



Introduction:

Miniature **DRV-Series** DC Reversing Solid-State Relays are designed to reverse the direction of current in loads such as DC motors and actuators. An internal solid-state H-bridge provides a natural discharge path for back-EMF generated during motor shut-off. This results in a switching solution that is arc-free, wear-free, and noise-free.

Available **-SPV Option** features a controlled 10ms “softer-stop” intended for motors and actuators; slower Turn-Off minimizes voltage transients and mechanical shock.

Features & Benefits:

- Output Rated 100V,60A or 200V, 50A
- Wide DC 12V or 24V Control
- 2.5kV IN/OUT Isolation
- Reversing Solid-State H-bridge, Arc-Free
- Compact Form Factor
- Rugged High-Current Construction

	Miniature DC Reversing Solid-state Relay			
Part#	DRVS01-60A12	DRVS01-60A24	DRVS02-50A12	DRVS02-50A24
Control Input Voltage (customizable)	12VDC (10-17V)	24VDC (17-28V)	12VDC (10-17V)	24VDC (17-28V)
Rated Output Voltage	100 VDC		200 VDC	
MAX Resistive Current @80°C Baseplate	60A (per IEC 60947-4-3)		50A (per IEC 60947-4-3)	
Peak Current @80°C Baseplate ¹	120A (1 sec)		100A (1 sec)	
Typical ON Resistance	<7 mΩ		<15 mΩ	
Leakage Current	<1 mA		<1 mA	
Recommended MAX Load Voltage	<65V (resistive), <36V (motor)		<120V (resistive), <48V (motor)	
	Control Specifications			
Control Input Current	~25mA			
MAX PWM ²	not-rated, non-PWM			
Typical ON & OFF Delay ³	~25ms & ~2ms			
Interlock Timer	~25ms			
Isolation Voltage	Input/Output: >2.5kV, Input/Case & Output/Case: 2.5 kV (AC 1 min 50 hz)			
	Physical Specifications			
LED Indicators	Green (FWD L1+/L2-), Red (REV L1-/L2+)			
Ambient Operating & Storage Temp.	-104 to 176°F [-40 to 80°C] (per IEC 60068-2-2)			
Max Junction & Baseplate Temp.	125°C (junction) & 80°C (baseplate)			
Thermal Impedance ⁴	2.5°C/W Junction to Heatsink		2.8°C/W Junction to Heatsink	
Dimensions (LxWxH)	45x57x33.5 mm			
Terminals	Input: 14-22 AWG (strip length 5-6mm, max torque 0.4 Nm) Output: M4 (max depth 10mm, max torque 2 Nm) Panel Mount: M4 (max torque 1.7 Nm)			
Housing	ABS			
Weight	150 g (with set screws)			
Options	-SPV (softer-stop, turn-off over 10ms)			

Contact us for any questions or custom requirements:

www.nominalcontrols.com | info@nominalcontrols.com | +1 (844) 741-2580

¹ Peak-current-withstanding-duration depends on active cooling provided, assume 1 second

² Exceeding max recommended PWM may cause unit failing to react to turn-off cycle

³ Rise & Fall time(resistive load) is ~1ms for regular model; for “-SPV” softer-stop variant is ~10ms

