

2. Specifications (relay)

| Characteristics | Item | Specifications | | | | | |
|--|---|--|--|--|--|-------------------|--|
| | | 4 poles | | | 6 poles | | |
| Contact | Contact arrangement | 2 Form A 2 Form B | 3 Form A 1 Form B | 4 Form A 2 Form B | 5 Form A 1 Form B | 3 Form A 3 Form B | |
| | Contact resistance (Initial) | Max. 100 mΩ (By voltage drop 6 V DC 1A) | | | | | |
| | Contact material | Au flashed AgSnO ₂ type | | | | | |
| Rating | Nominal switching capacity (resistive load) | 6A 250V AC, 6A 30V DC | | | | | |
| | Max. switching power (resistive load) | 1,500VA, 180W | | | | | |
| | Max. switching voltage | 250V AC, 125V DC | | | | | |
| | Max. switching current | 6 A (Reduce by 0.1 A/°C for temperatures 70 to 85°C 158 to 185°F) | | | | | |
| | Min. switching capacity (Reference value)*1 | 1mA 5V DC | | | | | |
| | Nominal operating power | Approx. 360mW | | | Approx. 500mW | | |
| Electrical characteristics | Insulation resistance (Initial) | | Min. 1,000MΩ (at 500V DC) Measurement at same location as "Breakdown voltage" section. | | | | |
| | Breakdown voltage (Initial) | Between open contacts | 1,500 Vrms for 1 min. (Detection current: 10mA) | | | | |
| | | Between contact sets | 2,500 Vrms for 1 min. (Detection current: 10mA); 7-8/9-10 between open contacts | | 2,500 Vrms for 1 min. (Detection current: 10mA); 7-8/11-12 between open contacts 9-10/13-14 between open contacts 11-12/13-14 between open contacts | | |
| | | | 4,000 Vrms for 1 min. (Detection current: 10mA); 3-4/5-6 between open contacts 3-4/7-8 between open contacts 5-6/9-10 between open contacts | | 4,000 Vrms for 1 min. (Detection current: 10mA); 3-4/5-6 between open contacts 3-4/7-8 between open contacts 5-6/9-10 between open contacts | | |
| | | | 4,000 Vrms for 1min (Detection current: 10mA) | | | | |
| | Between contact and coil | | 4,000 Vrms for 1min (Detection current: 10mA) | | | | |
| | Operate time (at 20°C 68°F) | | Max. 20ms (Nominal coil voltage applied to the coil, excluding contact bounce time) | | | | |
| | Response time (at 20°C 68°F)*2 | | Max. 8ms (Nominal coil voltage applied to the coil, excluding contact bounce time and without diode)*4 | | | | |
| | Release time (at 20°C 68°F) | | Max. 20ms (Nominal coil voltage applied to the coil, excluding contact bounce time) | | | | |
| | Mechanical characteristics | Shock resistance | Functional | 200 m/s ² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs) | | | |
| Destructive | | | 1,000 m/s ² (Half-wave pulse of sine wave: 6 ms) | | | | |
| Vibration resistance | | Functional | 10 to 55 Hz at double amplitude of 1.5 mm (Detection time: 10μs) | | | | |
| | | Destructive | 10 to 55 Hz at double amplitude of 1.5 mm | | | | |
| Expected life | Mechanical | | Min. 10 ⁷ (at 180 times/min.) | | | | |
| | Electrical | 250 V AC 6 A resistive load: Min. 10 ⁵ (at 20 times/min.) | | | | | |
| | | 30 V DC 6 A resistive load: Min. 10 ⁵ (at 20 times/min.) | | | | | |
| | | 250 V AC 1 A resistive load: Min. 5×10 ⁵ (at 30 times/min.) | | | | | |
| | | 30 V DC 1 A resistive load: Min. 5×10 ⁵ (at 30 times/min.) | | | | | |
| | | [AC 15] 240 V AC 2 A inductive load: Min. 10 ⁵ (at 20 times/min., cosφ = 0.3) | | | | | |
| [DC 13] 24 V DC 1 A inductive load: Min. 10 ⁵ (at 20 times/min., L/R = 48 ms) | | | | | | | |
| Conditions | Conditions for operation, transport and storage*3 | | Ambient temperature: -40°C to +85°C -40°F to +185°F Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature) | | | | |
| | Max. operating speed | | 20 times/min. (at max. rating) | | | | |
| Unit weight | Approx. 20 g .71 oz | | | Approx. 23 g .81 oz | | | |

Notes: *1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

*2. Response time is the time after the coil voltage turns off until the time when "a" contact turns off.

