

Customized Switching Solutions

Customer Specific Applications

Power Management Modules













Description

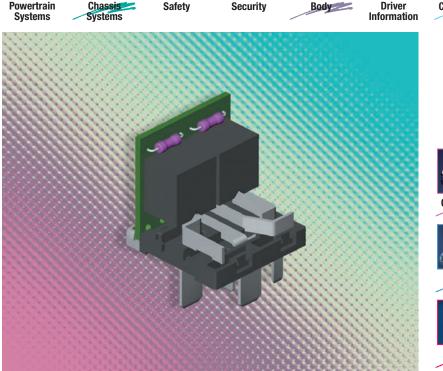
Features

- Up to 20 A load current per path at 85 °C
- No power consumption (latching relay)
- Very compact design Two separate load circuits
- with common control
- Customer specific design on request

Typical applications

Disconnection of two power outlets in a vehicle if the battery voltage drops below a defined level

Please contact Tyco Electronics for relay application support.









Oth Industry

141_3d05

Design

Dustproof; protection class IP54 to IEC 529 (EN 60 529); mounting bracket or mounting clip on request. Delivered with cover.

Weight

Approx.1.2 oz.

Nominal voltage

12 V

Terminals

Quick connect terminals similar to ISO 8092-1 coil and load 6.3 x 0.8 mm, surface tin-pated

Advantages

- Active power management
- charging of the battery
- Improved ability to start the engine

Conditions

for general precautions.

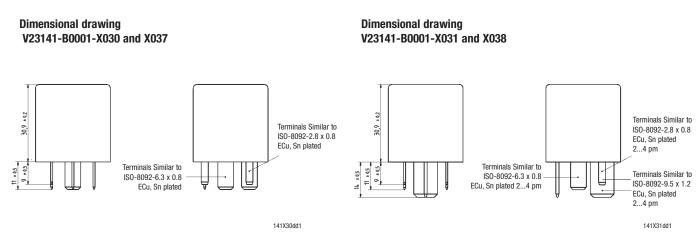
- Protection against complete dis-

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). Please also refer to the Application Recommendations in this catalog

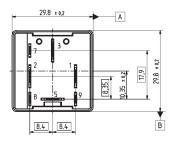
Disclaimer

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 are reserved.



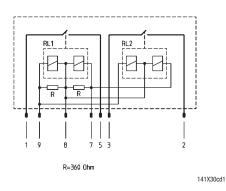


View of the terminal (bottom view) V23141-B0001-X030 standard PCB V23141-B0001-X037 advanced PCB



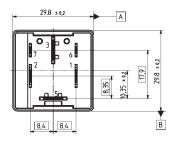
141X30vt1

Circuit diagram V23141-B0001-X030 and X037



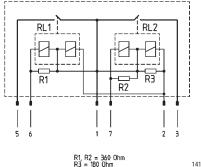
Two separate load circuits (1-5, 2-3) with common control.

View of the terminal (bottom view) V23141-B0001-X031 standard PCB V23141-B0001-X038 advanced PCB

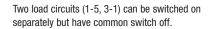


141X31vt1

Circuit diagram V23141-B0001-X031 and X038



141X31cd1





Contact data	0.14-1-			
Contact configuration		e contacts/		
	2 Form A			
Circuit symbol	See circuit diagram			
Rated voltage		12 V		
Rated current at 85 °C	One relay in use	Both relays in use		
Standard PCB	15 A	10 A		
Advanced PCB	20 A	15 A		
Contact material	Ag	JSnO ₂		
Max. switching current ¹⁾				
On ²⁾	50 A			
Off	30 A			
Min. recommended load ³⁾	1 A at 5 V			
Voltage drop at 10 A (initial)	Typ. 15 mV, 200 mV max.			
Mechanical endurance (without load)	> 10 ⁶ operations			
Electrical endurance	Resistive load:	> 1 x 10 ⁵ operations		
(tested on relay V23086-L1252-A403	at 13.5 V	on 20 A/off 20 A		
used in this module)	at +85 °C	on 120 ms/off 4880 ms		
	Inductive load	$> 1 \times 10^5$ operations		
	at 13.5 V	on 25 A/off 5 A		
	at cyclic temperature	on 120 ms/off 4880 ms		
	change-40/+23/+85 °C	L=0.6 mH		
	Lamp load	$> 1 \times 10^5$ operations		
	at 13.5 V	on 50 A ² /off 5 A		
	at cyclic temperature	on 120 ms/off 4880 ms		
	change-40/+23/+85 °C			

¹⁾ The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V or 27 V for 24 V load voltages.

²⁾ For a load current duration of maximum 3 s for a make/break ratio of 1:10.

³⁾ See chapter Diagnostics in our Application Recommendations on page 18 of this catalog or consult the internet at http://relays.tycoelectronics.com/application.asp

minal power consumption Continuous power on coil not allowed st voltage coil/contact 500 VACmms ximum ambient temperature range -40 to + 105 °C t Close contacts minals 1-5 and 2-3 Connected arity Terminal 7 Terminal 8 st set voltage?) (ambient temperature 23 °C) 6 V ximum set voltage pulse width at 6 V 5 ms ximum set voltage pulse width at 22 V 1 s sistance between 7-8 with coils at 23 °C 34 ± 4 Ω titte (nominal voltage; coil temperature 23 °C) Open contacts minals 1-5 and 2-3 Open contacts arity Terminal 7 Terminal 8 sistance between 7-8 with coils at 23 °C 34 ± 4 Ω titter (nominal voltage; coil temperature 23 °C) Open contacts minals 1-5 and 2-3 Not connected arity Terminal 7 Terminal 8 st set voltage (ambient temperature 23 °C) Qpen contacts minals 1-5 and 2-3 Not connected arity Terminal 7 Terminal 8 st set voltage (ambient temperature 23 °C) 6 V ximum set voltage (ambient temperature 23 °C) Q	Coil data for V23141-B0001-X030 and V23141-B0001-X037 ¹⁾				
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sistance between 8-9 with coils at 23 °C $34 \pm 4 \Omega$	Minimum set voltage pulse width at 6 V	5 ms			
	Maximum set voltage pulse width at 22 V	1 s			
time (nominal voltage; coil temperature 23 °C Typ. 2.0 ms	Resistance between 8-9 with coils at 23 °C		$34 \pm 4 \Omega$		
	Set time (nominal voltage; coil temperature 23 °C		Typ. 2.0 ms		

¹⁾ Verified on single samples from serial tools.



