

Double micro power relay K



Powertrain Systems



~~Chassis Systems~~



~~Safety~~



~~Security~~



~~Body~~



Driver Information



~~Convenience~~

**Features**

- Smallest twin relay
- Minimal weight (0.28 oz. / 8 g)
- Maximum continuous current 30 A
- Two separate systems

**Typical applications**

- Rear window and seat heating
- Wiper and indicator control
- Motor management



~~Car Industry~~



~~Truck Industry~~



~~Other Industry~~

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**Design**

Sealed;  
sealed version:  
sealing in accordance with IEC 68;  
immersion cleanable:  
protection class IP67 to IEC 529 (EN 60 529)

**Weight**

Approx. 0.28 oz. (8 g)

**Nominal voltage**

10 V, 12 V  
other nominal voltages on request

**Terminals**

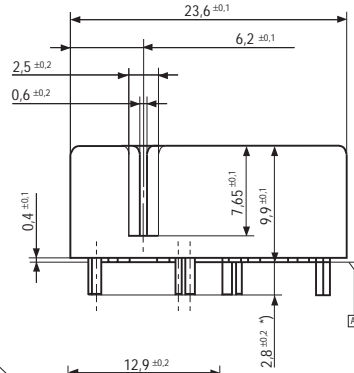
PCB terminals, for assembling in printed circuit boards

**Conditions**

All parametric, environmental and endurance tests are performed according to EIA Standard RS-407-A at standard test conditions unless otherwise noted:  
23 °C ambient temperature,  
20-50% RH, 29.5 ± 1.0" Hg (998.9 ± 33.9 hPa).

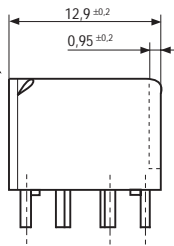
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Dimensional drawing



Nipp-off-pin

The nipp-off-pin may be removed after soldering and washing (for ventilation)

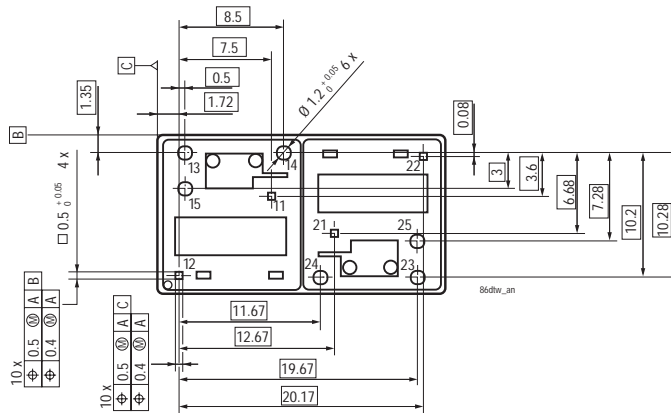


\*) Additional tin tops max. 1 mm

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Mounting holes

View of the terminals (Bottom view)



Remark: Positional tolerances according to DIN EN ISO 5458

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Contact data			
Contact configuration	2 changeover / 2 Form C		2 make contacts Form A
Contact material	AgNi 0.15 (AgSnO <sub>2</sub> available on request)		AgSnO <sub>2</sub>
Circuit symbol (see also Pin assignment)			
Max. switching current <sup>1)</sup>			
On	40 A <sup>2)</sup>		40 A <sup>2)</sup> /70 A <sup>3)</sup>
Off	30 A		30 A
Limiting continuous current			
at 23 °C	NC/NO 25 A/30 A		NO 30 A
at 85 °C	15 A/20 A		20 A
Voltage drop initial at 10 A	Typ. 30 mV		
Mechanical endurance (without load)	> 5 x 10 <sup>6</sup> operations		
Electrical endurance at cyclic temperature -40/+23/+85 °C and 13,5 VDC	Resistive load: > 3 x 10 <sup>5</sup> operations at 20 A on NO-contact	Wiper reverse: > 3 x 10 <sup>5</sup> operations 25 A make/5 A break; generator peak -10 A L=1.0 mH	Motor reverse blocked: > 1 x 10 <sup>5</sup> operations 20 A L=0.77 mH
		Flasher load: > 2 x 10 <sup>6</sup> operations up to 3 x 21 W, 4) Turn and hazard signal in sequence	Lamp load: > 1 x 10 <sup>5</sup> operations 100 A inrush /10 A steady state

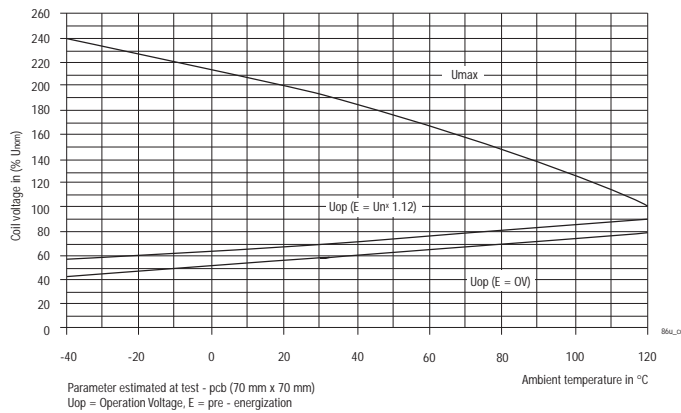
<sup>1)</sup> The values apply to a resistive load or inductive load with suitable spark suppression.

