

# DK series

Power relay series pursuing reliability and safety



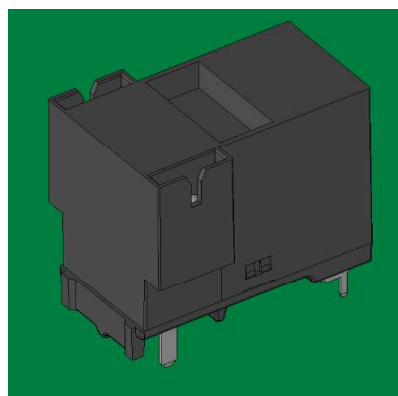
DK1  
(for high voltage,  
tab terminal type)



DK1 (PCB terminal type)



DKH1



DKH1-MG

■ It is currently suitable for use in such applications.

- Control panel, Power supply equipment
- Commercial equipment, Measuring instruments, Medical devices
- Various household appliances that handle high voltage
- Ideal for switching high voltage of microwave ovens
- Solar power system
- Electricity storage system
- Charging stand for electric vehicles and plug-in hybrid vehicles
- Various high voltage DC load control

DEC is a professional manufacturer of relays

# DK series

## ■ Features

- Power relay specialized for controlling high-voltage equipment.
  - There are two types, direct mounting on case (panel or chassis) type and PCB mounting type.
  - For handling high-voltage, the contact circuit is equipped with a #250 tab terminal so that an insulated receptacle can be used.
- DK for type ○ Ideal for switching the capacity of high-voltage capacitors corresponding to 50Hz/60Hz power frequency of microwave ovens.
- 
- High insulation design  
Between coil and contact: AC5000V 1min
- DKH for type Between open contact : AC5000V 1min
- 
- Compatible with maximum DC500V 30A cutoff
- DKH-MG for type ○ No mounting polarity on the contact side. (Compatible with charging/discharging.)

## ■ Model numbering system

DK or DKH       -     -  

Rated coil voltage: Numeric part indication

DC (V): 12, 17, 18, 24

Coil type D: DC

Number of contact poles 1: 1 pole

Shape indication 1 O: PCB terminal

F: Tab terminal (coil terminal: #187 tab terminal, contact terminal: #250 tab terminal),  
directly attached to panel or chassis

Contact configuration (M): Make contact

Shape indication 2 MG: With magnet (DKH type only)

## ■ Safety standards

Electrical Appliances and  
Materials Safety Act

Conformable

## ■ Coil ratings

| AC/DC | Item<br>Voltage | Rated current<br>(mA) | Coil resistance<br>(Ω) | Operate voltage<br>(V)                         | Release voltage<br>(V) | Maximum voltage<br>(V) | Hold voltage<br>(V)              | Power<br>consumption<br>(W)                             |
|-------|-----------------|-----------------------|------------------------|--|------------------------|------------------------|----------------------------------|---|
|       |                 |                       |                        |  |                        |                        |                                  |   |
| DC    | 12              | 75                    | 160                    | 80% max.                                       | 10% min.               | 110%                   | ※② 55% to 70%<br>(DKH type only) | 0.9<br>(Applied coil<br>voltage 100%)                   |
|       | 17              | 51.5                  | 330                    | ※① 150% to 250%<br>(Applied time<br>0.3 to 1s) |                        |                        |                                  | 0.27<br>(Applied coil<br>voltage 55%,<br>DKH type only) |
|       | 18              | 50                    | 360                    | DKH type only<br>double voltage<br>operation.  |                        |                        |                                  |   |
|       | 24              | 37.5                  | 640                    |  |                        |                        |                                  |   |

- Notes: 1. Rated current and coil resistance are values at coil temperature of 20°C, tolerance is ±10%.
- 2. Operate voltage and release voltage are values at coil temperature of 20°C.
- 3. Maximum voltage is the maximum value of the allowable voltage fluctuation range of the relay coil operating power supply with the ambient temperature at 20°C.
- 4. For the DKH type, be sure to use the holding voltage of ※② after double voltage operation of ※①.
- 5. For the DKH type, please use a varistors to absorb surges from the coil.  
Please note that if a diode is used, the release time will be longer and the performance will not be guaranteed.