Coil data for V23141-B0001-X031 and V23141-B0001-X038 ¹⁾					
Available for nominal voltages	12 V				
Nominal power consumption	Continuous power on coil not allowed				
Test voltage coil/contact	500 VACrms				
Maximum ambient temperature range	- 40 to + 105 °C				
Set system 1					
Function		Close contacts			
Terminals 1-3		Conn	ected		
Polarity	Terminal 1	Terminal 2	Terminal 7	Terminal 6	
	Positive potential	No current	Negative potential	No current	
Must set voltage (ambient temperature 23 °C)		6	V		
Maximum set voltage (coil temperature 23 °C)		22	2 V		
Minimum set voltage pulse width at 6 V		5 ו	ms		
Maximum set voltage pulse width at 22 V	1 s				
Resistance between 1-7 with coils at 23 °C	62 ± 6 Ω				
Set time (nominal voltage; coil temperature 23 °C)	Typ. 2.5 ms				
Set system 2					
Function	Close contacts				
Terminals 1-5	Connected				
Polarity	Terminal 1	Terminal 2	Terminal 7	Terminal 6	
	Positive potential	No current	No current	Negative potential	
Must set voltage ²⁾ (ambient temperature 23 °C)	6 V				
Maximum set voltage (coil temperature 23 °C)		22	V		
Minimum set voltage pulse width at 6 V		5 r	ms		
Maximum set voltage pulse width at 22 V		1	S		
Resistance between 1-6 with coils at 23 °C		62 ±	6Ω		
Set time (nominal voltage; coil temperature 23 °C)	Typ. 2.0 ms				
Reset both systems					
Function	Open contacts				
Terminals 1-5 and 2-3	Connected				
Polarity	Terminal 1	Terminal 2	Terminal 7	Terminal 6	
	Positive potential	Negative potential	No current	No current	
Must set voltage (ambient temperature 23 °C)	6 V				
Maximum set voltage (coil temperature 23 °C)	22 V				
Minimum set voltage pulse width at 6 V	5 ms				
	1s				
Maximum set voltage pulse width at 22 V		I	3		
Maximum set voltage pulse width at 22 V Resistance between 1-2 with coils at 23 °C		31 ±			

¹⁾ Verified on single samples from serial tools.



Mechanical data	
Cover retention	
Axial force	150 N (33.7 lbs)
Pull force	200 N (45 lbs)
Push force	200 N (45 lbs)
Terminals	
Pull force	100 N (22.5 lbs)
Push force	100 N (22.5 lbs)
Resistance to bending, force applied to front	10 N (2.25 lbs) ¹⁾
Resistance to bending, force applied to side	10 N (2.25 lbs) 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.

Operating conditions		Defer to Ctor	ana in tha "Classom"		
Temperature range, storage	Refer to Storage in the "Glossary"				
Test	Relevant standard	Testing as per	Dimension	Comments	
Cold storage	IEC 68-2-1		1000 h	− 40 °C	
Dry heat	IEC 68-2-2	Ва	1000 h	+ 85 °C	
Thermal shock	IEC 68-2-14	Na	100 cycles	− 40 °C/+85 °C	
				Dwell time 15 min	
Vibration resistance	IEC 68-2-6 (sine pulse form)		10-2000 Hz		
	contacts 1-5 and 2-3 closed		10 g		
Vibration resistance	IEC 68-2-6 (sine pulse form)		10-500 Hz		
	contacts 1-5 and 2-3 open		6 g	No change in the	
Shock resistance	IEC 68-2-27 (half-sine		6 ms	switching state $> 10 \ \mu s$	
	pulse form)		up to 30 g		
Continuous shock	IEC 68-2-27	Eb	6 ms, 30 g, 1000 shocks		
			in each direction		
Drop test	Capable of meeting specifications after 1.0 m (3.28 foot) drop onto concrete				
Flammability		UL94-HB or better (meets FMVSS 302) ²⁾			

¹⁾ Verified on separate relay samples produced in series.
²⁾ FMVSS: Federal Motor Vehicle Safety Standard.

Ordering information

Part numbers		Contact	Contact	Enclosure	Special
Relay part number	Tyco order number	arrangement	material		features
12 V modules					
V23141-B0001-X0301)	1-1414255-0	see page 173	AgSn02	Dust cover	Quick connect, standard printed circuit board
V23141-B0001-X0371)	1-1414502-0	see page 173	AgSn02	Dust cover	Quick connect, advanced printed circuit board
V23141-B0001-X0312)	1-1414233-0	see page 173	AgSn02	Dust cover	Quick connect, standard printed circuit board
V23141-B0001-X038 ²⁾	1-1414501-0	see page 173	AgSn02	Dust cover	Quick connect, advanced printed circuit board

¹⁾ 7 terminals, 2 separated load circuits.

²⁾ 6 terminals, common plus for coil and load side.