Panasonic Electric Works Europe AG
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Panasonic HE-Y7 Power Relay – The Multi-Purpose Solution Suitable for Every High Power Application

The HE-Y7 relay is designed to combine the requirements of different markets in one switching solution. With small dimensions, it has been possible to efficiently switch loads up to 120A.

The printed HE-Y7 is able to handle loads up to 120A / 277V AC in ambient temperatures up to 85°C. Panasonic managed successfully to integrate 1 Form A contact into extremely small dimensions of 40x50x43mm (L x W x H). The new relay is designed to meet the combined requirements of different markets in one switching solution.

A galvanic separation of min.3.6mm guarantees high insulation resistance. Furthermore the high dielectric strength protects against surge voltages. This fact combined with rapid opening of the contacts makes it possible to handle reliably high DC loads.

In parallel a mechanical life of min. 1 million operations assures a problem-free service life, while the low contact resistance (in the area of some mΩ) ensures extreme low power dissipation. The reduced operating power helps with energy savings and energy consumption. A further highlight of the new design is the parallel arrangement of coil and load terminals. This way, the process of connecting current paths on the circuit board is simplified and high isolation-distance requirements can be met without extra effort. The HE-Y7 relay, offered in a variety of DC coil voltages and certified from UL & VDE, can thus be used to control many applications – at an optimized price/performance ratio.

Using the Panasonic HE-Y7 relay allows the customer to utilize the switching of high power load on the PCB. It helps also with the saving from other electrically controlled switches and the associated expenses. In most of the cases the control cabinet is no more necessary. The advantage is in that case is obvious: no wiring, reduced installation expenses, small size, reduced thermal loses, flexibility and one single working point: the Printed Circuit Board.

In many application areas, such as frequency or solar inverters, battery chargers, the switching function has been already gone to the next level.

Switching very high loads on PCB with HE-Y7 relay has become more easy than ever before. The new Panasonic relay can be ordered from July 2018.

Product features at a glance:

- 1 Form A contact
- High switching capacity: 120A / 277V AC
- Compact size: 40x 50x 43mm (L x W x H)
- Min. 3,6mm contact gap for reliable isolation
- Handles high DC loads
- Simplified current path guiding on the circuit board
- Optimized price/performance ratio

Applications:

- UPS/ Battery charger
- Elevator/ Escalator
- Photovoltaic
- Drives
- Water heating applications-Driver

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6. CHARACTERISTICS ;

6 - 1 Coil data

Type No.	Part No.	Rated voltage (V DC)	Rated operating current (DC, mA, ±10%, at 20℃)	Coil resistance (Ω, ±10%, at 20℃)	Rated operating power (mW)
HE1aN-W-DC 6V-Y7	AHE62X0N	6	417	14.4	2,500
HE1aN-W-DC 9V-Y7	AHE62X5N	9	278	32.4	
HE1aN-W-DC12V-Y7	AHE62X1N	12	208	57.6	
HE1aN-W-DC24V-Y7	AHE62X2N	24	104	230	

1. Operate voltage (initial) ; Max. 75% of rated voltage (at 20℃) (square, pulse drive)
2. Release voltage (initial) ; Min. 5% of rated voltage (at 20℃) (square, pulse drive)
3. Max. allowable voltage (ref 10-3) ; 110% of rated voltage (at 20℃)
4. Coil holding voltage ; 40 to 100%V (at. 20℃, 120A)
   50 to 60%V (at. 85℃, 120A)

※Coil holding voltage is the coil voltage after 100ms from the application of rated coil voltage.

