

## Features

- 20A switching capability
- Provide high sensitive type, coil power is 250mW
- Provide the product meet the standards of IEC60335-1, IEC60730-1, IEC62368-1
- Breakdown voltage(between coil and contacts):5KV
- Creep age distance and air distance $\geq$ 15mm
- Products with operating temperature of 105°C are available
- UL insulation system:Class F
- Environment- friendly product(RoHS compliant)
- Outline Dimensions:(29.0 $\times$ 12.7 $\times$ 15.7)mm
- Main application:Home appliance, Smart home, Industrial Control


**TV-8** cUL<sup>®</sup> US

## CHARACTERISTICS

| Specifications         | Item                           |                       |                                                       |
|------------------------|--------------------------------|-----------------------|-------------------------------------------------------|
| Contact Data           | Contact arrangement            |                       | 1A, 1B, 1C                                            |
|                        | Contact resistance(initial)    |                       | ≤100mΩ(6VDC 1A)                                       |
|                        | Contact material               |                       | AgNi, AgSnO <sub>2</sub>                              |
| Rated value            | Rated load(Resistance load)    |                       | 16A 250VAC/30VDC(Standard) 20A 250VAC                 |
|                        | Max.switching voltage          |                       | 400VAC/30VDC                                          |
|                        | Max.switching current          |                       | 20A                                                   |
|                        | Max.switching capacity         |                       | 4000VA/480W                                           |
|                        | Min.allowing load              |                       | 5VDC 100mA                                            |
| Electrical performance | Insulation resistance(initial) |                       | 1000MΩ (500VDC)                                       |
|                        | Dielectric strength (initial)  | Between open contacts | 1000VAC,1 min                                         |
|                        |                                | Between coil&contacts | 4000VAC,1 min                                         |
|                        | 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)   |                       | 20A 250VAC 5×10 <sup>4</sup> ops (ON/OFF=1s/9s)       |
|                        |                                |                       | 16A 250VAC/30VDC 1×10 <sup>5</sup> ops (ON/OFF=1s/9s) |
|                        |                                |                       | 5A 400VAC 1×10 <sup>5</sup> ops (ON/OFF=1s/9s)        |
| Operate condition      | Ambient temperature            |                       | -40℃~85℃/105℃                                         |
|                        | Humidity                       |                       | 5% to 90%                                             |
| Termination            |                                |                       | PCB                                                   |
| Unit weight            |                                |                       | Approx.12g                                            |
| 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 3V           | ≤2.25               | ≥0.15               | 133.3mA              | 22.5Ω                  | 400mW         | DC 3.9V     |
| DC 5V           | ≤3.75               | ≥0.25               | 80mA                 | 62.6Ω                  |               | DC 6.5V     |
| DC 6V           | ≤4.50               | ≥0.30               | 66.7mA               | 90Ω                    |               | DC 7.8V     |
| DC 9V           | ≤6.75               | ≥0.45               | 44.4mA               | 202.5Ω                 |               | DC 11.7V    |
| DC 12V          | ≤9.00               | ≥0.60               | 33.3mA               | 360Ω                   |               | DC 15.6V    |
| DC 15V          | ≤11.25              | ≥0.75               | 26.7mA               | 562.5Ω                 |               | DC 19.5V    |
| DC 18V          | ≤13.50              | ≥0.90               | 22.2mA               | 810Ω                   |               | DC 23.4V    |
| DC 24V          | ≤18.00              | ≥1.20               | 16.7mA               | 1440Ω                  |               | DC 31.2V    |
| DC 48V          | ≤36.00              | ≥2.40               | 8.3mA                | 5760Ω                  |               | DC 62.4V    |
| DC 60V          | ≤45                 | ≥3                  | 6.67mA               | 9000Ω                  |               | DC 78V      |
| DC 90V          | ≤67.5               | ≥4.5                | 4.44mA               | 20250Ω                 |               | DC 117V     |
| DC 110V         | ≤82.5               | ≥5.5                | 3.64mA               | 30250Ω                 |               | DC 143V     |

