



\*\*\*phase-out type\*\*\* solid-state contactor 1-phase 3RF2 AC 51 / 20 A / 40 °C 24-230 V / 110-230 V AC short-circuit-proof with B MCB

|                                                         |                                                                                                                                                                                                                                                  |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| product brand name                                      | SIRIUS                                                                                                                                                                                                                                           |
| product designation                                     | solid-state contactor                                                                                                                                                                                                                            |
| design of the product                                   | 1-pole                                                                                                                                                                                                                                           |
| product type designation                                | 3RF23                                                                                                                                                                                                                                            |
| manufacturer's article number                           |                                                                                                                                                                                                                                                  |
| • _1 of the accessories that can be ordered             | <a href="#">3RF2900-3PA88</a>                                                                                                                                                                                                                    |
| • _4 of the accessories that can be ordered             | <a href="#">3RF2920-0GA33</a>                                                                                                                                                                                                                    |
| product designation                                     |                                                                                                                                                                                                                                                  |
| • _1 of the accessories that can be ordered             | terminal cover                                                                                                                                                                                                                                   |
| • _4 of the accessories that can be ordered             | load monitoring                                                                                                                                                                                                                                  |
| <b>General technical data</b>                           |                                                                                                                                                                                                                                                  |
| product function                                        | short-circuit resistant with B-automatic device                                                                                                                                                                                                  |
| power loss [W] for rated value of the current           |                                                                                                                                                                                                                                                  |
| • at AC in hot operating state                          | 20 W                                                                                                                                                                                                                                             |
| • at AC in hot operating state per pole                 | 20 W                                                                                                                                                                                                                                             |
| • without load current share typical                    | 3.5 W                                                                                                                                                                                                                                            |
| insulation voltage rated value                          | 600 V                                                                                                                                                                                                                                            |
| degree of pollution                                     | 3                                                                                                                                                                                                                                                |
| 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)                 | 05/28/2009                                                                                                                                                                                                                                       |
| 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<br>Melamine CAS-No. 108-78-1<br>Dibutylbis(pentane-2,4-dionato-O,O')tin CAS-No. 22673-19-4 |
| Net Weight                                              | 0.165 kg                                                                                                                                                                                                                                         |
| <b>Main circuit</b>                                     |                                                                                                                                                                                                                                                  |
| 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                                  | 24 ... 230 V                                                                                                                                                                                                                                     |