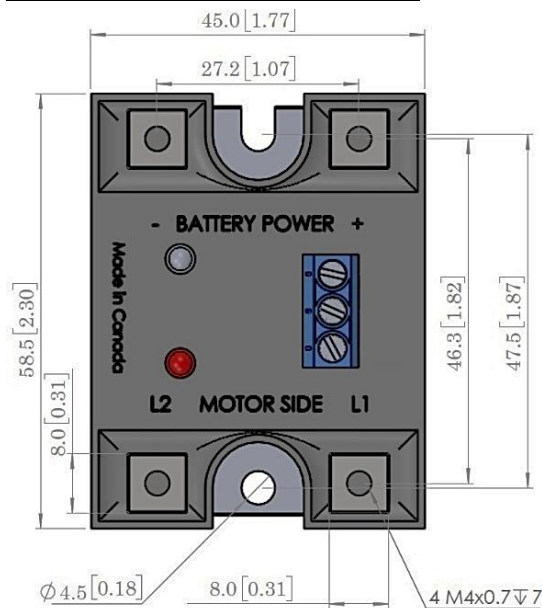
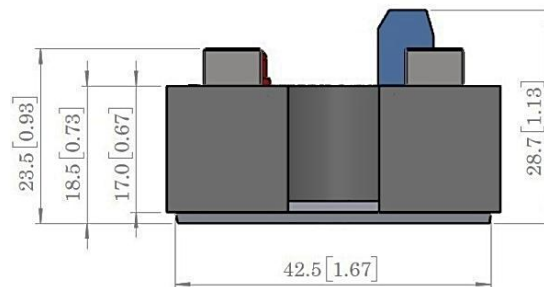
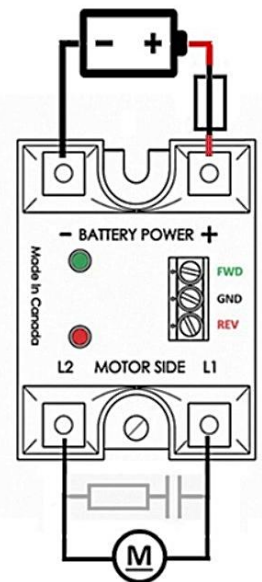
⁴ Value assumes a thermal transfer layer of 1 W/mK and 0.5mm thick is also between the baseplate and the heatsink

Part# Reference:

Model		Output Voltage			Output Current	Control Input			Other Features	
DRVS		01		-	60A	12		-	-	-
DRVS	Standard Model (for DC polarity reversing only)	01 =	1-100 VDC		Rated Continuous Current (A)	N/A	3 - 32 VDC (CMOS/TTL)		SPV = Softer- turn-off (over 10ms)	Other Custom References
		02 =	1-200 VDC			12 =	10 - 17 VDC			
DRV	Advanced Model (for polarity reversing and PWM up to 5kHz)	Other (contact us)				24 =	18 - 28 VDC			
						3 =	12 - 24 VDC			

Contact us for Other Options

Dimensional Drawing, mm [in]:

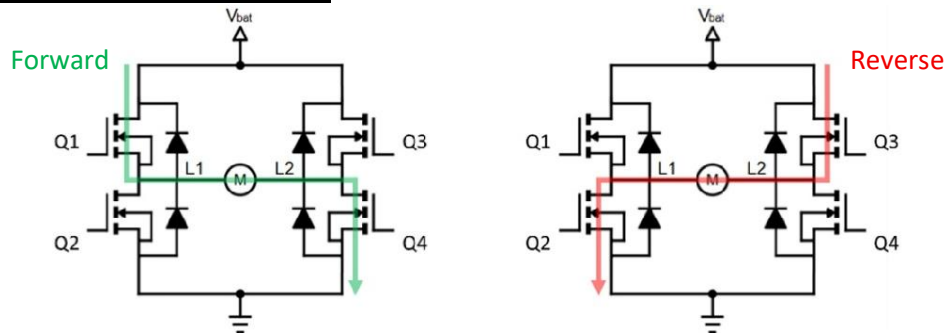
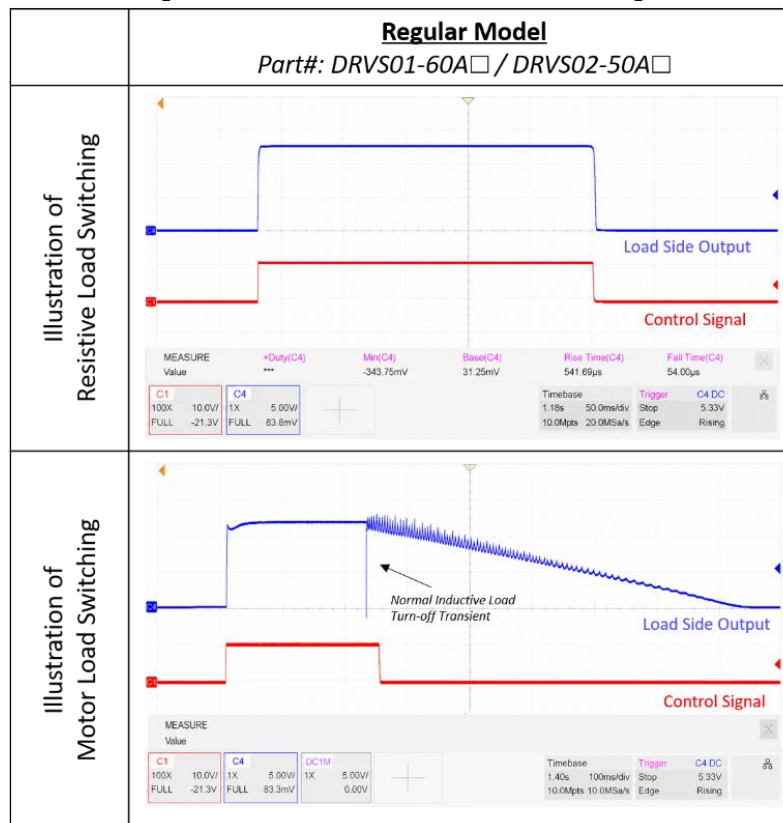


