SIEMENS

Data sheet 3RF2070-1AA02



Semiconductor relay, 1-phase 3RF2 Overall width 45 mm, 70 A 24-230 V / 24 V DC screw terminal

product brand name	SIRIUS		
product designation	solid-state relay		
design of the product	single-phase		
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		
• per pole	94 W		
power loss [W] for rated value of the current without load current share typical	0.4 W		
insulation voltage rated value	600 V		
type of voltage of the control supply voltage	DC		
shock resistance acc. to IEC 60068-2-27	15g / 11 ms		
vibration resistance acc. to IEC 60068-2-6	2g		
reference code acc. to IEC 81346-2	Q		
Substance Prohibitance (Date)	28.05.2009		
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		
operating voltage at AC			
 at 50 Hz rated value 	24 230 V		
at 60 Hz rated value	24 230 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	20 253 V		
● at 60 Hz	20 253 V		
operational current			
 at AC-51 rated value 	50 A		
acc. to UL 508 rated value	50 A		
ampacity maximum	70 A		
operational current minimum	500 mA		
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	800 V		
reverse current of the thyristor	10 mA		

agreg current resistance rated value 1200 A 124 value maximum 7 200 A*s Control circuit Control 125 value maximum 7 200 A*s DC Control circuit Control 125 value maximum 7 200 A*s DC Control supply voltage 1 0 C Control supply voltage 1 15	doubting town earth-	40 °C
Control credit Centrol	derating temperature	40 °C
Special Control Supply voltage DC		
type of voltage of the control supply voltage control supply voltage 1 at DC		/ 200 A S
control supply voltage • all DC control supply voltage • at DC diliscale value for signal <1> detection • at DC diliscale value for signal <1> detection • at DC diliscale value for signal <1> detection • at DC diliscale value for signal <1> detection • at DC diliscale value for signal <1> detection • at DC diliscale value for signal <1> detection • at DC diliscale value for signal <1> detection • at DC diliscale value for signal <1> detection • at DC diliscale value • at DC and Control current at DC rated value 1 sm, additionally max. one half-wave ONS-delay time 1 ms; additionally max. one half-wave Auxiliary circuit number of NC contacts for auxiliary contacts 0 unumber of NC contacts for auxiliary contacts 0 unumber of NC contacts for auxiliary contacts 1 sm, additionally max. one half-wave Auxiliary circuit 1 sm, additionally max. one half-wave 1 sm, additionally max. one half-wave Auxiliary circuit 1 sm, additionally max. one half-wave 1 sm, additionally max. one half-wave 1 sm, additionally max. one half-wave 1 sm, additionally max. one half-wave 1 sm, additionally max. one half-wave 1 sm, additionally max. one half-wave		DC
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Auxiliary circuit number of NC contacts for auxiliary contacts number of CO contacts for auxiliary contacts Statishing method Screw fixing		
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number of NO contacts for auxiliary contacts number of CO contacts for auxiliary contacts fastening method		0
Installation/ mounting/ dimensions fastening method		
fastening method screw fixing yes		
fastening method • side-by-side mounting tightening torque of fixing screw maximum tightening torque [lbf-in] of fixing screw maximum height ### S5 mm ### Watth ### depth ### Connections/ Terminals ### Tor auxiliary and control circuit ### of main contacts • solid or stranded ### at AWG cables for main contacts • solid or stranded ### finely stranded with core end processing • at AWG cables for auxiliary and control contacts • for auxiliary and control contacts • for auxiliary and control contacts • solid or stranded — finely stranded with core end processing • for auxiliary and control contacts AWG cables for auxiliary and control contacts AWG cables for auxiliary and control contacts - solid #### AWG cables for auxiliary and control contacts AWG mumber as coded connectable conductor cross-sections • for auxiliary and control contacts #### AWG cables for auxiliary and control contacts with screw-type terminals #### OF auxiliary and control contacts with screw-type terminals #### OF auxiliary and control contacts with screw-type terminals ##### OF auxiliary and control contacts with screw-type terminals ##### OF auxiliary and control contacts with screw-type terminals ###### OF auxiliary and control contacts with screw-type terminals ###### OF auxiliary and control contacts with screw-type terminals ###################################	·	
## side-by-side mounting ## tightening torque of fixing screw maximum ## tightening torque [lbf-in] of fixing screw maximum ## helight ## to the side of the s		screw fixing
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height width 45 mm depth 48 mm Connections/ Terminals type of electrical connection screw-type terminals • for main current circuit screw-type terminals • for main contacts screw-type terminals • for main contacts 2x (1.52.5 mm²), 2x (2.5 6 mm²) — solid 2x (12.5 mm²), 2x (2.5 6 mm²), 1x 10 mm² • at AWG cables for main contacts 2x (12.5 mm²), 2x (2.5 6 mm²), 1x 10 mm² • solid or stranded 1.5 6 mm² • finely stranded with core end processing 1 10 mm² type of connectable conductor cross-sections 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • for auxiliary and control contacts 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • finely stranded with core end processing 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • finely stranded without core end processing 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • finely stranded without core end processing 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • finely stranded without core end processing 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • finely stranded without core end processing 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • finely stranded with core end processing 1x (0.52.5 mm²), 2x (0.5 1.0 mm²) • finely stranded with core end processing 1x (0.52.5 mm²), 2x (0.5 1.0 mm²)		