|                                                                                    |                                                                                          |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| — at 60 Hz rated value                                                             | 24 ... 230 V                                                                             |
| <b>operating frequency rated value</b>                                             | 50 ... 60 Hz                                                                             |
| <b>operating range relative to the operating voltage at AC</b>                     |                                                                                          |
| • at 50 Hz                                                                         | 20 ... 253 V                                                                             |
| • at 60 Hz                                                                         | 20 ... 253 V                                                                             |
| <b>operational current</b>                                                         |                                                                                          |
| • at AC-1 at 400 V rated value                                                     | 20 A                                                                                     |
| • at AC-51 rated value                                                             | 20 A                                                                                     |
| • at AC-51 according to IEC 60947-4-3                                              | 13.2 A                                                                                   |
| • according to UL 508 rated value                                                  | 17.6 A                                                                                   |
| <b>operational current minimum</b>                                                 | 500 mA                                                                                   |
| <b>operational current of the MCB at AC rated value</b>                            | 20 A                                                                                     |
| <b>rate of voltage rise at the thyristor for main contacts maximum permissible</b> | 1 000 V/μs                                                                               |
| <b>blocking voltage at the thyristor for main contacts maximum permissible</b>     | 800 V                                                                                    |
| <b>reverse current of the thyristor</b>                                            | 10 mA                                                                                    |
| <b>derating temperature</b>                                                        | 40 °C                                                                                    |
| <b>surge current resistance rated value</b>                                        | 1 150 A                                                                                  |
| <b>I<sup>2</sup>t value maximum</b>                                                | 6 600 A <sup>2</sup> ·s                                                                  |
| <b>Control circuit/ Control</b>                                                    |                                                                                          |
| <b>type of voltage of the control supply voltage</b>                               | AC                                                                                       |
| <b>control supply voltage 1 at AC</b>                                              |                                                                                          |
| • at 50 Hz                                                                         | 110 ... 230 V                                                                            |
| • at 60 Hz                                                                         | 110 ... 230 V                                                                            |
| <b>control supply voltage at AC</b>                                                |                                                                                          |
| • at 50 Hz full-scale value for signal<0> recognition                              | 40 V                                                                                     |
| • at 60 Hz full-scale value for signal<0> recognition                              | 40 V                                                                                     |
| • initial value for signal <1> detection                                           | 90 V                                                                                     |
| <b>control supply voltage frequency</b>                                            |                                                                                          |
| • 1 rated value                                                                    | 50 Hz                                                                                    |
| • 2 rated value                                                                    | 60 Hz                                                                                    |
| <b>symmetrical line frequency tolerance</b>                                        | 5 Hz                                                                                     |
| <b>control current at minimum control supply voltage</b>                           |                                                                                          |
| • at AC                                                                            | 2 mA                                                                                     |
| control current at AC rated value                                                  | 15 mA                                                                                    |
| <b>ON-delay time</b>                                                               | 40 ms; additionally max. one half-wave                                                   |
| <b>OFF-delay time</b>                                                              | 40 ms; additionally max. one half-wave                                                   |
| <b>Installation/ mounting/ dimensions</b>                                          |                                                                                          |
| fastening method side-by-side mounting                                             | Yes                                                                                      |
| <b>fastening method</b>                                                            | screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715 |
| <b>design of the thread of the screw for securing the equipment</b>                | M4                                                                                       |
| <b>height</b>                                                                      | 95 mm                                                                                    |
| <b>width</b>                                                                       | 22.5 mm                                                                                  |
| <b>depth</b>                                                                       | 120 mm                                                                                   |
| <b>Connections/ Terminals</b>                                                      |                                                                                          |
| <b>product component removable terminal for auxiliary and control circuit</b>      | Yes                                                                                      |
| <b>type of electrical connection</b>                                               |                                                                                          |
| • for main current circuit                                                         | screw-type terminals                                                                     |
| • for auxiliary and control circuit                                                | screw-type terminals                                                                     |
| <b>type of connectable conductor cross-sections</b>                                |                                                                                          |
| • for main contacts                                                                |                                                                                          |
| — solid                                                                            | 2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> )                       |
