient temperature, DC coil	-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 8/16h
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)
Sealing test, IEC 60068-2-17: THT	Qc, method 2, 1min, 70°C
Corrosive gas	
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. 4g (0.14oz)
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 ⁶⁾
Packaging unit	2000 pcs.

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

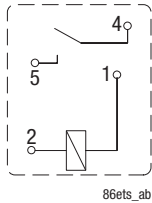
6) For general storage and processing recommendations please refer to our Application Notes and especially to Storage in the Definitions or at <http://relays.tycoelectronics.com/appnotes/>

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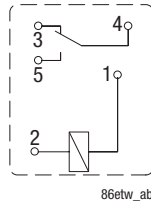
Terminal Assignment

Bottom view on solder pins

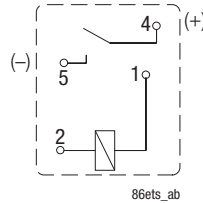
1 form A, 1 NO



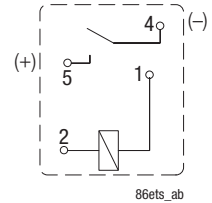
1 form C, 1 CO



1 form A, 1 NO (flasher)

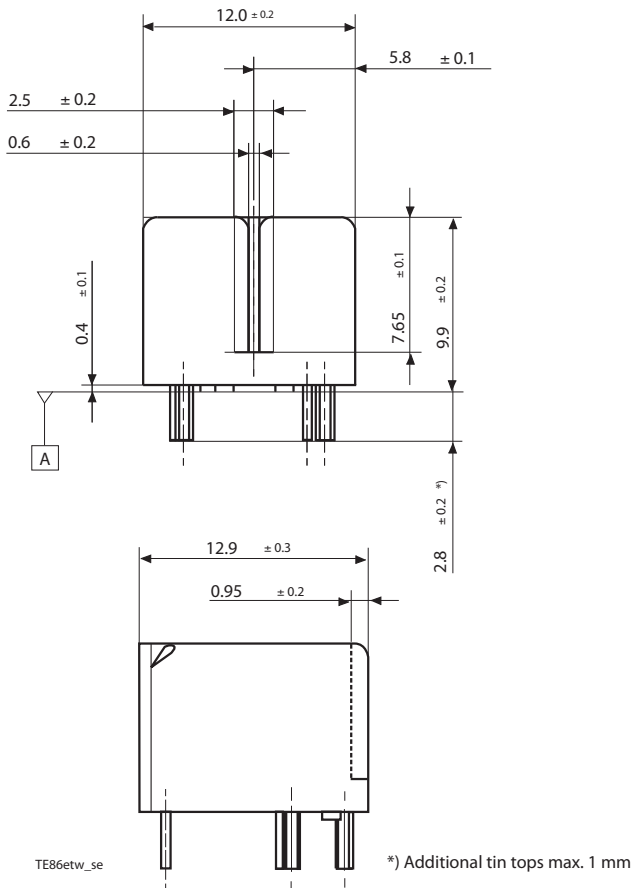


1 form A, 1 NO (lamp load)



