

Features:

- Miniature relay with high switching capability (25A), ideal for motor and compressor control.
- Both quick terminal and PCB terminal are available.
- IEC60335-1/IEC60079-15 compliant product is available.

Typical applications:

- Ideal for motor, compressor control, e.g.:air conditioner.
- Home appliances and industrial electrical equipment.

Approvals

UL、c-UL (File No.): E190598

TUV (File No.): R50138321

CQC (File No.): CQC02001002131,CQC09002030584

VDE (File No.): 40007481

Contact Data

| | |
|-------------------------------|--------------------------------|
| Contact arrangement | 1form A(NO) |
| Contact resistance | 100mΩ Max.(at 1A 6VDC) |
| Rated voltage | 250VAC |
| Max.switching voltage | 400VAC |
| Rated current | 20A/25A |
| Min. recommended contact load | 1A, 6VDC |
| Breaking capacity max. | 6925VA |
| Contact material | AgNi,AgSnO ₂ |
| Frequency of operation | 360 ops./h |
| Operate/release time max. | 20ms/10ms |
| Electrical endurance | See electrical endurance graph |

Contact ratings

| Type | Contact | Load | Cycles |
|--------------------------|---------|---------------------------|---------------------|
| IEC 61810 | | | |
| SFK | A(NO) | 25A,250VAC,cos φ=1,85℃ | 1X10 ⁵ |
| SFK | A(NO) | 20A,250VAC,cos φ=1,85℃ | 1X10 ⁵ |
| SFK | A(NO) | Making:80A for 300ms),85℃ | 1X10 ⁵ |
| UL 60947-4-1 | | | |
| SFK | A(NO) | 25A,250VAC,cos φ=1,85℃ | 1X10 ⁵ |
| SFK | A(NO) | 20A,250VAC,cos φ=1,85℃ | 1X10 ⁵ |
| SFK | A(NO) | TV-10,120 VAC, 40℃ | 2.5X10 ⁴ |
| SFK | A(NO) | 2HP,240VAC,85℃ | 1X10 ⁵ |
| GB/T 21711.1-2023 | | | |
| SFK | A(NO) | 25A,250VAC,85℃ | 2X10 ⁴ |
| SFK | A(NO) | 20A,250VAC,105℃ | 2X10 ⁴ |
| EN 60730-1 | | | |
| SFK | A(NO) | 25A,250VAC,85℃ | 1X10 ⁵ |
| SFK | A(NO) | 20A,250VAC,85℃ | 1X10 ⁵ |
| Mechanical endurance | | | ≥2x10 ⁶ |

Coil Data

| | |
|-------------------------------------|------------|
| Coil voltage range: | 5 to 24VDC |
| 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 Ω (1±10%) | Rated coil powers mW |
| 5 | ≤3.75 | ≥0.25 | 27.8 | 900 |
| 6 | ≤4.5 | ≥0.3 | 40 | 900 |
| 9 | ≤6.75 | ≥0.45 | 90 | 900 |
| 12 | ≤9 | ≥0.6 | 160 | 900 |
| 18 | ≤13.5 | ≥0.9 | 360 | 900 |
| 24 | ≤18 | ≥1.2 | 640 | 900 |

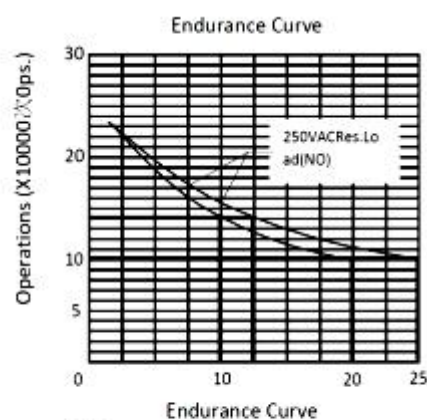
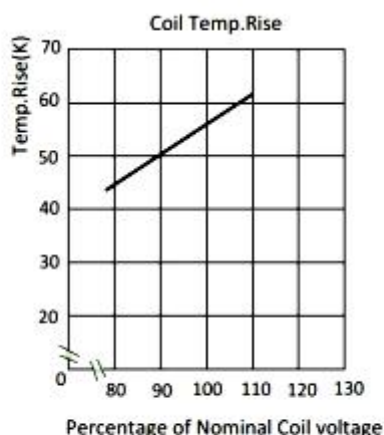
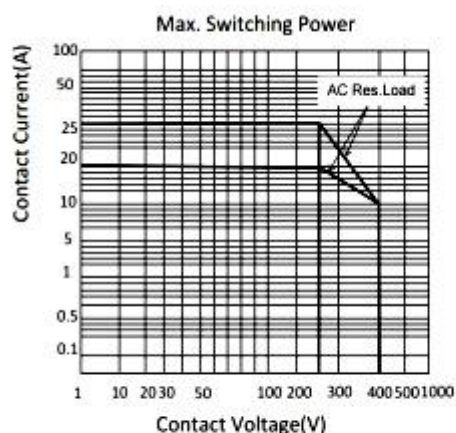
All figures are given for coil without pre-energization, at ambient temperature 20℃

