SIEMENS

## Data sheet 3RF3150-1BA04

Siemens EcoTech

semiconductor relay, 1-pole 3RF3 for use with heat sinks width 22.5 mm, 50 A 48-460 V / 24 V DC screw terminal instantaneous switching



| | |
|---|---|
| **product brand name** | SIRIUS |
| **product designation** | solid-state relay |
| **product type designation** | 3RF31 |
| **manufacturer's article number** | |
| • _1 of the accessories that can be ordered | 3RF2900-3PA88 |
| • _2 of the accessories that can be ordered | 3RF3900-0WA88 |
| • _3 of the accessories that can be ordered | 3RF3950-0HA16 |
| • _4 of the accessories that can be ordered | 3RF3900-0EA18 |
| • _5 of the accessories that can be ordered | 3RF3950-0GA16 |
| • _6 of the accessories that can be ordered | 3RF3920-0FA08 |
| **product designation** | |
| • _1 of the accessories that can be ordered | terminal cover |
| • _2 of the accessories that can be ordered | heat conducting foil |
| • _3 of the accessories that can be ordered | power regulator |
| • _4 of the accessories that can be ordered | converter |
| • _5 of the accessories that can be ordered | load monitoring |
| • _6 of the accessories that can be ordered | basic load monitoring |
| **General technical data** | |
| **product function** | instantaneous switching |
| **power loss [V·A] maximum** | 51 V·A |
| **power loss [W] for rated value of the current** | |
| • at AC in hot operating state | 51 W |
| • at AC in hot operating state per pole | 51 W |
| • without load current share typical | 0.4 W |
| **type of calculation of power loss current-dependent** | linear |
| **insulation voltage rated value** | 600 V |
| surge voltage resistance of main circuit rated value | 6 kV |
| **protection class IP** | IP20 |
| protection class IP on the front according to IEC 60529 | IP20 |
| **shock resistance according to IEC 60068-2-27** | 15 g / 11 ms |
| **vibration resistance according to IEC 60068-2-6** | 2 g |
| **reference code according to IEC 81346-2** | Q |
| **Substance Prohibitance (day/month/year)** | 01/15/2024 |
| **SVHC substance name** | Lead CAS-No. 7439-92-1<br>Lead monoxide (lead oxide) CAS-No. 1317-36-8<br>2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 |


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|---|---|
| | Melamine CAS-No. 108-78-1 |
| **Net Weight** | 0.08 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** | AC |
| **operating voltage** | |
| ● at AC | |
| — at 50 Hz rated value | 48 ... 460 V |
| — at 60 Hz rated value | 48 ... 460 V |
| **operating frequency rated value** | 50 ... 60 Hz |
| **relative symmetrical tolerance of the operating frequency** | 10 % |
| **operating range relative to the operating voltage at AC** | |
| ● at 50 Hz | 40 ... 506 V |
| ● at 60 Hz | 40 ... 506 V |
| **operational current rated value maximum** | 50 A |
| **operational current** | |
| ● at AC-1 at 400 V rated value | 50 A |
| ● at AC-51 rated value | 50 A |
| ● at AC-51 according to IEC 60947-4-3 | 50 A |
| ● according to UL 508 rated value | 50 A |
| **ampacity maximum** | 50 A |
| **operational current minimum** | 500 mA |
| **rate of voltage rise at the thyristor for main contacts maximum permissible** | 1 000 V/µs |
| **blocking voltage at the thyristor for main contacts maximum permissible** | 1 200 V |
| **reverse current of the thyristor** | 10 mA |
| **derating temperature** | 40 °C |
| **surge current resistance rated value** | 600 A |
| **I2t value maximum** | 1 800 A²·s |
| **Control circuit/ Control** | |
| **type of voltage of the control supply voltage** | DC |
| **control supply voltage at DC** | 15 ... 24 V |
| **control supply voltage 1 at DC rated value** | 24 V |
| **control supply voltage at DC** | |
| ● initial value for signal <1> detection | 15 V |
| ● full-scale value for signal<0> recognition | 5 V |
| **operating range factor control supply voltage rated value at DC** | |
| ● initial value | 0.63 |
| ● full-scale value | 1 |
| **control current at minimum control supply voltage** | |
| ● at DC | 13 mA |
| control current at DC rated value | 15 mA |
| **ON-delay time** | 1 ms |
| **OFF-delay time** | 1 ms; additionally max. one half-wave |
| **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** | 85 mm |
| **width** | 22.5 mm |
| **depth** | 48 mm |
| **Connections/ Terminals** | |
| **product component removable terminal for auxiliary and** | Yes |


