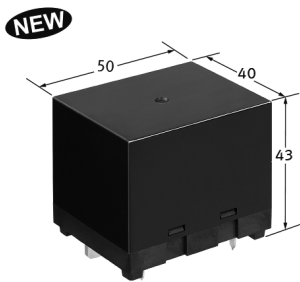


HE-N RELAYS

High capacity 120A 480V AC 1 Form A power relay

〈Protective construction〉 Flux-resistant type



(Unit : mm)

FEATURES

1. High capacity : Max. switching current 120A
2. Compact Size : W (50mm) x L (40mm) x H (43mm)
3. Contact GAP : Min.3.6 mm (Initial)
4. Insulation distance (Initial) : Min.10.5mm (Clearance & Creepage)
5. Contributes to energy saving in devices by reducing coil holding voltage*. Coil holding power : 400mW

*Coil holding voltage : the coil voltage after applying 100ms of the reted coil voltage

APPLICATIONS

1. Inverter
2. Battery storage system
3. Stationary charging stand
4. Industrial equipment

ORDERING INFORMATION (TYPE NO.)

HE 1a N - W - DC - Y7

- Operate voltage
N : Max.75% V of rated coil voltage
- Contact arrangement
1a : 1 Form A
- Terminal shape
W : PC board terminal(wide blade)
- Rated coil voltage (DC)
6, 9, 12, 24V
- Contact material, Contact rating
Y7 : AgNi type, 120A

TYPES

| Contact arrangement | Rated coil voltage | Type No. | Standard packing | |
|---------------------|--------------------|------------------|------------------|--------------|
| | | | Carton | Outer carton |
| 1 Form A | 6 V DC | HE1aN-W-DC6V-Y7 | 10 pieces | 50 pieces |
| | 9 V DC | HE1aN-W-DC9V-Y7 | | |
| | 12 V DC | HE1aN-W-DC12V-Y7 | | |
| | 24 V DC | HE1aN-W-DC24V-Y7 | | |

RATING

Coil data

- Operating characteristics such as ‘Operate voltage’ and ‘Release voltage’ are influenced by mounting conditions, ambient temperature, etc.
Therefore, please use the relay within ± 5% of rated coil voltage.
- ‘Initial’ means the condition of products at the time of delivery.

| Rated coil voltage | Operate voltage* (at 20°C) | Release voltage* (at 20°C) | Rated operating current (±10%, at 20°C) | Coil resistance (±10%, at 20°C) | Rated operating power | Max. allowable voltage (at 55°C) |
|--------------------|--|---|--|------------------------------------|-----------------------|-------------------------------------|
| 6 V DC | Max. 75% V of Rated coil voltage (Initial) | Min. 5% V of Rated coil voltage (Initial) | 417 mA | 14.4 Ω | 2,500 mW | 110% V of Rated coil voltage |
| 9 V DC | | | 278 mA | 32.4 Ω | | |
| 12 V DC | | | 208 mA | 57.6 Ω | | |
| 24 V DC | | | 104 mA | 230 Ω | | |

*square, pulse drive

Specifications

| Item | | Specifications |
|---|---|---|
| Contact data | Contact arrangement | 1 Form A |
| | Contact resistance (initial) | Max. 10 mΩ (by voltage drop 5 V DC 20 A) |
| | Contact material | AgNi type |
| | Contact rating (resistive) | 120 A 480 V AC |
| | Max. switching power (resistive) | 57,600 VA |
| | Max. switching voltage | 800 V AC |
| | Max. switching current | 120 A (AC) |
| | Min. switching load (reference value) ^{*1} | 100 mA 5 V DC |
| Insulation resistance (initial) | | Min. 1,000 MΩ (At 500 V DC, Measured portion is the same as the case of dielectric strength.) |
| Dielectric strength (initial) | Between open contacts | 2,000 Vrms for 1 min. (detection current: 10 mA) |
| | Between contact and coil | 5,000 Vrms for 1 min. (detection current: 10 mA) |
| Surge breakdown voltage (initial) ^{*2} | Between contact and coil | 10,000 V |
| Coil holding voltage ^{*3} | | 40 to 100% V (contact carrying current: 120 A, at 20°C) 50 to 60% V (contact carrying current: 120 A, at 85°C) |
| Time characteristics (initial) | Operate time | Max. 30 ms (at rated coil voltage at 20°C, without bounce) |
| | Release time | Max. 10 ms (at rated coil voltage at 20°C, without bounce, without diode) |
| Shock resistance | Functional | 98 m/s ² (half-sine shock pulse: 11 ms, detection time: 10 μs) |
| | Destructive | 980 m/s ² (half-sine shock pulse: 6 ms) |
| Vibration resistance | Functional | 10 to 55 Hz (at double amplitude of 1.0 mm, detection time: 10 μs) |
| | Destructive | 10 to 55 Hz (at double amplitude of 1.5 mm) |
| Expected switching life | Mechanical | Min. 1 × 10 ⁶ ope. (at 180 times/min.) |
| Conditions | Conditions for usage, transport and storage ^{*4} | Ambient temperature: -40 to +55°C (When coil holding voltage is 40 to 100% V of rated voltage.) -40 to +85°C (When coil holding voltage is 50 to 60% V of rated voltage or storage.) Humidity: 5 to 85% R.H. (Avoid icing when using at temperatures lower than 0°C.) |
| Unit weight | | Approx. 115 g |

*1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

*2. Wave is standard shock voltage of ±1.2×50μs according to JEC-212-1981.

*3. Coil holding voltage is the coil voltage after 100 ms following application of the rated coil voltage.

*4. The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value. Refer to "1. Usage, transport and storage conditions" in NOTES.

Electrical life

Conditions : Resistive load

| Type | Switching capacity | Number of operations |
|----------|--------------------|---|
| 1 Form A | 120 A 480 V AC | Min. 1,000 ope. (at 85°C, ON:OFF = 1 s:9 s) |
| | 55 A 800 V AC | Min. 10,000 ope. (at 85°C, ON:OFF = 1 s:9 s) |