### ■ Sensitive Type

| Nominal Voltage | Operate Voltage VDC | Release Voltage VDC | Rated Current (±10%) | Coil Resistance (±10%) | Nominal Power | Max Voltage |
|-----------------|---------------------|---------------------|----------------------|------------------------|---------------|-------------|
| DC 3V           | ≤2.4                | ≥0.15               | 83.3mA               | 36Ω                    | 250mW         | DC 3.9V     |
| DC 5V           | ≤4.0                | ≥0.25               | 50mA                 | 100Ω                   |               | DC 6.5V     |
| DC 6V           | ≤4.8                | ≥0.30               | 41.7mA               | 144Ω                   |               | DC 7.8V     |
| DC 9V           | ≤7.2                | ≥0.45               | 27.8mA               | 324Ω                   |               | DC 11.7V    |
| DC 12V          | ≤9.6                | ≥0.60               | 20.8mA               | 576Ω                   |               | DC 15.6V    |
| DC 15V          | ≤12.0               | ≥0.75               | 16.7mA               | 900Ω                   |               | DC 19.5V    |
| DC 18V          | ≤14.4               | ≥0.90               | 13.9mA               | 1296Ω                  |               | DC 23.4V    |
| DC 24V          | ≤19.2               | ≥1.20               | 10.4mA               | 2304Ω                  |               | DC 31.2V    |
| DC 48V          | ≤38.4               | ≥2.40               | 5.2mA                | 9216Ω                  |               | DC 62.4V    |
| DC 60V          | ≤45                 | ≥3                  | 4.17mA               | 14400Ω                 |               | DC 78V      |

## ■ ORDERING INFORMATION

**W15 -1A 1 S T L -XXX DC12V**

① Type

② Contact arrangement(1):1A=1 open contacts,  
1B=1 close contacts, 1C=1 switched contacts

③ PCB mounting(2):1=1 type 1, 2=2 type 2

④ Construction(3):Nil=Flux proofed,S=Plastic sealed

⑤ Contact materia(4):Nil=AgNi, T=AgSnO<sub>2</sub>

⑥ Coil power:Nil=Standard, L=Sensitive(The 16A is only available as standard type of 1A)

⑦ Customer special code:numbers or letters denote customer's requirements , For example: WG products can meet IEC60335-1 test

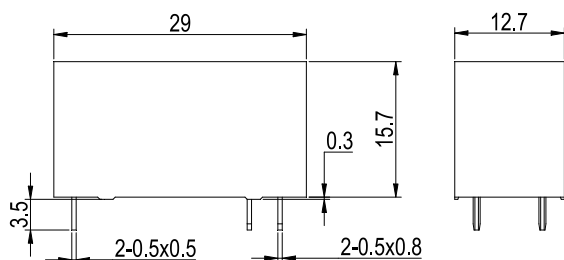
⑧ Coil specification:DC3/5/6/9/12/15/18/24/48/60/90/110V

- (1) If need the contact arrangement is 1B,please contact with the salesman to ask for the outline dimensions,wiring diagram and PC board layout.
- (2) If need the Products requiring a single 5mm mounting foot,please contact with the salesman to ask for the outline dimensions,wiring diagram and PC board layout.
- (3) 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.
- (4) Due to the high surge current of relay connection,we propose to use AgSnO<sub>2</sub> contacts.

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

1A1

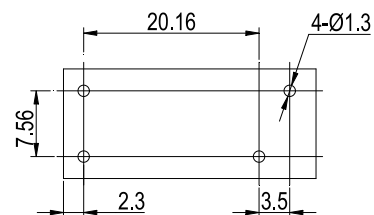
Outline Dimensions



Wiring Diagram  
(Bottom view)

