SIEMENS

Data sheet 3RF3412-2BB04

Solid-state contactor 3-phase 3RF3 AC 53 / 12.5 A / 40 °C 48-480 V / 24 V DC 2-phase controlled Instantaneous switching Spring-type terminal

Product brand name	SIRIUS
Product designation	solid-state contactor
Product type designation	3RF34

General technical data

Product function	instantaneous switching
Power loss [W] / for rated value of the current / at AC / in hot operating state	22 W
Insulation voltage	
• rated value	600 V
Protection class IP	IP20
Shock resistance / acc. to IEC 60068-2-27	15g / 11 ms
Vibration resistance / acc. to IEC 60068-2-6	2g
Reference code / acc. to DIN 40719 extended according to IEC 204-2 / acc. to IEC 750	K
Reference code / acc. to DIN EN 81346-2	Q
Reference code / acc. to DIN EN 61346-2	Q

Main circuit

Number of poles / for main current circuit	3
Number of NO contacts / for main contacts	2

Number of NC contacts / for main contacts	0
Operating voltage / at AC	
• at 50 Hz / rated value	48 ... 480 V
• at 60 Hz / rated value	48 ... 480 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 ... 506 V
• at 60 Hz	40 ... 506 V
Operating current	
• at AC-3 / at 400 V / rated value	12.5 A
• at AC-53a / at 400 V / at ambient temperature 40 °C / rated value	12.5 A
Operating current / minimum	500 mA
Operating power	
• at AC-3 / at 400 V / rated value	5.5 kW
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
I2t value / maximum	7 200 A²·s

Control circuit/ Control	
Type of voltage / of the control supply voltage	DC
Control supply voltage / 1	
• at DC / rated value	24 V
Control supply voltage	
• at DC / initial value for signal <1> detection	15 V
• at DC / Full-scale value for signal<0> recognition	5 V
Symmetrical line frequency tolerance	5 Hz
Operating range factor control supply voltage rated value / at DC	
• initial value	0.63
• Full-scale value	1.25
Control current / at minimum control supply voltage	
• at DC	2 mA
Control current / at DC / rated value	15 mA
Number of NC contacts / for auxiliary contacts	0

Number of NO contacts / for auxiliary contacts	0
Number of CO contacts / for auxiliary contacts	0

Installation/ mounting/ dimensions

Mounting position	vertical
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail
• Side-by-side mounting	Yes
Height	95 mm
Width	90 mm
Depth	100.8 mm
Required spacing / with side-by-side mounting	
• upwards	70 mm
• downwards	50 mm
Installation altitude / at height above sea level / maximum	1 000 m

Connections/ Terminals

Product function / removable terminal for auxiliary and control circuit	Yes
Type of connectable conductor cross-sections	
• for main contacts	
— solid	2x (0.5 ... 2.5 mm²)
— finely stranded / with core end processing	2x (0.5 ... 1.5 mm²)
— finely stranded / without core end processing	2x (0.5 ... 2.5 mm²)
• at AWG conductors / for main contacts	2x (18 ... 14)
Type of connectable conductor cross-sections	
• for auxiliary and control contacts	
— solid	0.5 ... 1.5 mm²
— finely stranded / with core end processing	0.5 ... 2.5 mm²
— finely stranded / without core end processing	0.5 ... 2.5 mm²
• at AWG conductors / for auxiliary and control contacts	1x (AWG 20 ... 12)
Wire stripping length / of the cable	
• for main contacts	10 mm
• for auxiliary and control contacts	10 mm

UL/CSA ratings

Full-load current (FLA) / for three-phase AC motor	
• at 480 V / rated value	7.6 A
Yielded mechanical performance [hp] / for three-phase AC motor	
• at 200/208 V / rated value	2 hp
• at 220/230 V / rated value	2 hp

• at 460/480 V / rated value	5 hp

Safety related data

Proportion of dangerous failures / with high demand rate / acc. to SN 31920	50 %
MTTF / with high demand rate	76 y
T1 value / for proof test interval or service life / acc. to IEC 61508	20 y

Ambient conditions

Ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C

Electromagnetic compatibility

Conducted interference	
• due to burst / acc. to IEC 61000-4-4	2 kV / 5 kHz behavior criterion 2
• due to conductor-earth surge / acc. to IEC 61000-4-5	2 kV behavior criterion 2
• due to conductor-conductor surge / acc. to IEC 61000-4-5	1 kV behavior criterion 2
• due to high-frequency radiation / acc. to IEC 61000-4-6	140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1
Electrostatic discharge / acc. to IEC 61000-4-2	4 kV contact discharging / 8 kV air discharging, behavior criterion 2
Conducted HF-interference emissions / acc. to CISPR11	Class A for industrial environment
Field-bound HF-interference emission / acc. to CISPR11	Class A for industrial environment

Short-circuit protection, design of the fuse link

Manufacturer's article number	
• of full range R fuse link for semiconductor protection / at NH design	3NE1818-0
• of full range R fuse link for semiconductor protection / at cylindrical design	5SE1363
• of back-up R fuse link for semiconductor protection / at NH design	3NE8021-1
• of back-up R fuse link for semiconductor protection / at cylindrical design 10 x 38 mm	3NC1032
• of back-up R fuse link for semiconductor protection / at cylindrical design 14 x 51 mm	3NC1450
• of back-up R fuse link for semiconductor protection / at cylindrical design 22 x 58 mm	3NC2280
Manufacturer's article number / of the gG fuse	
• at NH design	3NA3810-6
• at cylindrical design 10 x 38 mm	3NW6010-1

• at cylindrical design 14 x 51 mm	3NW6116-1
• at cylindrical design 22 x 58 mm	3NW6210-1
Manufacturer's article number	
• of DIAZED fuse	5SB321

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=3RF3412-2BB04

Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF3412-2BB04

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RF3412-2BB04

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF3412-2BB04&lang=en