










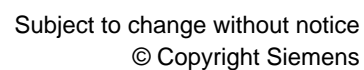
semiconductor relay, 1-phase 3RF2 width 45 mm, 70 A 48-600 V / 4-30 V DC  
screw terminal blocking voltage 1200 V for mounting on available cooling surfaces

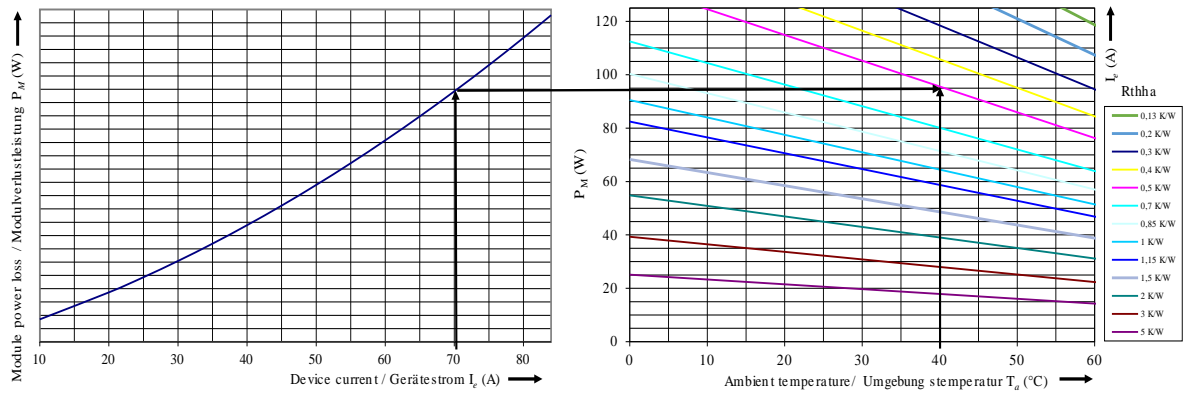
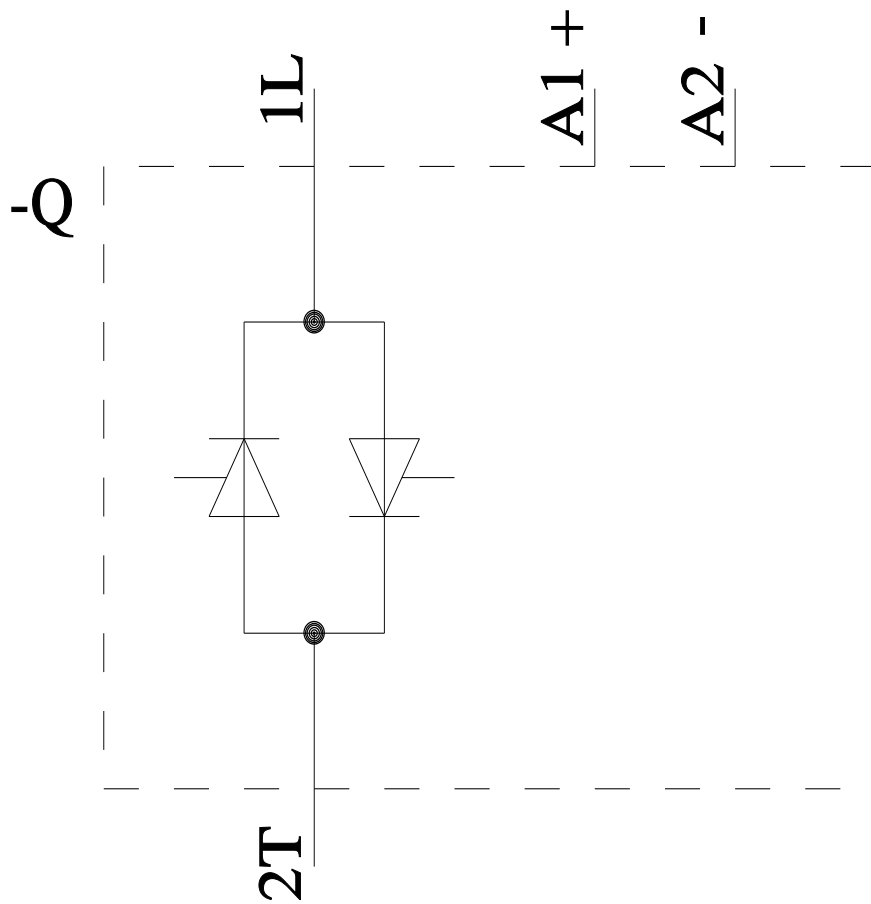
product brand name	SIRIUS
product designation	solid-state relay
design of the product	1-pole
product type designation	3RF20
General technical data	
product function	zero-point switching
power loss [W] for rated value of the current	
• at AC in hot operating state	94 W
• at AC in hot operating state per pole	94 W
• without load current share typical	0.5 W
insulation voltage rated value	600 V
protection class IP	IP20
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	Q
Substance Prohibitance (Date)	05/28/2009
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Net Weight	0.085 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 ... 600 V
— at 60 Hz rated value	48 ... 600 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 ... 660 V
• at 60 Hz	40 ... 660 V
operational current rated value maximum	70 A
operational current	
• at AC-1 at 400 V rated value	70 A
• at AC-51 rated value	50 A
• according to UL 508 rated value	50 A

