

# 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	Resistive/inductive	Indicator lamps	Headlights,	Headlights	
	loads	loads		capacitive loads	capacitive loads	
Contact arrangement	1 form A, 1 NO	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	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 <sup>1)</sup>	100A	100/30A	120A <sup>3)</sup>	180A	180/60A	
Limiting breaking current <sup>2)</sup>	60A	60/30A	60A	60A	60/30A	
Contact material	AgNi0.15	AgNi0.15	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	AgSnO <sub>2</sub>	
Min. recommended contact load		1A at 5	SVDC <sup>4)</sup>			
Initial voltage drop, at 10A, typ./max. 20/300mV						
Operate/release time	typ. 5/3ms <sup>5)</sup>					
Electrical endurance	>2x10 <sup>5</sup> ops.	>2x10 <sup>5</sup> ops.	>2.2x10 <sup>6</sup> ops.	>10 <sup>5</sup> ops.	>10 <sup>5</sup> ops.	
	at 13.5VDC, 40A	at 13.5VDC, 40A	up to 8x21W	up to 4x60W	up to 4x60W	
Mechanical endurance, DC coil >10 <sup>7</sup> ops.						

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 1)

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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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

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## Power Relay K (Open - Sealed) (Continued)

Coil Data	
Rated coil voltage	12VDC / 24VDC
Coil versions, DC coil	

Coil	Rated	Operate	Release	Coil	Rated coil
code	voltage	voltage	voltage	resistance	power
	VDC	VDC	VDC	Ω±10%	W
001	12	6.9	1.2	90	1.6
022	24	14.1	2.4	362	1.6
A 11 C					0.000

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**

nitial 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, DC coil	-40 to +105°C <sup>6)</sup>
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 <sup>7)</sup>
Shock resistance (functional),	
IEC 60068-2-27 (half sine form sin	gle pulses),
acceleration, acc. to position	8ms 30g <sup>7)</sup>
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 <sup>8)</sup>
Packaging unit	
sealed version	300 pcs.
open version	500 pcs.
6) See and opporting range DC	

coil operating range DC.

7) No change in the switching state  $>10\mu s$ .

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

1 form C, 1 CO





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# Power Relay K (Open - Sealed) (Continued)

### Dimensions



### Mounting Hole Layout



Datasheets and product specification ac-

together with the 'Definitions' section.



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.2 ±0.1

TE0580-L2

ø 2.3 +0.1

-13.3 ±0.2

ż

ø 2.1 +0.1

4⊕

⊕4

3.3 ±0.1

ø 2.3 +0.1

2.3 ±0.2

12.1 ±0.1



# Power Relay K (Open - Sealed) (Continued)

Produ	uct co	de structure		Typical product code	V23076	-A	1	022	-C	13	3
Туре	V2307 V2313	<ul><li>6 Power Relay K, sealed</li><li>3 Power Relay K, open</li></ul>			I						
Termir	nal										
	Α	PCB									
Desig	า						-				
-	1	Single relay	3	Single relay							
Coil											
	001	12VDC	022	24VDC							
Conta	ct type										
	c	Single contact	D	Single contact							
Conta	ct mate	erial									
	13	AgNi0.15	14	AgSnO <sub>2</sub>							
	15	AgSnO <sub>2</sub> (Special)		0 2							
Conta	ct arra	ngement									
	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 <sub>2</sub>		1393277-6
V23076-A3001-C132					AgNi0.15	1 form A, NO	1-1393277-4
V23076-A3001-D142					AgSnO <sub>2</sub>		1-1393277-7
V23076-A3001-D1521)					AgSnO <sub>2</sub> special		1-1414175-0
V23076-A1022-C133			24VDC		AgNi0.15	1 form C, CO	1393277-8
V23076-A1022-D143					AgSnO <sub>2</sub>		1393277-9
V23076-A3022-C132					AgNi0.15	1 form A, NO	1-1393277-8
V23076-A3022-D142					AgSnO <sub>2</sub>		1-1393277-9
V23133-A1001-C133	PCB, open		12VDC		AgNi0.15	1 form C, CO	1393278-7
V23133-A1001-D143					AgSnO <sub>2</sub>		1-1393278-3
V23133-A3001-C132					AgNi0.15	1 form A, NO	5-1393278-7
V23133-A3001-D142					AgSnO <sub>2</sub>		5-1393278-9
V23133-A3001-D1521)					AgSnO <sub>2</sub> special		1-1414173-0
V23133-A1022-C133			24VDC		AgNi0.15	1 form C, CO	3-1393278-7
V23133-A1022-D143					AgSnO <sub>2</sub>		3-1393278-9
V23133-A3022-C132					AgNi0.15	1 form A, NO	7-1393278-1
V23133-A3022-D142					AgSnO <sub>2</sub>	]	7-1393278-2
V23133-A3022-D1521)					AgSnO <sub>2</sub> special		1-1414174-0

1) For indicator lamps.

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