



# MV002



## »» Features

- ☐ Middle voltage DC load control.
- ☐ High performance power relay for xEV vehicle.
- ☐ Complies with RoHS-Directive 2011/65/EU.



## »» Type List

Terminal style	Contact form	Designation (provided with)		
		Dust cover	Flux tight	Flanged cover (Dust cover)
Plug-in terminal	1A (SPDM)	MV002-1AH-F-D	-----	MV002-1AH-F-D1
		MV002H-1AH-F-D		MV002H-1AH-F-D1
PCB terminal		-----	MV002P-1AH-F-C	-----
			MV002HP-1AH-F-C	

## »» Ordering Information

MV002   ☐   ☐   -   1A   H   -   ☐   -   C   -   ☐   ☐  
 1   2   3   4   5   6   7   8   9

- |  |   |
|--|---|
| 1. MV002 -- Basic series designation     | S -- Sealed type washable   |
| 2. Blank -- Standard type                | D1 -- Flanged cover (Dust cover)  |
| H -- High power type                     | C1 -- Flanged cover (Flux tight)  |
| 3. Blank -- Plug-in terminal             | S1 -- Flanged cover (Sealed type washable)  |
| P -- PCB terminal                        | D1S -- Steel bracket (Dust cover)   |
| 4. 1A -- Single-pole, double-make (SPDM) | C1S -- Steel bracket (Flux tight)   |
| 5. H -- Contact material Ag alloy        | S1S -- Steel bracket (Sealed type washable)   |
| 6. Blank -- Standard type                | D1SW -- Steel bracket (dust cover with weather proof)   |
| F -- Class F                             | 8. Blank -- Standard type   |
| 7. D -- Dust cover                       | R1 -- Coil parallel with resistor 1/2W for 12V 680Ω   |
| C -- Flux tight                          | 9. <input type="checkbox"/> -- Coil voltage (please refer to the coil rating data for the availability) |

## »» Contact Rating

Type	Standard type	High power type
Rated load (Resistive)	30A 60VDC	40A 60VDC
	20A 72VDC	
Max. switching capacity	1800W	2400W

## »» Coil Rating (DC)

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Pick up voltage (Max.) at 23°C	Drop out voltage (Min.) at 23°C	Max. continuous voltage at 23°C <sup>(1)</sup>	Power consumption at rated voltage
12	133.3	90	75 % of rated voltage	5 % of rated voltage	130 % of rated voltage	approx. 1.6W
24	66.7	360				
48	33.3	1440				

Notes : (1) Without continuous contact current.

## »» Specification

Contact material	Ag alloy	
Voltage drop <sup>(1)</sup>	Typ.50 mV at 10A	
Operate time <sup>(1)</sup>	20ms Max.	
Release time <sup>(1)</sup>	20ms Max.	
Insulation resistance <sup>(1)</sup>	20MΩ Min. (DC 500V)	
Dielectric strength <sup>(1)</sup>	Between open contact	: AC 750V, 50/60Hz 1 min.
	Between contact and coil	: AC 750V, 50/60Hz 1 min.
Vibration resistance	Operating extremes	10~500Hz, 5.0G
	Damage limits	10~500Hz, 5.0G
Shock resistance	Operating extremes	10G
	Damage limits	100G
Life expectancy	Mechanical	1,000,000 ops. (frequency 9,000 ops./hr)
	Electrical	10,000 ops. (frequency 600 ops./hr)
Operating ambient temperature	-40~+85°C (no freezing)	
Weight	Approx.40 g	

Notes : (1) Initial value. Operate and release time excluding contact bounce.

(2) All tests are conducted under room temperature and room humidity.

(3) Consider the heat of PCB is necessary, please check the actual condition of PCB.

(4) Applying no diode to this relay. The life expectancy will be lower when a diode is used. To use a varistor (ZNR) could absorb the coil surge of relay that is recommended.

(5) Do not use the relay exceeding the coil rating, contact rating and life expectancy, or this may cause the risk of overheating.

(6) To assure optimum performance, avoid the relay from dropping, hitting, or other unnecessary shocks.

(7) Do not switch the contacts without any load as the contact resistance may become increased rapidly.

(8) Use suitable harnesses and bus bars according to the current as below:

30A type : Min. 6 mm<sup>2</sup>

40A type : Min. 10 mm<sup>2</sup>

(9) Please contact Song Chuan for the detailed information.

