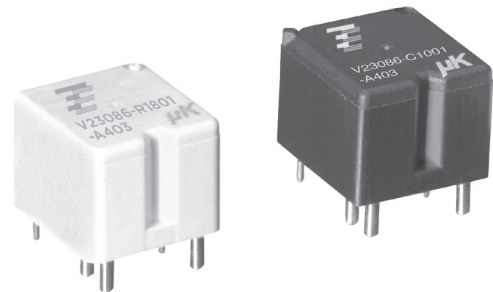## Micro Relay K (THT – THR)

- **Small power relay**
- **Limiting continuous current 30A**
- **Low weight**
- **Low noise operation**
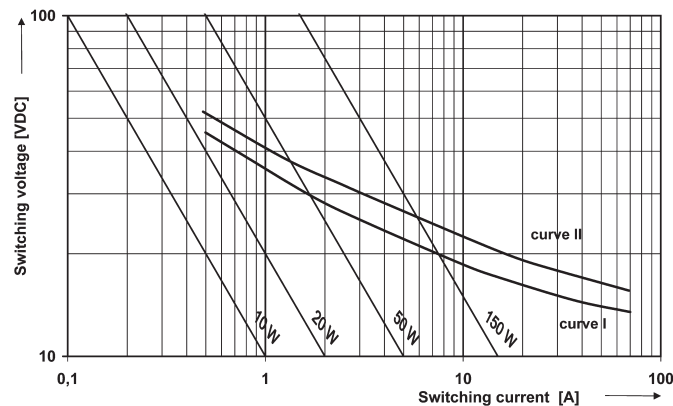- **Wave (THT) and reflow (THR/pin-in-paste) solderable versions**

Typical applications
Car alarm, door control, door lock, heated front/rear screen, immobilizer, lamps front/rear/fog light, interior lights, seat control, sun roof, window lifter, wiper control.

086C/R1_fcw1b

Contact Data

Typical applications	Inductive load V23086-*1*01-A403	Wiper load V23086-*1*02-A803	Resistive/inductive load V23086-*1*01-A402	Lamp load[5] V23086-*1*51-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	12VDC	10VDC	12VDC	12VDC
	NO/NC	NO/NC		
Rated current	30/25A	30/25A	30A	15A
Limiting continuous current				
23°C	30/25A	30/25A	30A	15A
85°C	20/15A	20/15A	20A	10A
Limiting making current	40A[1]	40A[1]	40A[1]	100A[2]
Limiting breaking current	30A	30A	30A	30A
Contact material	AgSnO$_2$			
Min. contact load	>1A at 5VDC[3]			
Initial voltage drop at 10A, typ./max.	30/300mV			
Operate/release time	typ. 3/1.5ms[4]			
Electrical enduranc 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.	lamp 100A inrush, 10A steady state >1x10^5 ops.[5]
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 reducesthe lifetime caused by increased erosion and/or higher risk of contact tack welding.
5) Be aware of using right polarity, see Terminal Assignment. Wrong polarity will reduce endurance.

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 Ω±10%	Rated coil power mW
001/801	12	6.9	1.5	254	567
002/802	10	5.7	1.25	181	552
051/851	10	6.5	1.1	90	1111

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[6]
Shock resistance (functional) IEC 60068-2-27 (half sine)	6ms, up to 30g[6]
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
Solderability THR IEC60068-2-58	hot dip 5s 245°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[7]
Packaging unit	2000 pcs.