### ※Barista selection guideline

Varistor voltage: 1.5 times or more of coil rated voltage.

Please note that setting the varistor voltage high will affect the surge absorption effect.

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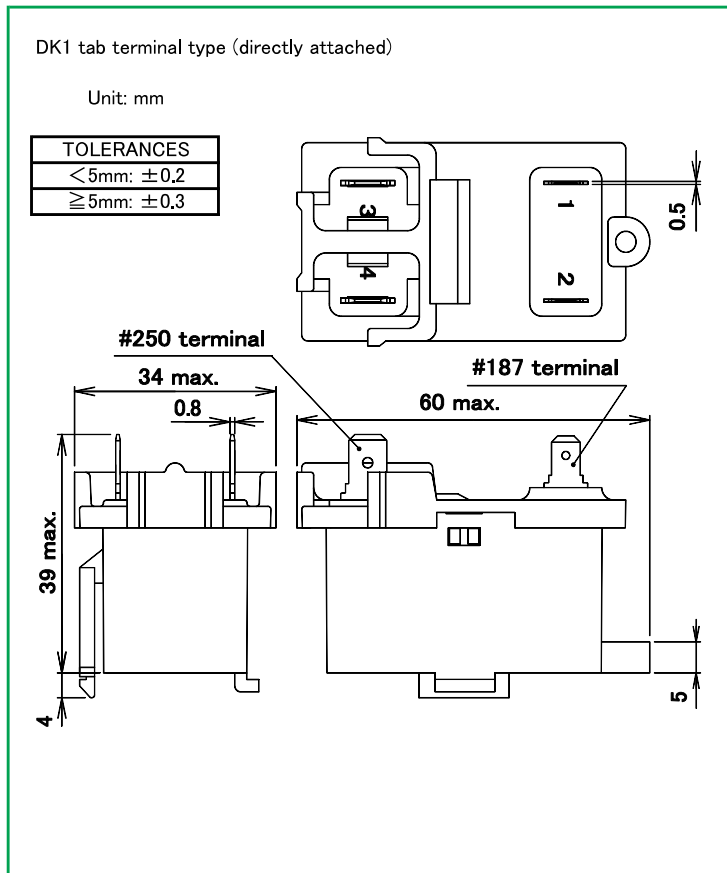
## ■ Ratings\*Performance