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| **control circuit** | |
| **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 ... 2.5 mm²), 2x (2.5 ... 6 mm²) |
| — finely stranded with core end processing | 2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm² |
| • for AWG cables for main contacts | 2x (14 ... 10), 1x 8 |
| **connectable conductor cross-section for main contacts** | |
| • solid or stranded | 1.5 ... 6 mm² |
| • finely stranded with core end processing | 1 ... 10 mm² |
| **type of connectable conductor cross-sections** | |
| • for auxiliary and control contacts | |
| — solid | 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²) |
| — finely stranded with core end processing | 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²) |
| — finely stranded without core end processing | 1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²) |
| • for AWG cables for auxiliary and control contacts | 1x (20 ... 12) |
| **AWG number as coded connectable conductor cross section for main contacts** | 14 ... 8 |
| **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 | 18 ... 22 lbf·in |
| • for auxiliary and control contacts with screw-type terminals | 4.5 ... 5.3 lbf·in |
| **design of the thread of the connection screw** | |
| • for main contacts | M4 |
| • of the auxiliary and control contacts | M3 |
| **stripped length of the cable** | |
| • for main contacts | 10 mm |
| • for auxiliary and control contacts | 7 mm |
| **UL/CSA ratings** | |
| **operational current according to UL 508 rated value** | 50 A |
| Electrical Safety | |
| **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 |
| **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 |
| **Short-circuit protection, design of the fuse link** | |
| manufacturer's article number | |
| • of gS fuse for semiconductor protection at NH design usable | 3NE1802-0; These fuses have a smaller rated current than the semiconductor relays |
| • of back-up R fuse link for semiconductor protection at NH | 3NE8017-1 |


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| design usable | |
| ● of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable | 3NC1450 |
| ● of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable | 3NC2250 |
| manufacturer's article number of the gG fuse | |
| ● at NH design usable | 3NA6807; These fuses have a smaller rated current than the semiconductor relays |
| ● at NH design usable note | These fuses have a smaller rated current than the semiconductor relays |
| ● at cylindrical design 10 x 38 mm usable | 3NW6007-1; These fuses have a smaller rated current than the semiconductor relays |
| ● at cylindrical design 10 x 38 mm usable note | These fuses have a smaller rated current than the semiconductor relays |
| ● at cylindrical design 14 x 51 mm usable | 3NW6107-1; These fuses have a smaller rated current than the semiconductor relays |
| ● at cylindrical design 14 x 51 mm usable note | These fuses have a smaller rated current than the semiconductor relays |
| ● at cylindrical design 22 x 58 mm usable | 3NW6207-1; These fuses have a smaller rated current than the semiconductor relays |
| ● at cylindrical design 22 x 58 mm usable note | These fuses have a smaller rated current than the semiconductor relays |
| manufacturer's article number | |
| ● of DIAZED fuse usable | 5SB2711; These fuses have a smaller rated current than the semiconductor relays |
| ● of DIAZED fuse usable note | These fuses have a smaller rated current than the semiconductor relays |

## Approvals Certificates

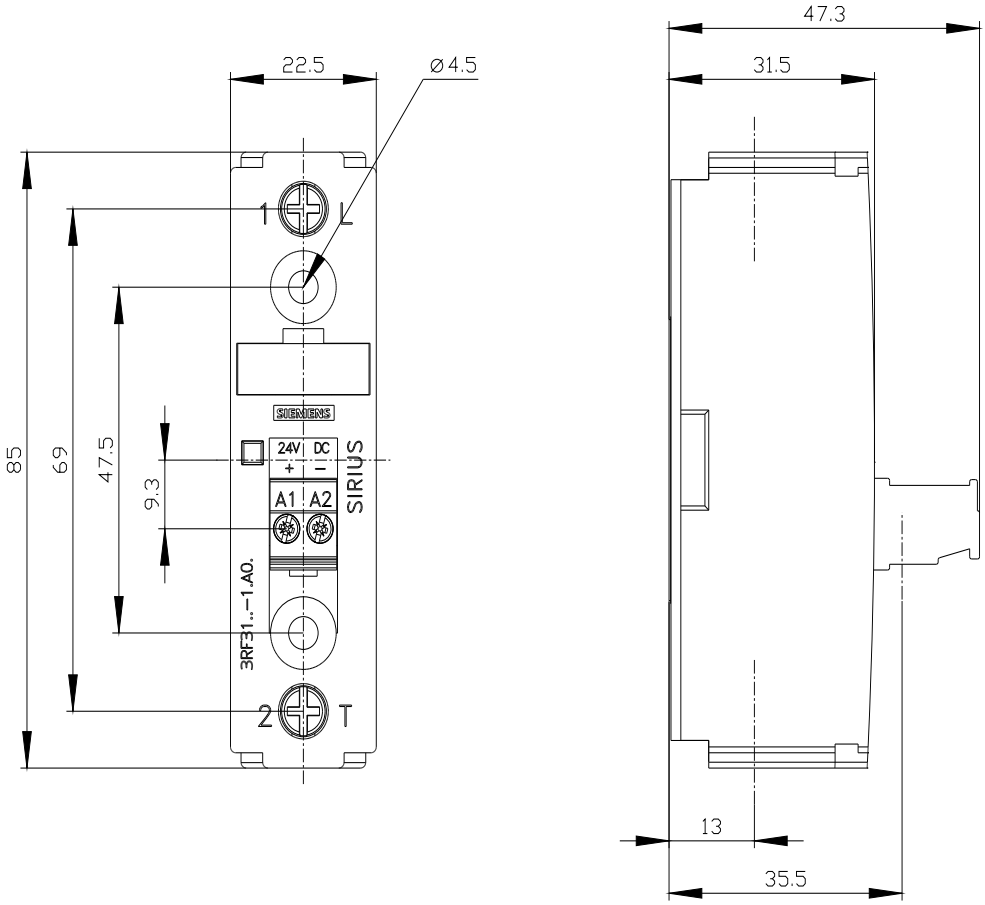
| Environment | General Product Approval | | | | |
|---|---|---|---|---|---|
| Environmental Confirmations | EPD | Siemens EcoTech | UR | EAC | CE EG-Konf. |

