

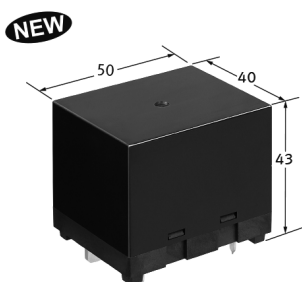
Power Relays (Over 2A)

RoHS

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
- Rated coil voltage (DC)
6, 9, 12, 24V
- Terminal shape
W : PC board terminal (wide blade)
- 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 $\pm 5\%$ 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 ($\pm 10\%$, at 20°C)	Coil resistance ($\pm 10\%$, 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 m Ω (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 M Ω (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 μ s)
	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 μ s)
	Destructive	10 to 55 Hz (at double amplitude of 1.5 mm)
Expected switching life	Mechanical	Min. 1 $\times 10^6$ 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 $\pm 1.2 \times 50 \mu$ s 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)