| Specifications           | Item   | Performance  |  |  |               |
|--------------------------|--|--|--|--|---------------|
|                          |  | DK   | DKH  | DKH-MG   |               |
| Contact specification    | Contact configuration                                | 1a   |  |  |               |
|                          | Contact resistance (at DC6V 1A)                      | 50mΩ max.  |  | 100mΩ max.   |               |
|                          | Contact material                                     | Ag alloy   |  |  |               |
| Ratings                  | Rated load   | Resistive load   | AC3400V 0.6A                               | —  | DC500V 30A    |
|                          |  | Inverter load  | —  | AC200V 30A   | —             |
|                          | Max. switching capacity                              | Resistive load   | 2040VA                                     | —  | 15 000W       |
|                          |  | Inverter load  | —  | 6000VA   | —             |
|                          | Max. switching voltage                               | AC4000V  | AC200V                                     | DC500V   |               |
| Max. switching current   | 0.6A   | 30A  |  |  |               |
| Electrical capability    | Insulation resistance                                | 100MΩ min. (at DC500V)   |  |  |               |
|                          | Dielectric strength                                  | Between coil and contact                                       | AC4000V 1 min                              | AC5000V 1 min  | AC4000V 1 min |
|                          |  | Between open contact   | AC4000V 1 min<br>(PCB type: AC2900V 1 min) | AC5000V 1 min  | AC2500V 1 min |
|                          | Impulse withstand voltage (between coil and contact) | 10 000V min. (1.2 × 50 μs)                                     |  |  |               |
|                          | Operate time (at rated voltage on, at 20°C)          | 25ms max. (excluding contact bounce time)                      |  |  |               |
|                          | Release time (at rated voltage off, at 20°C)         | 25ms max. (excluding contact bounce time)                      |  |  |               |
| Mechanical capability    | Vibration resistance                                 | Malfunction  | 10 to 55 to 10Hz (double amplitude 1.5mm)  | 10 to 55 to 10Hz (double amplitude 1.0mm)                      |               |
|                          |  | Destruction  | 10 to 55 to 10Hz (double amplitude 1.5mm)  |  |               |
|                          | Shock resistance                                     | Malfunction  | 100m/s <sup>2</sup>                        | 80m/s <sup>2</sup>   |               |
|                          |  | Destruction  | 500m/s <sup>2</sup>                        |  |               |
| Life                     | Mechanical endurance                                 | 500 000 times min. (at 180 times/min)                          | 300 000 times min. (at 12 times/min)       |  |               |
|                          | Electrical endurance (at rated load)                 | 10 000 times min. (at 20 times/min)                            | 100 000 times min. (at 12 times/min)       | 10 000 times min. (at 6 times/min)                             |               |
| Conditions for operation | Ambient temperature                                  | -20°C to +60°C (no freezing and condensing at low temperature) |  | -20°C to +85°C (no freezing and condensing at low temperature) |               |
|                          | Ambient humidity                                     | 5% to 85%RH  | 45% to 85%RH                               |  |               |
| Mass                     |  | approx. 34g  | approx. 48g                                | approx. 55g  |               |

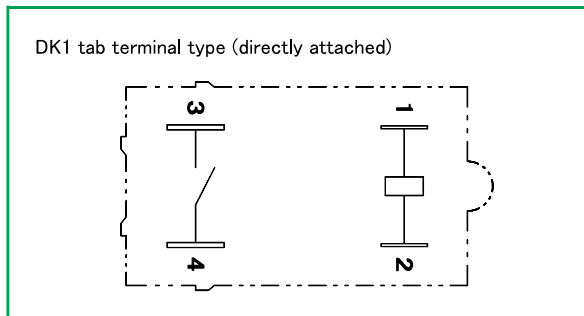
● Notes: The above is the initial value.

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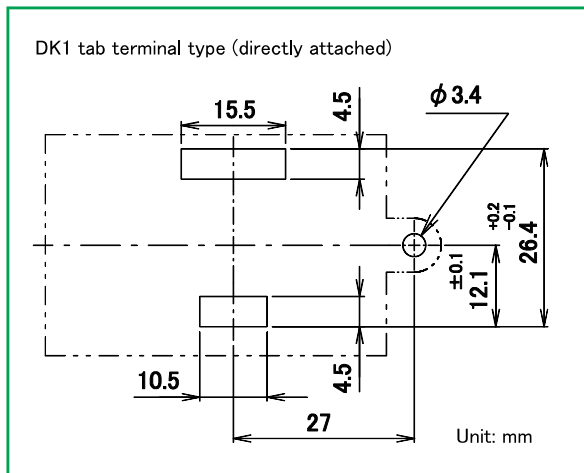
## ■ Dimensions