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	1 200 A
I <sup>2</sup> t value maximum	7 200 A <sup>2</sup> ·s
<b>Control circuit/ Control</b>	
type of voltage of the control supply voltage	DC
control supply voltage 1 at DC rated value maximum permissible	30 V
control supply voltage 1 at DC	4 ... 30 V
control supply voltage <ul style="list-style-type: none"> <li>at DC initial value for signal &lt;1&gt; detection</li> <li>at DC full-scale value for signal&lt;0&gt; recognition</li> </ul>	4 V 1 V
control current at minimum control supply voltage <ul style="list-style-type: none"> <li>at DC</li> </ul>	13 mA
control current at DC rated value	15 mA
ON-delay time	1 ms; additionally max. one half-wave
OFF-delay time	1 ms; additionally max. one half-wave
<b>Auxiliary circuit</b>	
number of CO contacts for auxiliary contacts	0
<b>Installation/ mounting/ dimensions</b>	
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	58 mm
width	45 mm
depth	48 mm
<b>Connections/ Terminals</b>	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection <ul style="list-style-type: none"> <li>for main current circuit</li> <li>for auxiliary and control circuit</li> </ul>	screw-type terminals screw-type terminals
type of connectable conductor cross-sections <ul style="list-style-type: none"> <li>for main contacts <ul style="list-style-type: none"> <li>solid</li> <li>finely stranded with core end processing</li> </ul> </li> <li>for AWG cables for main contacts</li> </ul>	2x (1.5 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ) 2x (1 ... 2.5 mm <sup>2</sup> ), 2x (2.5 ... 6 mm <sup>2</sup> ), 1x 10 mm <sup>2</sup> 2x (14 ... 10)
connectable conductor cross-section for main contacts <ul style="list-style-type: none"> <li>solid or stranded</li> <li>finely stranded with core end processing</li> </ul>	1.5 ... 6 mm <sup>2</sup> 1 ... 10 mm <sup>2</sup>
type of connectable conductor cross-sections <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> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ), 2x (0.5 ... 1 mm <sup>2</sup> ) 1x (20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	14 ... 10
tightening torque <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 0.5 ... 0.6 N·m
tightening torque [lbf·in] <ul style="list-style-type: none"> <li>for main contacts with screw-type terminals</li> </ul>	7 ... 10.3 lbf·in

<ul style="list-style-type: none"><li>• for auxiliary and control contacts with screw-type terminals</li></ul>	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 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 7 mm				
Electrical Safety					
<b>protection class IP on the front according to IEC 60529</b>	IP20				
<b>touch protection on the front according to IEC 60529</b>	finger-safe, for vertical contact from the front				
Ambient conditions					
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 -55 ... +80 °C				
Electromagnetic compatibility					
<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 2 kV behavior criterion 2 1 kV behavior criterion 2 140 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				
Short-circuit protection, design of the fuse link					
manufacturer's article number <ul style="list-style-type: none"><li>• of full range R fuse link for semiconductor protection at NH 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 22 x 58 mm usable</li></ul>	<a href="#">3NE1020-2</a> <a href="#">3NE8020-1</a> <a href="#">3NC2280</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 22 x 58 mm usable</li></ul>	<a href="#">3NA6812; These fuses have a smaller rated current than the semiconductor relays</a> <a href="#">3NW6212-1; These fuses have a smaller rated current than the semiconductor relays</a>				
manufacturer's article number <ul style="list-style-type: none"><li>• of NEOZED fuse usable</li></ul>	<a href="#">5SE2335; These fuses have a smaller rated current than the semiconductor relays</a>				
Approvals Certificates					
<table><tr><td>General Product Approval</td><td>EMV</td><td>Test Certificates</td></tr><tr><td><div> EG-Konf.</div><div> UK</div><div> UR</div><div> EAC</div><div> RCM</div><div><a href="#">Type Test Certificates/Test Report</a></div></td></tr></table>		General Product Approval	EMV	Test Certificates	<div> EG-Konf.</div> <div> UK</div> <div> UR</div> <div> EAC</div> <div> RCM</div> <div><a href="#">Type Test Certificates/Test Report</a></div>
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other	Environment				
<div></div> <div><a href="#">Confirmation</a></div> <div><a href="#">Environmental Confirmations</a></div>					
Further information					
Information on the packaging					

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RF2070-1AA45&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2070-1AA45&lang=en)





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