| — finely stranded with core end processing                                         | 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup>  |
| • for AWG cables for main contacts                                                 | 2x (14 ... 10)                                                                           |
| <b>connectable conductor cross-section for main contacts</b>                       |                                                                                          |
| • solid or stranded                                                                | 1.5 ... 6 mm <sup>2</sup>                                                                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>finely stranded with core end processing</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1 ... 10 mm <sup>2</sup>                                                                                                                                                                                                         |
| <b>type of connectable conductor cross-sections</b> <ul style="list-style-type: none"> <li>for auxiliary and control contacts <ul style="list-style-type: none"> <li>solid</li> <li>finely stranded with core end processing</li> <li>finely stranded without core end processing</li> </ul> </li> <li>for AWG cables for auxiliary and control contacts</li> </ul>                                                                                                                                                                                                                                                                      | 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )<br>1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> )<br>1x (20 ... 12) |
| <b>AWG number as coded connectable conductor cross section for main contacts</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10 ... 14                                                                                                                                                                                                                        |
| <b>tightening torque</b> <ul style="list-style-type: none"> <li>for main contacts with screw-type terminals</li> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2 ... 2.5 N·m<br>0.5 ... 0.6 N·m                                                                                                                                                                                                 |
| <b>tightening torque [lbf·in]</b> <ul style="list-style-type: none"> <li>for main contacts with screw-type terminals</li> <li>for auxiliary and control contacts with screw-type terminals</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                    | 18 ... 22 lbf·in<br>4.5 ... 5.3 lbf·in                                                                                                                                                                                           |
| <b>design of the thread of the connection screw</b> <ul style="list-style-type: none"> <li>for main contacts</li> <li>of the auxiliary and control contacts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | M4<br>M3                                                                                                                                                                                                                         |
| <b>stripped length of the cable</b> <ul style="list-style-type: none"> <li>for main contacts</li> <li>for auxiliary and control contacts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 10 mm<br>7 mm                                                                                                                                                                                                                    |
| <b>UL/CSA ratings</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                  |
| <b>operational current according to UL 508 rated value</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 17.6 A                                                                                                                                                                                                                           |
| <b>Electrical Safety</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                  |
| <b>touch protection on the front according to IEC 60529</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | finger-safe, for vertical contact from the front                                                                                                                                                                                 |
| <b>Ambient conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                  |
| installation altitude at height above sea level maximum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 000 m                                                                                                                                                                                                                          |
| <b>ambient temperature</b> <ul style="list-style-type: none"> <li>during operation</li> <li>during storage</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -25 ... +60 °C<br>-55 ... +80 °C                                                                                                                                                                                                 |
| <b>Electromagnetic compatibility</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                  |
| <b>conducted interference</b> <ul style="list-style-type: none"> <li>due to burst according to IEC 61000-4-4</li> <li>due to conductor-earth surge according to IEC 61000-4-5</li> <li>due to conductor-conductor surge according to IEC 61000-4-5</li> <li>due to high-frequency radiation according to IEC 61000-4-6</li> </ul>                                                                                                                                                                                                                                                                                                        | 2 kV / 5 kHz, behavior criterion 2<br>2 kV, behavior criterion 2<br>1 kV, behavior criterion 2<br>140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1                                                          |
| <b>field-based interference according to IEC 61000-4-3</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 80 MHz ... 1 GHz 10 V/m, behavior criterion 1                                                                                                                                                                                    |
| <b>electrostatic discharge according to IEC 61000-4-2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4 kV contact discharging / 8 kV air discharging, behavior criterion 2                                                                                                                                                            |
| <b>conducted HF interference emissions according to CISPR11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Class A for industrial environment                                                                                                                                                                                               |
| <b>field-bound HF interference emission according to CISPR11</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Class B for the domestic, business and commercial environments                                                                                                                                                                   |
| <b>Short-circuit protection, design of the fuse link</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                  |
| manufacturer's article number <ul style="list-style-type: none"> <li>of gS fuse for semiconductor protection at NH design usable</li> <li>of full range R fuse link for semiconductor protection at cylindrical design usable</li> <li>of back-up R fuse link for semiconductor protection at NH design usable</li> <li>of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable</li> <li>of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable</li> <li>of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable</li> </ul> | <a href="#">3NE1814-0</a><br><a href="#">5SE1325</a><br><a href="#">3NE8015-1</a><br><a href="#">3NC1032</a><br><a href="#">3NC1450</a><br><a href="#">3NC2263</a>                                                               |
| manufacturer's article number of the gG fuse <ul style="list-style-type: none"> <li>at NH design usable</li> <li>at cylindrical design 10 x 38 mm usable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <a href="#">3NA6807</a><br><a href="#">3NW6007-1</a>                                                                                                                                                                             |

