## **SIEMENS**

Data sheet 3RT2047-1NP34



power contactor, AC-3e/AC-3, 110 A, 55 kW / 400 V, 3-pole, 175-280 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 2 NO + 2 NC, screw terminal, size: S3, removable auxiliary switch

product brand name	SIRIUS	
product designation	Power contactor	
product type designation	3RT2	
General technical data		
size of contactor	S3	
product extension		
<ul> <li>function module for communication</li> </ul>	No	
auxiliary switch	Yes	
power loss [W] for rated value of the current		
<ul> <li>at AC in hot operating state</li> </ul>	23.7 W	
<ul> <li>at AC in hot operating state per pole</li> </ul>	7.9 W	
without load current share typical	1.8 W	
type of calculation of power loss depending on pole	quadratic	
insulation voltage		
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	1 000 V	
of auxiliary circuit with degree of pollution 3 rated value	690 V	
surge voltage resistance		
of main circuit rated value	8 kV	
of auxiliary circuit rated value	6 kV	
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	690 V	
shock resistance at rectangular impulse		
• at AC	10.3g / 5 ms, 6,.g / 10 ms	
• at DC	6.7 g / 5 ms, 4g / 10 ms	
shock resistance with sine pulse		
• at AC	16.3g / 5 ms, 10.g / 10 ms	
• at DC	10.6 g / 5 ms, 6.3 g / 10 ms	
mechanical service life (operating cycles)		
<ul> <li>of contactor typical</li> </ul>	10 000 000	
<ul> <li>of the contactor with added electronically optimized 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 according to IEC 81346-2	Q	
Substance Prohibitance (Date)	03/01/2017	
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5	
Weight	1.857 kg	
Ambient conditions		
installation altitude at height above sea level maximum	2 000 m	
ambient temperature		

during operation	-25 +60 °C
during operation     during storage	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30	95 %
maximum Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	267 kg
global warming potential [CO2 eq] during manufacturing	9.35 kg
global warming potential [CO2 eq] during manufacturing	259 kg
global warming potential [CO2 eq] after end of life	-1.55 kg
Main circuit	ss ng
number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	·
at AC-3 rated value maximum	1 000 V
at AC-3e rated value maximum	1 000 V
operational current	
<ul> <li>at AC-1 at 400 V at ambient temperature 40 °C rated</li> </ul>	130 A
value	
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	130 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	110 A
• at AC-3	
— at 400 V rated value	110 A
— at 500 V rated value	110 A
— at 690 V rated value	98 A
— at 1000 V rated value	30 A
• at AC-3e	
— at 400 V rated value	110 A
— at 500 V rated value	110 A
— at 690 V rated value	98 A
— at 1000 V rated value	30 A
<ul> <li>at AC-4 at 400 V rated value</li> </ul>	97 A
• at AC-5a up to 690 V rated value	120 A
• at AC-5b up to 400 V rated value	110 A
● at AC-6a	
— up to 230 V for current peak value n=20 rated value	98 A
— up to 400 V for current peak value n=20 rated value	98 A
— up to 500 V for current peak value n=20 rated value	98 A
— up to 690 V for current peak value n=20 rated value	98 A
• at AC-6a	GE 2 A
— up to 230 V for current peak value n=30 rated value	65.3 A
— up to 400 V for current peak value n=30 rated value	65.3 A
<ul> <li>up to 500 V for current peak value n=30 rated value</li> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	65.3 A 65.3 A
minimum cross-section in main circuit at maximum AC-1 rated	50 mm <sup>2</sup>
value	
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	46 A
at 690 V rated value	36 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 60 V rated value	60 A
— at 110 V rated value	9 A
— at 220 V rated value	2 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.4 A

with 2 current paths in series at DC-1	400.4
— at 24 V rated value	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	10 A
— at 440 V rated value	1.8 A
— at 600 V rated value	1A
with 3 current paths in series at DC-1	400 A
— at 24 V rated value	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	80 A
— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A
at 1 current path at DC-3 at DC-5	40.4
— at 24 V rated value	40 A
— at 60 V rated value	6 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.15 A 0.06 A
<ul> <li>— at 600 V rated value</li> <li>• with 2 current paths in series at DC-3 at DC-5</li> </ul>	0.00 A
•	100 A
<ul><li>— at 24 V rated value</li><li>— at 60 V rated value</li></ul>	100 A 100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 A
— at 600 V rated value	0.16 A
with 3 current paths in series at DC-3 at DC-5	0.10 A
— at 24 V rated value	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
operating power	
at AC-2 at 400 V rated value	55 kW
• at AC-3	
— at 230 V rated value	30 kW
— at 400 V rated value	55 kW
— at 500 V rated value	75 kW
— at 690 V rated value	90 kW
— at 1000 V rated value	37 kW
• at AC-3e	
— at 230 V rated value	30 kW
— at 400 V rated value	55 kW
— at 500 V rated value	75 kW
— at 690 V rated value	90 kW
— at 1000 V rated value	37 kW
operating power for approx. 200000 operating cycles at AC-	
4	
at 400 V rated value	24.3 kW
at 690 V rated value	32.9 kW
operating apparent power at AC-6a	
• up to 230 V for current peak value n=20 rated value	39 kVA
• up to 400 V for current peak value n=20 rated value	67 kVA
• up to 500 V for current peak value n=20 rated value	84 kVA
• up to 690 V for current peak value n=20 rated value	117 kVA
operating apparent power at AC-6a	20 14/4
• up to 230 V for current peak value n=30 rated value	26 kVA
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	45.2 kVA

