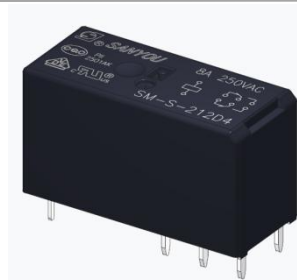


### Features:

- Small size, 15.7mm high.
- IP/OP 5kV, withstand surge voltage of 10kV.
- Creepage and clearance distance between coil and contacts  $\geq 10\text{mm}$ .
- IEC60335-1 compliant product is available.
- IEC60079-15 compliant product is available.

### Typical applications:

- Home appliances, washing machine, air-conditioning, etc.
- Microwave oven, sound, monitor, etc.
- Industrial control instrument, etc.



### Approvals

UL, c-UL (File No.): E190598  
CQC (File No.): CQC10002049463  
VDE (File No.): 40031353

### Contact Data

Contact arrangement	1form C( CO)or 1form A( NO)
Rated voltage	250VAC
Max. switching voltage	277VAC
Rated current	8A
Min. recommended contact load	1A, 6VDC
Breaking capacity max.	2216VA
Contact material	AgNi, AgSn02, AgNi+AgSn02
Frequency of operation	360 ops./h
Operate/release time max.	15ms/10ms
Electrical endurance	See electrical endurance graph

### Contact ratings

Type	Contact	Load	Cycles
<b>IEC 61810 EN 60730-1</b>			
SM-D3/D4	C(NO)	8A, 250VAC, $\cos \phi = 1$ , 85°C	1X10 <sup>5</sup>
SM-D(M)2	A/C(NO)	8A, 250VAC, $\cos \phi = 1$ , 85°C	1X10 <sup>5</sup>
SM-D(M)1	A/C(NO)	8A, 250VAC, $\cos \phi = 1$ , 85°C	8X10 <sup>4</sup>
SM-D(M)	A/C(NO)	8A, 250VAC, $\cos \phi = 1$ , 85°C	6X10 <sup>4</sup>
<b>UL 60947-4-1</b>			
SM	A/C(NO)	8A, 250VAC, $\cos \phi = 1$ , 85°C	1X10 <sup>5</sup>
<b>GB/T 21711.1-2023</b>			
SM	A/C(NO)	8A, 250VAC, 85°C	2X10 <sup>4</sup>
Mechanical endurance			$\geq 1 \times 10^7$

### Coil Data

Coil voltage range:	5 to 110 VDC
Operative range, IEC 61810	2
Coil insulation system according UL	Class F

### Coil Data(continued)

Coil versions, DC coil

Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega$ (1 $\pm$ 10%)	Rated coil powers mW
5	$\leq 3.75$	$\geq 0.5$	62.5	400
6	$\leq 4.5$	$\geq 0.6$	90	400
9	$\leq 6.75$	$\geq 0.9$	202.5	400
12	$\leq 9$	$\geq 1.2$	360	400
18	$\leq 13.5$	$\geq 1.8$	810	400
24	$\leq 18$	$\geq 2.4$	1440	400
48	$\leq 36$	$\geq 4.8$	5760	400
60	$\leq 45$	$\geq 6$	8570	400
110	$\leq 82.5$	$\geq 11$	28800	400

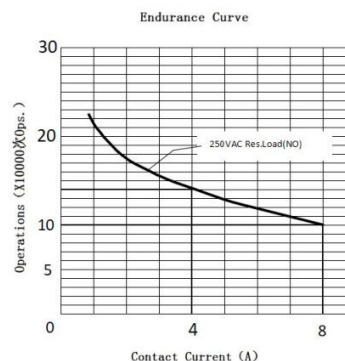
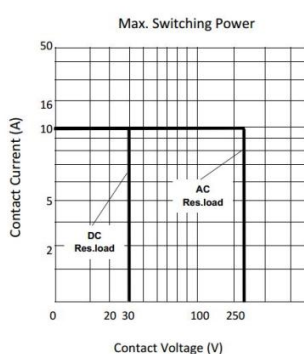
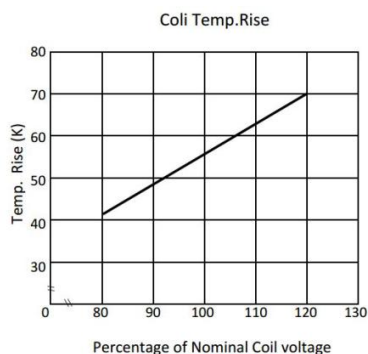
All figures are given for coil without pre-energization, at ambient temperature 20°C

### Insulation Data

Initial dielectric strength	
between open contacts	1000VAC
between contacts	2500VAC
between contact and coil	5000VAC
Clearance/Creepage	
between contact and coil (Clearance)	$\geq 10\text{mm}$ (actual)
between contact and coil (Creepage)	$\geq 10\text{mm}$ (actual)
Material group of insulation parts	
Tracking index of relay base	
PTI 175V/PTI 250V	