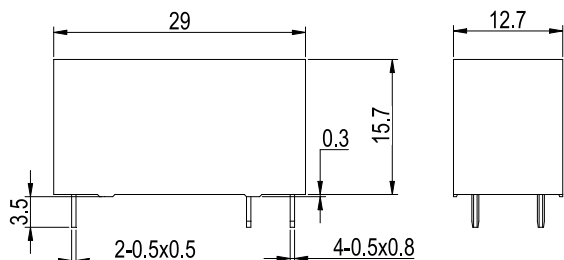


PCB Layout  
(Bottom view)

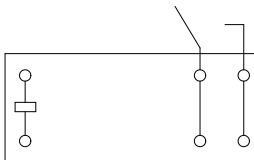


1A2

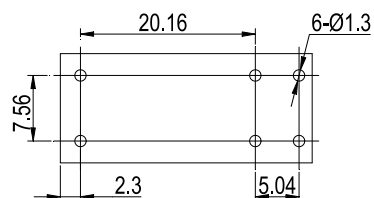
Outline Dimensions



Wiring Diagram  
(Bottom view)

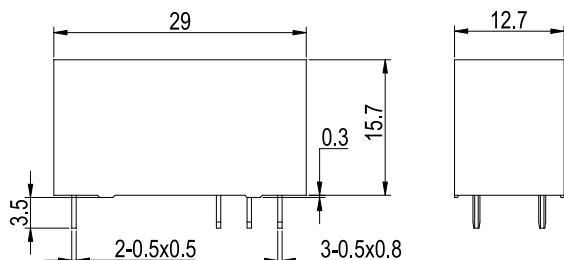


PCB Layout  
(Bottom view)

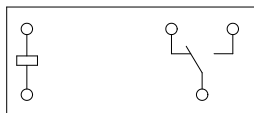


1C1

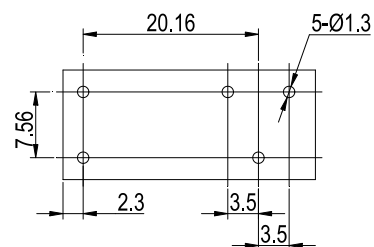
Outline Dimensions



Wiring Diagram  
(Bottom view)

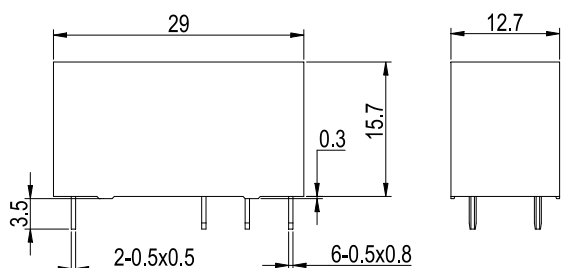


PCB Layout  
(Bottom view)

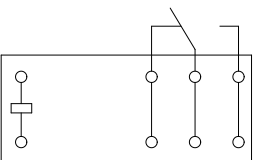


1C2

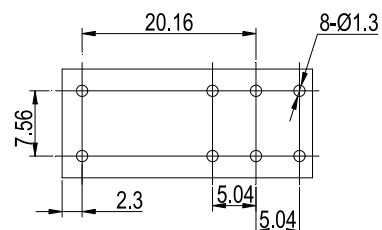
Outline Dimensions



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.

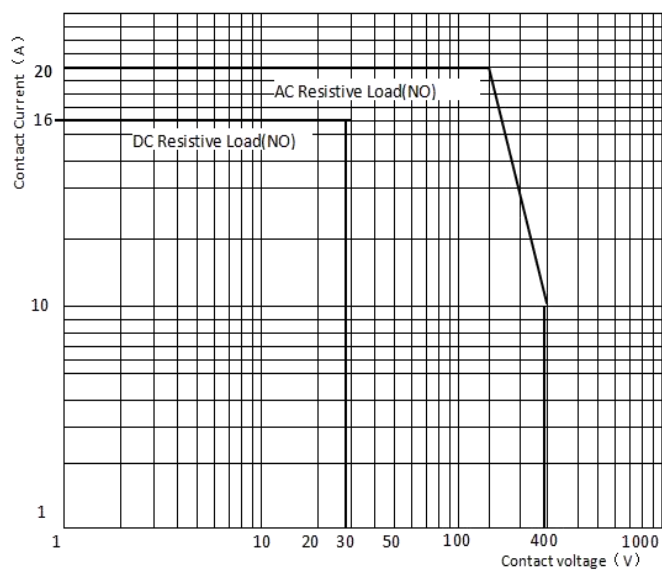
(2) The tolerance without indicating for PCB layout is always  $\pm$ 0.1mm.