## »» Safety Approval

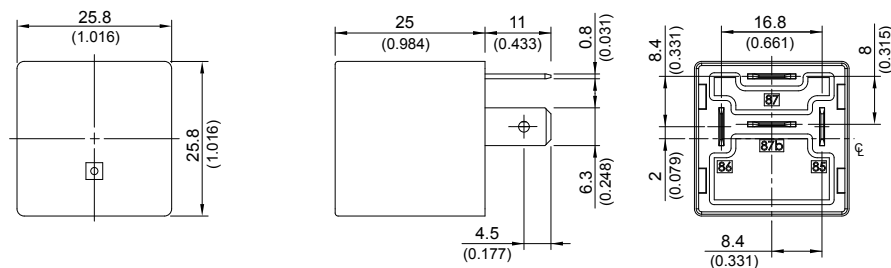
Certified	UL / CUL
File No.	E88991

## »» Safety Approval Rating (UL / CUL)

MV002	MV002H
30A 60VDC	55A 60VDC

## »» Outline Dimensions

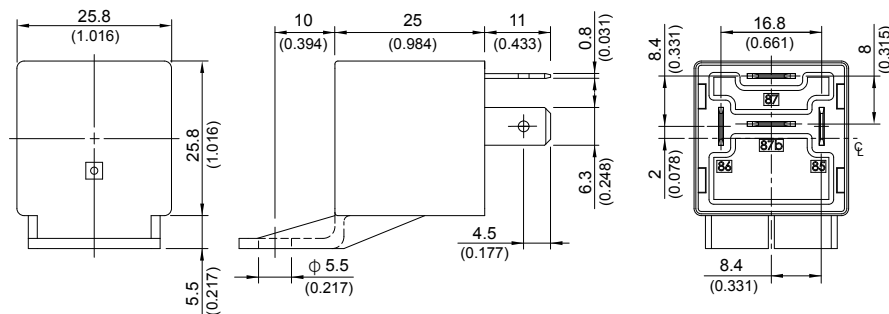
◆ MV002 , MV002H  
(-C,D,S cover)



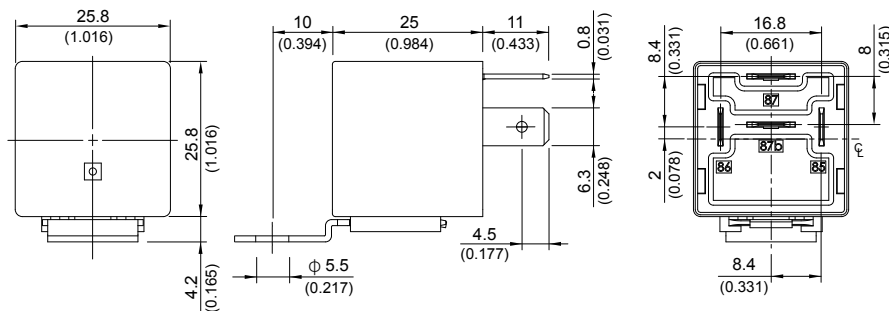


# MV002

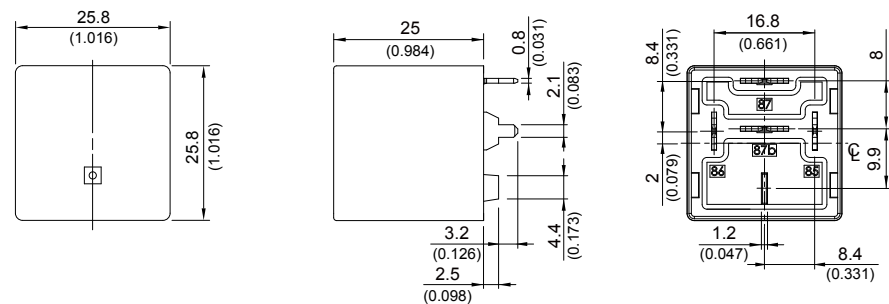
## ◆ MV002 , MV002H (-C1,D1,S1 cover)



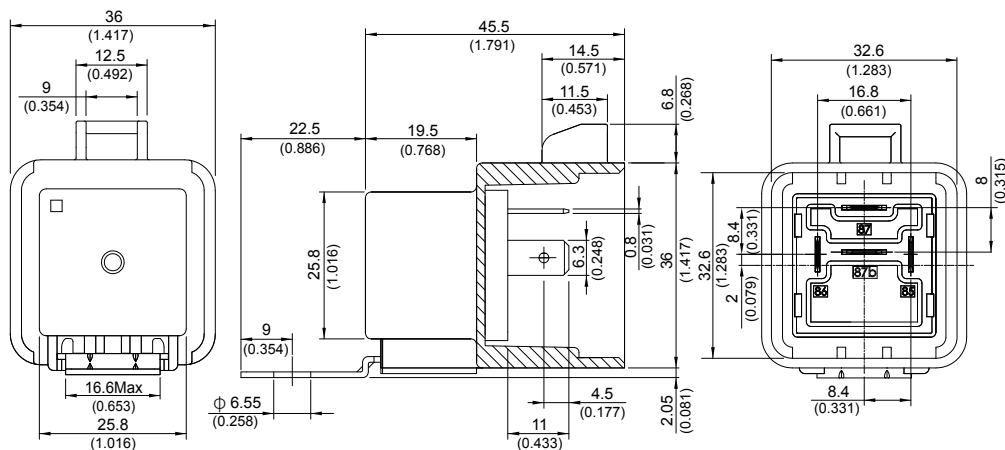
## ◆ MV002 , MV002H (-C1S,D1S,S1S cover)



## ◆ MV002P , MV002HP (-C,D,S cover)



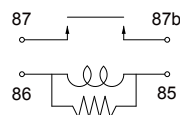
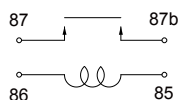
## ◆ MV002 , MV002H (-D1SW cover)



TOLERANCE:  
LESS THAN: 1(0.039) ±0.1(0.004)  
5(0.197) ±0.3(0.012)  
20(0.787) ±0.5(0.020)  
MORE THAN: 20(0.787) ±1(0.039)

R1

## »» Wiring Diagram (Bottom view)



## »» PC Board Layout (Bottom view)

