# **SIEMENS**

Data sheet 3RT1034-1AL20

Power contactor, AC-3 32 A, 15 kW / 400 V 230 V AC, 50 / 60 Hz, 3-pole, Size S2, Screw terminal !!! Phased-out product !!! Successor is SIRIUS 3RT2 Preferred successor type is >>3RT2027-1AL20<<



Product brand name	SIRIUS
Product designation	power contactor
General technical data	

General technical data		
Size of contactor	S2	
Insulation voltage		
● rated value	690 V	
Degree of pollution	3	
Surge voltage resistance rated value	6 kV	
maximum permissible voltage for safe isolation		
<ul> <li>between coil and main contacts acc. to EN</li> </ul>	400 V	
60947-1		
Protection class IP		
• on the front	IP20	
<ul><li>of the terminal</li></ul>	IP00	
Shock resistance at rectangular impulse		
• at AC	10g / 5 ms, 5g / 10 ms	
Shock resistance with sine pulse		
• at AC	15g / 5 ms, 8g / 10 ms	
Mechanical service life (switching cycles)		

of contactor typical	10 000 000
<ul> <li>of the contactor with added electronics- compatible auxiliary switch block typical</li> </ul>	5 000 000
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
Reference code acc. to DIN EN 81346-2	Q

block typical	
Reference code acc. to DIN EN 81346-2	Q
Ambient conditions	
Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
during operation	-25 +60 °C
during storage	-55 +80 °C
Main circuit	
Number of poles for main current circuit	3
Number of NO contacts for main contacts	3
Number of NC contacts for main contacts	0
Operating current	
● at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	50 A
• at AC-1	
<ul> <li>up to 690 V at ambient temperature 40 °C rated value</li> </ul>	50 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	45 A
• at AC-3	
— at 400 V rated value	32 A
— at 690 V rated value	20 A
• at AC-4 at 400 V rated value	29 A
Connectable conductor cross-section in main circuit at AC-1	
• at 60 °C minimum permissible	10 mm²
• at 40 °C minimum permissible	16 mm²
Operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	15.6 A
• at 690 V rated value	11 A
Operating current	
• at 1 current path at DC-1	
— at 24 V rated value	45 A
— at 110 V rated value	4.5 A
<ul> <li>with 2 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	45 A

