

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.

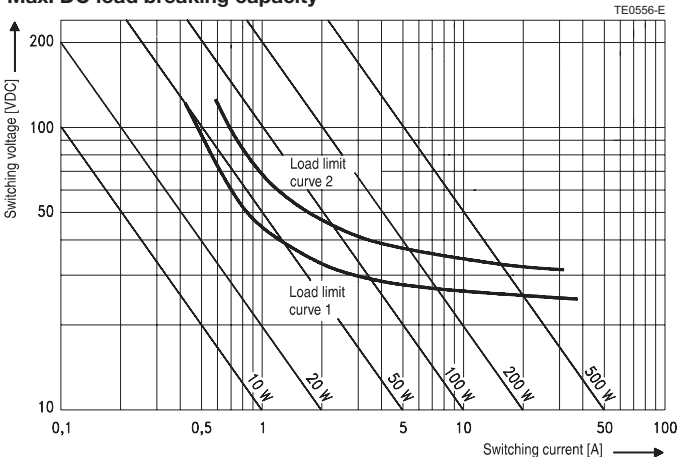


Contact Data

| | | |
|---|---|-----------------------------------|
| 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.

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 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.

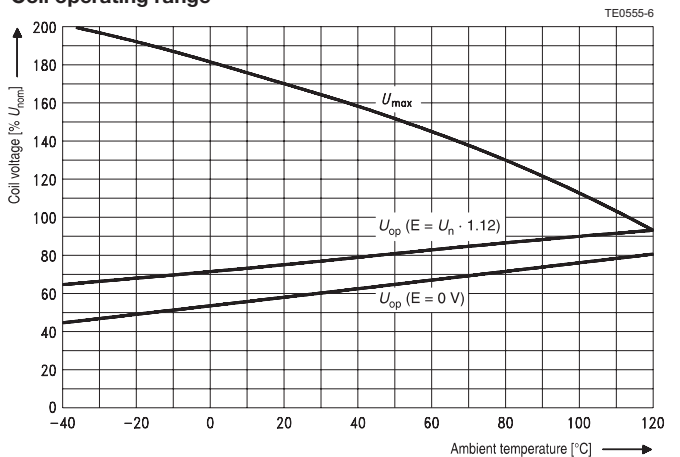
Insulation Data

| | |
|-----------------------------|-----------------------|
| 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 |

Coil operating range



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

Power Relay K (Sealed) (Continued)

Other Data (continued)

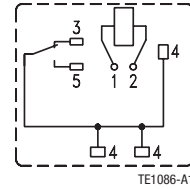
| | |
|--|--|
| Damp heat constant, IEC 60068-2-3, method Ca | 56 days, upper air temperature 55°C RT III – immersion cleanable version |
| Corrosive gas, IEC 60068-2-42 | 10 days |
| IEC 60068-2-43 | 10 days |
| Vibration resistance (functional), IEC 60068-2-6 (sine pulse form), acceleration, acc. to 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 (T _m = 183°C), for Pb-free process (T _m = 217°C), IEC 60068-2-20 | T _a , method 1, hot dip 5s, 215°C according IEC 600688 ⁸⁾ |
| Storage conditions | |
| 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/>

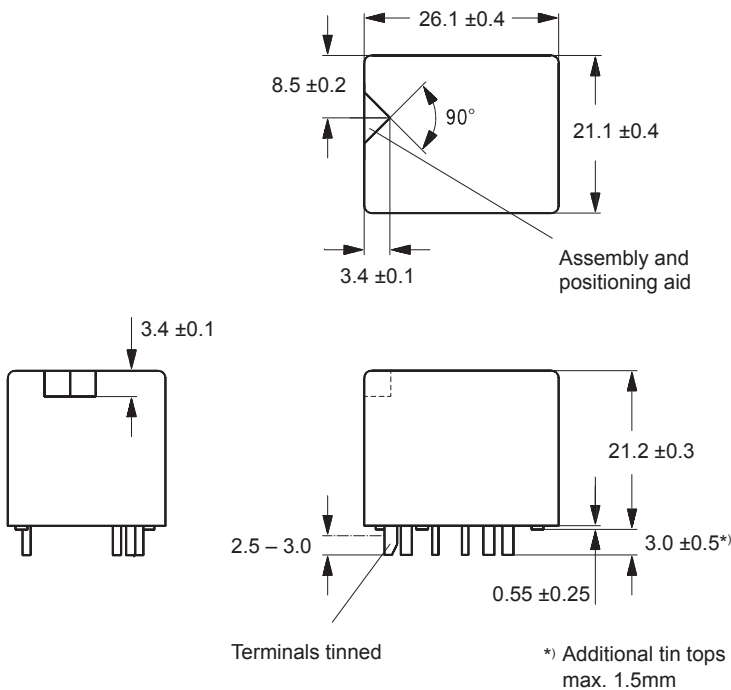
Terminal Assignment

Bottom view on solder pins

1 form C, 1 CO

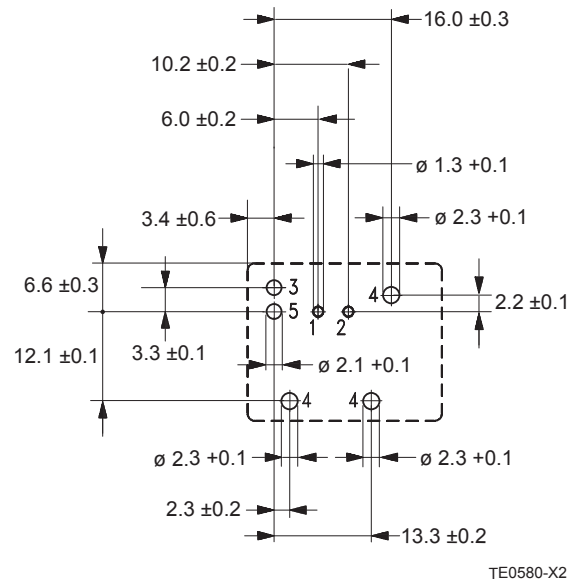


Dimensions



Mounting Hole Layout

Bottom view on solder pins



Power Relay K (Sealed) (Continued)

| | | | | | | | | | | |
|-------------------------------|-------------------------------------|----------------------|--|---------------|------------------------------|----------|------------|-----------|-----------|----------|
| Product code structure | | Typical product code | | V23076 | -A | 1 | 001 | -C | 13 | 3 |
| Type | V23076 Power Relay K, sealed | | | | | | | | | |
| Terminal | A PCB | | | | | | | | | |
| Design | 1 Single relay | | | | | | | | | |
| Coil | 001 12VDC | | | | | | | | | |
| Contact type | C Single contact | | | | D Single contact | | | | | |
| Contact material | 13 AgNi0.15 | | | | 14 AgSnO ₂ | | | | | |
| Contact arrangement | 3 1 form C, 1 CO | | | | | | | | | |

| Product code | Terminal/Encl. | Design | Coil | Contact | Contact mat. | 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 |

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