6) Depending on mounting position: no change in the 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 http://relays.te.com/appnotes/

RELAY PRODUCTS

Micro Relay K (THT – THR) (Continued)

Terminal Assignment
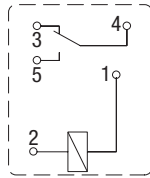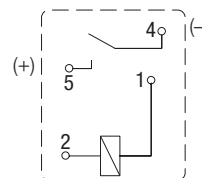Bottom view on solder pins

1 form A, 1 NO

86ets_ab

1 form C, 1 CO

86etw_ab

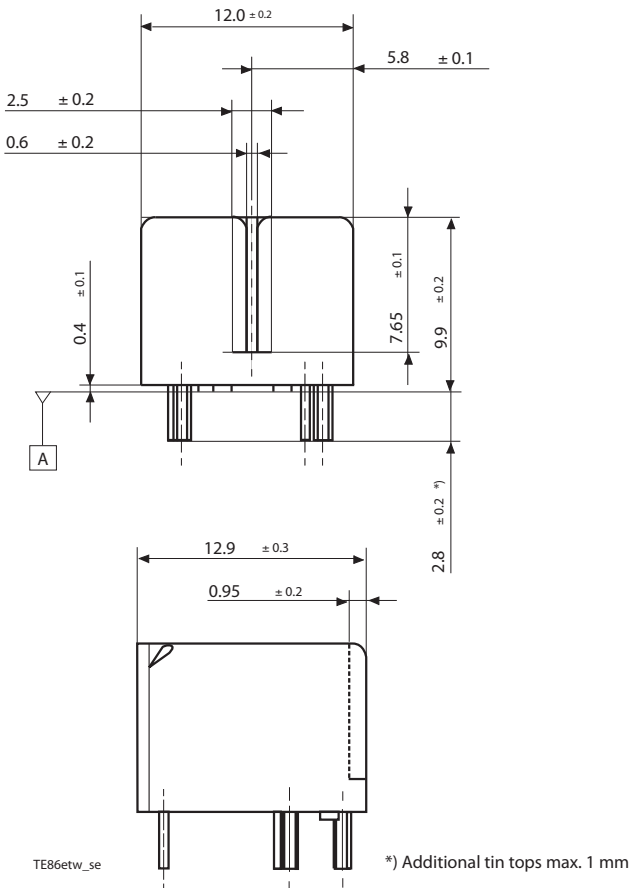1 form A, 1 NO (lamp load)
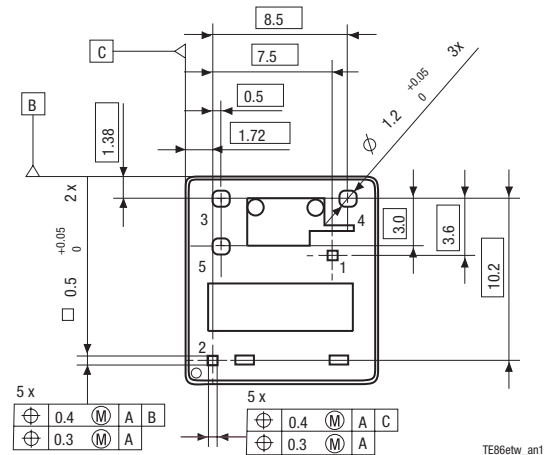

86ets_ab

Dimensions
Micro Relay K, THT version

TE86etw_se

*) Additional tin tops max. 1mm

Mounting Hole Layout
Bottom view on solder pins


TE86etw_an1

Remark: Positional tolerances according to DIN EN ISO 5458

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at http://relays.te.com/definitions

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.

Micro Relay K (THT – THR) (Continued)

