

## Features

- 60A switching capability;
- Standard type power consumption contact gap of 1.5 mm or more;
- UL insulation system:Class F;
- Suitable for solar photovoltaic inverters and charging stations;
- Sustaining voltage can be applied to the whole machine to save energy consumption.;
- Environmental friendly product(RoHS compliant)
- Outline Dimensions: (31.8×26.9×18.6) mm



## ■ CHARACTERISTICS

| Specifications         | Item                           |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------|--------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contact Data           | Contact arrangement            |                       | 1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                        | Contact resistance(Initial)    |                       | ≤20mΩ(6VDC 20A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                        | Contact material               |                       | AgSnO <sub>2</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Rated value            | Rated load(Resistance load)    |                       | NO:32A/35A/43A/50A/60A 250VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                        | Max.switching voltage          |                       | 277VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                        | Max.switching current          |                       | 60A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                        | Max.switching capacity         |                       | 12500VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                        | Min.allowing load              |                       | 5VDC 100mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Electrical performance | Insulation resistance(Initial) |                       | 1000MΩ(500VDC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                        | Dielectric strength (Initial)  | Between open contacts | 2500VAC,1min (Standard Type)      1500VAC,1min (Sensitive Type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                        |                                | Between coil&contacts | 2500VAC,1min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                        | Operate time                   |                       | ≤15ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                        | Release time                   |                       | ≤10ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Mechanical performance | Shock resistance               | Functional            | 98m/s <sup>2</sup> (10g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                        |                                | Destructive           | 980m/s <sup>2</sup> (100g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                        | Vibration resistance           |                       | 10Hz~55Hz 1.5mm DA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Endurance              | Mechanical                     |                       | 1×10 <sup>6</sup> ops                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                        | Electrical(Room temperature)   |                       | Standard Type:<br>35/32A 277/250VAC      3×10 <sup>4</sup> ops(ON/OFF=1s/9s)<br>50/43A 277/250VAC      3×10 <sup>4</sup> ops(ON/OFF=1s/9s)<br>Connecting 20A carrying 43A/50A/60A breaking<br>20A 250/277VAC      3×10 <sup>4</sup> ops(ON/OFF=1s/9s)<br>60A 277/250VAC<br>Sensitive Type:<br>35/32A 277/250VAC      3×10 <sup>4</sup> ops(ON/OFF=1s/9s)<br>50/43A 277/250VAC      1×10 <sup>4</sup> ops(ON/OFF=1s/9s)<br>Connecting 20A carrying 43A/50A /60A breaking<br>20A 250/277VAC      1×10 <sup>4</sup> ops(ON/OFF=1s/9s) |
| Operate condition      | Ambient temperature            |                       | -40℃~85℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                        | Humidity                       |                       | 5% to 85%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Termination            |                                |                       | PCB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Unit weight            |                                |                       | Approx.38g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|              |                             |
|--------------|-----------------------------|
| Construction | Plastic sealed,Flux proofed |
|--------------|-----------------------------|

## ■ COIL DATA(23℃)

### ■ Standard Type

| Nominal Voltage | Operate Voltage VDC | Release Voltage VDC | Rated Current (±10%) | Coil Resistance (±10%) | Nominal Power | Max Voltage |
|-----------------|---------------------|---------------------|----------------------|------------------------|---------------|-------------|
| DC 5V           | ≤3.75               | ≥0.25               | 450.0mA              | 11.1Ω                  | 2.25W         | DC 6.5V     |
| DC 12V          | ≤9.00               | ≥0.60               | 187.5mA              | 64Ω                    |               | DC 15.6V    |
| DC 24V          | ≤18.00              | ≥1.20               | 93.8mA               | 256Ω                   |               | DC 31.2V    |
| DC 48V          | ≤36.00              | ≥2.40               | 46.9mA               | 1024Ω                  |               | DC 62.4V    |

Note:Holding voltage :40%~110%Un(Environment temperature 23℃);50%~70%Un(Environment temperature 85℃)

