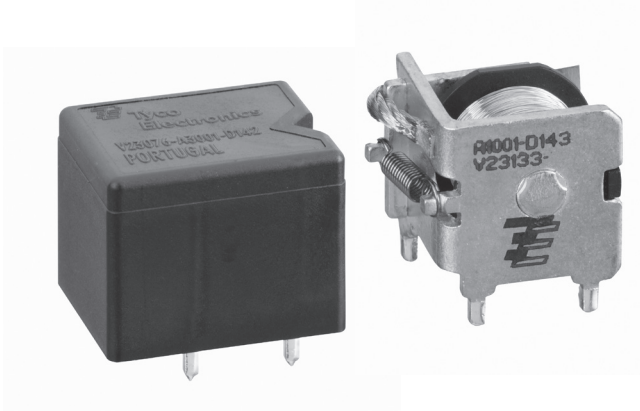
Power Relay K (Open – Sealed)

- **Limiting continuous current 45A**
- **Wide voltage range**
- **24VDC coil versions available**
- **For high current version refer to Power Relay K-S**



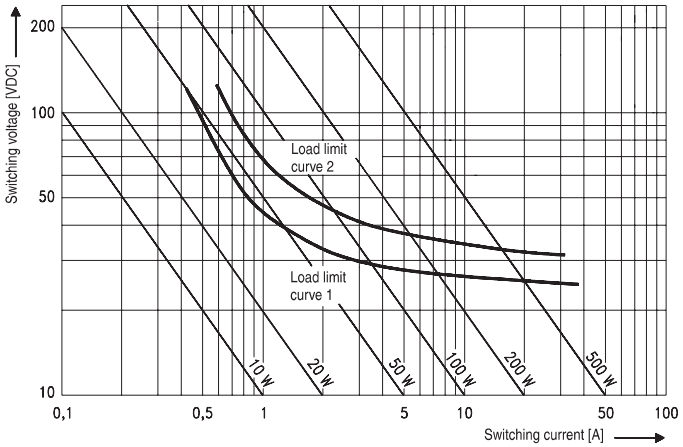
Typical applications
ABS control, blower fans, car alarm, cooling fan, engine control, fuel pump, hazard warning signal, heated front screen, heated rear screen, ignition, lamps front/rear/fog light, interior lights, main switch/supply relay, seat control, seatbelt pretensioner, sun roof, turn signal, valves, window lifter, wiper control.

Contact Data

Typical applications	Resistive/inductive loads	Resistive/inductive loads	Indicator lamps	Headlights, capacitive loads	Headlights capacitive loads
Contact arrangement	1 form A, 1 NO	1 form C, 1 CO	1 form A, 1 NO	1 form A, 1 NO	1 form C, 1 CO
Rated voltage	12VDC	12VDC	12VDC	12VDC	12VDC
		A/B (NO/NC)			A/B (NO/NC)
Rated current	45A	45/30A	30A	40A	40/25A
Limiting continuous current					
23°C	45A	45/30A	30A	40A	40/25A
85°C	30A	30/25A	25A	25A	25/20A
Limiting making current[1]	100A	100/30A	120A[3]	180A	180/60A
Limiting breaking current[2]	60A	60/30A	60A	60A	60/30A
Contact material	AgNi0.15	AgNi0.15	$AgSnO_2$	$AgSnO_2$	$AgSnO_2$
Min. recommended contact load		1A at 5VDC[4]			
Initial voltage drop, at 10A, typ./max.		20/300mV			
Operate/release time		typ. 5/3ms[5]			
Electrical endurance	>2x10^5 ops. at 13.5VDC, 40A	>2x10^5 ops. at 13.5VDC, 40A	>2.2x10^6 ops. up to 8x21W	>10^5 ops. up to 4x60W	>10^5 ops. up to 4x60W
Mechanical endurance, DC coil		>10^7 ops.			

1) The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5VDC for 12VDC or 27VDC for 24VDC load voltages.
2) For a load current duration of maximum 3s for a make/break ratio of 1:10.
3) Corresponds to a peak inrush current on initial actuation (cold filament).
4) See chapter Diagnostics of Relays in our Application Notes or consult the internet at http://relays.te.com/appnotes/
5) For unsuppressed relay coil. 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.

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.

