

Power relay K (open and sealed)

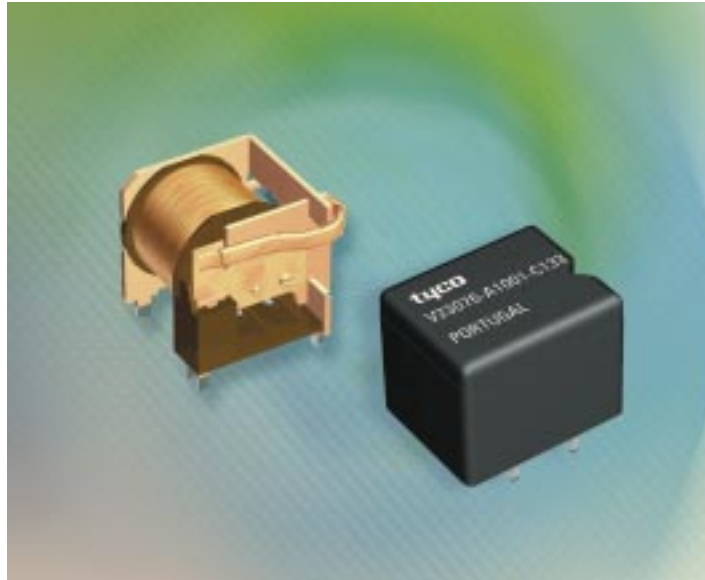


Features

- High continuous current
- Wide voltage range

Typical applications

- Lamp control circuits
- Seat adjustment motors
- Window defoggers
- Starter solenoid switches etc.



133_3d01/76_3d01



Design

Open or sealed;
sealed version: sealing in accordance with IEC 68;
immersion cleanable: protection class IP 67 to IEC 529 (EN 60 529)

Weight

Approx. 0.67 oz. (19 g) open version
Approx. 0.77 oz. (22 g) sealed version

Nominal voltage

12 V or 24 V;
other nominal voltages available on request

Terminals

PCB terminals, for assembling in printed circuit boards

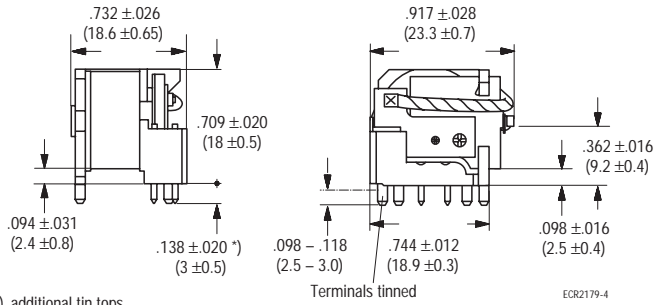
Conditions

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).

Power relay K (open)

Dimensional drawing

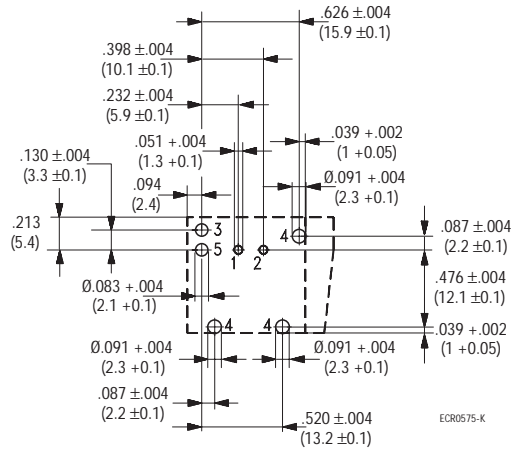
Open version



*) additional tin tops
max. .59 inch (1.5 mm)

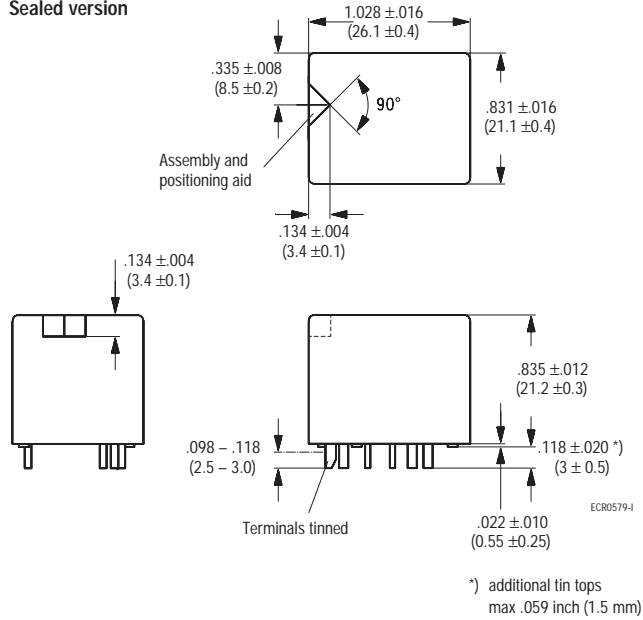
Mounting holes

View of the terminals (bottom view)