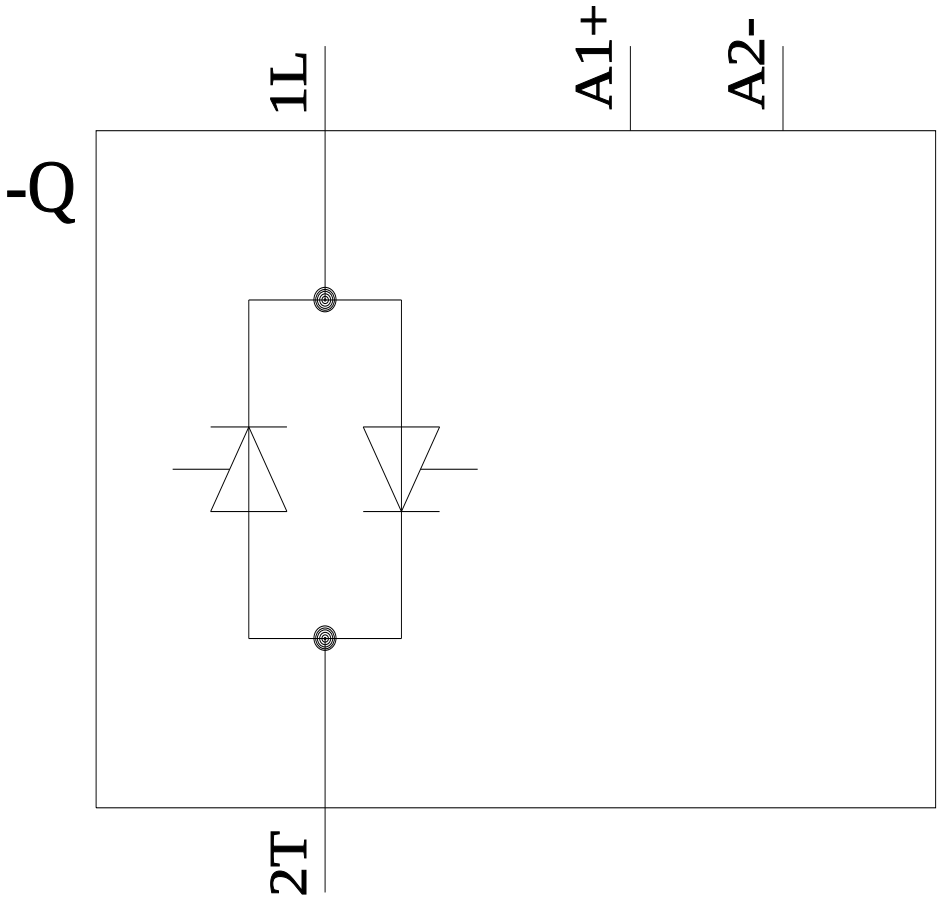
| EMV | Test Certificates | other | | |
|---|---|---|---|---|
| RCM | Type Test Certificates/Test Report | Confirmation | 产品合格 QC PASS | Confirmation |

## Further information

**Information on the packaging**
https://support.industry.siemens.com/cs/ww/en/view/109813875
**Information for data generation and storage**
https://support.industry.siemens.com/cs/ww/en/view/109995012
**Information- and Downloadcenter (Catalogs, Brochures,…)**
https://www.siemens.com/ic10
**Industry Mall (Online ordering system)**
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RF3150-1BA04
**Cax online generator**
https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3150-1BA04
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**
https://support.industry.siemens.com/cs/ww/en/ps/3RF3150-1BA04
**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)**
https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3150-1BA04&lang=en

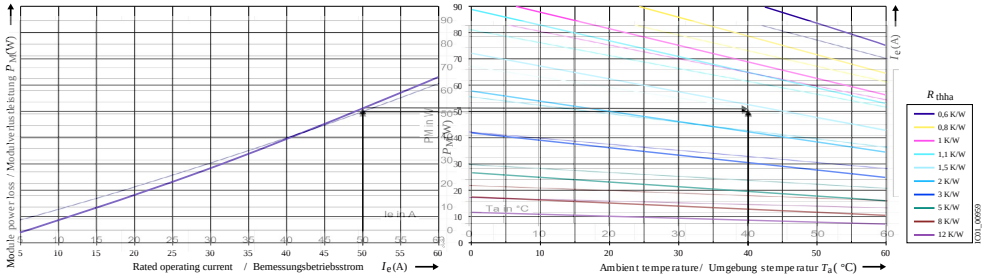

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**last modified:** 4/21/2026


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