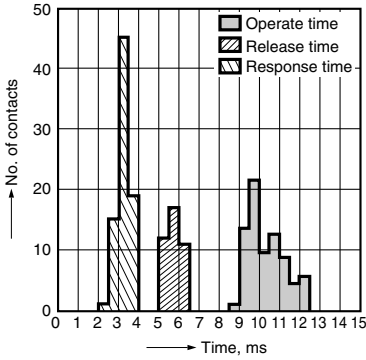
*3. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.

*4. Response time of built-in diode type is 12 ms or less (excluding contact bounce time when nominal coil voltage is applied to the coil).

REFERENCE DATA

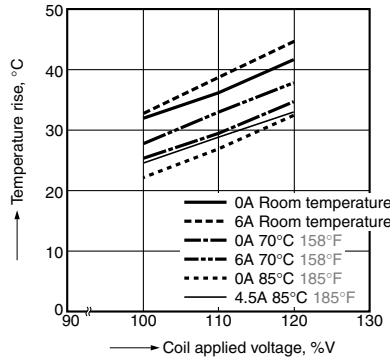
1. Operate/response/release time

Tested sample: SFS4-DC24V (4 Form A 2 Form B), 20pcs. (a contacts: 80, b contacts: 40)



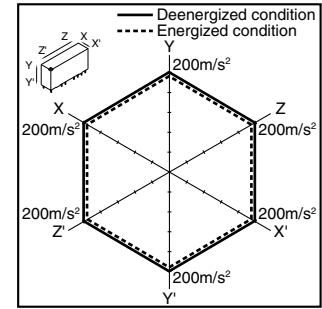
2. Coil temperature rise

Tested sample: SFS4-DC24V (4 Form A 2 Form B), 3pcs.
Measured portion: Inside the coil
Ambient temperature: Room temperature
(27°C 80.6°F), 70°C 158°F, 85°C 185°F

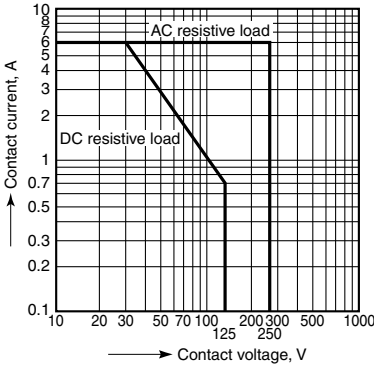


3. Malfunctional shock

Tested sample: SFS4-DC24V (4 Form A 2 Form B), 3pcs.



4. Max, switching capacity



Other contact gaps when contacts are welded

Sample: SFS4-DC24V (4 Form A 2 Form B)

The table below shows the state of the other contacts.

In case of form "NO" contact weld the coil applied voltage is 0 V.

In case of form "NC" contact weld the coil applied voltage is nominal.

| | | State of other contacts | | | | | |
|--------------------|------------|-------------------------|----------|----------|-----------|------------|------------|
| | | 3-4 (NC) | 5-6 (NC) | 7-8 (NO) | 9-10 (NO) | 11-12 (NO) | 13-14 (NO) |
| Welded contact No. | 3-4 (NC) | | | >0.5 | >0.5 | >0.5 | >0.5 |
| | 5-6 (NC) | | | >0.5 | >0.5 | >0.5 | >0.5 |
| | 7-8 (NO) | >0.5 | >0.5 | | | | |
| | 9-10 (NO) | >0.5 | >0.5 | | | | |
| | 11-12 (NO) | >0.5 | >0.5 | | | | |
| | 13-14 (NO) | >0.5 | >0.5 | | | | |

>0.5: contact gap is kept at min. 0.5 mm .020inch

Empty cells: either ON or OFF

Note: Contact gaps are shown at the initial state.

If the contact transfer is caused by load switching, it is necessary to check the actual loading.