Heatsink Requirement:

DC 100V, 60A <DRVS01-60A> Max Allowed Heatsink Rth @40°C T-Ambient (for ensuring baseplate is ≤80°C)	
Operating Current (ΔV=Voltage Drop)	Continuous (100% Duty Cycle)
10A (ΔV= 0.06V)	Not needed
20A (ΔV= 0.12V)	Metal Surface
30A (ΔV= 0.18V)	Metal Surface
40A (ΔV= 0.24V)	4 °C/W
50A (ΔV= 0.3V)	2.5 °C/W
*Spec according to sustained stall current if applicable	

DC 200V, 50A <DRVS02-50A> Max Allowed Heatsink Rth @40°C T-Ambient (for ensuring baseplate is ≤80°C)	
Operating Current (ΔV=Voltage Drop)	Continuous (100% Duty Cycle)
10A (ΔV= 0.14V)	Not needed
20A (ΔV= 0.28V)	Metal Surface
30A (ΔV= 0.42V)	2.5 °C/W
40A (ΔV= 0.56V)	1 °C/W
50A (ΔV= 0.7V)	0.25 °C/W
*Spec according to sustained stall current if applicable	

DC Solid-state Reverser Workings Diagram:



Softer-Stop Option (-SPV):

DRVS- series with the “-SPV” option provide a controlled **10ms soft-stop** for inductive loads. The slower turn-off reduces voltage spikes that could stress SSRs and power supplies while minimizing mechanical shock, stress, and abrupt load movements.



2026 Revision Log*R.2604F:*

- *adjusted ON/OFF latency from ~35ms/~2ms to ~25ms/2ms*

R.2604H:

- *updated thermal Derating*
- *Rds ON for DRVS01-60A□ reduced from <9mOhm to <7mOhm*
- *Rds ON for DRVS02-50A□ reduced from <18mOhm to <15mOhm*

R.2605J/K:

- *control input now separated into either 12VDC (10-15V) control, or 24VDC (22-28V) control*
- *“SPV” softer-stop variant’s turn-off speed adjusted to 10ms, down from 25ms*

R.2608L:

- *12VDC control input range has been extended to 10-17VDC (from 10-15V)*
- *24VDC control input range has been extended to 18-28VDC (from 22-28V)*
- *control input current revised to 35mA*

R.2608M:

- *control input current reduced to 25mA down from 35mA*