三友继电器
® SANYOU RELAYS
Relays for advanced technology

# Miniature Power Relay SMIA 2P-Series

## Features:

- 10A high switching capability
- 2mm contact gap
- boundary dimension:29mmx12.8mmx26.2mm

## Safety Approval

UL/C-UL File No： E179745-1-30

TUV File No： R50540860

CQC File No：CQC22002336811

## Contact Capacity

| | |
|---|---|
| Model | SMIA |
| Nominal switching capacity (res. load) | 10A 250VAC |
| Max. switching current | 10A |
| Max. switching voltage | 277VAC |
| Max. switching power | 2770 VA |
| Min.switching load | 6V 1A |

## Characteristic Data

| | | |
|---|---|---|
| Contact arrangement | Silver alloy | |
| contact resistance | 100mΩ Max.(at 1A 6VDC) | |
| Operate time (at nominal volt.) | 15msec. Max. (No diode) | |
| Release time (at nominal volt.) | 5msec. Max. (No diode) | |
| insulation resistance | 1,000MΩ Min.(DC500V) | |
| Initial dielectric strength | Disconnect Between contact grops: AC2500V，50/60Hz 1min.<br>Contact Between groups: AC3000V，50/60Hz 1min. | |
| | Between coil and contact：AC5,000V，50/60Hz 1min | |
| Vibration resistance | Functional | 10～55Hz at double amplitude of 1.5 mm |
| | Destructive | 10～55Hz at double amplitude of 1.5 mm |
| Shock resistance | Functional | 100G Min. |
| | Destructive | 10G Min. |
| Endurance | Mechanical (at 9000 ops./h) | 300,000 cycles |
| | electrical endurance (at 360 ops./h) | 30000 cycles（NC:10000cycles） |
| Ambient temperature | -40℃～+85℃ (no condensation) | |
| ambient humidity | 5%～85%RH | |
| Unit weight | Approx 19g | |

(1)The above values are initial values

(2)Only the typical load of the product certification is listed above,the electrical life and durability of each load are different due to different detailed test conditions.For further information,please contact our technical department.

(3)The above durability electrical life test conditions are open hole product state

## Coil Data (at 20℃)

| Nominal voltage (VDC ) | Nominal operating current ±10% (A) | Coil resistabce ±10% (Ω) | Mmximum applied voltage (VDC) | Pick-up voltage (Max.) | Drop-out voltage (Min.) | Nominal operating power |
|---|---|---|---|---|---|---|
| 5 | 0.28 | 18 | Nominal voltage 110% | Nominal voltage 75% | Nominal voltage 5% | Approx 1.4W |
| 6 | 0.23 | 26 | | | | |
| 9 | 0.16 | 58 | | | | |
| 12 | 0.12 | 102 | | | | |
| 24 | 0.06 | 410 | | | | |
| 48 | 0.03 | 1650 | | | | |

(1)The above value is the initial value.Do not apply the maximum voltage on the product continuously for more than 10min to avoid coil heating

(2) Operation voltage of conversion product ≤85% rated voltage, coil tolerance of (1±15%)

(3)Coil holding voltage is the coil excitation voltage maintained after 200ms, down to 50~100% of the rated coil voltage (23℃), down to 50~100% of the rated coil voltage (85℃)

Safety certification load(Note:For more detailed certification load,refer to safety certificate)