• up to 500 V for current peak value n=30 rated value	56.5 kVA	
• up to 690 V for current peak value n=30 rated value	78 kVA	
short-time withstand current in cold operating state up to 40 °C		
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	1 960 A; Use minimum cross-section acc. to AC-1 rated value	
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	1 502 A; Use minimum cross-section acc. to AC-1 rated value	
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	1 095 A; Use minimum cross-section acc. to AC-1 rated value	
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	707 A; Use minimum cross-section acc. to AC-1 rated value	
limited to 60 s switching at zero current maximum	562 A; Use minimum cross-section acc. to AC-1 rated value	
no-load switching frequency	3327, 333	
• at AC	1 000 1/h	
• at DC	1 000 1/h	
operating frequency		
• at AC-1 maximum	900 1/h	
• at AC-2 maximum	350 1/h	
• at AC-3 maximum	850 1/h	
at AC-3e maximum	850 1/h	
• at AC-4 maximum	200 1/h	
Control circuit/ Control	200	
type of voltage of the control supply voltage	AC/DC	
	NOIDO	
control supply voltage at AC	175 280 V	
at 50 Hz rated value     at 60 Hz rated value	175 280 V	
at 60 Hz rated value	175 280 V	
control supply voltage at DC rated value	175 280 V	
operating range factor control supply voltage rated value of magnet coil at DC		
• initial value	0.8	
full-scale value	1.1	
operating range factor control supply voltage rated value of magnet coil at AC		
● at 50 Hz	0.8 1.1	
● at 60 Hz	0.8 1.1	
design of the surge suppressor	with varistor	
inrush current peak	65 A	
duration of inrush current peak	5 µs	
locked-rotor current mean value	0.44 A	
locked-rotor current peak	1.2 A	
duration of locked-rotor current	150 ms	
holding current mean value	10 mA	
apparent pick-up power of magnet coil at AC		
• at 50 Hz	151 VA	
• at 60 Hz	151 VA	
apparent holding power		
at minimum rated control supply voltage at DC	1.8 VA	
at maximum rated control supply voltage at DC	1.8 VA	
apparent holding power		
at minimum rated control supply voltage at AC		
— at 50 Hz	3.1 VA	
— at 60 Hz	3.1 VA	
at maximum rated control supply voltage at AC		
— at 50 Hz	3.1 VA	
— at 60 Hz	3.1 VA	
apparent holding power of magnet coil at AC		
• at 50 Hz	3.1 VA	
• at 60 Hz	3.1 VA	
inductive power factor with the holding power of the coil		
• at 50 Hz	0.95	
• at 60 Hz	0.95	
closing power of magnet coil at DC	76 W	
holding power of magnet coil at DC	1.8 W	
closing delay		
• at AC	50 70 ms	
■ al Al	JU / V IIIS	

• at DC	50 70 ms	
opening delay	VV 10 III3	
• at AC	20 57 mg	
• at DC	38 57 ms	
	38 57 ms 10 20 ms	
arcing time	Standard A1 - A2	
control version of the switch operating mechanism  Auxiliary circuit	Statituaru AT - AZ	
	2	
number of NC contacts for auxiliary contacts instantaneous contact		
number of NO contacts for auxiliary contacts instantaneous contact	2	
operational current at AC-12 maximum	10 A	
operational current at AC-15		
• at 230 V rated value	6 A	
<ul><li>at 400 V rated value</li></ul>	3 A	
<ul> <li>at 500 V rated value</li> </ul>	2 A	
at 690 V rated value	1 A	
operational current at DC-12		
• at 24 V rated value	10 A	
• at 48 V rated value	6 A	
• at 60 V rated value	6 A	
• at 110 V rated value	3 A	
• at 125 V rated value	2 A	
• at 220 V rated value	1 A	
at 600 V rated value	0.15 A	
operational current at DC-13		
at 24 V rated value	6 A	
at 48 V rated value	2 A	
at 60 V rated value	2 A	
at 110 V rated value	1A	
at 115 V rated value     at 125 V rated value	0.9 A	
at 123 V rated value     at 220 V rated value	0.3 A	
at 600 V rated value	0.1 A	
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)	
UL/CSA ratings	readity switching per 100 million (17 V, 1 mA)	
full-load current (FLA) for 3-phase AC motor		
• at 480 V rated value	96 A	
at 600 V rated value	99 A	
	95 A	
yielded mechanical performance [hp]		
• for single-phase AC motor	40 ha	
— at 110/120 V rated value	10 hp	
— at 230 V rated value	20 hp	
• for 3-phase AC motor	00.1	
— at 200/208 V rated value	30 hp	
— at 220/230 V rated value	40 hp	
— at 460/480 V rated value	75 hp	
— at 575/600 V rated value	100 hp	
contact rating of auxiliary contacts according to UL	A600 / P600	
Short-circuit protection		
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA	
<u> </u>		
design of the fuse link		
for short-circuit protection of the main circuit  with type of coordination 1 required.	αC: 250 Λ (600 \/ 100 kΛ) αM: 160 Λ (600 \/ 100 kΛ) DC00: 200 Λ (445 \/ 00	
<ul> <li>— with type of coordination 1 required</li> </ul>	gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)	
— with type of assignment 2 required	gG: 200A (690V,100kA), aM: 100A (690V,100kA), BS88: 160A (415V,80kA)	
for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)	
Installation/ mounting/ dimensions	J	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and	
mounting position	backward by +/- 22.5° on vertical mounting surface	
fastening method side-by-side mounting	Yes	
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715	
-		