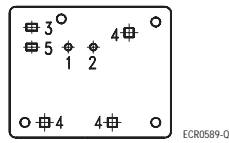


Power relay K (sealed)

Sealed version

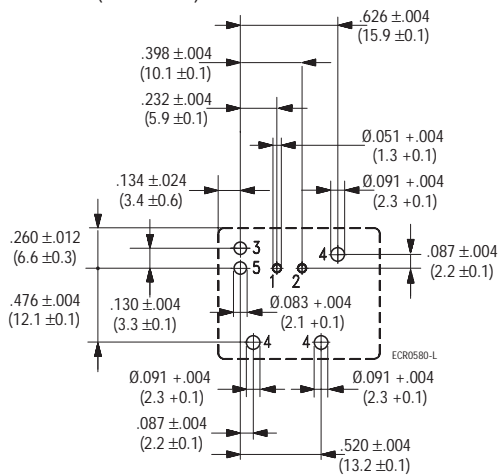


View of the terminals (bottom view)



Mounting holes

View of the terminals (bottom view)



Power relay K (open and sealed)

Contact data					
Typical areas of application	Resistive / inductive loads		Indicator lamps	Headlights, capacitive loads	
Contact configuration	Make contact/ Form A	Changeover contact/ Form C	Make contact/ Form A	Make contact/ Form A	Changeover contact/ Form C
Contact material	AgNi0.15		AgSnO ₂	AgSnO ₂	
Circuit symbol (see also Pin assignment)					
Max. switching voltage	See load limit curve				
Max. switching power	See load limit curve				
Max. switching current ¹⁾		NC/NO			NC/NO
On ²⁾	100 A	30/100 A	120 A ³⁾	180 A	60/180 A
Off	60 A	30/60 A	12 A	60 A	30/60 A
Limiting continuous current		NC/NO			NC/NO
at 23 °C	45 A	30/45 A	12 A	40 A	25/40 A
at 85 °C	30 A	25/30 A	10 A	25 A	20/25 A
Voltage drop (initial) at 10 A	Typ. 15 mV	Typ. 20/15 mV	Typ. 40 mV	Typ. 20 mV	Typ. 25/20 mV
Increase in coil temperature at 10 A load	Typ. 3 °C	Typ. 5/3 °C	Typ. 10 °C ⁴⁾	Typ. 5 °C	Typ. 7/5 °C
Mechanical endurance (without load)	> 10 ⁷ operations				
Electrical endurance	> 2 x 10 ⁵ operations at 13.5 V / 40 A		> 2.2x 10 ⁶ operations up to 8 x 21 W	> 10 ⁵ operations up to 4 x 60 W	

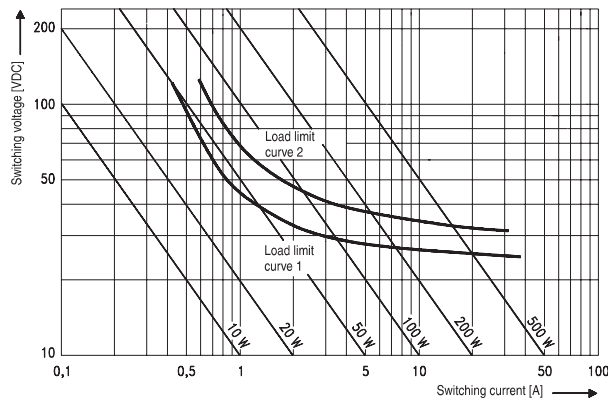
¹⁾ The values apply to a resistive load or inductive load with suitable spark suppression.

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

³⁾ Corresponds to the peak inrush current on initial actuation (cold filament).

⁴⁾ At 50 % ON period.