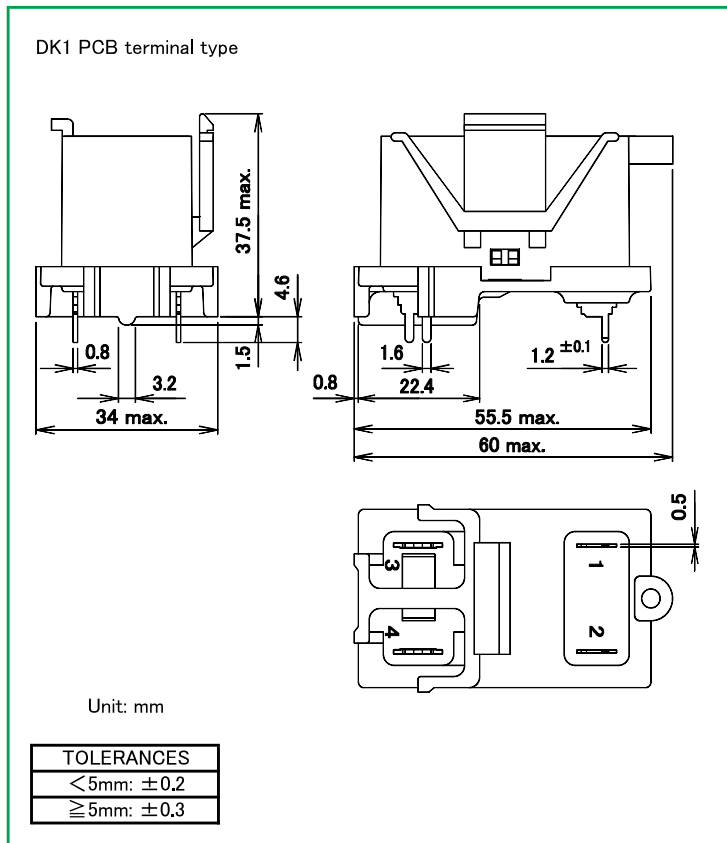
## ■ Schematics



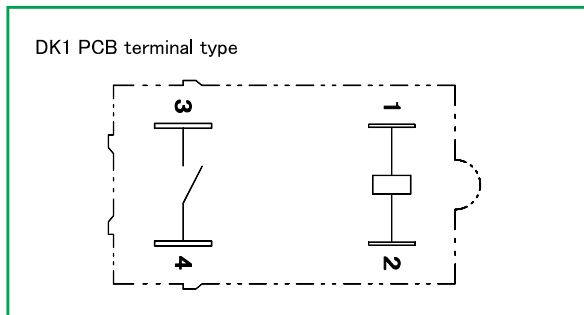
■ Mounting holes of panel or chassis (case) (tolerance ±0.2mm)  
Recommended plate thickness 0.4 to 0.8mm