height	140 mm
width	70 mm
depth	195 mm
required spacing	133 11111
with side-by-side mounting	
— forwards	20 mm
	10 mm
— upwards — downwards	10 mm
— at the side	0 mm
	O IIIIII
<ul><li>for grounded parts</li><li>forwards</li></ul>	20 mm
— upwards	10 mm
— at the side	10 mm
— downwards	10 mm
for live parts	10 IIIIII
— forwards	20 mm
— upwards	10 mm
— upwards — downwards	10 mm
— at the side	10 mm
	IV IIIII
Connections/ Terminals	
type of electrical connection	corous type terminals
for main current circuit     for a william and control 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	0 (0 5 05 3) 4 (0 5 50 3)
— finely stranded with core end processing	2x (2.5 35 mm²), 1x (2.5 50 mm²)
for AWG cables for main contacts	2x (10 1/0), 1x (10 2)
connectable conductor cross-section for main contacts	05 40 3
• solid	2.5 16 mm²
• stranded	6 70 mm²
finely stranded with core end processing	2.5 50 mm²
connectable conductor cross-section for auxiliary contacts	
solid or stranded	0.5 2.5 mm²
finely stranded with core end processing	0.5 2.5 mm²
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	10 2
for auxiliary contacts	20 14
Safety related data	
product function	
mirror contact according to IEC 60947-4-1	Yes
• positively driven operation according to IEC 60947-5-1	No
suitable for safety function	Yes
suitability for use safety-related switching OFF	Yes
service life maximum	20 a
test wear-related service life necessary	Yes
proportion of dangerous failures	100
with low demand rate according to SN 31920	40 %
-	73 %
with high demand rate according to SN 31920  R10 value with high demand rate according to SN 31920	
B10 value with high demand rate according to SN 31920	1 000 000
failure rate [FIT] with low demand rate according to SN	100 FIT
31920	
<b>31920</b> ISO 13849	

overdimensioning according to ISO 13849-2 necessary	Yes
IEC 61508	
safety device type according to IEC 61508-2	Type A
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
Approvals Certificates	

## General Product Approval







Confirmation



<u>KC</u>

General	<b>Product</b>	Ap-
proval		

EMV

**Test Certificates** 

Marine / Shipping





Special Test Certificate

ate







Marine / Shipping

other

Railway

Dangerous goods







Confirmation

Special Test Certificate

Transport Information

## Environment



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=3RT2047-1NP34

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2047-1NP34

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1NP34

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

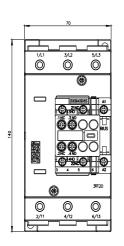
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2047-1NP34&lang=en

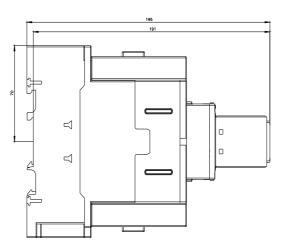
Characteristic: Tripping characteristics, I²t, Let-through current

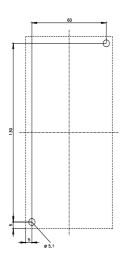
https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1NP34/char

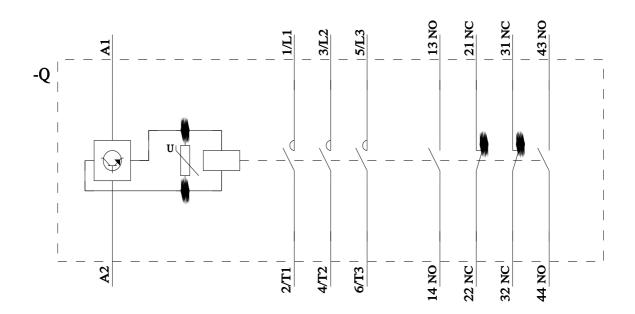
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2047-1NP34&objecttype=14&gridview=view1









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