

# RSR85

## single-phase solid state relays, miniature

RSR85-24...

RSR85-38...

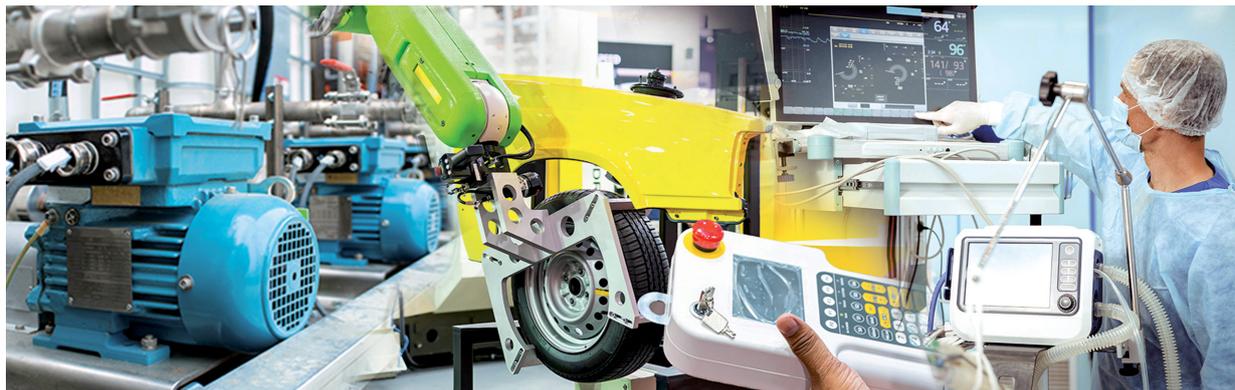


- Zero-crossing or random-on switching
- DC control input
- Triac output
- Load current 3 A
- Max. load voltage 280, 440 V AC (single-phase)
- Dielectric strength 4 000 Vrms
- RC protection (built-in resistor, capacitor)
- Suitable for PCB mounted
- Recognitions, certifications, directives: RoHS, REACH,   



### Applications

Recommended for applications demanding fast switching speed, intelligent measuring instruments, PCB electronic systems.



### Basic technical data

Load voltage: 24...280 V AC, 24...440 V AC

Control input: DC

Load current: 3 A

Type		zero-crossing	random-on
Load voltage	Control voltage	Load current	
		3 A	
24...280 V AC	5 V DC	<b>RSR85-24D3-5</b>	<b>RSR85-24D3R-5</b>
	12 V DC	<b>RSR85-24D3-12</b>	<b>RSR85-24D3R-12</b>
	24 V DC	<b>RSR85-24D3-24</b>	<b>RSR85-24D3R-24</b>
24...440 V AC	5 V DC	<b>RSR85-38D3-5</b>	
	12 V DC	<b>RSR85-38D3-12</b>	
	24 V DC	<b>RSR85-38D3-24</b>	

### Load voltage

	RSR85-24...	RSR85-38...
Rated load voltage	240 V AC	380 V AC
Rated range of load voltage	24...280 V AC	24...440 V AC
Blocking voltage	600 V <sub>pk</sub>	800 V <sub>pk</sub>
Rated frequency	47...63 Hz	47...63 Hz
Power factor	0,5	0,5

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Control input	zero-crossing	zero-crossing	zero-crossing
	<b>RSR85-..D.-5</b>	<b>RSR85-..D.-12</b>	<b>RSR85-..D.-24</b>
Control voltage range	4...6 V DC	9,6...14,4 V DC	19,2...28,8 V DC
Must turn-on voltage	4 V DC	9,6 V DC	19,2 V DC
Must turn-off voltage	1 V DC	1 V DC	1 V DC
Zero voltage turn-on	≤ 15 V	≤ 15 V	≤ 15 V
Maximum input current	25 mA 6 V DC	25 mA 14,4 V DC	25 mA 28,8 V DC
Response time pick-up	≤ 1/2 cycle + 1 ms	≤ 1/2 cycle + 1 ms	≤ 1/2 cycle + 1 ms
Response time drop-out	≤ 1/2 cycle + 1 ms	≤ 1/2 cycle + 1 ms	≤ 1/2 cycle + 1 ms