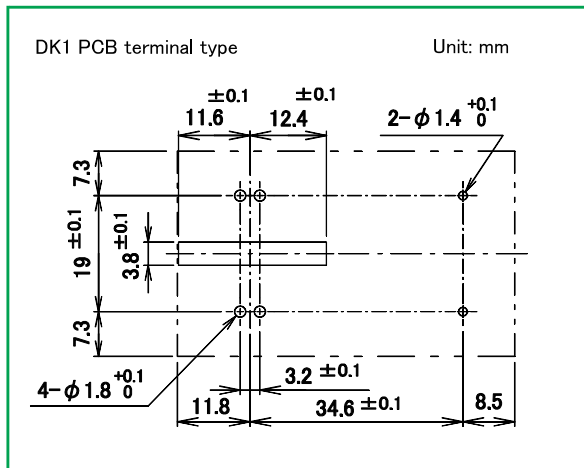
## ■ Dimensions



## ■ Schematics

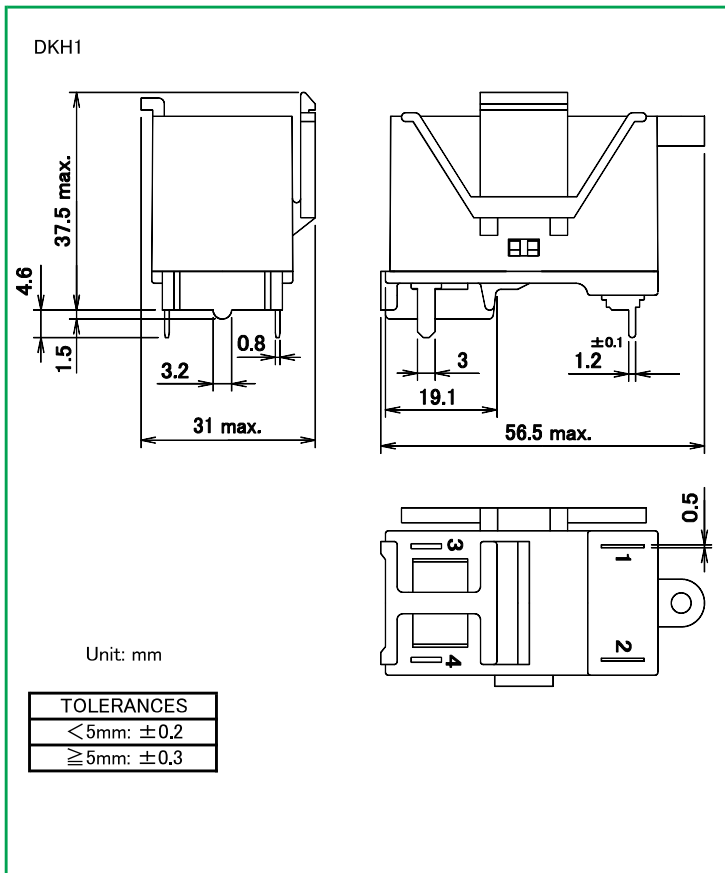


■ PCB mounting holes

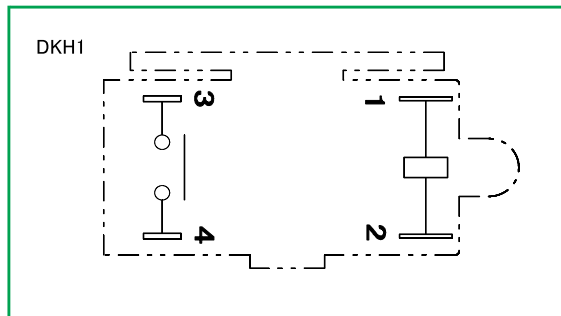


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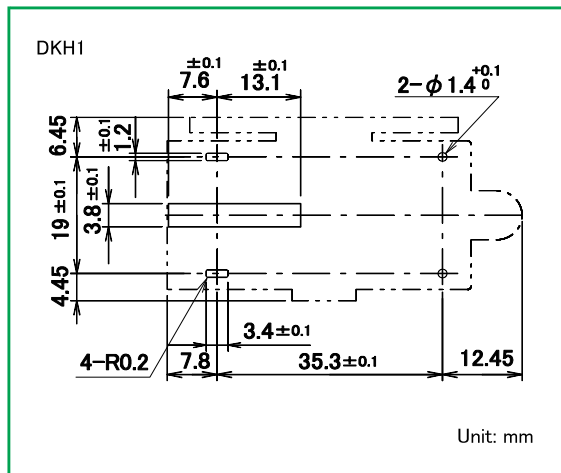