• with 3 current paths in series at DC-1     — at 24 V rated value	— at 110 V rated value	25 A
- at 110 V rated value	·	45 A
• at 1 current path at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value 2.5 A • with 2 current paths in series at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value 2.5 A • with 3 current paths in series at DC-3 at DC-5 — at 24 V rated value 4.5 A — at 110 V rated value 4.5 A — at 110 V rated value 4.5 A  Operating power • at AC-1 — at 230 V at 60 °C rated value — at 690 V rated value — at 690 V rated value 4.5 kW — at 690 V rated value 4.5 kW • at AC-2 at 400 V rated value  • at AC-3 — at 230 V rated value 1.5 kW  • at AC-3 — at 200 V rated value 1.5 kW  • at AC-3 — at 200 V rated value 1.5 kW  • at AC-3 — at 200 V rated value 1.5 kW  • at AC-1 — at 690 V rated value 1.5 kW  • at AC-1 — at 200 V rated value 1.5 kW  • at AC-1 — at 200 V rated value 1.5 kW  • at AC-1 — at 200 V rated value 1.5 kW  • at AC-1 • at 400 V rated value 1.8.5 kW  Operating power for approx. 200000 operating cycles at AC-4 • at 400 V rated value 1.5 kW  • at AC-0 V rated value 1.5 kW  • at AC-1 Maximum 1.000 I/h • at AC-2 maximum 1.000 I/h • at AC-3 maximum 1.000 I/h • at AC-4 maximum 2.50 I/h  Control circuit/ Control  Type of voltage of the control supply voltage AC		45 A
- at 24 V rated value		
− at 110 V rated value     • with 2 current paths in series at DC-3 at DC-5     − at 24 V rated value     − at 110 V rated value     − at 110 V rated value     − at 110 V rated value     − at 24 V rated value     − at 24 V rated value     − at 24 V rated value     − at 27 V rated value     − at 28 V rated value     − at 290 V rated value     − at 290 V rated value     − at 290 V rated value     − at 400 V rated value     − at 590 V rated value     − at 400 V rated value     − at 400 V rated value     − at 500 V rated value     − at 690 V rated value     − at 400 V rated value	• at 1 current path at DC-3 at DC-5	
with 2 current paths in series at DC-3 at DC-5     — at 24 V rated value	— at 24 V rated value	35 A
- at 24 V rated value	— at 110 V rated value	2.5 A
− at 110 V rated value     • with 3 current paths in series at DC-3 at DC-5     − at 24 V rated value     − at 110 V rated value     − at 230 V at 60 °C rated value     − at 400 V rated value     − at 690 V rated value     − at 690 V rated value     − at 690 V at 60 °C rated value     − at 690 V at 60 °C rated value     − at 690 V at 60 °C rated value     − at 690 V at 60 °C rated value     − at 690 V rated value     − at 400 V rated value     − at 230 V rated value     − at 500 V rated value     − at 690 V rated value     − at 400 V rated value	• with 2 current paths in series at DC-3 at DC-5	
• with 3 current paths in series at DC-3 at DC-5 — at 24 V rated value 45 A  Operating power  • at AC-1 — at 230 V at 60 °C rated value 31 kW — at 690 V rated value 54 kW — at 690 V rated value 15 kW  • at AC-2 at 400 V rated value 15 kW  • at AC-3 — at 230 V rated value 54 kW  • at AC-3 — at 230 V rated value 15 kW  • at AC-3 — at 230 V rated value 15 kW  • at AC-3 — at 230 V rated value 15 kW — at 500 V rated value 18.5 kW — at 500 V rated value 18.5 kW — at 690 V rated value 18.5 kW  Operating power for approx. 200000 operating cycles at AC-4 • at 400 V rated value 8.2 kW • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s  No-load switching frequency • at AC • at AC-1 maximum 1 200 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 1 000 1/h • at AC-4 maximum 250 1/h  Control circuit/ Control	— at 24 V rated value	45 A
at 24 V rated value 45 A  at 110 V rated value 45 A  Operating power  • at AC-1  at 230 V at 60 °C rated value 18 kW  at 400 V rated value 54 kW  at 690 V rated value 54 kW  at 690 V rated value 15 kW  • at AC-2 at 400 V rated value 15 kW  • at AC-3  at 230 V rated value 7.5 kW  at 400 V rated value 15 kW  • at AC-3  at 230 V rated value 15 kW  at 500 V rated value 15 kW  at 690 V rated value 18.5 kW  at 690 V rated value 18.5 kW  at 690 V rated value 18.5 kW  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value 8.2 kW  • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency  • at AC  Operating frequency  • at AC-1 maximum 1 200 1/h  • at AC-2 maximum 750 1/h  • at AC-3 maximum 1 000 1/h  • at AC-4 maximum 250 1/h  Control circuit/ Control	— at 110 V rated value	25 A
Operating power	• with 3 current paths in series at DC-3 at DC-5	
Operating power              ■ at AC-1	— at 24 V rated value	45 A
• at AC-1  — at 230 V at 60 °C rated value — at 400 V rated value — at 690 V rated value — at 690 V at 60 °C rated value — at 690 V at 60 °C rated value — at 690 V at 60 °C rated value  • at AC-2 at 400 V rated value • at AC-3 — at 230 V rated value — at 400 V rated value — at 400 V rated value — at 500 V rated value — at 500 V rated value — at 690 V rated value  18.5 kW  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value • at 690 V rated value  10 kW  Thermal short-time current limited to 10 s  No-load switching frequency • at AC  • at AC-1 maximum  1 200 1/h • at AC-2 maximum  • at AC-3 maximum  1 000 1/h • at AC-4 maximum  250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage  AC	— at 110 V rated value	45 A
at 230 V at 60 °C rated value 31 kW at 400 V rated value 54 kW at 690 V rated value 54 kW at 690 V at 60 °C rated value 54 kW at 690 V at 60 °C rated value 54 kW at AC-2 at 400 V rated value 15 kW at AC-3 at 230 V rated value 7.5 kW at 400 V rated value 15 kW at 400 V rated value 15 kW at 500 V rated value 18.5 kW at 690 V rated value 18.5 kW at 690 V rated value 18.5 kW at 690 V rated value 10 kW at AC-4 at AC-5 at AC-4 at AC-6 -	Operating power	
- at 400 V rated value	• at AC-1	
- at 690 V rated value 54 kW - at 690 V at 60 °C rated value 54 kW  • at AC-2 at 400 V rated value 15 kW  • at AC-3 - at 230 V rated value 7.5 kW - at 400 V rated value 15 kW  - at 500 V rated value 18.5 kW  - at 690 V rated value 18.5 kW  Operating power for approx. 200000 operating cycles at AC-4 • at 400 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency • at AC 5000 1/h  Operating frequency • at AC-1 maximum 1 200 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 1 000 1/h • at AC-4 maximum 250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage AC	— at 230 V at 60 °C rated value	18 kW
