



»» Features

- High voltage DC load control.
- High performance DC relay for photovoltaic power generation systems, energy storage system and xEV charging device, etc.
- Complies with RoHS-Directive 2011/65/EU.



»» Type List

| Terminal style | Contact form | Designation (provided with) |
|----------------|--------------|-----------------------------|
| | | Flux tight |
| PCB terminal | 1A (SPDM) | HD012P-1AH-F-C |
| | | HD012HP-1AH-F-C |

»» Ordering Information

HD012 P - 1A H - F - C

1 2 3 4 5 6 7 8

- | | |
|---|---|
| 1. HD012 -- Basic series designation | 5. H -- Contact material Ag alloy |
| 3. Blank -- Standard type H -- High power type | 6. F -- Class F |
| 3. P -- PCB terminal | 7. C -- Flux tight |
| 4. 1A -- Form A, single-pole, double-make (SPDM) | 8. <input type="checkbox"/> -- Coil voltage (please refer to the coil rating data for the availability) |

»» Contact Rating

◆ Each 1 form A contact

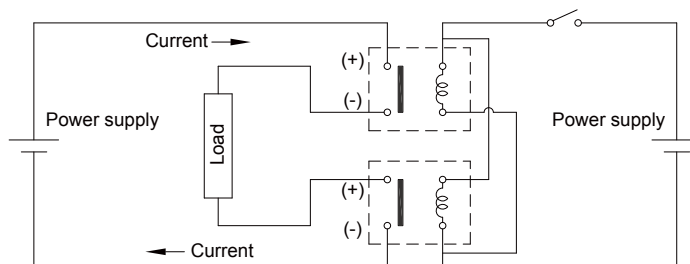
| Type | Standard type | High power type |
|-----------------------------|--|--|
| Rated load (Resistive) | 20A 400VDC, On 1s / Off 19s, 5000 ops. | 25A 400VDC, On 1s / Off 19s, 5000 ops. |
| Breaking voltage | Max. 400VDC | Max. 400VDC |
| Continuous carrying current | Max. 20A | Max. 25A |

◆ Each 1 form A contact connected in series

| Type | Standard type | High power type |
|-----------------------------|---|--|
| Rated load (Resistive) | 5A 1000VDC, On 1s / Off 19s, 50 ops. 20A 800VDC, On 1s / Off 19s, 50 ops. 25A 600VDC, On 1s / Off 19s, 500 ops. 20A 480VDC, On 1s / Off 19s, 1K ops. -15A 400VDC, On 1s / Off 19s, 100 ops. | 20A 1000VDC, On 1s / Off 19s, 5 ops. 20A 850VDC, On 1s / Off 19s, 50 ops. 30A 600VDC, On 1s / Off 19s, 1K ops. -25A 400VDC, On 1s / Off 19s, 100 ops. |
| Breaking voltage | Max. 1000VDC | Max. 1000VDC |
| Continuous carrying current | Max. 25A | Max. 30A |

- Notes : (1) Reference circuit for above series connection, please refer to figure 1.
 (2) With above 2 cm mounting distance between two relays.
 (3) Coil terminal with polarity sensitivity, please follow the layout instruction.

◆ Figure 1



»» Coil Rating (DC)

| Rated voltage (V) | Rated current $\pm 10\%$ at 23°C (mA) | Coil resistance $\pm 10\%$ at 23°C (Ω) | Pick up voltage (Max.) at 23°C ⁽¹⁾ | Drop out voltage (Min.) at 23°C | Continuous voltage at 85°C ⁽²⁾ | Power consumption at rated / holding voltage |
|-------------------|---------------------------------------|---|---|---------------------------------|---|--|
| 12 | 150 | 80 | 75 % of rated voltage | 5 % of rated voltage | 45~55 % of rated voltage | approx. 1.8W / 0.36W ⁽²⁾ |
| 24 | 75 | 320 | | | | |

Notes : (1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.

(2) Coil holding voltage is 45~55% of nominal voltage after applying nominal voltage for 200ms.

