

RS35, RS50 and RS80

Relays for Photovoltaic and EV Charger Applications



- Relays to control power in photovoltaic and EV chargers
- Max. switching current: 35 A (RS35); 50 A (RS50); 90 A (RS80)
- 5000 V / 10 mm reinforced insulation
- Contact gap: $\geq 2,2$ mm (RS35); $\geq 1,8$ mm (RS50); $\geq 4,1$ mm (RS80)
- Holding power 0,1 W
- For PCB Mounting
- DC coils, insulation class F: 155 °C
- Reinforced insulation, acc.
- EN 60730-1 (VDE 0631, part 1); EN 60335-1 (VDE 0700, part 1)
- RoHs, UL Recognized E153731

Contact Data		RS35	RS50	RS80
Number and type of contacts		DPST (2 NO)	DPST (2 NO) SPST (1 NO)	SPST (1 NO) Double Break
Contact material		AgSnO ₂	AgSnO ₂	AgSnO ₂
Rated / max. switching voltage AC		250 V / 440 V	250 V / 440 V	250 V / 440 V
Min. switching voltage		10 V	10 V	10 V
Rated load AC1		35 A / 250 V AC	50 A / 250 V AC	80 A / 250 V AC; 90 A / 230 V AC
DC1		35 A / 24 V DC	50 A / 24 V DC	80 A / 24 V DC
Min. switching current		10 mA	10 mA	10 mA
Rated current		35 A	50 A	80 A
Max. breaking capacity AC1		8750 VA	12500 VA	20 000 VA
DC1		90 W 0.3 A / 300 V	90 W 0.3 A / 300 V	90 W 0.3 A / 300 V
Min. breaking capacity		1 W	1 W	1 W
Contact resistance		≤ 50 m Ω	≤ 50 m Ω	≤ 50 m Ω
Max. operating frequency				
• at rated load AC1		360 cycles/hour	360 cycles/hour	360 cycles/hour
• no load		3600 cycles/hour	3600 cycles/hour	3600 cycles/hour
Coil Data				
Rated voltage DC		5, 9, 12, 18, 24, 110 V	5, 9, 12, 18, 24, 110 V	5, 9, 12, 18, 24, 110 V
Must release voltage		DC: ≥ 0.05 U _n	DC: ≥ 0.05 U _n	DC: ≥ 0.05 U _n
Operating range of supply voltage		0.75...2.0 U _n	0.75...2.0 U _n	0.75...2.0 U _n
Rated power consumption DC		0.48 W	0.48 W	0.48 W
Power consumption at pickup voltage		0.27 W	0.27 W	0.27 W
Max. continuous dissipation		1.9 W 20 °C	1.9 W 20 °C	1.9 W 20 °C
Insulation				
Insulation rated voltage		250 V AC	250 V AC	250 V AC
Overvoltage category		III	III	III
Insulation pollution degree		3	3	3
Insulation resistance		1000 M Ω	1000 M Ω	1000 M Ω
Dielectric strength				
• between coil and contacts		5000 V AC type of insulation: reinforced	5000 V AC type of insulation: reinforced	5000 V AC type of insulation: reinforced
• contact clearance		2500 V AC type of clearance: full-disconnection	2500 V AC type of clearance: full-disconnection	2500 V AC type of clearance: full-disconnection
• pole - pole		2500 V AC type of insulation: basic	2500 V AC type of insulation: basic	2500 V AC type of insulation: basic
Contact clearance		≥ 10 mm	≥ 10 mm	≥ 10 mm
Contact creepage		≥ 10 mm	≥ 10 mm	≥ 10 mm
General data				
Operating / release time (typical values)		30 ms / 5 ms	30 ms / 5 ms	40 ms / 5 ms
Electrical life				
• resistive load AC1		5 x 10 ⁴	50 A, 250 V AC, 20 °C	80 A, 277 V AC, 85 °C (UL, VDE) 90 A, 230 V AC, 85 °C (BBJ)
		6 x 10 ³	35 A, 277 V AC, 85 °C (UL)	
		10 ³	50 A, 277 V AC, 85 °C (UL)	
		10 ³		
• AC7a		3 x 10 ⁴	35 A, 263 V AC, 85 °C (VDE)	30 A, 263 V AC, 85 °C (VDE)
		1,5 x 10 ⁴	50 A, 263 V AC, 85 °C (VDE)	
		3 x 10 ⁴		
Mechanical life (cycles)		10 ⁶	10 ⁶	10 ⁶
Dimensions (L x W x H)		40 x 25 x 49.2 mm	40 x 25 x 49.2 mm	40 x 25 x 49.2 mm
Weight		105 g	105 g	105 g
Storage temperature		-40...+105 °C	-40...+105 °C	-40...+105 °C
Operating temperature		-40...+85 °C	-40...+85 °C	-40...+85 °C
Cover protection category		IP 40 PN-EN 60529	IP 40 PN-EN 60529	IP 40 PN-EN 60529
Environmental protection		RTII EN 61810-7	RTII EN 61810-7	RTII EN 61810-7
Shock resistance		10 g	10 g	10 g
Vibration resistance		1.5 mm DA (constant amplitude) 0...55 Hz	1.5 mm DA (constant amplitude) 0...55 Hz	1.5 mm DA (constant amplitude) 0...55 Hz
Solder bath temperature		max. 270 °C	max. 270 °C	max. 270 °C
Soldering time		max. 5 s	max. 5 s	max. 5 s