— at 690 V at 60 °C rated value 54 kW  • at AC-2 at 400 V rated value 15 kW  • at AC-3  — at 230 V rated value 7.5 kW  — at 400 V rated value 15 kW  — at 500 V rated value 18.5 kW  — at 690 V rated value 18.5 kW  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value 8.2 kW  • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency • at AC  • at AC-1 maximum 1 200 1/h  • at AC-2 maximum 750 1/h  • at AC-3 maximum 1 000 1/h  • at AC-4 maximum 250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage AC	— at 400 V rated value	31 kW
• at AC-2 at 400 V rated value • at AC-3  — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value — at 690 V rated value  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value  • at 690 V rated value  10 kW  Thermal short-time current limited to 10 s  No-load switching frequency • at AC  • at AC-1 maximum  • at AC-2 maximum  • at AC-3 maximum  • at AC-4 maximum  250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage  AC	— at 690 V rated value	54 kW
• at AC-3  — at 230 V rated value  — at 400 V rated value  — at 500 V rated value  — at 690 V rated value  18.5 kW  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value  • at 690 V rated value  10 kW  Thermal short-time current limited to 10 s  No-load switching frequency  • at AC  • at AC-1 maximum  • at AC-2 maximum  • at AC-3 maximum  • at AC-4 maximum  • at AC-6 maximum  • at AC-6 maximum  • at AC-7 maximum  • at AC-8 maximum  • at AC-9 maximum  • at AC-9 maximum  • at AC-9 maximum  • at AC-1 maximum  • at AC-1 maximum  • at AC-1 maximum  • at AC-2 maximum  • at AC-3 maximum  • at AC-4 maximum  AC-6 Maximum  • at AC-6 maximum  • at AC-7 maximum  • at AC-9 maximum  • at AC-	— at 690 V at 60 °C rated value	54 kW
at 230 V rated value 7.5 kW at 400 V rated value 15 kW at 500 V rated value 18.5 kW at 690 V rated value 18.5 kW  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value 8.2 kW • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency • at AC  • at AC-1 maximum 1 200 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 1 000 1/h • at AC-4 maximum 250 1/h  • at AC-4 maximum 250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage AC	• at AC-2 at 400 V rated value	15 kW
- at 400 V rated value 18.5 kW - at 690 V rated value 18.5 kW  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value 8.2 kW • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency • at AC  • at AC-1 maximum 1 200 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 1 000 1/h • at AC-4 maximum 250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage AC	• at AC-3	
- at 500 V rated value - at 690 V rated value 18.5 kW  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency • at AC  • at AC-1 maximum 1 200 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 1 000 1/h • at AC-4 maximum 250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage AC	— at 230 V rated value	7.5 kW
— at 690 V rated value  Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value • at 690 V rated value  10 kW  Thermal short-time current limited to 10 s  No-load switching frequency • at AC  Operating frequency • at AC-1 maximum  1 200 1/h • at AC-2 maximum  1 000 1/h • at AC-3 maximum • at AC-4 maximum  1 000 1/h • at AC-4 maximum  250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage  AC	— at 400 V rated value	15 kW
Operating power for approx. 200000 operating cycles at AC-4  • at 400 V rated value • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency • at AC  Operating frequency • at AC-1 maximum 1 200 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 1 000 1/h • at AC-4 maximum 250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage AC	— at 500 V rated value	18.5 kW
at AC-4  • at 400 V rated value • at 690 V rated value 10 kW  Thermal short-time current limited to 10 s 320 A  No-load switching frequency • at AC  Operating frequency • at AC-1 maximum 1 200 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 1 000 1/h • at AC-4 maximum 250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage AC	— at 690 V rated value	18.5 kW
at 690 V rated value  Thermal short-time current limited to 10 s  No-load switching frequency  at AC  Operating frequency  at AC-1 maximum  tangle at AC-2 maximum  at AC-3 maximum  at AC-3 maximum  at AC-4 maximum  Type of voltage of the control supply voltage  10 kW  320 A  10 kW		
Thermal short-time current limited to 10 s  No-load switching frequency  • at AC  5 000 1/h  Operating frequency  • at AC-1 maximum  1 200 1/h  • at AC-2 maximum  750 1/h  • at AC-3 maximum  1 000 1/h  • at AC-4 maximum  250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage  AC	• at 400 V rated value	8.2 kW
No-load switching frequency  • at AC  Operating frequency  • at AC-1 maximum  • at AC-2 maximum  • at AC-3 maximum  • at AC-3 maximum  • at AC-4 maximum  Type of voltage of the control supply voltage  AC	• at 690 V rated value	10 kW
at AC     5 000 1/h  Operating frequency     at AC-1 maximum     1 200 1/h     at AC-2 maximum     750 1/h     at AC-3 maximum     1 000 1/h     at AC-4 maximum     250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage  AC	Thermal short-time current limited to 10 s	320 A
Operating frequency  • at AC-1 maximum  • at AC-2 maximum  • at AC-3 maximum  • at AC-4 maximum  • at AC-4 maximum  Control circuit/ Control  Type of voltage of the control supply voltage  AC	No-load switching frequency	
<ul> <li>at AC-1 maximum</li> <li>at AC-2 maximum</li> <li>at AC-3 maximum</li> <li>at AC-4 maximum</li> <li>at AC-4 maximum</li> <li>250 1/h</li> </ul> Control circuit/ Control Type of voltage of the control supply voltage AC	• at AC	5 000 1/h
<ul> <li>at AC-2 maximum</li> <li>at AC-3 maximum</li> <li>at AC-4 maximum</li> <li>250 1/h</li> </ul> Control circuit/ Control Type of voltage of the control supply voltage AC	Operating frequency	
<ul> <li>at AC-3 maximum</li> <li>at AC-4 maximum</li> <li>250 1/h</li> <li>Control circuit/ Control</li> <li>Type of voltage of the control supply voltage</li> </ul> AC	• at AC-1 maximum	1 200 1/h
at AC-4 maximum     250 1/h  Control circuit/ Control  Type of voltage of the control supply voltage  AC	• at AC-2 maximum	750 1/h
Control circuit/ Control  Type of voltage of the control supply voltage  AC	• at AC-3 maximum	1 000 1/h
Type of voltage of the control supply voltage AC	• at AC-4 maximum	250 1/h
Type of voltage of the control supply voltage AC	Control circuit/ Control	
Control supply voltage at AC		AC
	Control supply voltage at AC	

