SIEMENS

Data sheet 3RT2027-1AC20



power contactor, AC-3e/AC-3, 32 A, 15 kW / 400 V, 3-pole, 24 V AC, 50/60 Hz, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

product brand name	SIRIUS	
product designation	Power contactor	
product type designation	3RT2	
General technical data		
size of contactor	S0	
product extension		
 function module for communication 	No	
auxiliary switch	Yes	
power loss [W] for rated value of the current		
 at AC in hot operating state 	6.3 W	
 at AC in hot operating state per pole 	2.3 W	
without load current share typical	2.7 W	
type of calculation of power loss depending on pole	quadratic	
insulation voltage		
 of main circuit with degree of pollution 3 rated value 	690 V	
of auxiliary circuit with degree of pollution 3 rated value	690 V	
surge voltage resistance		
 of main circuit rated value 	6 kV	
of auxiliary circuit rated value	6 kV	
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	400 V	
shock resistance at rectangular impulse		
• at AC	8,3g / 5 ms, 5,3g / 10 ms	
shock resistance with sine pulse		
• at AC	13,5g / 5 ms, 8,3g / 10 ms	
mechanical service life (operating cycles)		
of contactor typical	10 000 000	
 of the contactor with added electronically optimized auxiliary switch block typical 	5 000 000	
of the contactor with added auxiliary switch block typical	10 000 000	
reference code according to IEC 81346-2	Q	
Substance Prohibitance (Date)	10/01/2009	
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	
relative humidity minimum	10 %	
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %	
Environmental footprint		

Environmental Product Declaration(EPD)	Yes
Global Warming Potential [CO2 eq] total	74.2 kg
Global Warming Potential [CO2 eq] during manufacturing	1.9 kg
Global Warming Potential [CO2 eq] during manufacturing Global Warming Potential [CO2 eq] during operation	72.4 kg
Global Warming Potential [CO2 eq] after end of life	-0.117 kg
Main circuit	-0.117 kg
number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	•
at AC-3 rated value maximum	690 V
at AC-3e rated value maximum	690 V
operational current	
 at AC-1 at 400 V at ambient temperature 40 °C rated value 	50 A
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	50 A
— up to 690 V at ambient temperature 60 °C rated value	42 A
• at AC-3	20.4
— at 400 V rated value	32 A
— at 500 V rated value	32 A
— at 690 V rated value ● at AC-3e	21 A
— at 400 V rated value	32 A
— at 500 V rated value	32 A
— at 690 V rated value	21 A
at AC-4 at 400 V rated value	22 A
• at AC-5a up to 690 V rated value	44 A
at AC-5b up to 400 V rated value	26.5 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	30.8 A
— up to 400 V for current peak value n=20 rated value	30.8 A
— up to 500 V for current peak value n=20 rated value	27 A
— up to 690 V for current peak value n=20 rated value	21 A
• at AC-6a	
 up to 230 V for current peak value n=30 rated value 	20.5 A
 up to 400 V for current peak value n=30 rated value 	20.5 A
— up to 500 V for current peak value n=30 rated value	18 A
— up to 690 V for current peak value n=30 rated value	18 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	12 A
at 690 V rated value	12 A
operational current	
• at 1 current path at DC-1	05.4
— at 24 V rated value	35 A
— at 60 V rated value	20 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A 0.4 A
— at 440 V rated value — at 600 V rated value	0.4 A 0.25 A
with 2 current paths in series at DC-1	0.20 A
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	5 A
— at 440 V rated value	1A
— at 600 V rated value	0.8 A
• with 3 current paths in series at DC-1	
• • • • • • • • • • • • • • • • • • • •	

— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
 at 1 current path at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 60 V rated value	5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 A
— at 600 V rated value	0.06 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
operating power	
• at AC-3	
— at 230 V rated value	7.5 kW
— at 400 V rated value	15 kW
— at 500 V rated value	15 kW
— at 690 V rated value	18.5 kW
• at AC-3e	
— at 230 V rated value	7.5 kW
— at 400 V rated value	15 kW
— at 500 V rated value	15 kW
— at 690 V rated value	18.5 kW
operating power for approx. 200000 operating cycles at AC-	
• at 400 V rated value	6 kW
• at 690 V rated value	10.3 kW
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value	12.2 kVA
• up to 400 V for current peak value n=20 rated value	21.3 kVA
• up to 500 V for current peak value n=20 rated value	23.3 kVA
• up to 690 V for current peak value n=20 rated value	25 kVA
operating apparent power at AC-6a	
up to 230 V for current peak value n=30 rated value	8.1 kVA
 up to 400 V for current peak value n=30 rated value 	14.2 kVA
 up to 500 V for current peak value n=30 rated value 	15.5 kVA
• up to 690 V for current peak value n=30 rated value	21.5 kVA
short-time withstand current in cold operating state up to 40 °C	
limited to 1 s switching at zero current maximum	499 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 5 s switching at zero current maximum	341 A; Use minimum cross-section acc. to AC-1 rated value
limited to 10 s switching at zero current maximum	260 A; Use minimum cross-section acc. to AC-1 rated value
Ilimited to 30 s switching at zero current maximum	199 A; Use minimum cross-section acc. to AC-1 rated value
Ilimited to 60 s switching at zero current maximum	162 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	, see a see
• at AC	5 000 1/h
operating frequency	
i - G - m y	

