

**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.

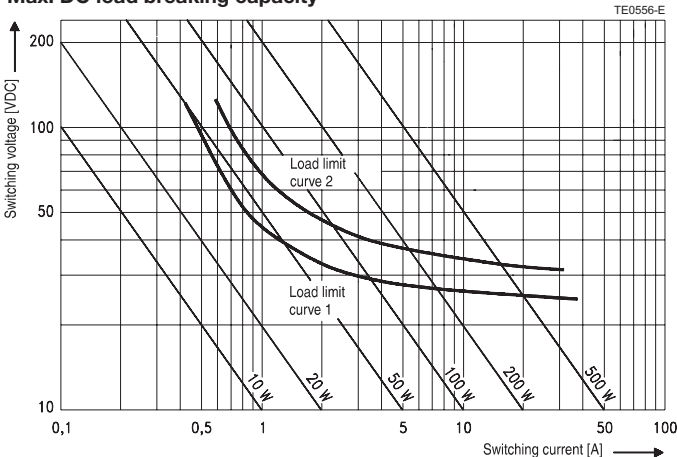


**Contact Data**

|   |   |                                   |
|---|---|-----------------------------------|
| 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 <sup>1)</sup> |   |                                   |
| 23°C                                      | 45/30A                                  | 40/25A                            |
| 85°C                                      | 30/25A                                  | 25/20A                            |
| Limiting making current <sup>2)</sup>     | 100/30A                                 | 180/60A                           |
| Limiting breaking current <sup>3)</sup>   | 60/30A                                  | 60/30A                            |
| Contact material                          | AgNi0.15                                | SgSnO <sub>2</sub>                |
| Min. recommended contact load             | 1A at 5VDC <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. at 13.5VDC, 40A | >10 <sup>5</sup> ops. up to 4x60W |
| Mechanical endurance, DC coil             | >10 <sup>7</sup> ops.                   |                                   |

- 1) Measured on 70x70x1.5mm epoxy PCB FR4 with 35cm<sup>2</sup> (double layer 105µm) copper area. Cable cross section 6mm<sup>2</sup>. 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.

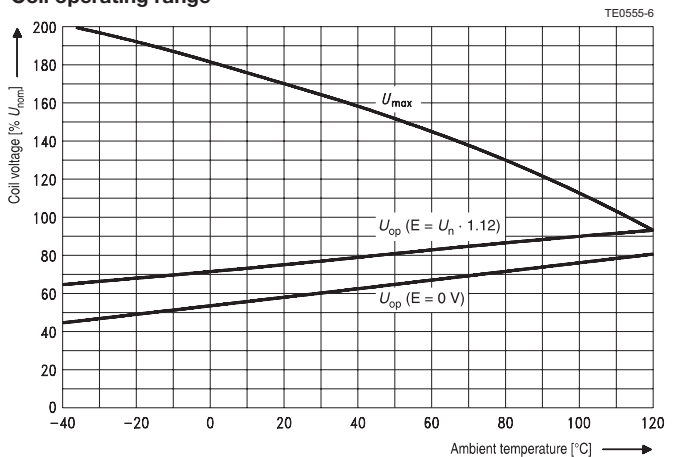
**Insulation Data**

|                             |                       |
|-----------------------------|-----------------------|
| Initial dielectric strength |                       |
| between open contacts       | 500VAC <sub>rms</sub> |
| between contact and coil    | 500VAC <sub>rms</sub> |

**Other Data**

|   |                                      |
|---|--------------------------------------|
| EU RoHS/ELV compliance                          | compliant                            |
| Ambient temperature, DC coil                    | -40 to +85°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 |

**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)

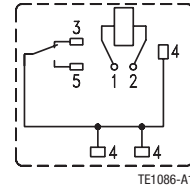
|  |  |
|--|--|
| Damp heat constant, IEC 60068-2-3, method Ca   | 56 days, upper air temperature 55°C<br>RT III – immersion cleanable version        |
| Corrosive gas, IEC 60068-2-42  | 10 days  |
| IEC 60068-2-43   | 10 days  |
| Vibration resistance (functional), IEC 60068-2-6 (sine pulse form), acceleration, acc. to position   | 10 to 200Hz, 20 to 40g <sup>7)</sup>   |
| Shock resistance (functional), IEC 60068-2-27 (half sine form single 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)<br>for leaded process (T <sub>m</sub> = 183°C),<br>for Pb-free process (T <sub>m</sub> = 217°C),<br>IEC 60068-2-20 | T <sub>a</sub> , method 1, hot dip 5s, 215°C<br>according IEC 600688 <sup>8)</sup> |
| 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/>

