HV012

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
2. Blank -- Standard type
   H -- High power type
3. Blank -- Plug-in terminal
   P -- PCB terminal
4. 1A -- Form A, single-pole, double-make (SPDM)
5. H -- Contact material Ag alloy
6. C -- Flux tight
   C1 -- Flanged cover (Flux tight)
7. ☐ -- Coil voltage (please refer to the coil rating data for the availability)

Contact Rating

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

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 (1)	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 (1)	Typ. 40mV at 10A
Operate time (1)	30ms Max.
Release time (1)	15ms Max.
Insulation resistance (1)	100MΩ Min. (DC 500V)
Dielectric strength (1)	Between open contact : AC 2000V, 50/60Hz 1 min.
	Between contact and coil : AC 2500V, 50/60Hz 1 min.

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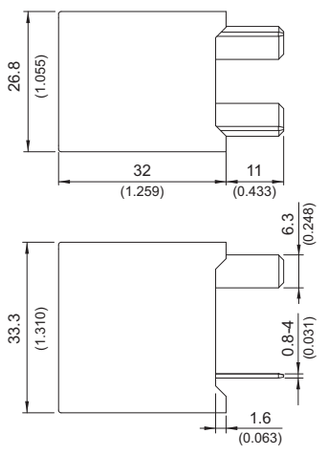
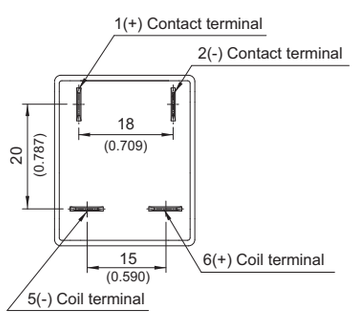
Vibration resistance	Operating extremes		10~500Hz, 5.0G
	Damage limits		10~500Hz, 5.0G
Shock resistance	Operating extremes		10G
	Damage limits		100G
Life expectancy	Mechanical		500,000 ops. (frequency 9,000 ops./hr)
	Electrical	Rated switching capacity (Resistive)	Standard type: 20A 400VDC: 5,000 ops. 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^2
(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.

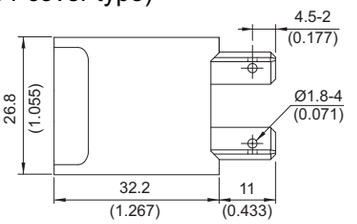
Outline Dimensions

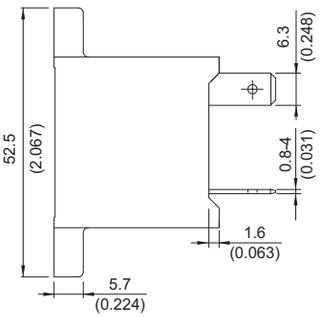
◆ HV012/HV012H (-C cover type)

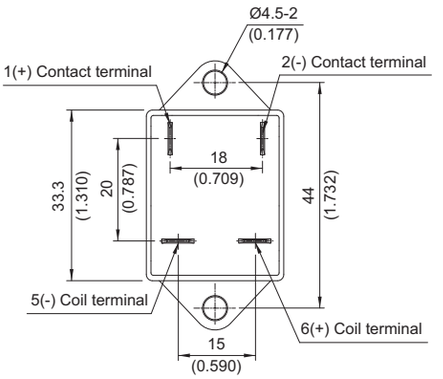




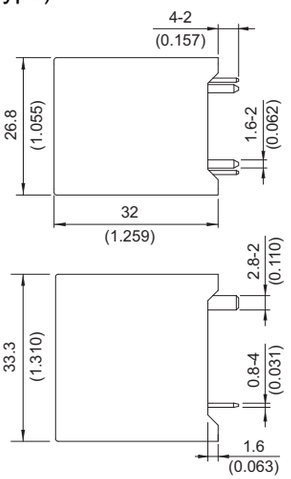
◆ HV012/HV012H (-C1 cover type)

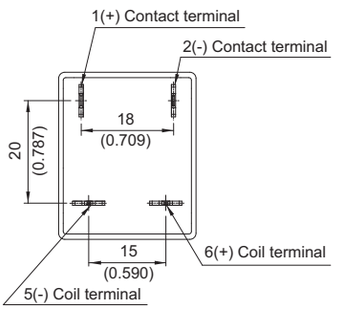




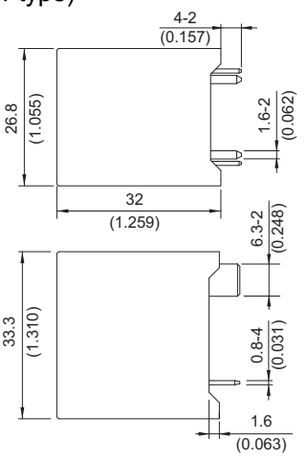


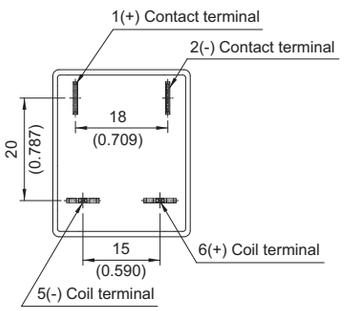
◆ HV012P (-C cover type)





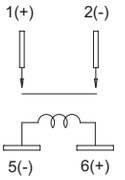
◆ HV012HP (-C cover type)





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)

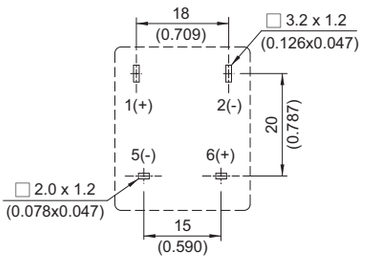
Wiring Diagram (Bottom view)



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

PC Board Layout (Bottom view)

◆ HV012P



◆ HV012HP