



## »» Features

- ☐ High 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)	
		Flux tight	Flanged cover (Flux tight)
Plug-in terminal	1A (SPDM)	HV012-1AH-C	HV012-1AH-C1
		HV012H-1AH-C	HV012H-1AH-C1
PCB terminal		HV012P-1AH-C	-----
		HV012HP-1AH-C	-----

## »» Ordering Information

HV012    ☐    ☐    -    1A    H    -    C    ☐  
 1        2        3        4        5        6        7

- |          |  |                             |   |
|----------|--|-----------------------------|---|
| 1. HV012 | -- Basic series designation                | 5. H                        | -- Contact material Ag alloy  |
| 2. Blank | -- Standard type                           | 6. C                        | -- Flux tight   |
| H        | -- High power type                         | C1                          | -- Flanged cover (Flux tight)   |
| 3. Blank | -- Plug-in terminal                        | 7. <input type="checkbox"/> | -- Coil voltage (please refer to the coil rating data for the availability) |
| P        | -- PCB terminal                            |                             |   |
| 4. 1A    | -- Form A, single-pole, double-make (SPDM) |                             |   |

## »» Contact Rating

Type	Standard type	High power type
Rated load (Resistive)	20A 400VDC	25A 400VDC

## »» Coil Rating (DC)

Rated voltage (V)	Rated current $\pm 10\%$ at 23°C (mA)	Coil resistance $\pm 10\%$ at 23°C ( $\Omega$ )	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	104	115	75 % of rated voltage	5 % of rated voltage	116 % of rated voltage	approx. 1.25W
24	52	460				

Notes : (1) Without continuous contact current.

(2) Coil terminal with polarity sensitivity, please follow the layout instruction.

## »» Specification

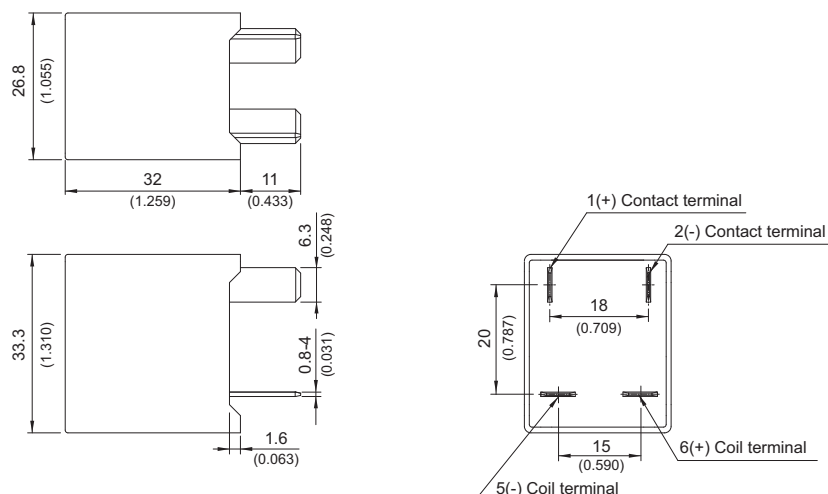
Contact material	Ag alloy	
Voltage drop <sup>(1)</sup>	Typ. 40mV at 10A	
Operate time <sup>(1)</sup>	30ms Max.	
Release time <sup>(1)</sup>	15ms Max.	
Insulation resistance <sup>(1)</sup>	100M $\Omega$ Min. (DC 500V)	
Dielectric strength <sup>(1)</sup>	Between open contact	: AC 2000V, 50/60Hz 1 min.
	Between contact and coil	: AC 2500V, 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		500,000 ops. (frequency 9,000 ops./hr)
	Electrical	Rated switching capacity (Resistive)	Standard type: 20A 400VDC: 5,000 ops. High power type: 25A 400VDC: 5,000 ops. (frequency 180 ops./hr).
		Overload switching capacity	Standard type: 30A 400VDC: 50 ops. High power type: 37.5A 400VDC: 50 ops.
		Short term carrying current	30A 10min., 45A 5sec.
Operating ambient temperature	-40~+85°C (no freezing)		
Weight	Approx. 65g, 70g (flanged cover)		