Insulation Data

| | |
|--------------------------------------|-------------------|
| Initial dielectric strength | |
| between open contacts | 1000VAC |
| between contact and coil | 4500VAC |
| Clearance/Creepage | |
| between contact and coil (Clearance) | ≥4.0mm(actual) |
| between contact and coil (Creepage) | ≥5.0mm(actual) |
| Material group of insulation parts | IIIa |
| Tracking index of relay | PTI 175V/PTI 250V |

Other Data

| | |
|---|--------------------------------|
| Material compliance: | EU RoHS/ELV, China RoHS, REACH |
| Ambient temperature | -40℃ to +85℃ |
| Category of environmental protection | |
| IEC 61810 | RTII - flux proof |
| | RTIII - Sealed type washable |
| Weight | Approx. 22.0g |
| Resistance to soldering heat THT (IEC 60068-2-20) | 260℃/5s |
| Packaging/unit | tube, tray |



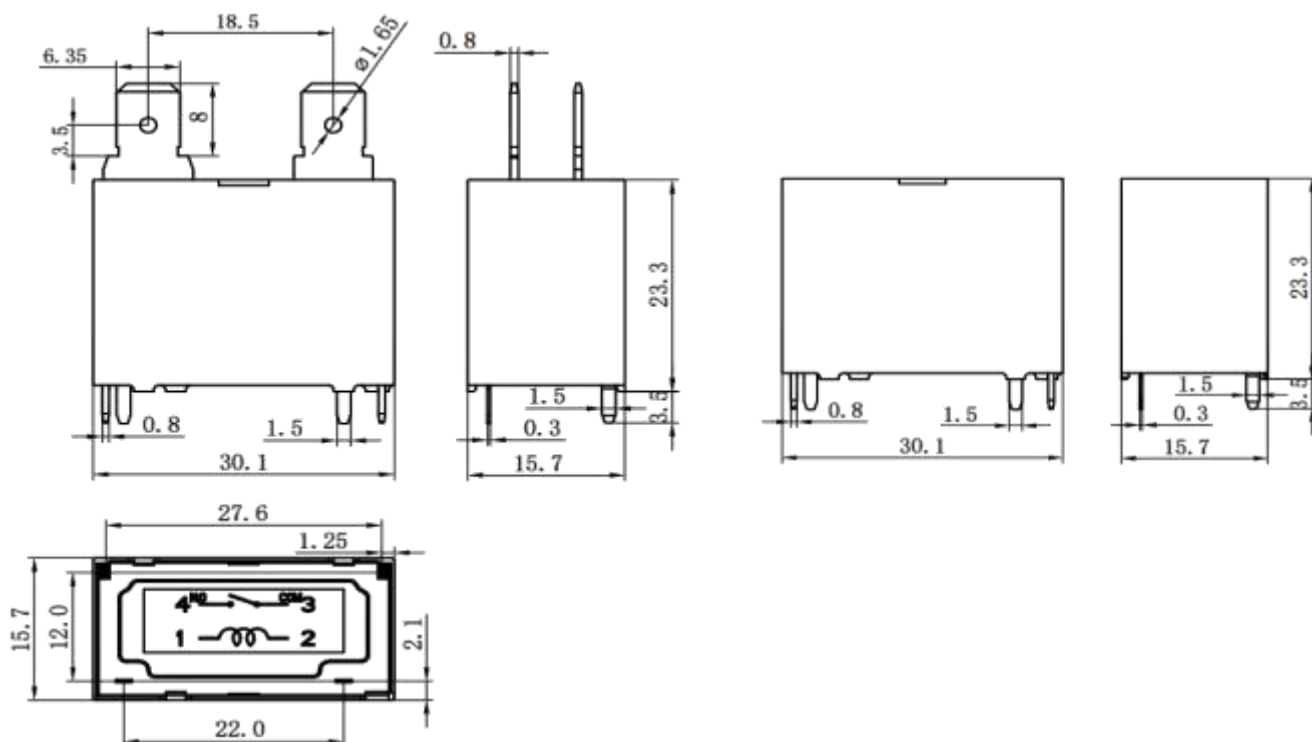
Note:

- (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.