- at cylindrical design 14 x 51 mm usable

- at cylindrical design 22 x 58 mm usable

- at cylindrical design 22 x 58 mm usable note

manufacturer's article number

- of DIAZED fuse usable

- of NEOZED fuse usable

[3NW6107-1](#)

[3NW6207-1: These fuses have a smaller rated current than the semiconductor relays](#)

These fuses have a smaller rated current than the semiconductor relays

[5SB2711](#)

[5SE2320](#)

## Approvals Certificates

Environment

General Product Approval

[Environmental Confirmations](#)



EMV

Test Certificates

other



[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

[Confirmation](#)

[Miscellaneous](#)

[Confirmation](#)

other

Railway



[Special Test Certificate](#)

## 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=3RF2320-1DA22>

Cax online generator

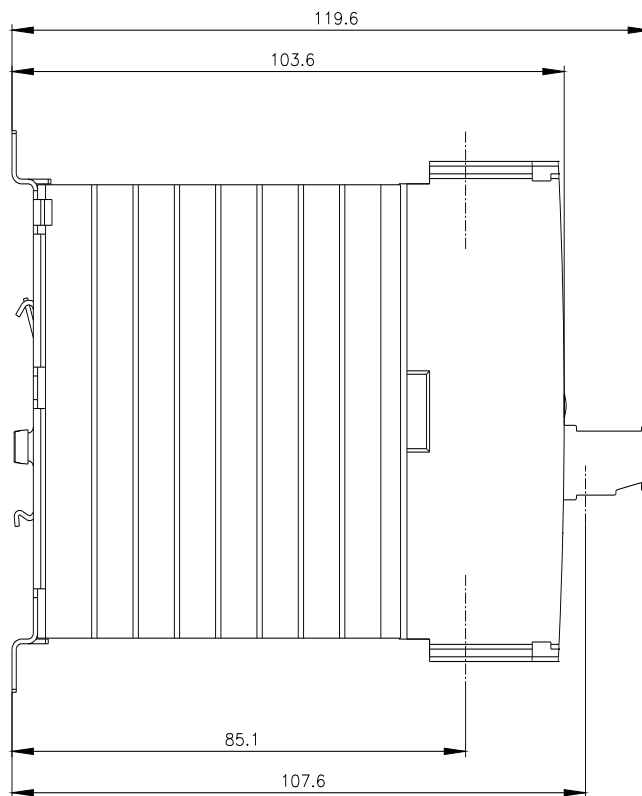
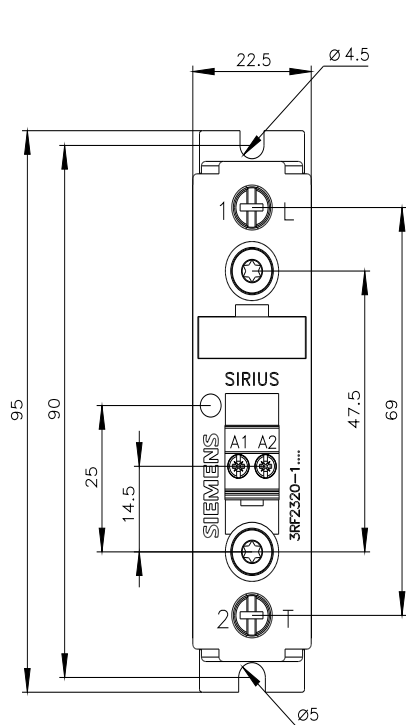
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2320-1DA22>