<sup>2)</sup> This current may flow for a maximum of 3 sec for a make/break ratio of 1 : 10.

<sup>3)</sup> Corresponds to the peak inrush current on initial actuation (cold filament).

4) With polarization + at terminals 14 and 24.

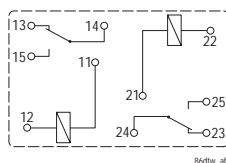
Operating voltage range



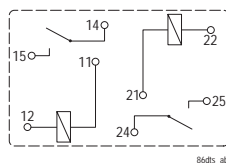
Does not take into account the temperature rise due to the contact current  
E=pre-energization

Pin assignment

2 changeover contacts/  
2 form C



2 make contacts/  
2 form A



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**Coil data**

Available for nominal voltages	10, 12 VDC (other coils on request)
Nominal power consumption of the unsuppressed coil at nominal voltage	0.57 W
Test voltage winding/contact	500 VAC <sub>rms</sub>
Upper limit temperature for the coil	155 °C
Maximum ambient temperature range <sup>1)</sup>	- 40 to + 105 °C
Max. switching rate without contact loading	50 Hz
Operate time <sup>2)</sup>	Typ. 3 msec
Release time <sup>2)</sup>	Typ. 1.5 msec

<sup>1)</sup> See also operating voltage range diagram

<sup>2)</sup> Measured at nominal voltage without coil suppression unit  
N.B.

A low resistive device in parallel to the relay coil slows down the armature movement and reduces the lifetime caused by increased erosion and/or higher risk of contact tack welding.

**Mechanical data**

Enclosure Sealed	Sealed relay is suitable for immersion cleaning of PCB assembly or conformal coating.
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**Operating conditions**

Temperature range, storage	-40 °C to 130 °C			
Test	Relevant standard	Testing as per	Dimension	Comments
Cold storage	IEC 68-2-1		72 h	-40 °C
Dry heat	IEC 68-2-2	Ba	1000 h	85 °C
Climatic cycling with condensation	EN ISO 6988		20 cycles	Storage 8/16 h
Thermal change	IEC 68-2-14	Nb	35 cycles	- 40/+ 105 °C
Thermal shock	IEC 68-2-14	Na	100 cycles	- 40/+ 105 °C Dwell time 1 h
Damp heat constant	IEC 68-2-3	Ca	56 days	40 °C / 93%
Corrosive gas	IEC 68-2-42 IEC 68-2-43	-	10 days 10 days	
Vibration resistance	IEC 68-2-6 (sine pulse form)		10 ... 500 Hz 6 g	No change in the switching state > 10 µsec
Shock resistance	IEC 68-2-27 (half-sine pulse form)		6 msec up to 30 g	No change in the switching state > 10 µsec
Solderability	IEC 68-2-20	Ta, Method 1		Aging 3 (4 h/155 °C) Dewetting
Resistance to soldering heat	IEC 68-2-20	Tb, Method 1A		10 sec ± 1 sec with thermal screen
Sealing	IEC 68-2-17	Qc, Method 2		1 min / 70 °C

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Ordering information

Part number (Replace * with "Coil designator") Double micro power relay K	Contact arrangement	Contact material	Enclosure	Terminals
V23086-C2*-A303	Form C	AgNi0.15	Sealed	Printed circuit
V23086-C2*-A403	Form C	AgSnO <sub>2</sub>	Sealed	Printed circuit
V23086-C2021-A502	Form A; lamp load	AgSnO <sub>2</sub>	Sealed	Printed circuit
V23086-C2*-A602	Form A; flasher load	AgSnO <sub>2</sub>	Sealed	Printed circuit

Coil versions

Coil designator Double micro power relay K	Rated coil voltage (V)	Coil resistance +/- 10% (Ω)	Must operate voltage (VDC)	Must release voltage (VDC)	Allowable overdrive (VDC)	
					at 23 °C <sup>1)</sup>	at 105 °C <sup>1)</sup>
001	12	254	6.9	1.5	24	15
002	10	181	5.7	1.25	20	13
021	12	181	6.9	1.5	20	13

<sup>1)</sup> Allowable overdrive is stated with no load current flowing through the relay contacts and minimum coil resistance.

Standard delivery pack (orders in multiples of delivery pack)

Double micro power relay K: 990 pieces