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type of electrical connection • for main current circuit • for auxiliary and control circuit type of connectable conductor cross-sections • for main contacts — solid — finely stranded with core end processing • solid or stranded • finely stranded with core end processing • for auxiliary and control contacts — solid or stranded • finely stranded with core end processing • for auxiliary and control contacts — solid — finely stranded with core end processing • for auxiliary and control contacts — solid — finely stranded with core end processing — finely stranded with core end processing • for auxiliary and control contacts AWG cables for auxiliary and control contacts 4 ta (0.5 2.5 mm²), 2x (0.5 1.0 mm²) 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm	depth	48 mm
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connectable conductor cross-section for main contacts • solid or stranded • finely stranded with core end processing • for auxiliary and control contacts — solid — finely stranded with core end processing — finely stranded with core end processing — finely stranded without core end processing — finely stranded without core end processing — at AWG cables for auxiliary and control contacts AWG number as coded connectable conductor cross section for main contacts tightening torque • for auxiliary and control contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals tightening torque [lbf-in] • for main contacts with screw-type terminals • for auxiliary and control contacts	 finely stranded with core end processing 	2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²
ontacts output		2x (14 10)
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• finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary and control contacts — solid — finely stranded with core end processing — finely stranded without core end processing — finely stranded with core end processing 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) 1x (0.5 2.5 mm²), 2x (0.5 1.0 mm²) 1x (AWG 20 12) 14 10 ### 10 ### 10 ### 10 ### 2 2.5 N·m ### 0.5 2.5 N·m ### 0.5 0.6 N·m ### 10.3 lbf·in		1.5 6 mm ²
type of connectable conductor cross-sections • for auxiliary and control contacts — solid — finely stranded with core end processing — finely stranded without core end processing — finely stranded without core end processing — at AWG cables for auxiliary and control contacts AWG number as coded connectable conductor cross section for main contacts tightening torque • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals tightening torque [lbf-in] • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for main contacts with screw-type terminals		
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- solid - finely stranded with core end processing - finely stranded without core end processing - finely stranded with core end processing - finely stranded without core end processing - finel		
- finely stranded with core end processing - finely stranded without core end processing - finely stranded without core end processing • at AWG cables for auxiliary and control contacts AWG number as coded connectable conductor cross section for main contacts tightening torque • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals tightening torque [lbf·in] • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals of or auxiliary and control contacts with screw-type terminals of or auxiliary and control contacts with screw-type terminals of or auxiliary and control contacts with screw-type terminals design of the thread of the connection screw • for main contacts M4		1x (0.5 2.5 mm²) 2x (0.5 1.0 mm²)
- finely stranded without core end processing • at AWG cables for auxiliary and control contacts AWG number as coded connectable conductor cross section for main contacts tightening torque • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals tightening torque [lbf·in] • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals design of the thread of the connection screw • for main contacts M4		
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 for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals tightening torque [lbf·in] for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals design of the thread of the connection screw for main contacts M4 M4	AWG number as coded connectable conductor cross	
 for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals tightening torque [lbf·in] for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals design of the thread of the connection screw for main contacts M4 M4	tightening torque	
tightening torque [lbf-in] • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals design of the thread of the connection screw • for main contacts M4	 for main contacts with screw-type terminals 	2 2.5 N·m
 for main contacts with screw-type terminals for auxiliary and control contacts with screw-type terminals design of the thread of the connection screw for main contacts M4	• for auxiliary and control contacts with screw-type	0.5 0.6 N·m
 for auxiliary and control contacts with screw-type terminals design of the thread of the connection screw for main contacts 4.5 5.3 lbf·in M4	tightening torque [lbf·in]	
terminals design of the thread of the connection screw • for main contacts M4	 for main contacts with screw-type terminals 	7 10.3 lbf·in
• for main contacts M4		4.5 5.3 lbf·in
	design of the thread of the connection screw	
• of the auxiliary and control contacts M3		M4
	 of the auxiliary and control contacts 	M3