»» Specification

| | | |
|--------------------------------------|------------------------------|---|
| Contact material | Ag alloy | |
| Contact gap | ≥ 3.0 mm | |
| Voltage drop ⁽¹⁾ | Typ. 40mV at 10A | |
| Operate time ⁽¹⁾ | 30ms Max. | |
| Release time ⁽¹⁾ | 15ms Max. | |
| Insulation resistance ⁽¹⁾ | 100M Ω Min. (DC 500V) | |
| Dielectric strength ⁽¹⁾ | Between open contact | : AC 2000V, 50/60Hz 1 min. |
| | Between contact and coil | : AC 3000V, 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) |
| Operating ambient temperature | -40~+85°C (no freezing) | |
| Weight | Approx.65 g | |

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

(2) Coil and contact sides with polarities (+) and (-).

(3) All tests are conducted under room temperature and room 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) To avoid mounting the relay in strong magnetic fields (near a transformer or magnet) or close to an object that radiates heat.

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

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

»» Safety Approval

| | |
|-----------|----------|
| Certified | UL / CUL |
| File No. | E88991 |

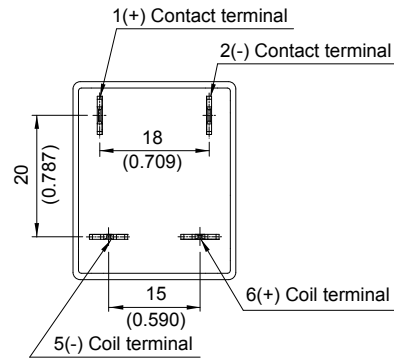
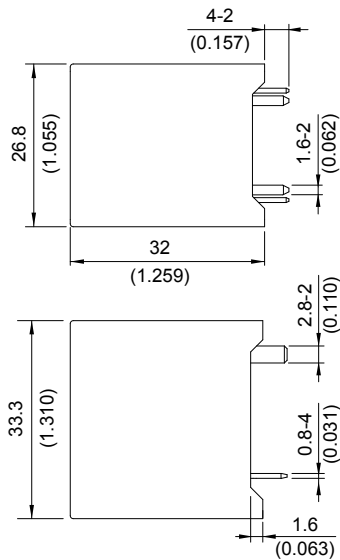
»» Safety Approval Rating

| UL / CUL | |
|---|---|
| HD012 | HD012H |
| 25A 600VDC ⁽¹⁾ 10A 600VDC, Carrying current 25A | 33A 600VDC ⁽¹⁾ 10A 600VDC, Carrying current 33A |

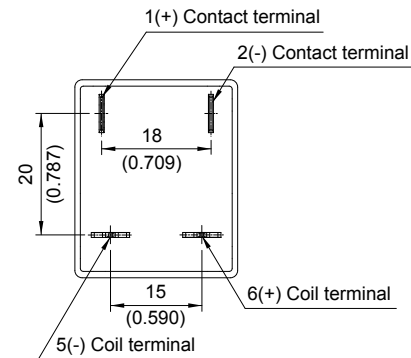
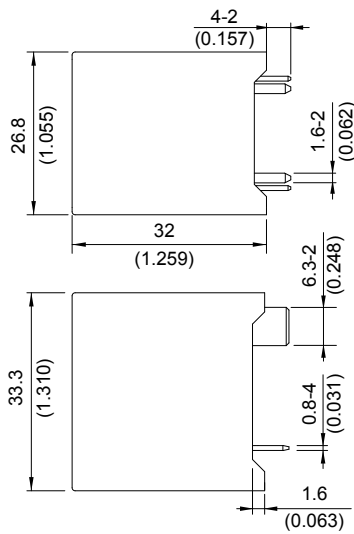
Notes : (1) Operating in a series connection.

»» Outline Dimensions

◆ HD012P (-C cover type)

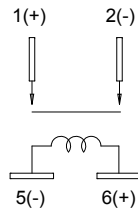


◆ HD012HP (-C cover type)



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)

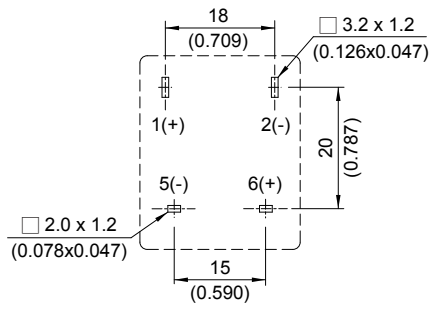
»» **Wiring Diagram**
(Bottom view)



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

»» **PC Board Layout**
(Bottom view)

◆ HD012P



◆ HD012HP