Control input	random-on	random-on	random-on
	<b>RSR85-..D.R-5</b>	<b>RSR85-..D.R-12</b>	<b>RSR85-..D.R-24</b>
Control voltage range	4...6 V DC	9,6...14,4 V DC	19,2...28,8 V DC
Must turn-on voltage	4 V DC	9,6 V DC	19,2 V DC
Must turn-off voltage	1 V DC	1 V DC	1 V DC
Zero voltage turn-on	≤ 15 V	≤ 15 V	≤ 15 V
Maximum input current	25 mA 6 V DC	25 mA 14,4 V DC	25 mA 28,8 V DC
Response time pick-up	≤ 1 ms	≤ 1 ms	≤ 1 ms
Response time drop-out	≤ 1/2 cycle + 1 ms	≤ 1/2 cycle + 1 ms	≤ 1/2 cycle + 1 ms

## Output circuit

	<b>RSR85-...3...</b>
Rated load current	3 A
Rated load range	0,1...3 A
Maximum surge current	120 A 10 ms
I <sup>2</sup> t for fusing	72 A <sup>2</sup> s 10 ms
Max. operational current AC-51 rating	3 A
Max. operational current AC-53 rating	0,6 A
Min. operational current	100 mA
Maximum off-state leakage current (at rated load voltage)	5 mA
Maximum on-state voltage drop (at rated current)	1,5 V <sub>rms</sub>
Minimum off-state dV/dt (at max. rated voltage)	200 V/μs

## General data

	<b>RSR85-...</b>
Dielectric strength	input - output: 4 000 V <sub>rms</sub> 50/60 Hz
Minimum insulation resistance	input - output: 1 000 MΩ 500 V DC
Ambient temperature (non-condensation and/or icing)	storage: -30...+100 °C operating: -30...+80 °C

❶ Data given for ambient temperature ≤ 25 °C. Above 25 °C the maximum current decreases - see "Thermal derating curves", page 3.

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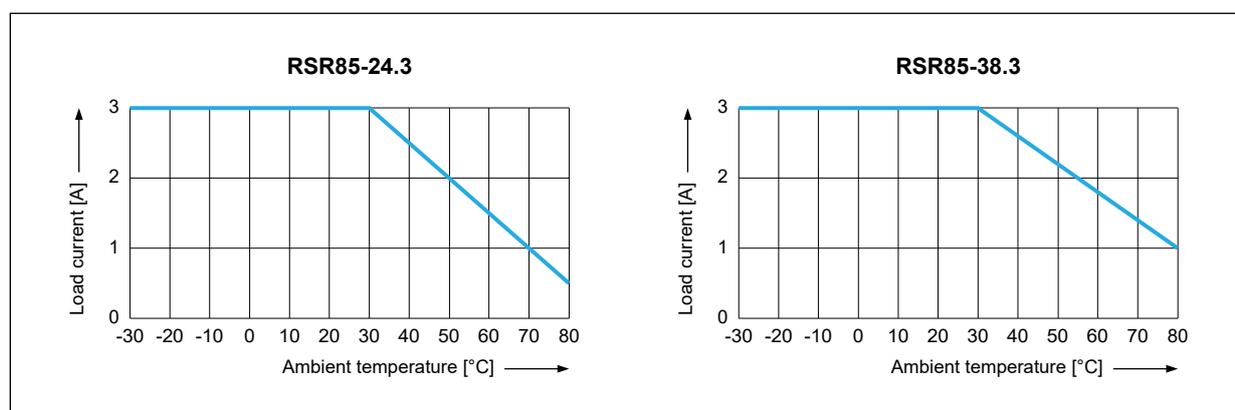
## Mechanical data

	RSR85-24D3-.. RSR85-24D3R-..	RSR85-38D3-..
Dimensions (L x W x H)	29 x 12,5 x 15,7 mm	29,2 x 13,2 x 27,5 mm
Weight (typical)	15 g	18 g
Protection category EN 60529	IP 00	IP 00
Application	PCB	PCB