at 50 Hz rated value	230 V
at 60 Hz rated value     at 60 Hz rated value	230 V
Control supply voltage frequency	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
Operating range factor control supply voltage rated	-
value of magnet coil at AC	
● at 50 Hz	0.8 1.1
● at 60 Hz	0.85 1.1
Apparent pick-up power of magnet coil at AC	127 V·A
Inductive power factor with closing power of the coil	0.73
Apparent holding power of magnet coil at AC	11.3 V·A
Inductive power factor with the holding power of the coil	0.41
Closing delay	
● at AC	11 30 ms
Opening delay	
• at AC	7 20 ms
Arcing time	10 15 ms
Auxiliary circuit	
Number of NC contacts for auxiliary contacts	
• instantaneous contact	0
Number of NO contacts for auxiliary contacts	
• instantaneous contact	0
Operating current at AC-12 maximum	10 A
Operating current at AC-15	
● at 230 V rated value	6 A
● at 400 V rated value	3 A
Operating current at DC-12	
● at 60 V rated value	6 A
● at 110 V rated value	3 A
• at 220 V rated value	1 A
Operating current at DC-13	
• at 24 V rated value	10 A
• at 60 V rated value	2 A
● at 110 V rated value	1 A
• at 220 V rated value	0.3 A
Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
Contact rating of auxiliary contacts according to UL	A600 / Q600
Chart size it weeks time	
Short-circuit protection	

