Power Relay K (Sealed)

- **Limiting continuous current 45A**
- **Wide voltage range**

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	Headlights capacitive loads
Contact arrangement	1 form C, 1 CO	
Rated voltage	12VDC	12VDC
	A/B (NO/NC)	
Rated current	45/30A	40/25A
Limiting continuous current[1]		
23°C	45/30A	40/25A
85°C	30/25A	25/20A
Limiting making current[2]	100/30A	180/60A
Limiting breaking current[3]	60/30A	60/30A
Contact material	AgNi0.15	$SgSnO_2$
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	$>10^5$ ops. up to 4x60W
Mechanical endurance, DC coil	$>10^7$ ops.	

1) Measured on 70x70x1.5mm epoxy PCB FR4 with 35cm² (double layer 105µm) copper area. Cable cross section 6mm². Boundary conditions: 180°C coil temperature; 130°C solder joint. Solder joint results above 130°C on request. The load circuit shall withstand current applied on 40A MAXI fuse.
2) The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5VDC load voltages.
3) For a load current duration of maximum 3s for a make/break ratio of 1:10.
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.

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 W
001	12	6.9	1.2	90	1.6

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

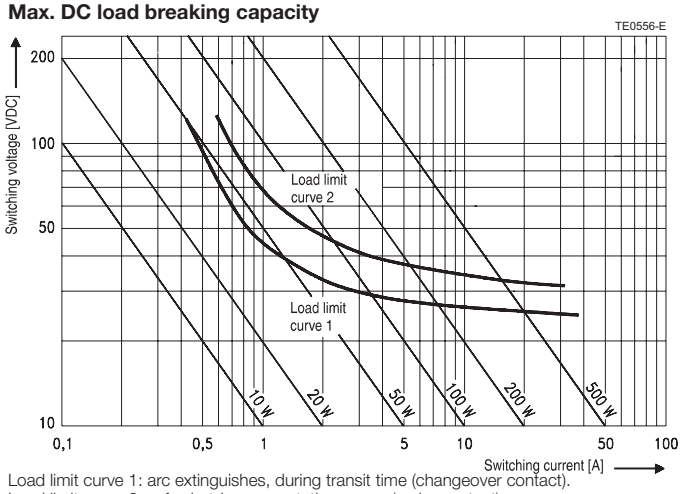
Insulation Data

Initial dielectric strength	
between open contacts	$500VAC_{rms}$
between contact and coil	$500VAC_{rms}$

Other Data

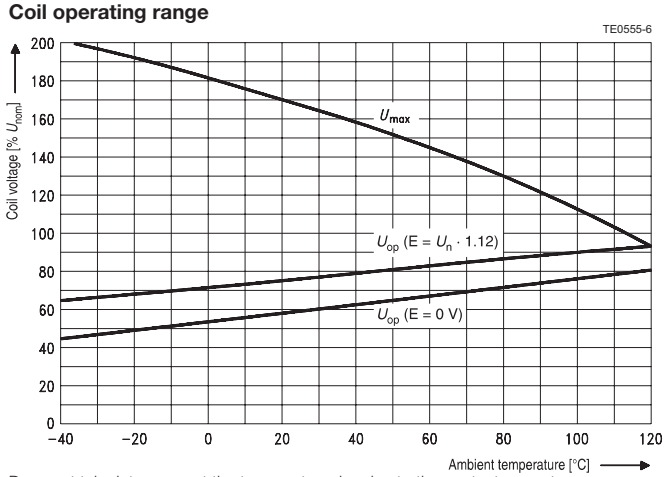
EU RoHS/ELV compliance	compliant
Ambient temperature, DC coil	-40 to +85°C[6]
Climatic cycling with condensation, EN ISO 6988	3 cycles, storage 8/16h
Temperature cycling (shock), IEC 60068-2-14, Na	20 cycles, -40/+85°C (dwell time 1h)
Damp heat cyclic, IEC 60068-2-30, Db, Variant 1	6 cycles, upper air temperature 55°C

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.

Coil operating range



Does not take into account the temperature rise due to the contact current
E = pre-energization

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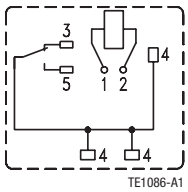
Power Relay K (Sealed) (Continued)

Other Data (continued)	
Damp heat constant, IEC 60068-2-3, method Ca	56 days, upper air temperature 55°C 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.

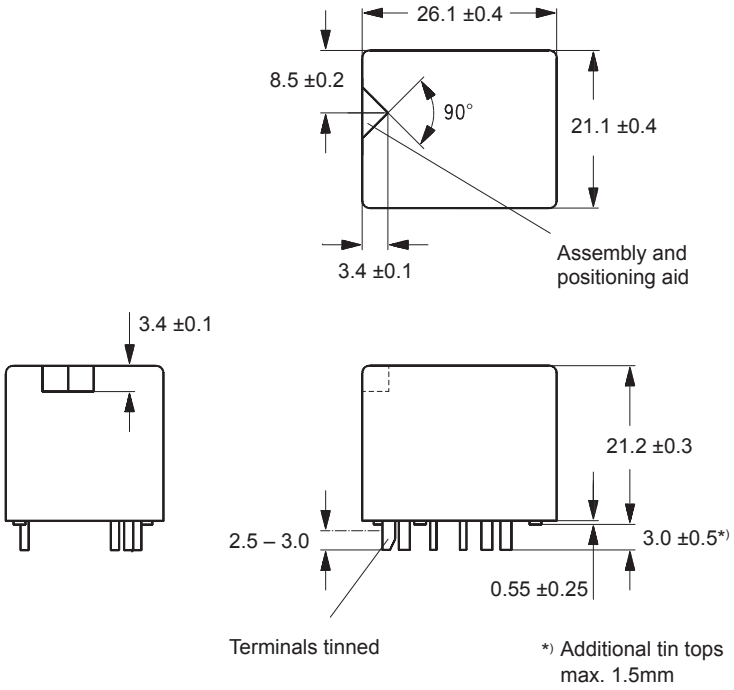
6) See coil operating range DC.
7) No change in the switching state >10µs.
8) For general storage and processing recommendations please refer to our Application Notes and especially to Storage in the Definitions or at http://relays.te.com/appnotes/

Terminal Assignment
Bottom view on solder pins

1 form C, 1 CO



Dimensions



Mounting Hole Layout
Bottom view on solder pins