6- 2 Contact data

1. Arrangement ; 1a
2. Contact material ; Ag alloy
3. Contact resistance (initial) ; Max. 10mΩ (by voltage drop 5V DC 20A)
4. Max. switching power (resistive) ; 57,600VA
5. Max. switching voltage ; 800VAC
6. Max. carrying current ; 120A
7. Contact rating (resistive) ; 120A 480VAC
8. Min. switching load (ref 10-9) ; 100mA 5V DC (reference value)

Panasonic Corporation	DESIGNED T. Harano	DATE : Apr. 27. 2018
	CHECKED T. Arata	
	ENACTED R. Utsume	

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6- 3 Expected life
1. Electrical life
120A 480VAC (resistive) ; Min. 1,000 ope. (ON:OFF=1s:9s) at 85℃
55A 800VAC (resistive) ; Min. 10,000 ope. (ON:OFF=1s:9s) at 85℃

2. Mechanical life ; Min. 1×10^6 ope. (at 180 times/min)

6- 4 Dielectric strength (initial, detection current : 10mA)
1. Between open contacts ; AC2,000 Vrms for 1 min
2. Between contact and coil ; AC5,000 Vrms for 1 min

6- 5 Surge withstand voltage (initial)
1. Between contact and coil ; 10,000V
[Surge voltage is a standard impulse voltage that continues for $\pm(1.2\times50)\ \mu s$, as specified in JEC-212-1981.]

6- 6 Insulation resistance (initial) ; Min. 1,000MΩ at 500V DC
[Measured portion is the same as the case of dielectric strength.]

6- 7 Vibration resistance
1. Functional ; 10 to 55 Hz at double amplitude of 1.0mm (detection time : 10μs)
2. Destructive ; 10 to 55 Hz at double amplitude of 1.5m

6- 8 Shock resistance
1. Functional ; $98m/s^2$ (half-sine shock pulse :11ms, detection time :10μs)
2. Destructive ; $980m/s^2$ (half-sine shock pulse : 6ms)

6- 9 Operate time (initial) ; Max. 30ms (at 20℃) (at rated voltage, without bounce)

6-10 Release time (initial) ; Max. 10ms (at 20℃) (at rated voltage, without bounce, without diode)

6-11 Unit weight ; Approx. 115g

6-12 Contact gap (initial) ; Min. 3.6mm

6-13 Insulation distance (initial)
1. Between contact and coil ; Min. 10.5mm (Clearance/Creepage)

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HE-N Relay

High capacity 120A 480V AC HE-N relay new release! Plan to be released in this August.

FEATURES

■High capacity : Max. switching current 120A
■Compact : W (50mm) x L (40mm) x H (43mm)
■Contact GAP : Min. 3.6 mm

SPECIFICATIONS

Sample will be available from June '18, please contact our sales representative for detail.
(Please check specification by spec-review)

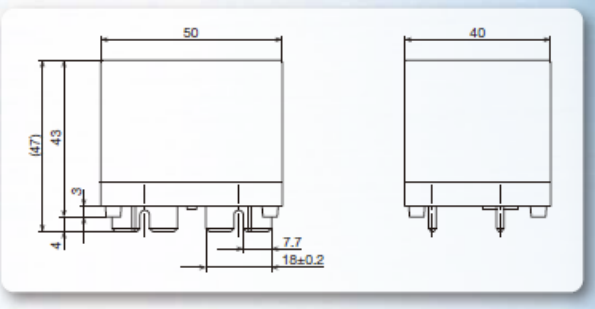
Item	Target Specifications
Contact arrangement	1 Form A
Max. switching current	120A AC
Max. switching voltage	800V AC
Electrical life(Resistive)	120A 480V AC Min. 10^3 @85℃ 55A 800V AC Min. 10^4 @85℃
Rated operating power	2.5W (Holding power : 400mW)
Contact gap	Min. 3.6mm
Ambient Temp.	−40~+85℃
Insulation distance (Initial)	Clearance & Creepage : Min. 10.5mm
Terminal size	W=18.0 mm, t=2.0 mm
Safety standards	C-UL,VDE(To be acquired)

※Protective construction: Flux-resistant type

APPLICATION

●Inverter
●Energy strage system
●Fast charging station

DIMENSIONS



※Please note that specifications and appearance may be changed without notice for product improvement.