at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
 at AC-3 maximum 	750 1/h
• at AC-3e maximum	750 1/h
• at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
at 50 Hz rated value	24 V
• at 60 Hz rated value	24 V
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	
• at 50 Hz	81 VA
● at 60 Hz	79 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.72
• at 60 Hz	0.74
apparent holding power of magnet coil at AC	
• at 50 Hz	10.5 VA
• at 60 Hz	8.5 VA
inductive power factor with the holding power of the coil	
• at 50 Hz	0.25
• at 60 Hz	0.28
closing delay	0.20
• at AC	8 40 ms
	0 40 IIIS
opening delay • at AC	4 16 ms
	10 10 ms
arcing time	
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous	1
contact	
contact number of NO contacts for auxiliary contacts instantaneous contact	1
number of NO contacts for auxiliary contacts instantaneous contact	
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum	1 10 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15	10 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value	10 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value	10 A 10 A 3 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value	10 A 10 A 3 A 2 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value	10 A 10 A 3 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12	10 A 10 A 3 A 2 A 1 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value	10 A 10 A 3 A 2 A 1 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value	10 A 10 A 3 A 2 A 1 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 60 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 60 V rated value • at 110 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 110 V rated value • at 125 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 6 A 3 A 2 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 220 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value • at 600 V rated value • at 600 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 6 A 3 A 2 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 60 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value • at 600 V rated value • at 220 V rated value • at 220 V rated value • at 600 V rated value • at 600 V rated value • at 600 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 6 A 2 A 1 A 0.15 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 110 V rated value • at 110 V rated value • at 220 V rated value • at 24 V rated value • at 24 V rated value • at 25 V rated value • at 24 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 60 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value • at 600 V rated value • at 220 V rated value • at 220 V rated value • at 600 V rated value • at 600 V rated value • at 600 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 110 V rated value • at 110 V rated value • at 220 V rated value • at 24 V rated value • at 24 V rated value • at 25 V rated value • at 24 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A 10 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 220 V rated value • at 600 V rated value • at 24 V rated value • at 250 V rated value • at 270 V rated value • at 48 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 48 V rated value • at 110 V rated value • at 125 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A 10 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 500 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 600 V rated value • at 220 V rated value • at 600 V rated value • at 110 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A 10 A 2 A 2 A 1 A 0.9 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 690 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 8 V rated value • at 110 V rated value • at 115 V rated value • at 220 V rated value • at 600 V rated value • at 110 V rated value • at 125 V rated value • at 110 V rated value • at 24 V rated value • at 125 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A 10 A 2 A 2 A 1 A 0.9 A 0.3 A
number of NO contacts for auxiliary contacts instantaneous contact operational current at AC-12 maximum operational current at AC-15 • at 230 V rated value • at 400 V rated value • at 690 V rated value • at 690 V rated value operational current at DC-12 • at 24 V rated value • at 8 V rated value • at 110 V rated value • at 110 V rated value • at 125 V rated value • at 600 V rated value • at 600 V rated value • at 600 V rated value • at 125 V rated value • at 125 V rated value • at 24 V rated value • at 24 V rated value • at 25 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value	10 A 10 A 3 A 2 A 1 A 10 A 6 A 6 A 3 A 2 A 1 A 0.15 A 10 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A