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Power Relay K (Open – Sealed) (Continued)

Coil Data

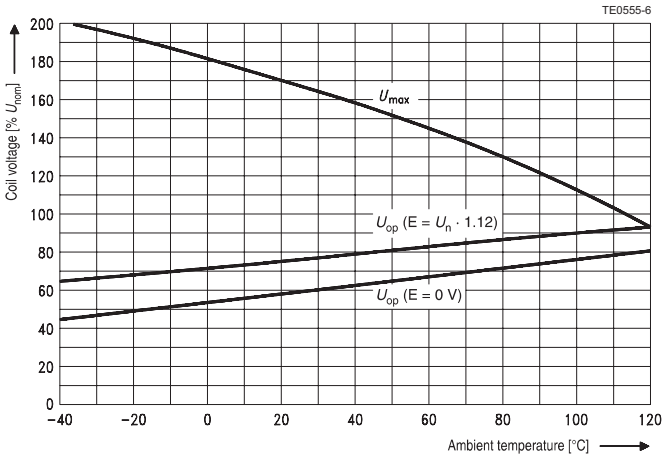
Rated coil voltage	12VDC / 24VDC

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power W
001	12	6.9	1.2	90	1.6
022	24	14.1	2.4	362	1.6

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

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$_{rms}$

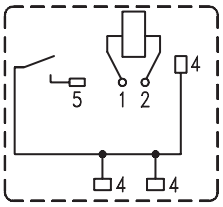
Other Data

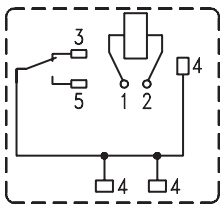
EU RoHS/ELV compliance	compliant
Ambient temperature, DC coil	-40 to +85°C[6]
Climatic cycling with condensation,	
EN ISO 6988	3 cycles, storage 8/16h
Temperature cycling (shock),	
IEC 60068-2-14, Na	20 cycles, -40/+85°C (dwell time 1h)
Damp heat cyclic,	
IEC 60068-2-30, Db, Variant 1	6 cycles, upper air temperature 55°C
Damp heat constant,	
IEC 60068-2-3, method Ca	56 days, upper air temperature 55°C
Degree of protection, IEC 61810	RT 0/II – open version RT III – immersion cleanable version
Corrosive gas,	
IEC 60068-2-42	10 days
IEC 60068-2-43	10 days
Vibration resistance (functional),	
IEC 60068-2-6 (sine pulse form),	
acceleration, acc. to position	10 to 200Hz, 20 to 40g[7]
Shock resistance (functional),	
IEC 60068-2-27 (half sine form single pulses),	
acceleration, acc. to position	8ms 30g[7]
Terminal type	PCB
Weight	
sealed version	approx. 22g (0.77oz)
open version	approx. 19g (0.67oz)
Solderability (aging 3: 4h/155°C)	
for leaded process (Tm = 183°C),	
for Pb-free process (Tm = 217°C),	
IEC 60068-2-20	Ta, method 1, hot dip 5s, 215°C
Storage conditions	according IEC 600688 [8]
Packaging unit	
sealed version	525 pcs.
open version	500 pcs.

6) See coil operating range DC.
7) No change in the switching state >10µs.
8) 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/

Terminal Assignment (Open and Sealed Version)
Bottom view on solder pins

1 form A, 1 NO



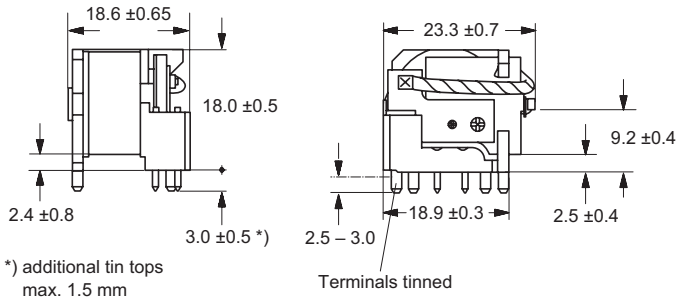


*) Terminal 4 to be bridged

Power Relay K (Open – Sealed) (Continued)