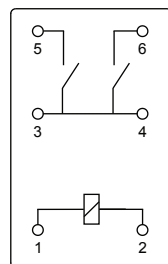
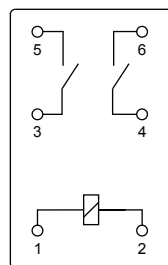
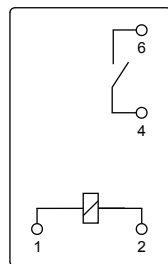
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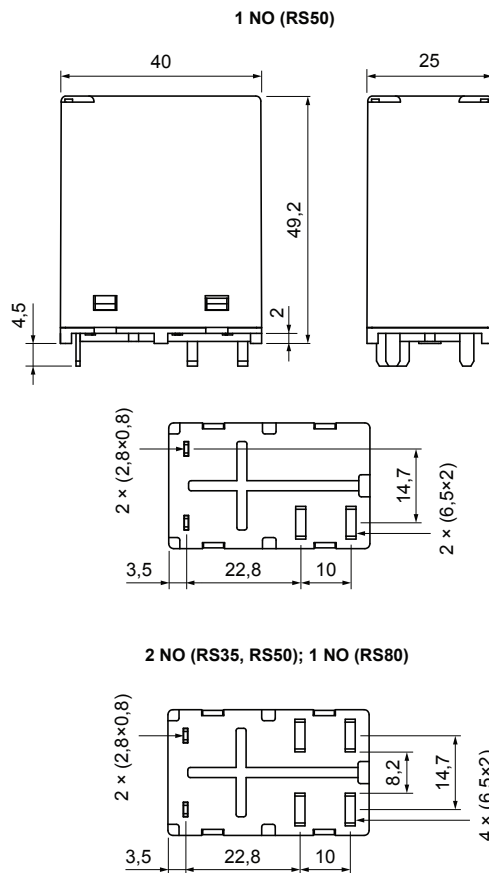
Part Number	Coil voltage V DC	Contact Type (Connection)	Contact gap min [mm]	Coil resistance at 20 °C in Ω	Coil Operating range		Cover protection IP rating
					min. (at 20°C)	max. (at 55°C)	
RS35-3022-25-1005	5	DPST [2NO-SB]	≥ 2.20 mm	$50 \Omega \pm 10\%$	3.75	10	IP40
RS35-3022-25-1009	9	DPST [2NO-SB]	≥ 2.20 mm	$170\Omega \pm 10\%$	6.75	18	IP40
RS35-3022-25-1012	12	DPST [2NO-SB]	≥ 2.20 mm	$300\Omega \pm 10\%$	9.00	24	IP40
RS35-3022-25-1018	18	DPST [2NO-SB]	≥ 2.20 mm	$675\Omega \pm 10\%$	13.50	36	IP40
RS35-3022-25-1024	24	DPST [2NO-SB]	≥ 2.20 mm	$1,200\Omega \pm 10\%$	18.00	48	IP40
RS35-3022-25-1110*	110	DPST [2NO-SB]	≥ 2.20 mm	$25,000\Omega \pm 10\%$	82.50	220	IP40
RS50-3021-25-1005	5	SPST [1NO-SB]	≥ 4.10 mm	$50 \Omega \pm 10\%$	3.75	10	IP40
RS50-3021-25-1009	9	SPST [1NO-SB]	≥ 4.10 mm	$170\Omega \pm 10\%$	6.75	18	IP40
RS50-3021-25-1012	12	SPST [1NO-SB]	≥ 4.10 mm	$300\Omega \pm 10\%$	9.00	24	IP40
RS50-3021-25-1018	18	SPST [1NO-SB]	≥ 4.10 mm	$675\Omega \pm 10\%$	13.50	36	IP40
RS50-3021-25-1024	24	SPST [1NO-SB]	≥ 4.10 mm	$1,200\Omega \pm 10\%$	18.00	48	IP40
RS50-3021-25-1110*	110	SPST [1NO-SB]	≥ 4.10 mm	$25,000\Omega \pm 10\%$	82.50	220	IP40
RS50-3022-25-1005	5	DPST [2NO-SB]	≥ 1.80 mm	$50 \Omega \pm 10\%$	3.75	10	IP40
RS50-3022-25-1009	9	DPST [2NO-SB]	≥ 1.80 mm	$170\Omega \pm 10\%$	6.75	18	IP40
RS50-3022-25-1012	12	DPST [2NO-SB]	≥ 1.80 mm	$300\Omega \pm 10\%$	9.00	24	IP40
RS50-3022-25-1018	18	DPST [2NO-SB]	≥ 1.80 mm	$675\Omega \pm 10\%$	13.50	36	IP40
RS50-3022-25-1024	24	DPST [2NO-SB]	≥ 1.80 mm	$1,200\Omega \pm 10\%$	18.00	48	IP40
RS50-3022-25-1110*	110	DPST [2NO-SB]	≥ 1.80 mm	$25,000\Omega \pm 10\%$	82.50	220	IP40
RS80-3021-25-1005*	5	SPST [1NO-DB]	≥ 4.10 mm	$50 \Omega \pm 10\%$	3.75	10	IP40
RS80-3021-25-1009*	9	SPST [1NO-DB]	≥ 4.10 mm	$170\Omega \pm 10\%$	6.75	18	IP40
RS80-3021-25-1012	12	SPST [1NO-DB]	≥ 4.10 mm	$300\Omega \pm 10\%$	9.00	24	IP40
RS80-3021-25-1018*	18	SPST [1NO-DB]	≥ 4.10 mm	$675\Omega \pm 10\%$	13.50	36	IP40
RS80-3021-25-1024	24	SPST [1NO-DB]	≥ 4.10 mm	$1,200\Omega \pm 10\%$	18.00	48	IP40
RS80-3021-25-1110*	110	SPST [1NO-DB]	≥ 4.10 mm	$25,000\Omega \pm 10\%$	82.50	220	IP40

*outside the scope of the certificates UL, VDE

CONNECTION DIAGRAM



DIMENSIONS



PINOUT