### ■ Sensitive Type

| Nominal Voltage | Operate Voltage VDC | Release Voltage VDC | Rated Current (±10%) | Coil Resistance (±10%) | Nominal Power | Max Voltage |
|-----------------|---------------------|---------------------|----------------------|------------------------|---------------|-------------|
| DC 5V           | ≤3.75               | ≥0.25               | 240.0mA              | 20.8Ω                  | 1.2W          | DC 6.5V     |
| DC 12V          | ≤9.00               | ≥0.60               | 100.0mA              | 120.0Ω                 |               | DC 15.6V    |
| DC 24V          | ≤18.00              | ≥1.20               | 50.0mA               | 480.0Ω                 |               | DC 31.2V    |
| DC 48V          | ≤36.00              | ≥2.40               | 25.0mA               | 1920.0Ω                |               | DC 62.4V    |

## ORDERING INFORMATION

**FH12G**

**-1A**

**S**

**T**

**L**

**F**

**-XXX**

**DC12V**

① Type

② Contact arrangement(1):1A=1 open contacts

③ Construction(1):Nil=Flux proofed,S=Plastic sealed

④ Contact material:T=AgSnO<sub>2</sub>

⑤ Coil power:Nil=Standard,L=Sensitive

⑥ Insulation standard:F=Class F

⑦ Customer special code:Represented by numbers or letters (load: 32=load 32A, 35=load 35A, 43=load 43A, none=load 50A, 60=load 60A (standard type only)), 60X=current carrying 60A, current breaking 20A

⑧ Coil specification:DC5/12/24/48V

- (1) When used in clean environment(excluding H<sub>2</sub>S,SO<sub>2</sub>,NO<sub>2</sub>,dust and other pollutants), it is recommended to choose the Flux proofed type;When used in unclean environment(contain H<sub>2</sub>S,SO<sub>2</sub>,NO<sub>2</sub>,dust and other pollutants), it is recommended to choose the Plastic sealed.

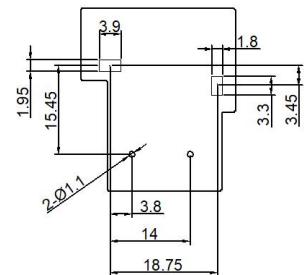
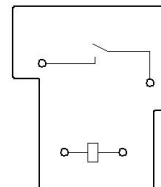
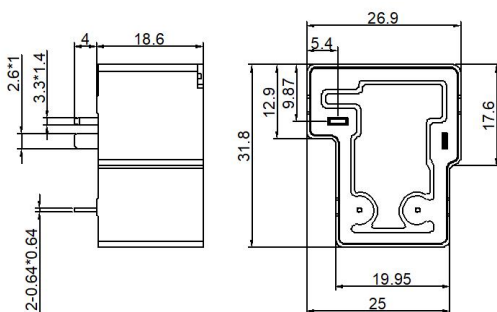
## OUTLINE DIMENSIONS,WIRING DIAGRAM AND PC BOARD LAYOUT(Unit:mm)

1A

Outline Dimensions

Wiring Diagram  
(Bottom view)

PCB Layout  
(Bottom view)



Remark:(1)In case of no tolerance shown in outline dimension:outline dimension $\leq$ 1mm,tolerance should be $\pm$ 0.2mm;outline dimension  $>$ 1mm and  $<$ 5mm,tolerance should be  $\pm$ 0.3mm;outline dimension $\geq$ 5mm,tolerance should be  $\pm$ 0.5mm.