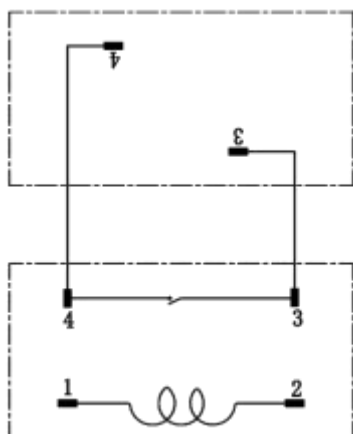
Dimensions

Standard type

PCB type



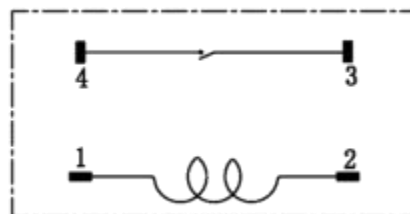
Wiring Diagrams (bottom view)



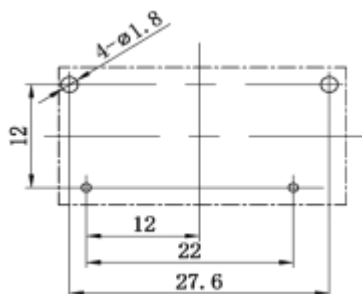
top view

bottom view

PCB type



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

| | | | | | | | | | | |
|-----|----|----|---|---|---|---|----|----|-----|---|
| SFK | -1 | 12 | D | M | P | 3 | -F | -E | -XX | |
| | | | | | | | | | | Special Parameter: |
| | | | | | | | | | | Nil-Standard type |
| | | | | | | | | | | Letters or Numbers-Special requirements |
| | | | | | | | | | | Contact Type: |
| | | | | | | | | | | Nil-Standard (20A) |
| | | | | | | | | | | E-Step type contact (25A) |
| | | | | | | | | | | Insulation System: |
| | | | | | | | | | | Nil-Standard |
| | | | | | | | | | | B-Class B |
| | | | | | | | | | | F-Class F |
| | | | | | | | | | | Contact Material: |
| | | | | | | | | | | Nil-AgSnO ₂ |
| | | | | | | | | | | 3-AgNi and AgSnO ₂ |
| | | | | | | | | | | 4-AgCdO |
| | | | | | | | | | | Terminal Type: |
| | | | | | | | | | | Nil-Standard |
| | | | | | | | | | | P-PCB |
| | | | | | | | | | | Contact Form: |
| | | | | | | | | | | M-Form A |
| | | | | | | | | | | Coil Power: |
| | | | | | | | | | | D-0.90W |
| | | | | | | | | | | Coil Voltage (VDC): |
| | | | | | | | | | | 05, 06, 09, 12, 18, 24 |
| | | | | | | | | | | Number of Poles: |
| | | | | | | | | | | 1-1 Pole |
| | | | | | | | | | | Type: SFK |

- (1) Flux-proof relays can not be used in the environment with pollutants like H₂S, SO₂, NO₂, dust, etc.
- (2) Water cleaning or surface process is not suggested after the flux-proof relays are assembled on PCB.
- (3) Customized special suffix is available after being evaluated by Sanyou.
- (4) C1 suffix stands for product in accordance to IEC60335-1(GWT) & CTI250V.
- (5) Ex suffix stands for product compliant with IEC60079-15.

Examples of Ordering Codes

SFK-112DM relay SFK, rated DC voltage 12V, coil power 0.90W, 1NO, 20A, and contact material AgSnO₂.

SFK-112DM-E relay SFK, rated DC voltage 12V, coil power 0.90W, 1NO, 25A, and contact material AgSnO₂.

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.