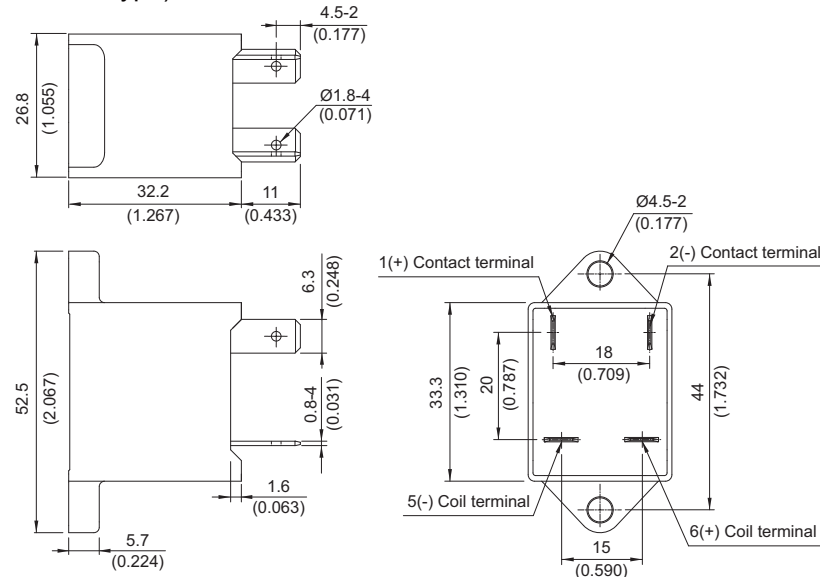
- Notes :
- (1) Initial value. Operate and release time excluding contact bounce.
  - (2) Coil and contact sides with polarities (+) and (-).
  - (3) Unless otherwise specified, all tests are under room temperature and humidity.
  - (4) Consider the heat of PCB is necessary, please check the actual condition of PCB.
  - (5) 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.
  - (6) Do not use the relay exceeding the coil rating, contact rating and life expectancy, or this may cause the risk of overheating.
  - (7) To assure optimum performance, avoid the relay from dropping, hitting, or other unnecessary shocks.
  - (8) Take care to avoid cross connections as they may cause malfunctions or overheating.
  - (9) To avoid mounting the relay in strong magnetic fields (near a transformer or magnet) or close to an object that radiates heat.
  - (10) Do not switch the contacts without any load as the contact resistance may become increased rapidly.
  - (11) Use suitable harnesses and bus bars according to the current as below:  
20A type : Min. 3 mm<sup>2</sup>
  - (12) To avoid unexpected damage, when tightening a screw, use no exceeding specified torque range as below:  
M4 screw : 2.5 ~ 3 N.m
  - (13) Please contact Song Chuan for the detailed information.

## »» Outline Dimensions

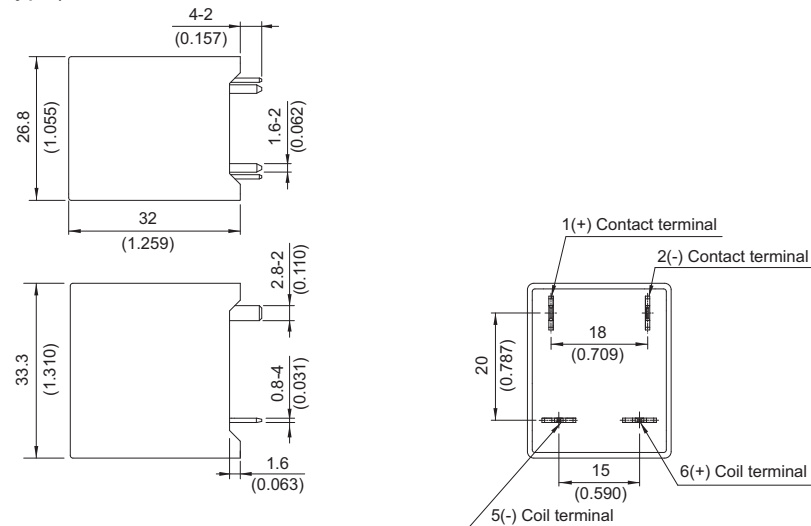
### ◆ HV012/HV012H (-C cover type)



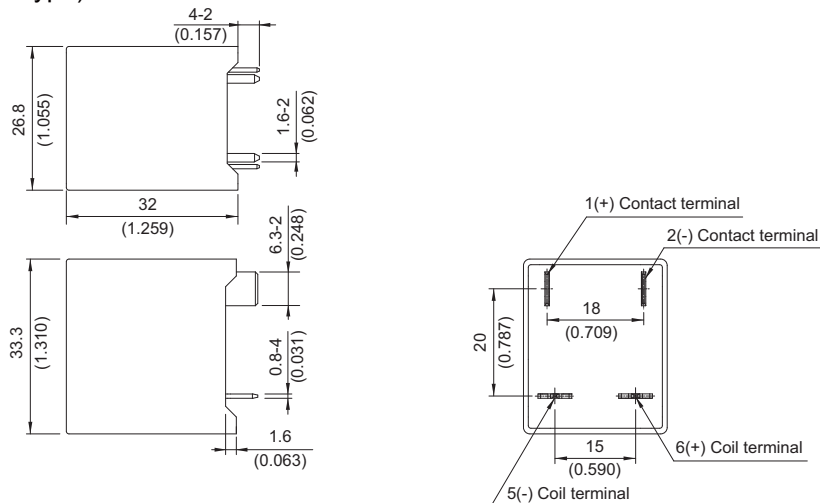
## ◆ HV012/HV012H (-C1 cover type)



## ◆ HV012P (-C cover type)

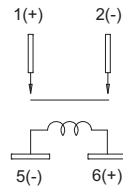


## ◆ HV012HP (-C cover type)



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)

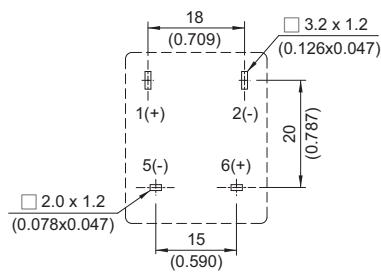
## »» Wiring Diagram (Bottom view)



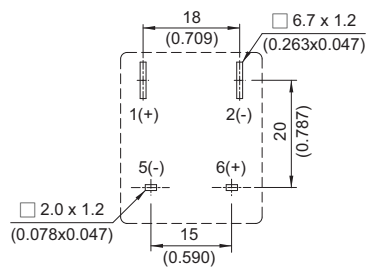
Load sides and coil terminals are with polarities (+) and (-).

## »» PC Board Layout (Bottom view)

### ◆ HV012P



### ◆ HV012HP



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