Dimensions

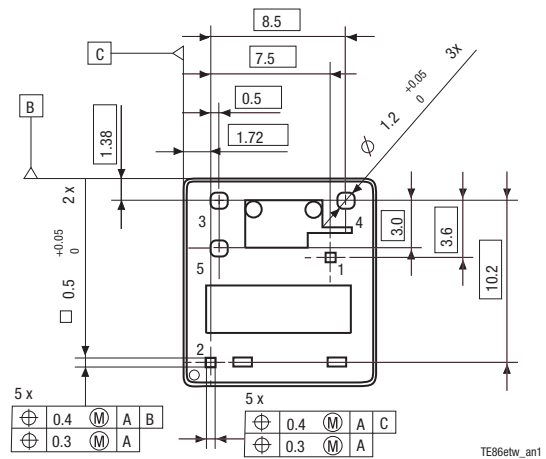
Micro Relay K, THT version



*) Additional tin tops max. 1mm

Mounting Hole Layout

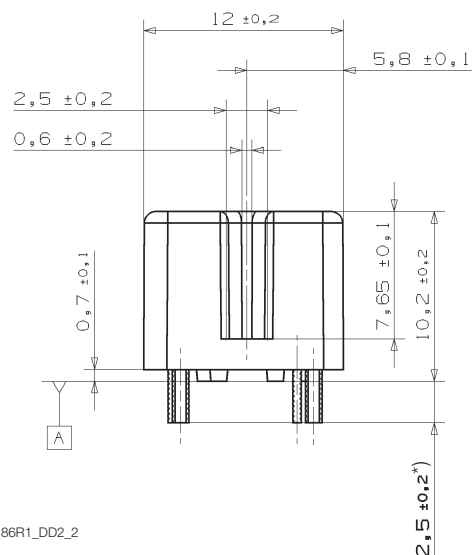
Bottom view on solder pins



Remark: Positional tolerances according to DIN EN ISO 5458

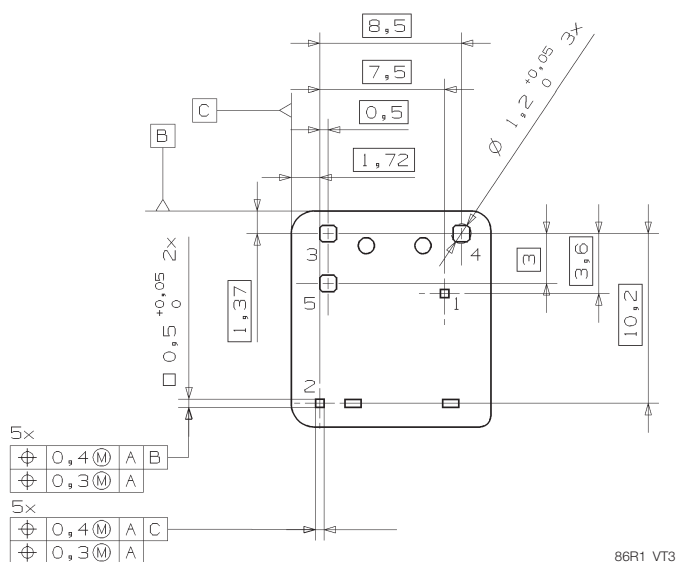
Micro Relay K (THT – THR) (Continued)

Micro Relay K, THR version



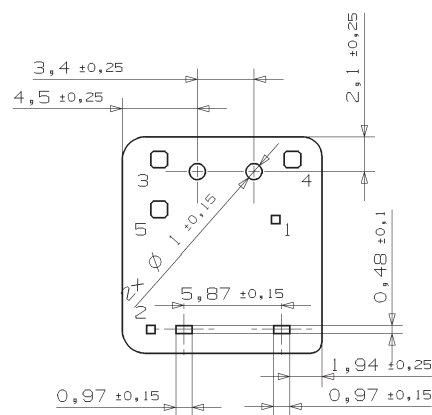
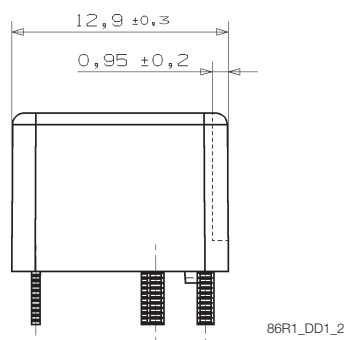
Mounting Hole Layout

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)	
				021		Special (THT)		821		Special (THR)	
Contact type				A		Single contact					
Contact material index				4		AgSnO ₂ standard		6		AgSnO ₂ flasher load	
				5		AgSnO ₂ lamp load		8		AgSnO ₂ wiper load	
Contact arrangement index				02		NO		03		CO	

Product code	Version	Design	Coil	Contact	Cont. material	Arrangement	Part number
V23086-C1021-A502	PCB THT,	Single relay	Standard	Single	AgSnO ₂	1 form A, 1 NO (lamp)	8-1416000-7
V23086-C1001-A602	immersion					1 form A, 1 NO (flasher)	9-1416000-6
V23086-C1001-A403	cleanable					1 form C, 1 CO (standard)	1393280-6
V23086-C1002-A803			Sensitive			1 form C, 1 CO (standard)	2-1414987-3
V23086-R1801-A403	PCB THR, vented		Standard			1 form C, 1 CO (standard)	6-1414920-0
V23086-R1802-A803			Sensitive			1 form C, 1 CO (wiper)	7-1414967-8
V23086-R1821-A502			Standard			1 form A, 1 NO (lamp)	6-1414918-8

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