### Other Data

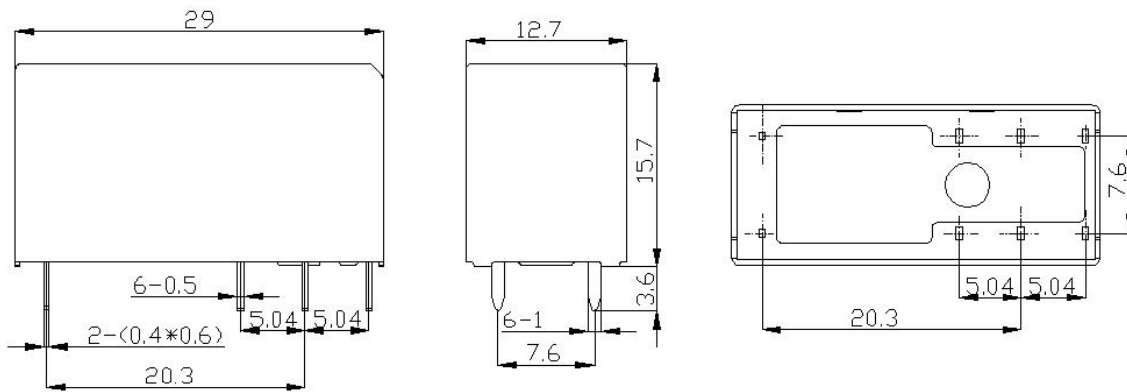
Material compliance: EU RoHS/ELV, China RoHS, REACH	
Ambient temperature	-40°C to +85°C
Category of environmental protection	
IEC 61810	RTII - flux proof RTIII - Sealed type washable
Weight	Approx. 13.5g
Resistance to soldering heat THT (IEC 60068-2-20)	260°C/5s
Packaging/unit	tube, tray



Note:

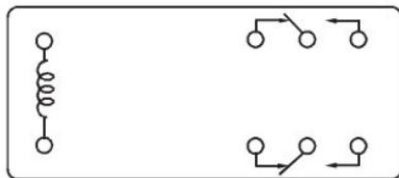
- (1) Test conditions: room temperature, flux-proof product, resistive load, 1s on, 9s off.
- (2) The above curves are for reference only, and the final result is subject to the experiment.

**Dimensions**



(bottom view)

**Wiring Diagrams (bottom view)**

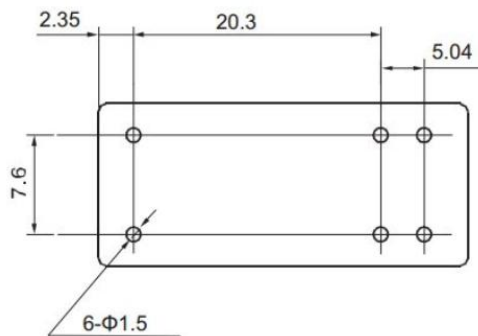
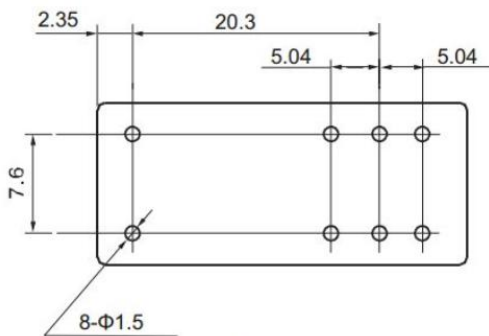


2c



2a

**PCB Layouts (bottom view)**



In case of no tolerance shown on outline dimension  
 If dimension < 1 mm, tolerance:  $\pm 0.2\text{mm}$   
 If dimension 1~5mm, tolerance:  $\pm 0.3\text{mm}$   
 If dimension > 5mm, tolerance:  $\pm 0.4\text{mm}$

**Notes:**

- 1.The dimension of pin is the size before tinning
- 2.Tolerance of PCB layout:  $\pm 0.1\text{ mm}$ .

**Product Code Structure**

<b>SM</b>	<b>-S</b>	<b>-2</b>	<b>12</b>	<b>D</b>	<b>M</b>	<b>1</b>	<b>-F</b>	<b>-XX</b>	Special Parameter: Nil-Standard type; Letters or Numbers-Special requirements Insulation System: Nil-Standard B-Class B F-Class F Contact Material: Nil-AgNi 1-AgSnO <sub>2</sub> 2-AgNi & AgSnO <sub>2</sub> 3-3 Compounds AgNi (Form C) 4-3 Compounds AgSnO <sub>2</sub> (Form C) Contact Arrangement: Nil-Form C M-Form A Coil Power: D-0.4W Rated Coil Voltage (VDC) : 05, 06, 09, 12, 18, 24, 48, 60, 110 Number of Poles: 2-2 Poles Protective Construction: S- Flux-proofed SH- Sealed type washable Type: SM
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(1) Plastic sealing type can not be used in polluted environment (containing H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, dust and other pollutants).

(2) After the plastic seal product is loaded into PCB welding, the whole cleaning or surface treatment can not be carried out.

(3) Special requirements of customers (XX) shall be evaluated by our company and marked by characteristic symbols.

**Examples of Ordering Codes**

SM-S-212DM1 relay SM , Flux-proof , rated DC voltage 12V , coil power 0.4W, 2NO, and contact material AgSnO<sub>2</sub>.

SM-S-212D4 relay SM, Flux-proof , rated DC voltage 12V , coil power 0.4W, 2CO, and contact material AgSnO<sub>2</sub>.

**Disclaimer**

The specification is for reference only. Specifications are subject to change without prior notice.

We could not evaluate all the performance and all the parameters for every possible applications. Thus the users should in a right position to choose suitable product for their own application. For sealed relays, after installation and cleaning, please open the ventilation hole in the case before use. If there is any query, please contact Sanyou for technical services. However it is the user's responsibility to determine which product should be used.