### Design of the fuse link

• for short-circuit protection of the main circuit

— with type of coordination 1 required

— with type of assignment 2 required

• for short-circuit protection of the auxiliary switch required

fuse gL/gG: 125 A fuse gL/gG: 63 A

fuse gL/gG: 10 A

Installation/ mounting/ dimensions			
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail		
	according to DIN EN 50022		
<ul> <li>Side-by-side mounting</li> </ul>	Yes		
Height	112 mm		
Width	55 mm		
Depth	115 mm		
Required spacing			
<ul><li>for grounded parts</li></ul>			
— at the side	6 mm		

Connections/ Terminals			
Type of electrical connection			
for main current circuit	screw-type terminals		
<ul> <li>for auxiliary and control current circuit</li> </ul>	screw-type terminals		
Type of connectable conductor cross-sections			
• for main contacts			
— solid	2x (0.75 16 mm²)		
— stranded	2x (0.75 25 mm²)		
<ul><li>— single or multi-stranded</li></ul>	2x (0,75 16 mm²)		
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.75 16 mm²)		
<ul> <li>finely stranded without core end</li> </ul>	2x (0.75 16 mm²)		
processing			
<ul> <li>at AWG conductors for main contacts</li> </ul>	2x (18 2)		
Type of connectable conductor cross-sections			
<ul> <li>for auxiliary contacts</li> </ul>			
— solid	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), max. 2x (0.75 4 mm²)		
— finely stranded with core end processing	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
<ul> <li>at AWG conductors for auxiliary contacts</li> </ul>	2x (20 16), 2x (18 14), 1x 12		

## Certificates/ approvals

#### **General Product Approval**

**EMC** 

**Functional** Safety/Safety of Machinery











Type Examination Certificate

Declaration of Conformity Test Certificates		Marine / Ship- ping			
	Miscellaneous	Type Test Certific-	Special Test Certi-	Miscellaneous	RICAN BURG



ates/Test Report

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### Marine / Shipping

other









Confirmation

Miscellaneous

#### Railway

Special Test Certificate

#### Further information

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=3RT1034-1AL20

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT1034-1AL20

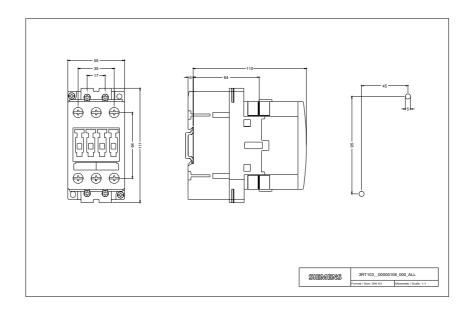
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

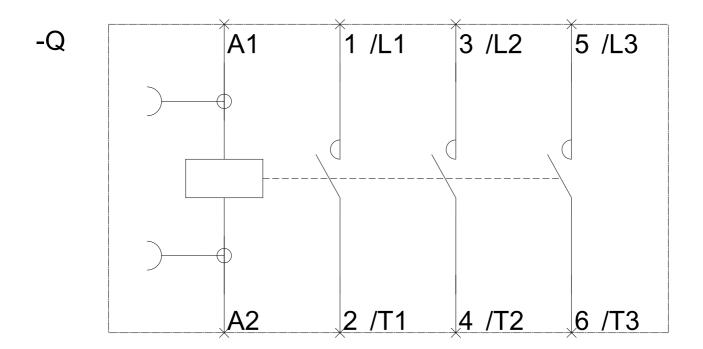
https://support.industry.siemens.com/cs/ww/en/ps/3RT1034-1AL20

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)  $\underline{\text{http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT1034-1AL20\&lang=en.pdf} \\ \underline{\text{http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT1034-1AL20\&lang=en.pdf} \\ \underline{\text{http://www.automation.siemens.com/bilddb/cax\_de.aspx.pdf} \\ \underline{\text{http://www.automation.siemens.co$ 

Characteristic: Tripping characteristics, I2t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT1034-1AL20/char

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1034-1AL20&objecttype=14&gridview=view1





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