

Mini Relay Latching



Features

- Magnetically latched ISO plug-in relay
- Two coils with set and reset function
- Pin assignment similar to ISO 7588 part 1
- Plug-in terminals

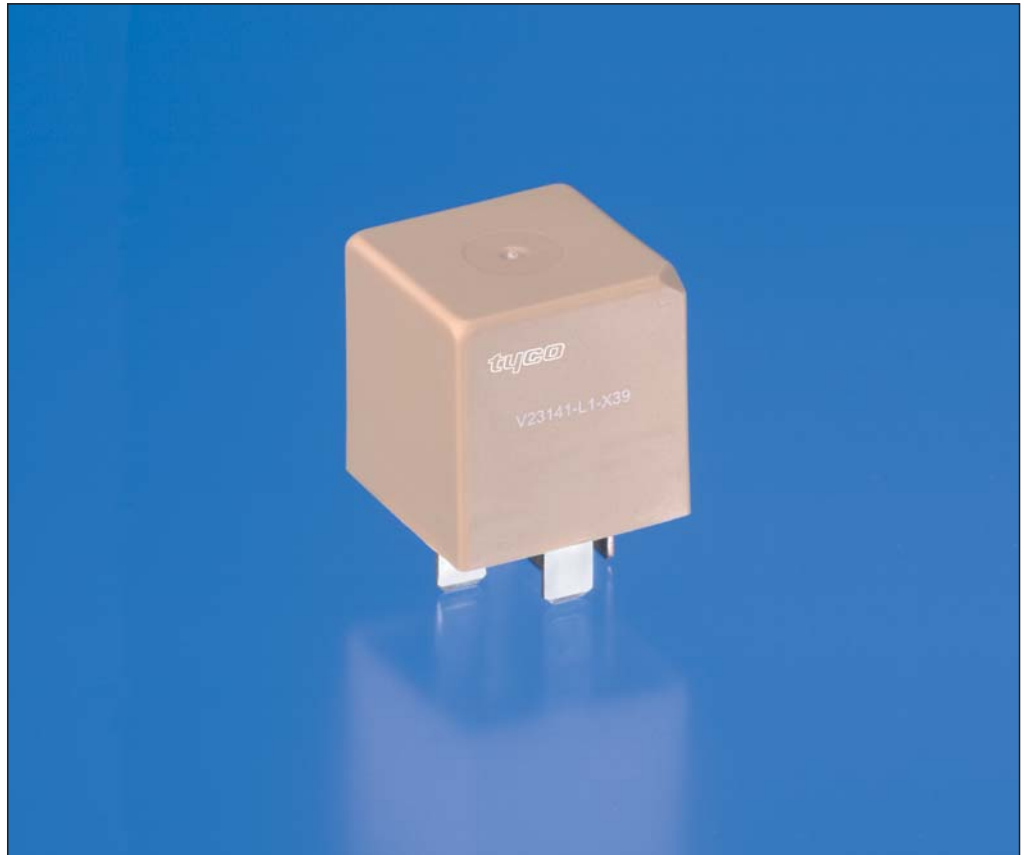
Customized Versions on Request

- Special marking
- Special covers (e.g. notches, release features, brackets)

Typical Applications

- Active power management
- Disconnection of power outlets
- Security systems

Please contact Tyco Electronics for relay application support.



141L_302

Design

- ELV/RoHS/WEEE compliant
- Dustproof; protection class IP54 to IEC 529 (EN 60 529)

Weight

Approx. 30 g (1.06 oz.)

Nominal Voltage

12 V

Terminals

Quick connect terminals similar to ISO 8092-1, coil and load 6.3 x 0.8 mm; surfaces tin plated

Accessories

Connectors see page 229 ff

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, 998.9 ±33.9 hPa.

