

Mini power relay U



Powertrain Systems



~~Chassis Systems~~



~~Safety~~



~~Security~~



~~Body~~



Driver Information



~~Convenience~~

Features

- Miniature size
- 10 A continuous contact rating at 23 °C
- 20 A switching current

Typical applications

- Alarm systems
- Automatic door locking systems



~~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. 0.27 oz. (7.6 g)

Nominal voltage

9 V or 12 V

Terminals

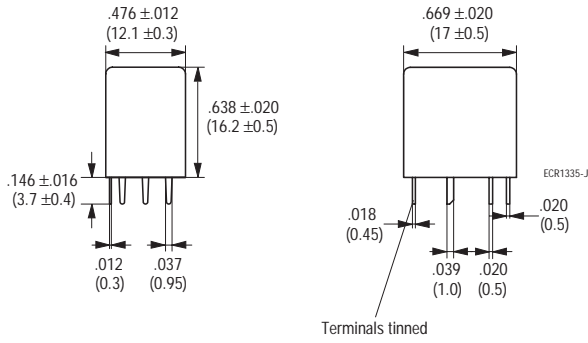
PCB terminals, for assembling in printed circuit boards

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).

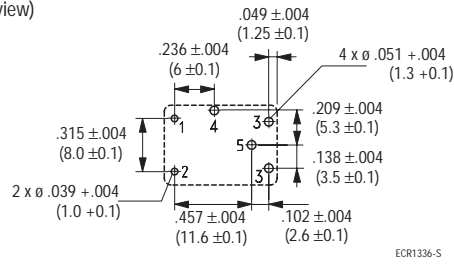
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Dimensional drawing



Mounting holes

View of the terminals (Bottom view)



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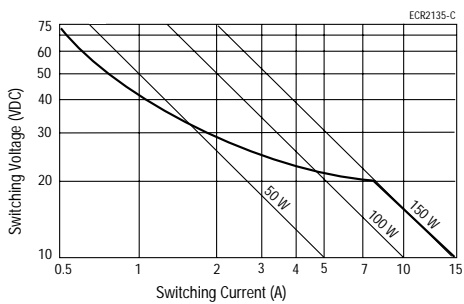
Contact data

Contact configuration	Changeover contact/ Form C	
Contact material	AgNi0.15	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⁾	15 A/30 A	20 A / 40 A
Off	5 A/10 A	5 A / 10 A
Limiting continuous current	NC/NO	NC/NO
at 23 °C	10 A/10 A	10 A / 15 A
at 85 °C	5 A/6 A	5 A / 10 A
Voltage drop (initial) at 10 A	NC: typ. 50 mV NO: typ. 35 mV	NC: typ. 70 mV NO: typ. 50 mV
Increase in coil temperature at 10 A load	NC: typ. 25 °C NO: typ. 18 °C	NC: typ. 35 °C NO: typ. 25 °C
Mechanical endurance (without load)	> 10 ⁷ operations	
Electrical endurance	> 1.5 x 10 ⁵ operations at 13.5 V, 10 A	> 1.5 x 10 ⁵ operations at 13.5 V, 15 A

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.

Load limit curve

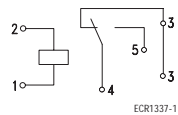


Load limit curve $\hat{=}$ arc extinguishes during transit time

Pin assignment

1 changeover contact/

1 form C



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Coil data	
Available for nominal voltages	9, 12 VDC
Nominal power consumption of the unsuppressed coil at nominal voltage	0.45 W
Test voltage winding/contact	500 VAC _{rms}
Upper limit temperature for the coil	130 °C
Maximum ambient temperature range ¹⁾	- 40 to + 85 °C
Max. switching rate without contact loading	5 Hz
Operate time ²⁾	Typ. 3 msec
Release time ²⁾	Typ. 1.7 msec

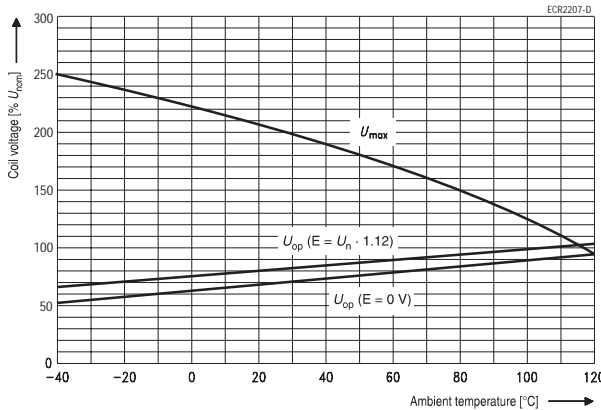
¹⁾ See also operating voltage range diagram

²⁾ Measured at nominal voltage without coil suppression unit

N.B.

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

Operating voltage range



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

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

Operating conditions				
Temperature range, storage	-40 °C to 130 °C			
Test	Relevant standard	Testing as per	Dimension	Comments
Vibration resistance	IEC 68-2-6 (sine pulse form) acceleration		10 ... 55Hz > 5 g	No change in the switching state > 10 µsec
Shock resistance	IEC 68-2-27 (half-sine pulse form) acceleration		11 msec > 10 g	No change in the switching state > 10 µsec
Drop test	Capable of meeting specifications after 1.0 m (3.28 foot) drop onto concrete			
Flammability	UL94-HB			
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") Mini U	Contact arrangement	Contact material	Enclosure	Terminals
V23083-C1*-A203	1 Form C	AgSnO ₂	Sealed	Printed circuit
V23083-C1*-A303	1 Form C	AgNi0.15	Sealed	Printed circuit

Coil versions

Coil designator Mini U	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	320	8.0	1.2	24.8	17.5
002	9	180	6.0	1.0	18.3	12.5

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)

Mini U: 1000 pieces