## SAFETY APPROVAL RATINGS

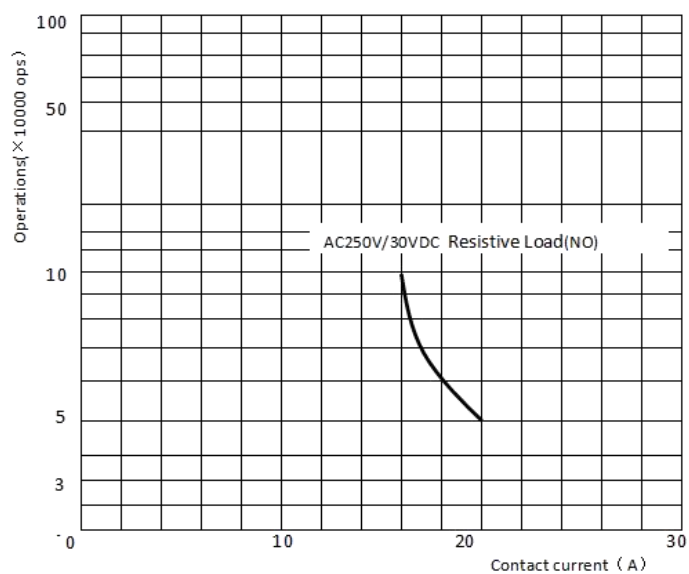
| Approval | File No.       | Contact arrangement | Contact material           | Approved ratings                                                                                                                                                                                                                                                                                                                                                         |
|----------|----------------|---------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UL/C-UL  | E475405        | 1A, 1C(NO)          | AgNi<br>AgSnO <sub>2</sub> | Standard(1A1, 1C1):<br>12A 250VAC/30VDC 85℃<br>Standard(1A2, 1C2):<br>16A 250VAC/30VDC 105℃<br>12A 250VAC 105℃<br>5A 400 VAC 85℃<br>18A 125VAC 85℃<br>1HP 250VAC 85℃<br>10A 250VAC (PF=0.6) 85℃<br>TV-8 125VAC 85℃<br>2000W 250VAC (Tungsten) 85℃<br>20A(1A2) 250VAC 85℃<br>Sensitive(1A1, 1C1):<br>12A 250VAC/30VDC 85℃<br>Sensitive(1A2, 1C2):<br>16A 250VAC/30VDC 85℃ |
|          |                | 1B, 1C(NC)          |                            | Standard(1B1, 1C1):<br>12A 250VAC/30VDC 85℃<br>Standard(1B2, 1C2):<br>16A 250VAC/30VDC 85℃<br>Sensitive(1B1, 1C1):<br>12A 250VAC/30VDC 85℃<br>Sensitive(1B2, 1C2):<br>16A 250VAC/30VDC 85℃                                                                                                                                                                               |
| TUV      | R 50332875     | 1A(NO)              | AgSnO <sub>2</sub>         | 20A 250VAC 85℃<br>16A 250VAC 105℃<br>16A 250VAC/30VDC 85℃                                                                                                                                                                                                                                                                                                                |
|          |                | 1B(NC)              |                            | 16A 250VAC/30VDC 85℃                                                                                                                                                                                                                                                                                                                                                     |
|          |                | 1C(CO)              |                            | 10A/10A 250VAC/30VDC 85℃                                                                                                                                                                                                                                                                                                                                                 |
| CQC      | CQC15002137649 | 1A, 1B, 1C          | AgSnO <sub>2</sub>         | 16A 250VAC/30VDC 85℃                                                                                                                                                                                                                                                                                                                                                     |

## ■ 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.