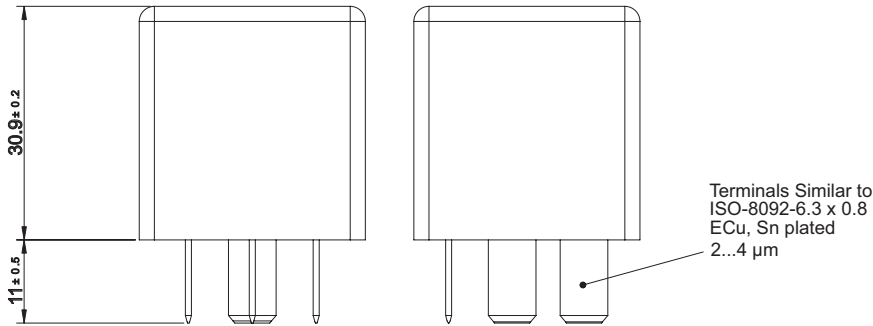
For general storage and processing recommendations please refer to our Application Notes and especially to *Storage* in the "Glossary" page 23 or at <http://relays.tycoelectronics.com/appnotes/>

Disclaimer

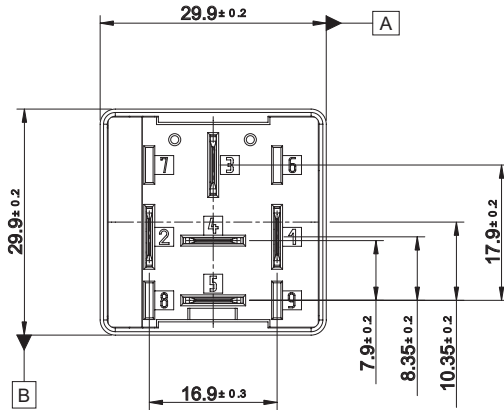
All technical performance data apply to the relay as such, specific conditions of the individual application are not considered. Please always check the suitability of the relay for your intended purpose. We do not assume any responsibility or liability for not complying herewith. We recommend to complete our questionnaire and to request our technical service. Any responsibility for the application of the product remains with the customer only. All specifications are subject to change without notification. All rights of Tyco Electronics are reserved.

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Dimensional Drawing



View of the Terminals (bottom view)

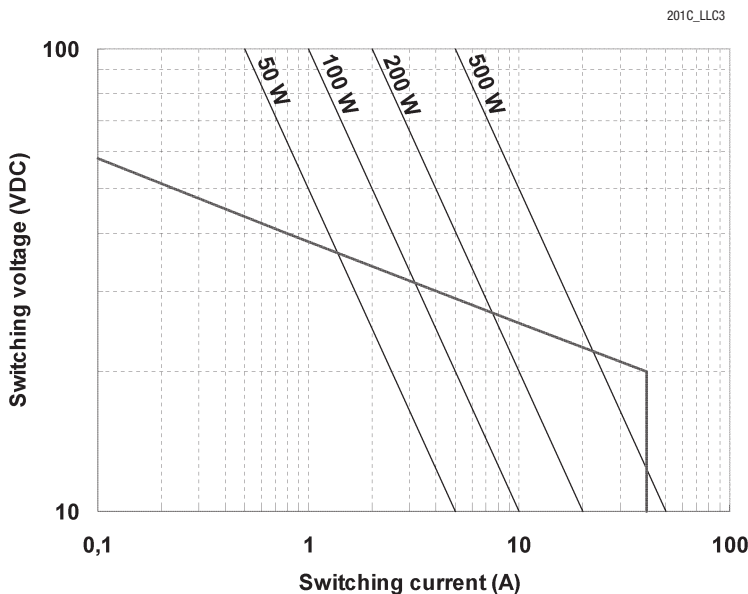


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Contact Data	
Typical areas of application	Resistive, inductive and capacitive loads
Contact configuration	1 Make contact/ 1 Form A
Circuit symbol (see also Pin assignment)	
Rated voltage	12 V
Rated current	30 A
Limiting continuous current	
23°C	40 A
85°C	30 A
125°C	10 A
Contact material	Silver based
Max. switching voltage/power	See load limit curve
Max. switching current ¹⁾	
On ²⁾	200 A
Off	40 A
Min. recommended load ³⁾	1 A at 5 V
Voltage drop at 10 A (initial)	
NO contact	Typ. 50 mV, 300 mV max.
Mechanical endurance (without load)	Typ. 10 ⁶ operations
Electrical endurance example at cyclic temperature -40/+23°C/+85°C and 14 V	Resistive load ⁴⁾ > 1 x 10 ⁵ operations 40 A on / 40 A off
Max. switching rate at nominal load	6 operations per minute (0.1 Hz)

- ¹⁾ The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V.
- ²⁾ Corresponds to a capacitive peak inrush current on initial actuation (cold filament).
- ³⁾ See chapter Diagnostics of Relays in our Application Notes page 31 or consult the internet at <http://relays.tycoelectronics.com/appnotes/>
- ⁴⁾ For a load current duration of maximum 3 s for a make/break ratio of 1:10.

