




semiconductor relay 3RF5, 1-pole, width 22.5 mm, 24 A, 24-1100 V DC, 4-30 V DC, screw terminal

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| product brand name | SIRIUS |
| product designation | solid-state relay |
| design of the product | 1-pole |
| product type designation | 3RF51 |
| manufacturer's article number | |
| <ul style="list-style-type: none"> • _1 of the accessories that can be ordered • _2 of the accessories that can be ordered | 3RF3900-0WA88 3RF3900-2TA88 |
| product designation | |
| <ul style="list-style-type: none"> • _1 of the accessories that can be ordered • _2 of the accessories that can be ordered | heat conducting foil for semiconductor relays control connector |
| General technical data | |
| product function | instantaneous switching |
| power loss [W] for rated value of the current | |
| <ul style="list-style-type: none"> • at AC in hot operating state per pole • without load current share typical | 19 W 0.55 W |
| insulation voltage rated value | 1 500 V |
| degree of pollution | 3 |
| impulse withstand voltage (Uimp) | 10 kV |
| protection class IP on the front according to IEC 60529 | IP20 |
| shock resistance according to IEC 60068-2-27 | 15g / 11 ms |
| vibration resistance according to IEC 60068-2-6 | 2g |
| reference code according to IEC 81346-2:2019 | Q |
| Substance Prohibition (Date) | 03/27/2024 |
| SVHC substance name | Lead - 7439-92-1 |
| Net Weight | 0.076 kg |
| Main circuit | |
| number of poles for main current circuit | 1 |
| number of NO contacts for main contacts | 1 |
| number of NC contacts for main contacts | 0 |
| type of voltage of the operating voltage | DC |
| operating voltage at DC rated value | 24 ... 1 100 V |
| voltage peak maximum | 1 270 V |
| duration of the voltage peak | 20 ms |
| operational current rated value maximum | 23 A |
| operational current | |
| <ul style="list-style-type: none"> • at 25 °C rated value • at 40 °C rated value • at 70 °C rated value | 24 A 23 A 18 A |
| operational current according to UL 508 rated value | 17.5 A |

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| operational current at DC | |
| • rated value | 23 A |
| • at 600 V rated value | 23 A |
| • at 1100 V rated value | 18.5 A |
| derating temperature | 40 °C |
| Control circuit/ Control | |
| type of voltage of the control supply voltage | DC |
| control supply voltage at DC rated value | 24 V |
| control supply voltage at DC full-scale value for signal<0> recognition | 4 V |
| operating range factor control supply voltage rated value at DC | |
| • initial value | 0.27 |
| • full-scale value | 1.25 |
| control current at minimum control supply voltage at DC | 8 mA |
| control current at DC rated value | 9 mA |
| ON-delay time | 12 ms |
| OFF-delay time | 10 ms |
| Installation/ mounting/ dimensions | |
| fastening method side-by-side mounting | Yes |
| fastening method | screw fixing |
| design of the thread of the screw for securing the equipment | M4 |
| tightening torque of fixing screw maximum | 1.5 N·m |
| tightening torque [lbf·in] of fixing screw maximum | 13 lbf·in |
| height | 95 mm |
| width | 22.5 mm |
| depth | 51 mm |
| Connections/ Terminals | |
| product component removable terminal for auxiliary and control circuit | Yes |
| type of electrical connection | |
| • for main current circuit | screw-type terminals |
| • for auxiliary and control circuit | screw-type terminals |
| type of connectable conductor cross-sections | |
| • for main contacts | |
| — solid | 2x (1.5 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²) |
| — finely stranded with core end processing | 2x (1 ... 2.5 mm ²), 2x (2.5 ... 6 mm ²), 1x 10 mm ² |
| • for AWG cables for main contacts | 2x (14 ... 10) |
| connectable conductor cross-section for main contacts | |
| • solid or stranded | 1.5 ... 6 mm ² |
| • finely stranded with core end processing | 1 ... 10 mm ² |
| type of connectable conductor cross-sections | |
| • for auxiliary and control contacts | |
| — solid | 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²) |
| — finely stranded with core end processing | 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²) |
| — finely stranded without core end processing | 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²) |
| • for AWG cables for auxiliary and control contacts | 1x (20 ... 12) |
| AWG number as coded connectable conductor cross section for main contacts | 14 ... 10 |
| tightening torque | |
| • for main contacts with screw-type terminals | 2 ... 2.5 N·m |
| • for auxiliary and control contacts with screw-type terminals | 0.5 ... 0.6 N·m |
| tightening torque [lbf·in] | |
| • for main contacts with screw-type terminals | 7 ... 10.3 lbf·in |
| • for auxiliary and control contacts with screw-type terminals | 4.5 ... 5.3 lbf·in |
| stripped length of the cable | |
| • for main contacts | 7 mm |
| • for auxiliary and control contacts | 7 mm |

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| Electrical Safety | |
| protection class IP on the front according to IEC 60529 | IP20 |
| touch protection on the front according to IEC 60529 | finger-safe, for vertical contact from the front |
| Ambient conditions | |
| installation altitude at height above sea level maximum | 1 000 m |
| ambient temperature | |
| • during operation | -25 ... +60 °C |
| • during storage | -55 ... +80 °C |
| Environmental footprint | |
| Environmental Product Declaration (EPD) | Yes |
| Electromagnetic compatibility | |
| conducted interference | |
| • due to burst according to IEC 61000-4-4 | 2 kV / 5 kHz behavior criterion 2 |
| • due to conductor-earth surge according to IEC 61000-4-5 | 2 kV behavior criterion 2 |
| • due to conductor-conductor surge according to IEC 61000-4-5 | 1 kV behavior criterion 2 |
| • due to high-frequency radiation according to IEC 61000-4-6 | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1 |
| field-based interference according to IEC 61000-4-3 | 80 MHz ... 1 GHz 10 V/m, behavior criterion 1 |
| electrostatic discharge according to IEC 61000-4-2 | 4 kV contact discharging / 8 kV air discharging, behavior criterion 2 |
| conducted HF interference emissions according to CISPR11 | Class A for industrial environment |
| field-bound HF interference emission according to CISPR11 | Class B for the domestic, business and commercial environments |
| last modified: | 9/3/2025  |