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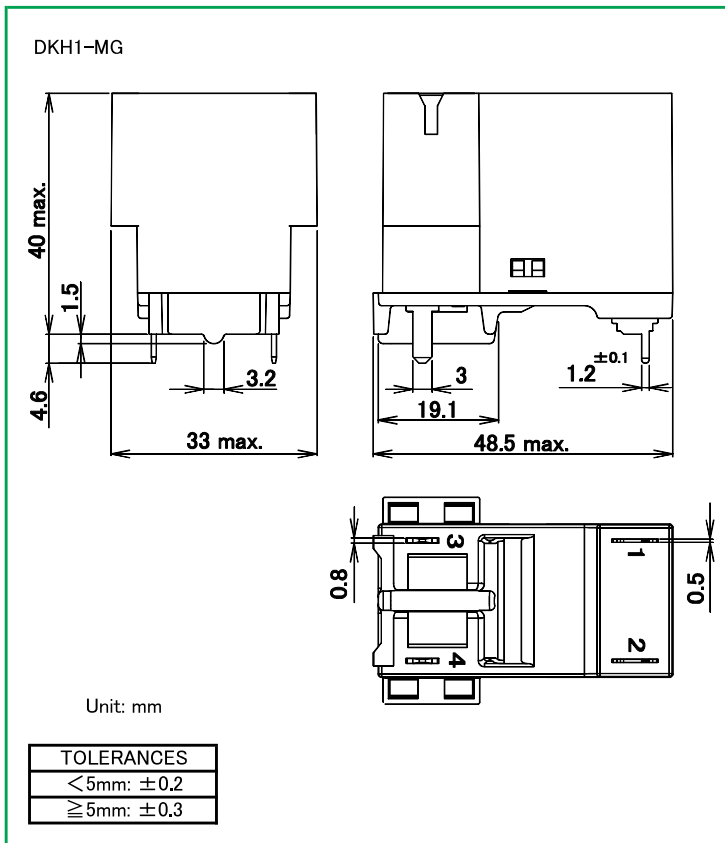
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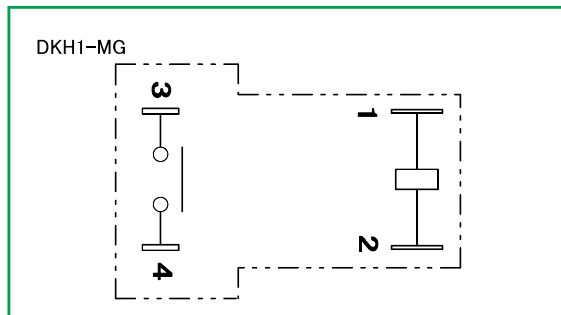
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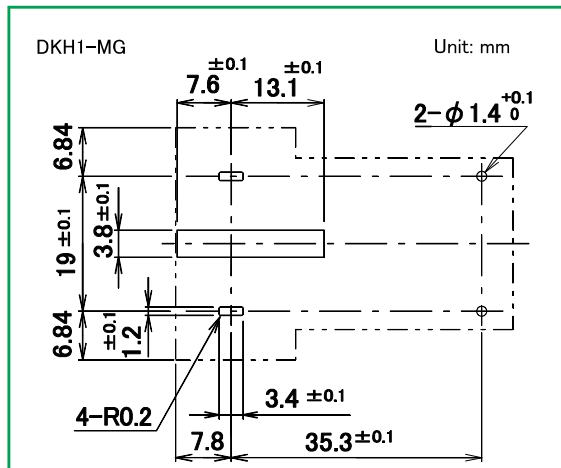
## ■ Dimensions