stripped length of the cable							
for main contacts	10 m	m					
for auxiliary and control contacts	7 mm	1					
Safety related data							
protection class IP on the front acc. to IEC 60529	IP20						
touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front						
Ambient conditions							
installation altitude at height above sea level maximum	1 000 m						
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						
field-based interference acc. to IEC 61000-4-3	80 MHz 1 GHz 10 V/m, 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 B for the domestic, business and commercial environments						
Short-circuit protection, design of the fuse link							
manufacturer's article number							
 of gS fuse for semiconductor protection at NH design usable 	3NE1820-0						
 of full range R fuse link for semiconductor protection at cylindrical design usable 	5SE1363: These fuses have a smaller rated current than the semiconductor relays						
 of back-up R fuse link for semiconductor protection at NH design usable 	3NE8020-1						
 of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable 	3NC2200						
manufacturer's article number of the gG fuse							
• at NH design usable	3NA6817; These fuses have a smaller rated current than the semiconductor relays						
• at cylindrical design 22 x 58 mm usable	3NW6217-1; These fuses have a smaller rated current than the semiconductor relays						
manufacturer's article number							
 of DIAZED fuse usable 	5SB4111; These fuses have a smaller rated current than the						
	semiconductor relays						
 of NEOZED fuse usable 	5SE2335; These fuses have a smaller rated current than the semiconductor relays						
Certificates/ approvals	semic	conductor relays					
Certificates/ approvais							
General Product Approval		EMC	Declaration of Conformity	Test Certificates			

Conformity











Type Test Certificates/Test Report

other

Confirmation

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=3RF2070-1AA02

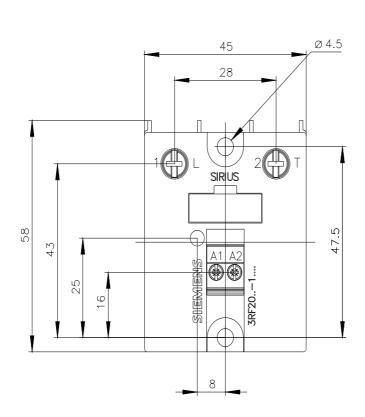
Cax online generator

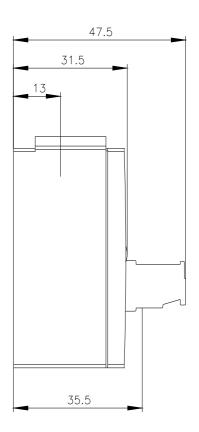
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RF2070-1AA02

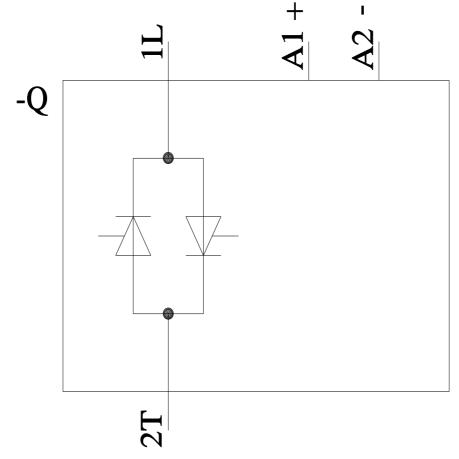
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

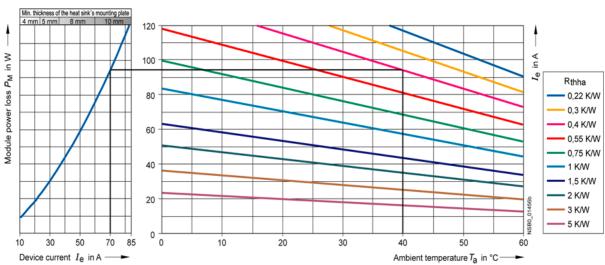
https://support.industry.siemens.com/cs/ww/en/ps/3RF2070-1AA02

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RF2070-1AA02&lang=en









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