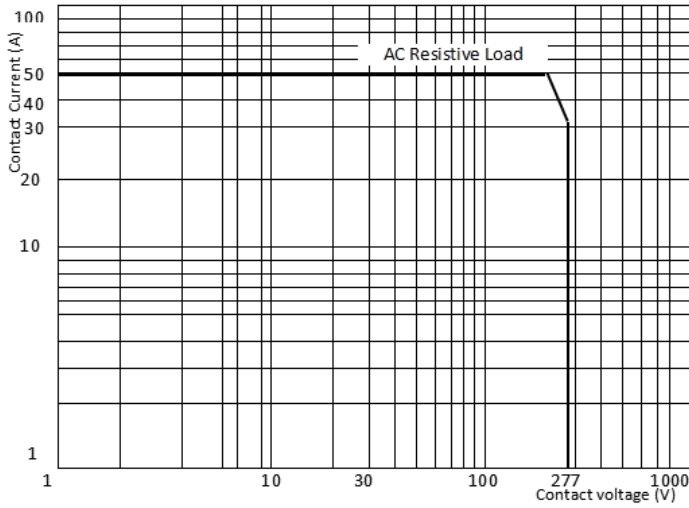
(2) The tolerance without indicating for PCB layout is always  $\pm$ 0.1mm.

## SAFETY APPROVAL RATINGS

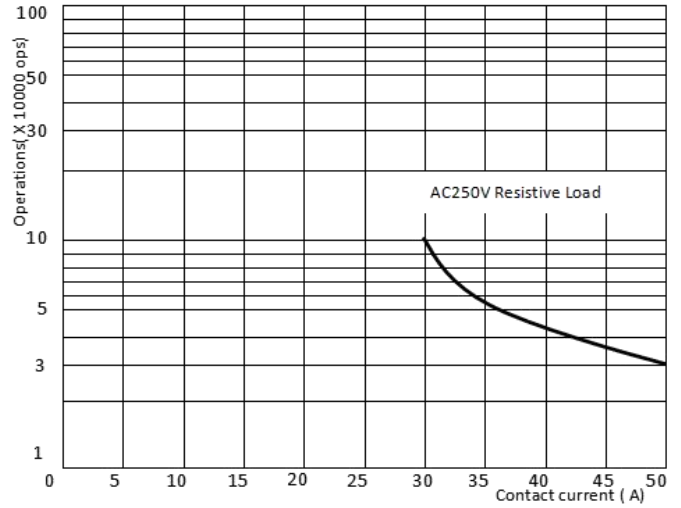
| Approval | File No.       | Contact arrangement | Contact material   | Approved ratings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|----------------|---------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UL/C-UL  | E475405        | 1A                  | AgSnO <sub>2</sub> | Standard Type:<br>35/32A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 105°C<br>50/43A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Connecting 20A carrying 43A/50A/60A breaking 20A<br>250/277VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Sensitive Type:<br>35/32A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 85°C<br>50/43A 277/250VAC 1×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Connecting 20A carrying 43A/50A breaking 20A<br>250/277VAC 1×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C |
| TUV      | R 50656840     | 1A                  | AgSnO <sub>2</sub> | Standard Type:<br>35/32A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 105°C<br>50/43A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Connecting 20A carrying 43A/50A/60A breaking 20A<br>250/277VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Sensitive Type:<br>35/32A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 85°C<br>50/43A 277/250VAC 1×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Connecting 20A carrying 43A/50A breaking 20A<br>250/277VAC 1×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C |
| CQC      | CQC24002454077 | 1A                  | AgSnO <sub>2</sub> | Standard Type:<br>35/32A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 105°C<br>50/43A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Connecting 20A carrying 43A/50A/60A breaking 20A<br>250/277VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Sensitive Type:<br>35/32A 277/250VAC 3×10 <sup>4</sup> ops(ON/OFF=1s/9s) 85°C<br>50/43A 277/250VAC 1×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C<br>Connecting 20A carrying 43A/50A breaking 20A<br>250/277VAC 1×10 <sup>4</sup> ops(ON/OFF=1s/9s) 65°C |

## ■ PERFORMANCE CURVES

### MAXIMUM SWITCHING POWER



### ENDURANCE CURVE



## ■ NOTICE

- ① In order to maintain the initial performance parameters of the relay, please be careful not to drop the product;
- ② The specification is for reference only. Specifications subject to change without notice.