Micro Relay K, THR version

Mounting Hole Layout
Bottom view on solder pins

86R1_DD2_2

*) Additional tin tops max. 1mm

86R1_DD1_2

86R1_VT3
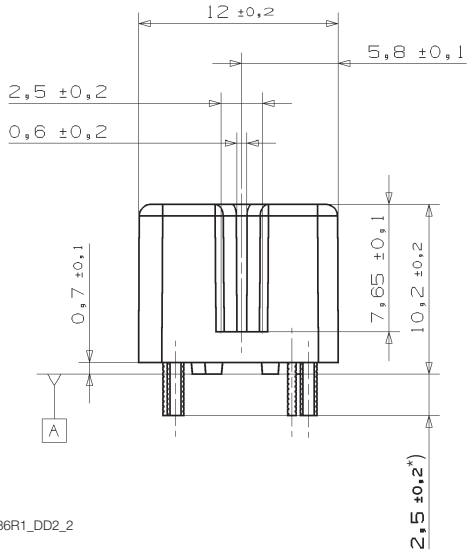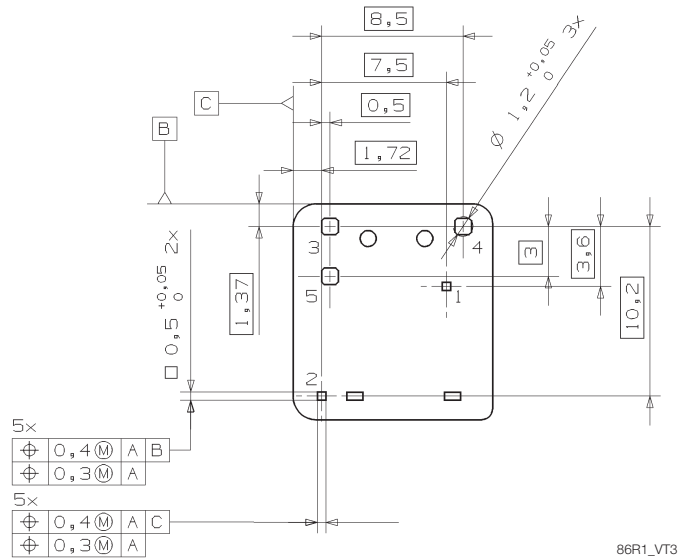
View of Stand-Offs
Bottom view on solder pins

86R1_VT1
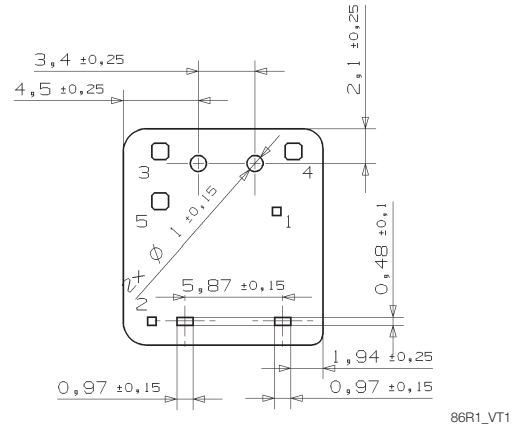
Micro Relay K (THT – THR) (Continued)

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)
051 Lamp load (THT) **851** Lamp load (THR)

Contact type
A Single contact

Contact material index
4 $AgSnO_2$ standard **8** $AgSnO_2$ wiper load
5 $AgSnO_2$ lamp load

Contact arrangement index
02 NO **03** CO

Product code	Version	Design	Coil	Contact	Cont. material	Arrangement	Part number
V23086-C1001-A402	PCB THT,	Single	Standard	Single	$AgSnO_2$ (standard)	1 form A, 1 NO	0-1393280-5
V23086-C1001-A403	cleanable					1 form C, 1 CO	0-1393280-6
V23086-C1051-A502			Lamp load		$AgSnO_2$ (lamp)	1 form A, 1 NO	2-1904093-1
V23086-C1002-A803			Sensitive		$AgSnO_2$ (wiper)	1 form C, 1 CO	2-1414987-3
V23086-R1801-A402	PCB THR,		Standard		$AgSnO_2$ (standard)	1 form A, 1 NO	2-1904093-2
V23086-R1801-A403	vented					1 form C, 1 CO	6-1414920-0
V23086-R1851-A502			Lamp load		$AgSnO_2$ (lamp)	1 form A, 1 NO	9-1904064-4
V23086-R1802-A803			Sensitive		$AgSnO_2$ (wiper)	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.