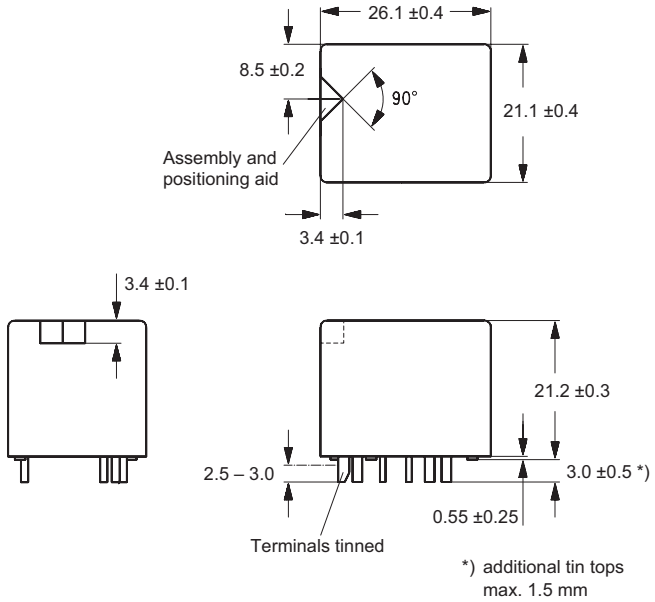
Dimensions

Power Relay K open version



*) additional tin tops
max. 1.5 mm

Power Relay K sealed version

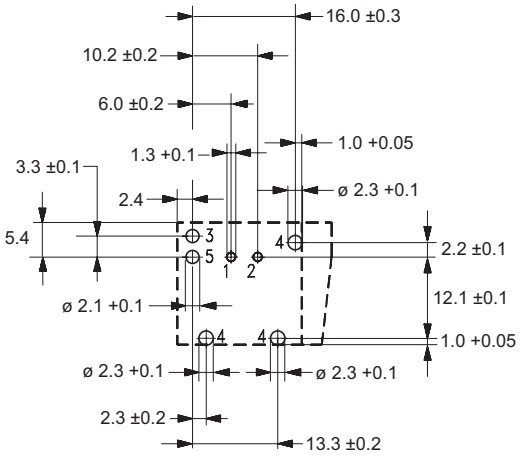


*) additional tin tops
max. 1.5 mm

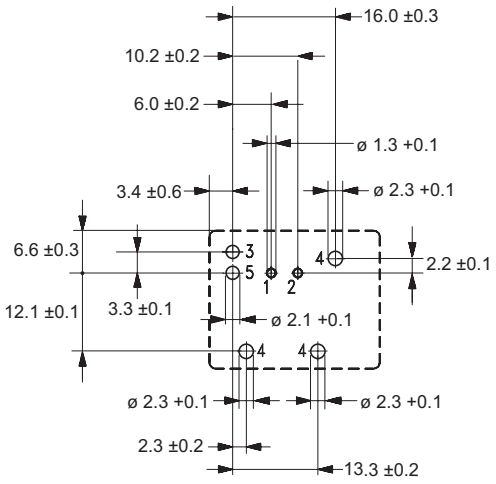
Mounting Hole Layout

Bottom view on solder pins

Power Relay K open version



Power Relay K sealed version



Power Relay K (Open – Sealed) (Continued)

Product code structure Typical product code **V23076 -A 1 022 -C 13 3**

Type
- **V23076** Power Relay K, sealed
- **V23133** Power Relay K, open

Terminal
- **A** PCB

Design
- **1** Single relay
- **3** Single relay

Coil
- **001** 12VDC
- **022** 24VDC

Contact type
- **C** Single contact
- **D** Single contact

Contact material
- **13** AgNi0.15
- **14** $AgSnO_2$
- **15** $AgSnO_2$ (Special)

Contact arrangement
- **2** 1 form A, 1 NO
- **3** 1 form C, 1 CO

Product code	Terminal/Encl.	Design	Coil	Contact	Cont. material	Arrangement	Part number
V23076-A1001-C133	PCB, sealed	Single relay	12VDC	Single	AgNi0.15	1 form C, CO	1393277-4
V23076-A1001-D143					$AgSnO_2$		1393277-6
V23076-A3001-C132					AgNi0.15	1 form A, NO	1-1393277-4
V23076-A3001-D142					$AgSnO_2$		1-1393277-7
V23076-A3001-D152[1)]					$AgSnO_2$ special		1-1414175-0
V23076-A1022-C133			24VDC		AgNi0.15	1 form C, CO	1393277-8
V23076-A1022-D143					$AgSnO_2$		1393277-9
V23076-A3022-C132					AgNi0.15	1 form A, NO	1-1393277-8
V23076-A3022-D142					$AgSnO_2$		1-1393277-9
V23133-A1001-C133	PCB, open		12VDC		AgNi0.15	1 form C, CO	1393278-7
V23133-A1001-D143					$AgSnO_2$		1-1393278-3
V23133-A3001-C132					AgNi0.15	1 form A, NO	5-1393278-7
V23133-A3001-D142					$AgSnO_2$		5-1393278-9
V23133-A3001-D152[1)]					$AgSnO_2$ special		1-1414173-0
V23133-A1022-C133			24VDC		AgNi0.15	1 form C, CO	3-1393278-7
V23133-A1022-D143					$AgSnO_2$		3-1393278-9
V23133-A3022-C132					AgNi0.15	1 form A, NO	7-1393278-1
V23133-A3022-D142					$AgSnO_2$		7-1393278-2
V23133-A3022-D152[1)]					$AgSnO_2$ special		1-1414174-0

1) For indicator lamps.