Load Limit Curve

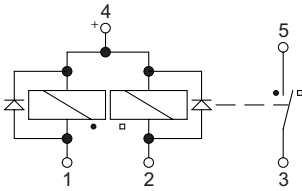


Load limit curve $\hat{=}$ safe shutdown, no stationary arc/make contact

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Circuit Diagram

AS
1 Make contact/1 Form A
with Diodes



Coil Data

Available for nominal voltages	12 V			
	Set		Reset	
Polarity for energizing/deenergizing contact	+	-	+	-
	Pin 4	Pin 1	Pin 4	Pin 2
Min. and max. set pulse width ¹⁾	10 ms < pulse width < 100 ms			
Test voltage winding/contact	500 VAC _{rms}			
Ambient temperature range	-40 to +125°C			
Operate time at nominal voltage	Typ. 1.5 ms			
Release time at nominal voltage	Typ. 1.5 ms			

¹⁾ Longer pulse width may be possible, please contact Technical Marketing (Relay Application Support).

Mechanical Data

Cover retention	
Axial force	150 N
Pull force	150 N
Push force	200 N
Terminals	
Pull force	100 N
Push force	100 N
Resistance to bending, force applied to front	10 N ¹⁾
Resistance to bending, force applied to side	10 N ¹⁾
Torsion	0.3 Nm
Enclosures	
Dust cover	Protects relay from dust. For use in passenger compartment or enclosures.

¹⁾ Values apply 2 mm from the end of the terminal. When the force is removed, the terminal must not have moved by more than 0.3 mm.

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Environmental Conditions				
Temperature range, storage	Refer to <i>Storage</i> in the "Glossary" catalog page 23 or http://relays.tycoelectronics.com/appnotes/			
Test	Relevant standard	Testing as per	Dimension	Comments
Climatic cycling with condensation	EN ISO 6988	6 cycles	Storage 8/16 h	
Temperature cycling	IEC 68-2-14	Nb	10 cycles	-40/+85°C (5°C per min)
Damp heat				
cyclic	IEC 68-2-30	Db, Variant 1	6 cycles	Upper air temperature 55°C
constant	IEC 68-2-3	Ca	56 days	
Corrosive gas	IEC 68-2-42	10 ±2 cm ³ /m ³ SO ₂	10 days	
	IEC 68-2-43	1 ±0.3 cm ³ /m ³ H ₂ S	10 days	
Vibration resistance	IEC 68-2-6 (sine sweep)		10 - 500 Hz min. 10 g	No change in the switching state > 10 µs
Shock resistance	IEC 68-2-27 (half sine form single pulses)		min. 30 g 6 ms	
Flammability	UL94-HB or better (meets FMVSS 302) ¹⁾			

¹⁾ Current and time are compatible with circuit protection by a typical 20 A automotive fuse. Relay will make, carry and break the specified current.

Ordering Information

Part Numbers (see table below for coil data)		Circuit/Contact Arrangement	Contact Material	Enclosure	Terminals
Relay Description	Part Number				
V23141-L0001-X039	On request	AS/1 Form A	Silver based	Dust cover	Quick connect

Coil Versions

Coil Data for Mini Latching	Rated Coil Voltage (V)	Coil Resistance ±10% (Ω)		Must Pulse Voltage (V)		Allowable Overdrive ¹⁾ Voltage (V)			
		Set	Reset	Set	Reset	at 23°C		at 85°C	
						Set	Reset	Set	Reset
V23141-L0001-X039	12	20	19	6.9	6.9	28	18; 28 ²⁾	28	18; 28 ²⁾

¹⁾ Allowable overdrive is stated with no load applied and minimum coil resistance.

²⁾ Overvoltage according to ISO 16750-2 functional status C. In case of a reset latch pulse up to 28 V the contact may reclose, but will not remain closed (no latching function).

³⁾ The delay between driving impulses at cyclic energizing at T_{Amb}=85°C must be at least 10 s.

Standard Delivery Packs (orders in multiples of delivery pack)

Mini Latching: On request