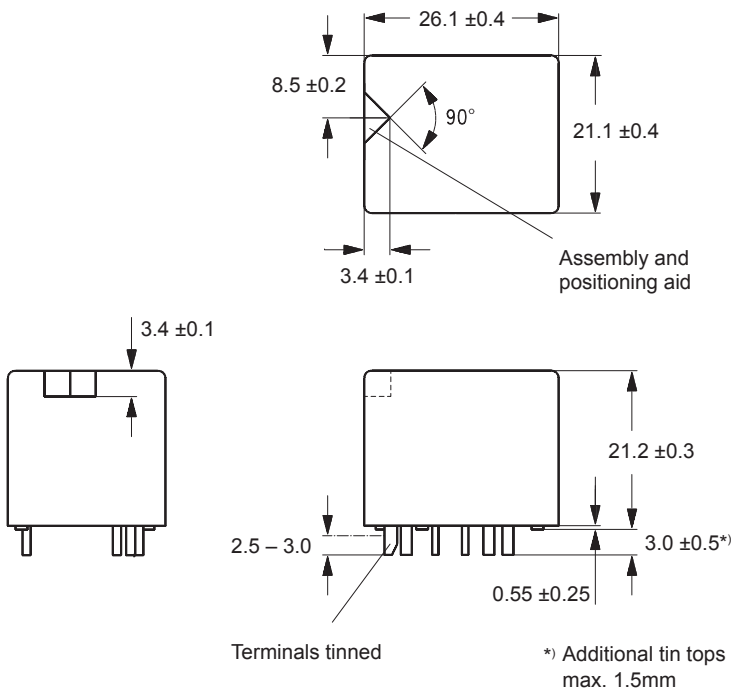
**Terminal Assignment**

Bottom view on solder pins

1 form C, 1 CO

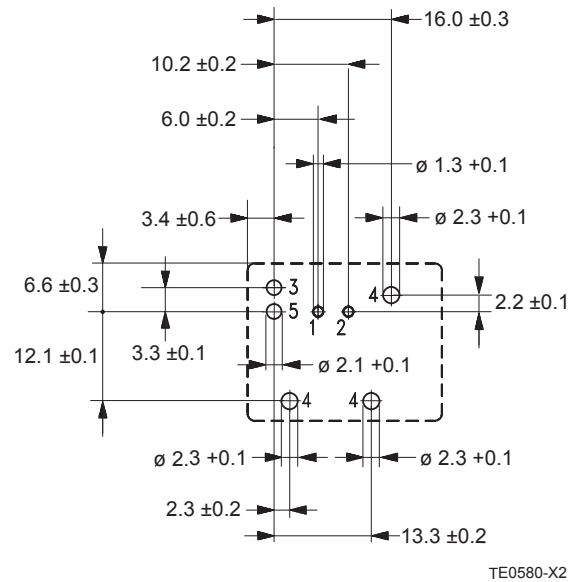


**Dimensions**



**Mounting Hole Layout**

Bottom view on solder pins



**Power Relay K (Sealed)** (Continued)

|                               |                                     |                      |  |               |                              |          |            |           |           |          |
|-------------------------------|-------------------------------------|----------------------|--|---------------|------------------------------|----------|------------|-----------|-----------|----------|
| <b>Product code structure</b> |                                     | Typical product code |  | <b>V23076</b> | <b>-A</b>                    | <b>1</b> | <b>001</b> | <b>-C</b> | <b>13</b> | <b>3</b> |
| <b>Type</b>                   | <b>V23076</b> Power Relay K, sealed |                      |  |               |                              |          |            |           |           |          |
| <b>Terminal</b>               | <b>A</b> PCB                        |                      |  |               |                              |          |            |           |           |          |
| <b>Design</b>                 | <b>1</b> Single relay               |                      |  |               |                              |          |            |           |           |          |
| <b>Coil</b>                   | <b>001</b> 12VDC                    |                      |  |               |                              |          |            |           |           |          |
| <b>Contact type</b>           | <b>C</b> Single contact             |                      |  |               | <b>D</b> Single contact      |          |            |           |           |          |
| <b>Contact material</b>       | <b>13</b> AgNi0.15                  |                      |  |               | <b>14</b> AgSnO <sub>2</sub> |          |            |           |           |          |
| <b>Contact arrangement</b>    | <b>3</b> 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 <sub>2</sub> |              | 1393277-6   |

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