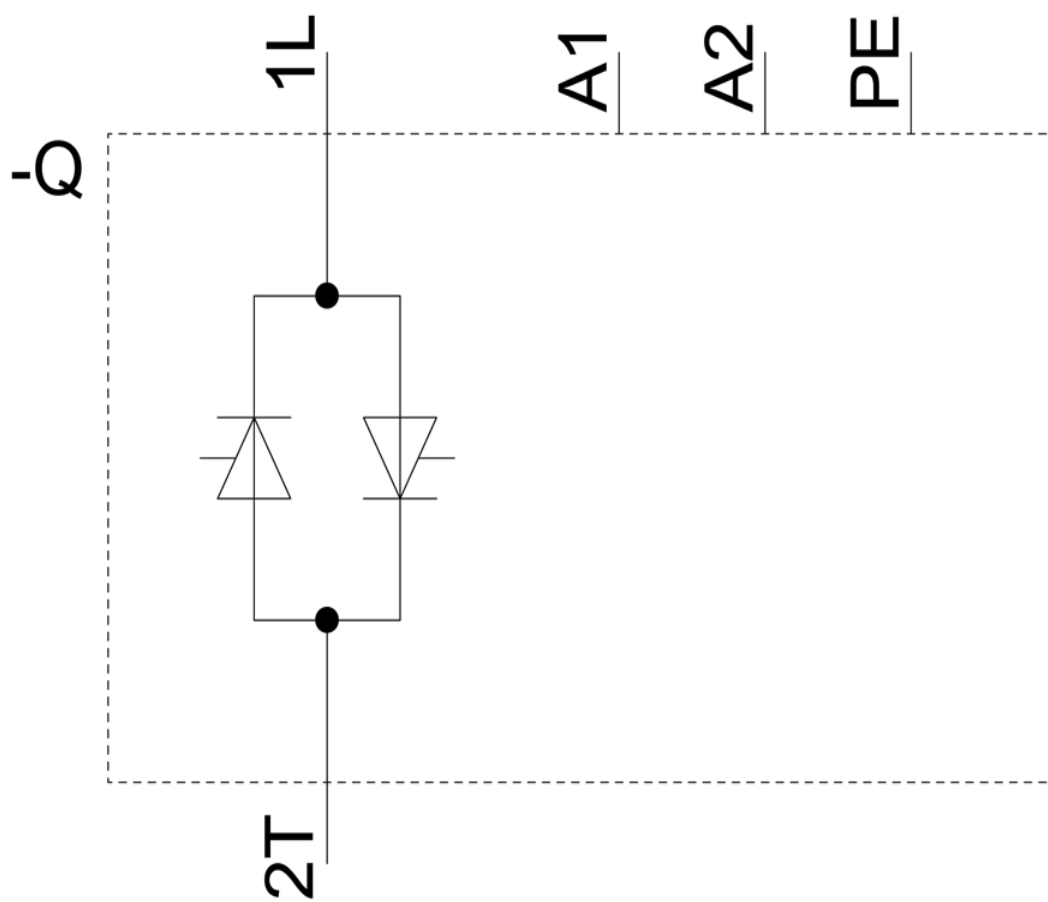
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

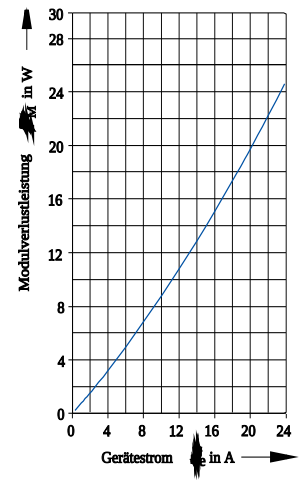
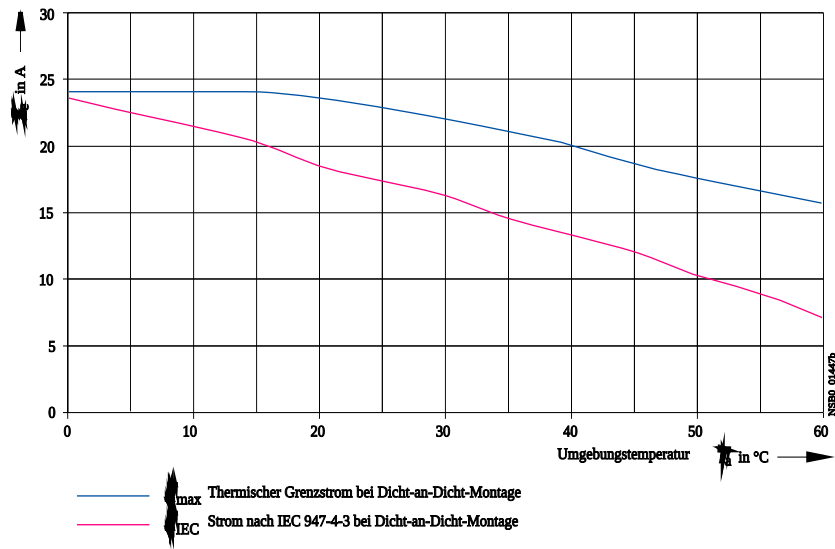
<https://support.industry.siemens.com/cs/ww/en/ps/3RF2320-1DA22>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2320-1DA22&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2320-1DA22&lang=en)







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