## ■ Schematics



## ■ PCB mounting holes



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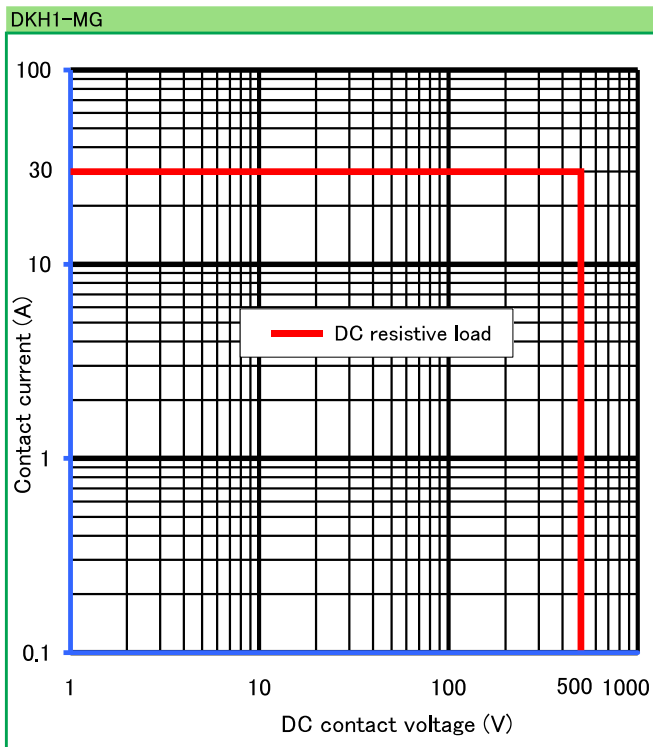
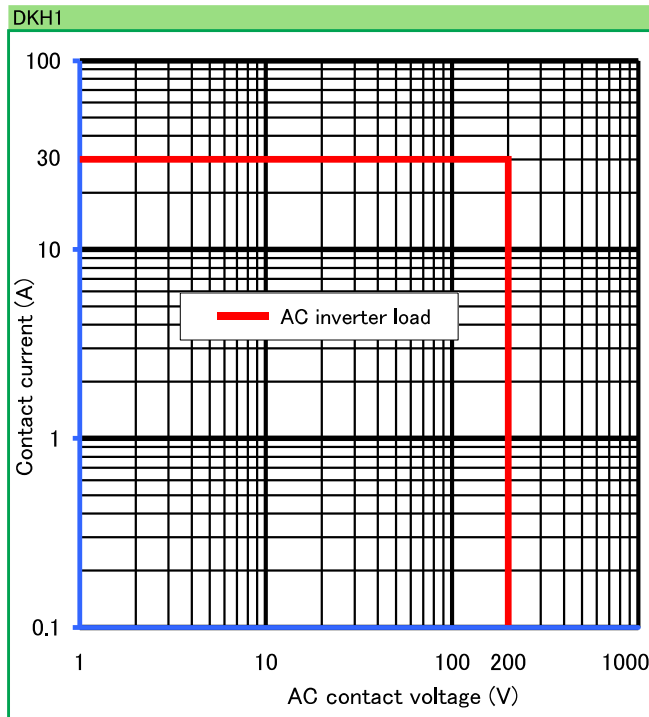
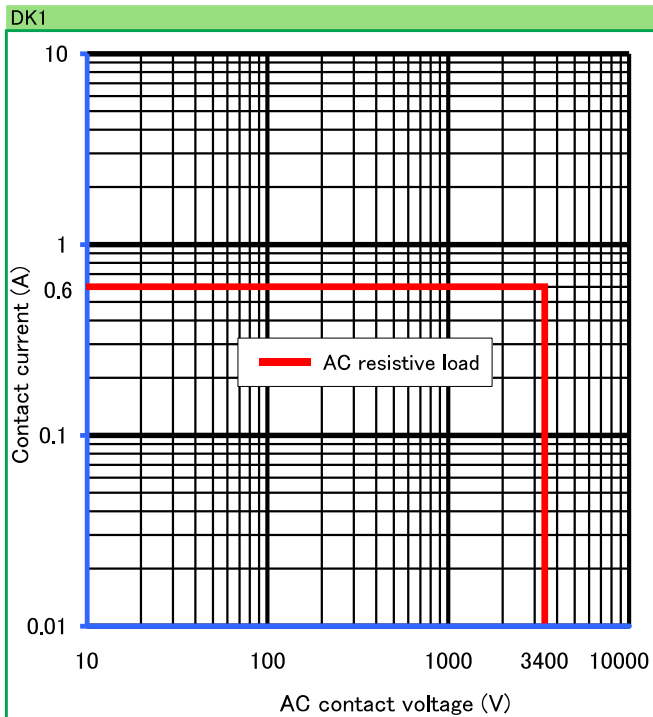
**DEC** Daiichi Electric Co., Ltd.

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# DK series

## Reference data

### Maximum switching capacity



● Please understand that specifications may be changed without notice due to product improvement etc. ● Dimensions and specifications indicate only major points. Please contact our sales representatives for details.

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