Load limit curve



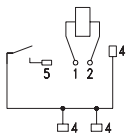
ECR0556-E

Load limit curve 1 ≙ arc extinguishes, during transit time (changeover contact)

Load limit curve 2 ≙ safe shutdown, no stationary arc (make contact)

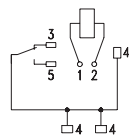
Pin assignment

1 make contact/
1 form A



ECR1081 - B

1 make contact/
1 form A



ECR1086 - A

Power relay K (open and sealed)

Coil data	
Available for nominal voltages	12, 24 VDC
Nominal power consumption of the unsuppressed coil at nominal voltage	1.6 W
Test voltage winding/contact	500 VAC _{rms}
Upper limit temperature for the coil	155 °C
Maximum ambient temperature range ¹⁾	- 40 to + 85 °C
Max. switching rate without contact loading	20 Hz
Operate time ²⁾	Typ. 5 msec
Release time ²⁾	Typ. 3 msec

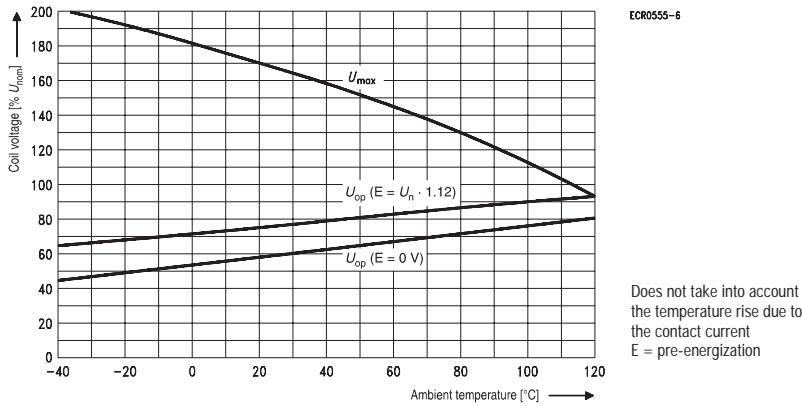
¹⁾ See also operating voltage range diagram

²⁾ Measured at nominal coil 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.

Operating voltage range



Mechanical data	
Enclosures	Sealed
Sealed relay is suitable for immersion cleaning of PCB assembly or conformal coating.	

Operating conditions				
Temperature range, storage	-40 °C to 155 °C			
Test	Relevant standard	Testing as per	Dimension	Comments
Climatic cycling with condensation ¹⁾	EN ISO 6988		3 cycles	Storage 8/16 h
Temperature cycling ¹⁾	IEC 68-2-14	Na	20 cycles	- 40/+ 85 °C (dwell time 1 h)
Damp heat ¹⁾				
cyclic	IEC 68-2-30	Db, Variant 1	6 cycles	Upper air temperature 55 °C
constant	IEC 68-2-3	Ca	56 days	
Corrosive gaz ¹⁾	IEC 68-2-42 IEC 68-2-43	-	10 days 10 days	
Vibration resistance	IEC 68-2-6 (sine pulse form) acceleration, acc. to position		10 ... 200 Hz 20 ... 40 g	No change in the switching state > 10 msec
Shock resistance	IEC 68-2-27 (half-sine pulse form) acceleration		8 msec 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 ¹⁾	IEC 68-2-17	Qc, Method 2		1 min / 70 °C

¹⁾ Only sealed version

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Ordering information

Part number (Replace * with "Coil designator") Power K	Contact arrangement	Contact material	Enclosure	Terminals
V23076-A1*-C133	Form C	AgNi0.15	Sealed	Printed circuit
V23076-A1*-D143	Form C	AgSnO ₂	Sealed	Printed circuit
V23076-A3*-D152	Form A	AgSnO ₂ ¹⁾	Sealed	Printed circuit
V23076-A3*-C132	Form A	AgNi0.15	Sealed	Printed circuit
V23076-A3*-D142	Form A	AgSnO ₂	Sealed	Printed circuit
V23133-A1*-C133	Form C	AgNi0.15	Open	Printed circuit
V23133-A1*-D143	Form C	AgSnO ₂	Open	Printed circuit
V23133-A3*-D152	Form A	AgSnO ₂ ¹⁾	Open	Printed circuit
V23133-A3*-C132	Form A	AgNi0.15	Open	Printed circuit
V23133-A3*-D142	Form A	AgSnO ₂	Open	Printed circuit

¹⁾ Special AgSnO₂ as replacement of the PdCu15/AgNi0.15 (especially for flashers).

Coil versions

Coil designator Power K	Rated coil voltage (V)	Coil resistance +/- 10% (Ω)	Must operate voltage (VDC)	Must release voltage (VDC)	Allowable overdrive (VDC)	
					at 23 °C ¹⁾	at 85 °C ¹⁾
001	12	90	6.9	1.2	20.8	15.5
022	24	362	14.1	2.4	41.2	32.5

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

Standard delivery packs (orders in multiples of delivery pack)

Open version: 500 pieces

Sealed version: 300 pieces