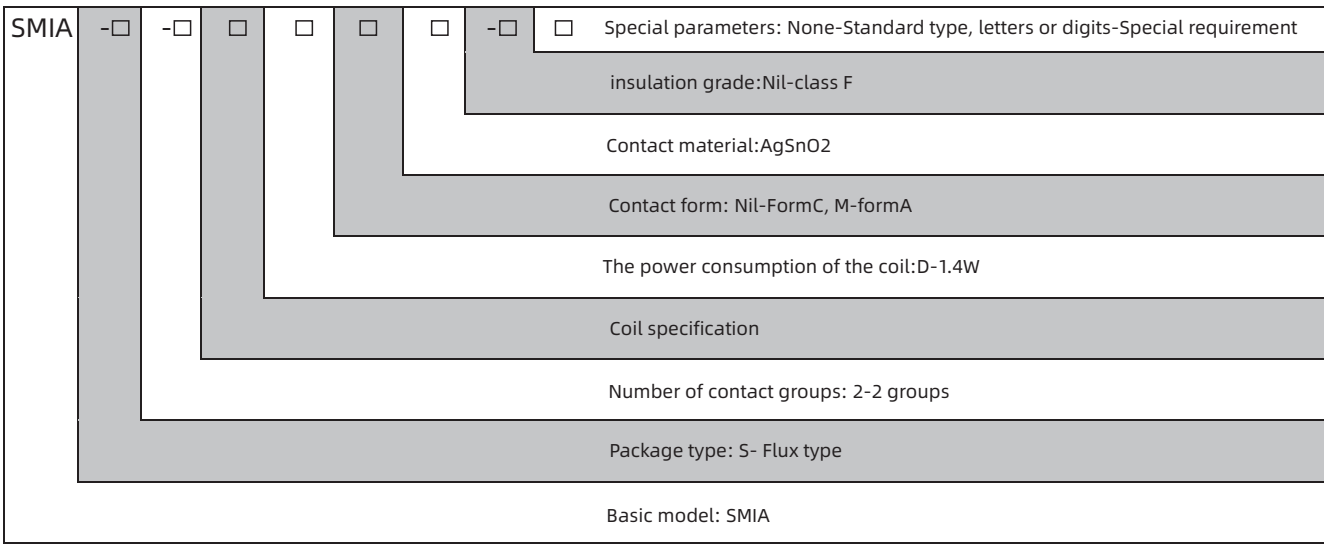
| certification type | CQC | TUV | UL/CUL |
|---|---|---|---|
| File No. | CQC22002336811 | R50540860 | E179745 |
| Approved ratings | 10A 125/250/277VAC | 10A 125/250/277VAC | 10A 125/250/277VAC |

(1)The load without temperature indicated above refers to ambient temperature of room temperature

(2)The above is only a partial list of the loads for which the product is certified .The detailed test conditions for each load are different , so the number of electrical lives varies.For further information,please contact sanyou

(3)When testing seal type&waterproof type products,should open up the heat emission hole of the case.

## Ordering Information

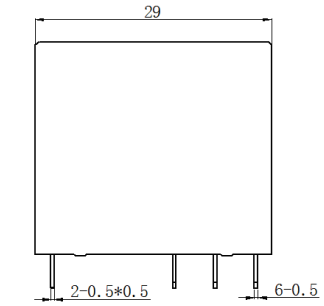


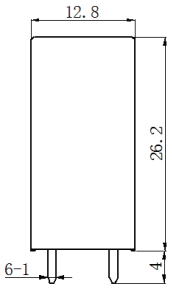

(1)Plastic sealing type can not be used in polluted environment (containing H2S, S02, N02, dust and other pollutants).

(2)The plastic seal type can not be cleaned or treated as a whole after PCB welding.

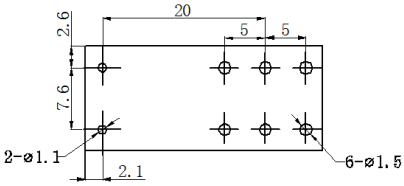
(3)Customer special requirements (XX) shall be evaluated by our company and marked by characteristic symbols.

## Outline dimension drawing, wiring diagram, mounting hole bitmap (unit:mm)

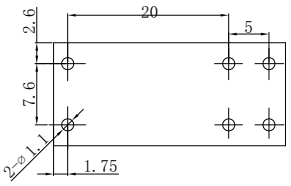


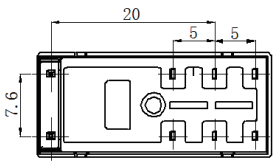




Outline dimension drawing of type C

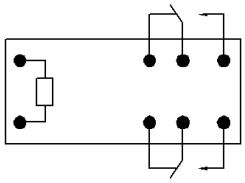


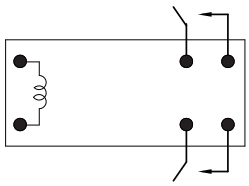

Outline dimension drawing of type A




Wiring diagram (bottom view)



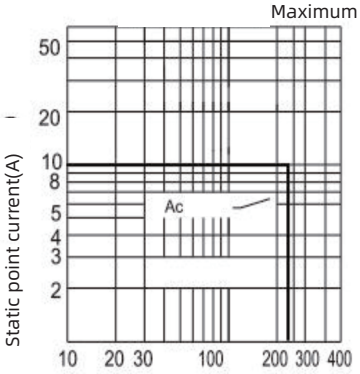


...therwise specified:
...n < 1mm, tolerance: ±0.2mm;
...sion 1~5mm, tolerance: ±0.3mm;
...n dimension > 5mm, tolerance: ±0.4mm.