full-load current (FLA) for 3-phase AC motor	
• at 480 V rated value	27 A
at 600 V rated value	27 A
yielded mechanical performance [hp]	
 for single-phase AC motor 	
— at 110/120 V rated value	2 hp
— at 230 V rated value	5 hp
 for 3-phase AC motor 	
— at 200/208 V rated value	10 hp
— at 220/230 V rated value	10 hp
— at 460/480 V rated value	20 hp
— at 575/600 V rated value	25 hp
contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	
design of the fuse link	
 for short-circuit protection of the main circuit 	
 — with type of coordination 1 required 	gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A (415V,80kA)
— with type of assignment 2 required	gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 80kA)
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
nstallation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and
	backward by +/- 22.5° on vertical mounting surface
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
height	85 mm
width	45 mm
depth	97 mm
required spacing	
with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
• for grounded parts	
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
for live parts	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm
Connections/ Terminals	
type of electrical connection	
for main current circuit	screw-type terminals
 for auxiliary and control circuit 	screw-type terminals
 at contactor for auxiliary contacts 	Screw-type terminals
of magnet coil	Screw-type terminals
type of connectable conductor cross-sections	
for main contacts	
— solid	2x (1 2.5 mm²), 2x (2.5 10 mm²)
— solid or stranded	2x (1 2.5 mm²), 2x (2.5 10 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 (16 12), 2x (14 8)
connectable conductor cross-section for main contacts	
• solid	1 10 mm²
• stranded	1 10 mm²
 finely stranded with core end processing 	1 10 mm²
connectable conductor cross-section for auxiliary contacts	
solid or stranded	0.5 2.5 mm ²

type of connectable conductor cross-sections • for auxiliary contacts - solid or stranded 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) - finely stranded with core end processing 2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²) • for AWG cables for auxiliary contacts 2x (20 ... 16), 2x (18 ... 14) AWG number as coded connectable conductor cross section for main contacts 16 8 · for auxiliary contacts 20 ... 14 product function • mirror contact according to IEC 60947-4-1 Yes suitability for use safety-related switching OFF Yes; applies only to contactor operating mechanism proportion of dangerous failures • with low demand rate according to SN 31920 40 % • with high demand rate according to SN 31920 73 % 1 000 000 B10 value with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN 100 FIT 31920 IEC 61508 T1 value • for proof test interval or service life according to IEC 20 a 61508 **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

General Product Approval



Approvals Certificates







Confirmation



General Product Approval EMV Functional Saftey Test Certificates

<u>KC</u>





Type Examination Certificate

Special Test Certificate

Type Test Certificates/Test Report

Marine / Shipping













other Railway Environment

Miscellaneous Confirmation Confirmation Special Test Certific-



Environmental Confirmations

Further information

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RT2027-1AC20

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2027-1AC20

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

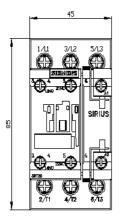
https://support.industry.siemens.com/cs/ww/en/ps/3RT2027-1AC20

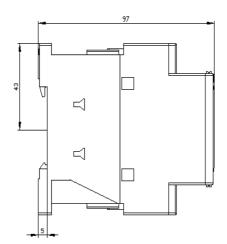
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2027-1AC20&lang=en

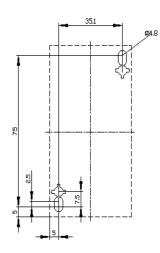
Characteristic: Tripping characteristics, I2t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2027-1AC20/char

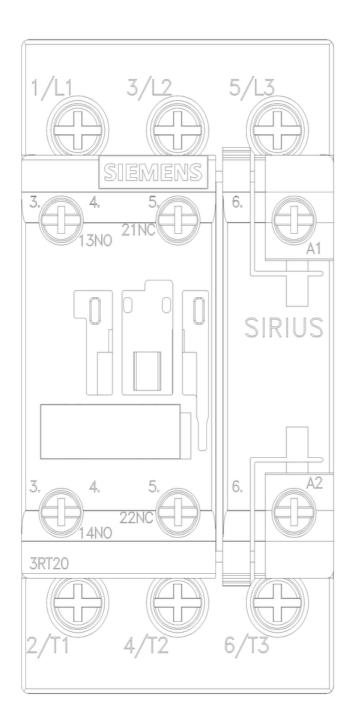
Further characteristics (e.g. electrical endurance, switching frequency)

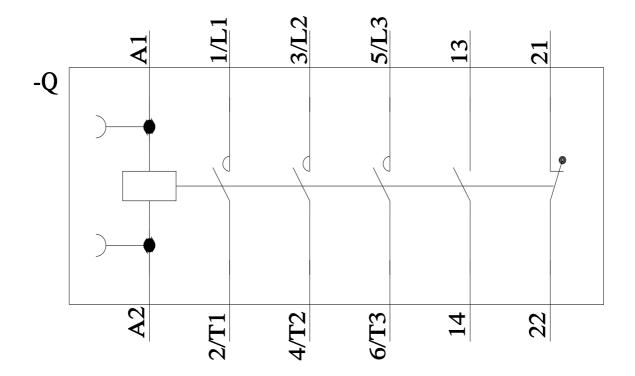
earch&mlfb=3RT2027-1AC20&objecttype=14&gridview=view1











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