Note: 1. Extended terminal dimension is dimension before soldering.
2. Tolerance of P.C.B. layout: ±0.1mm.

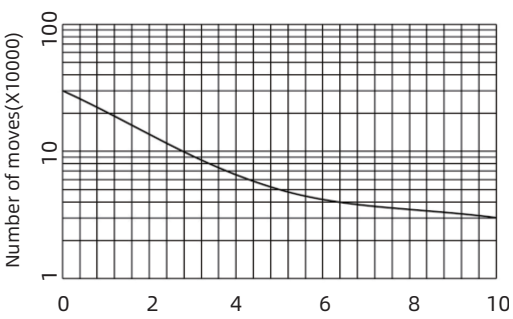
## Performance curve

Maximum switching power



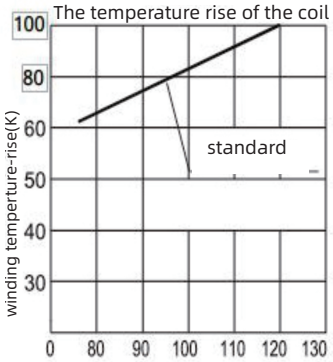

The contact voltage(V)

Life curve




Contact current(A)

The temperature rise of the coil

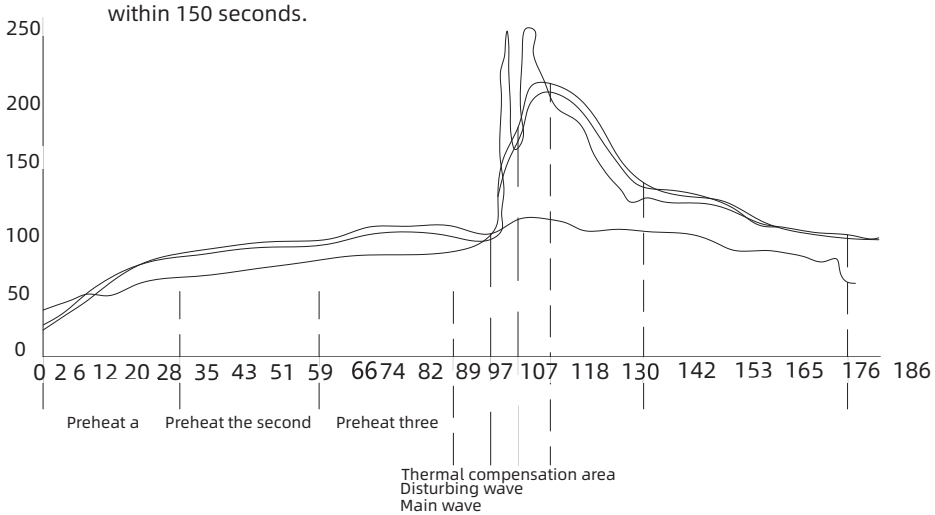



The percentage of the coil voltage rating

Matters needing attention:

(1) Wave soldering installation conditions

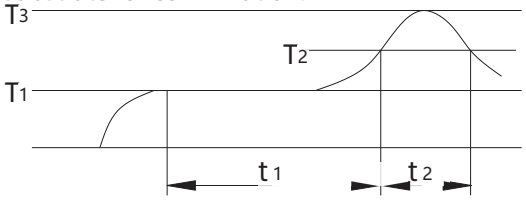
In the case of automatic welding, observe the following conditions. Pre-heating: within 150℃ (welding surface terminal) within 150 seconds.




Wave soldering temperature profile

Recommended welding temperature and time: 240℃~260℃, 3s-5s. In addition, the impact on the relay may vary according to the type of substrate actually used.

Therefore, check the actual substrate for confirmation.




T1 = 150 ℃~180℃
T2 ≥ 230 ℃
T3 ≤ 250 ℃
T1 = 60S~120S
T2 ≤ 30S

(2)Reflow welding installation conditions (PIN-in-paste process)

Under the condition of mixed parts on the same substrate, the temperature rise of the relay largely depends on the heating method of reflow welding machine, so please set the temperature condition.

Make the temperature of the relay terminal welding part and the surface of the relay shell less than the above conditions, and then confirm with the actual machine in advance.

Statement:This product specification is for reference only, subject to change without prior notice.

It is not possible for Sanyou to evaluate all the performance parameter requirements of relays in each specific application field, so the customer should choose the unsuitable ones according to the specific application conditions

Products, if you have any questions, please contact us for more technical support, but the customer is responsible for product selection.

varistor (ZNR) could absorb the coil surge of relay that is recommended.

(Example)