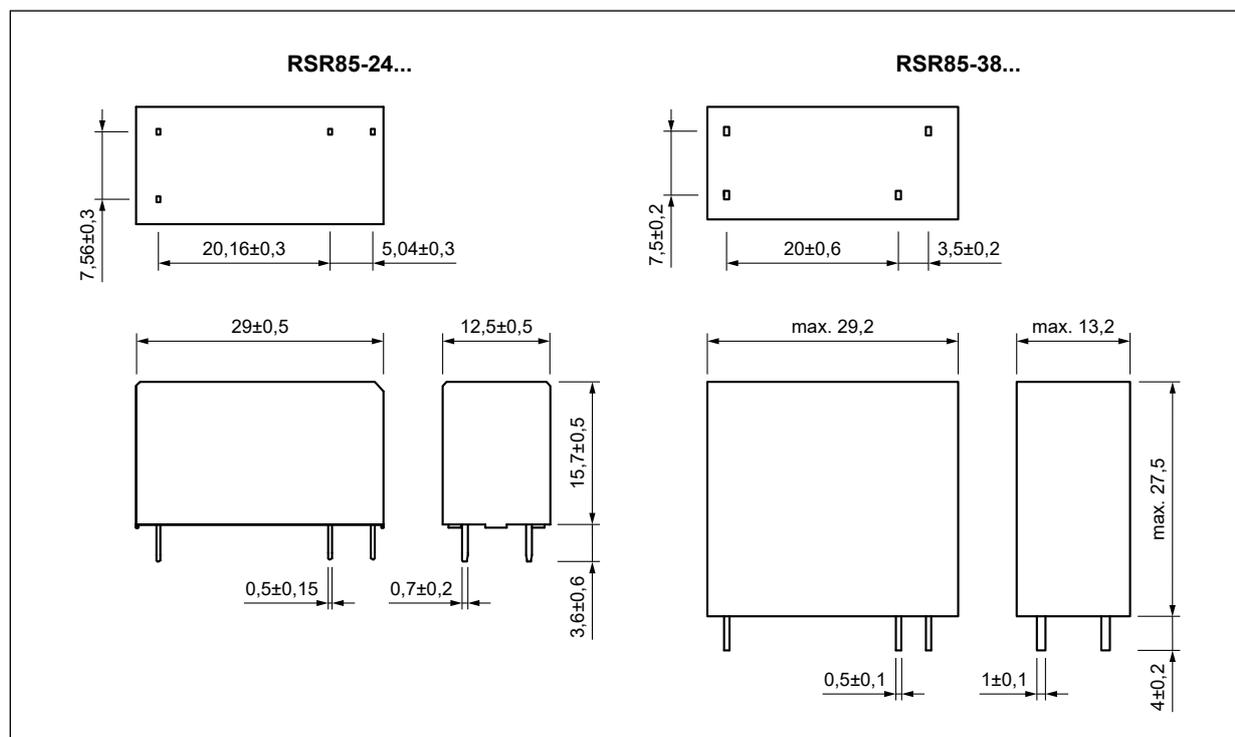
## Mounting

Relays **RSR85** are designed for direct PCB mounting.

## Thermal derating curves



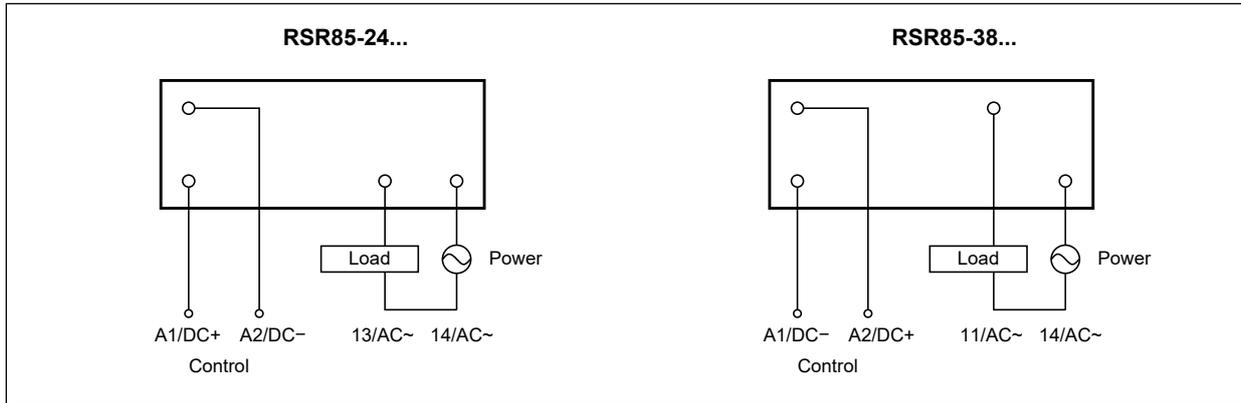
## Dimensions



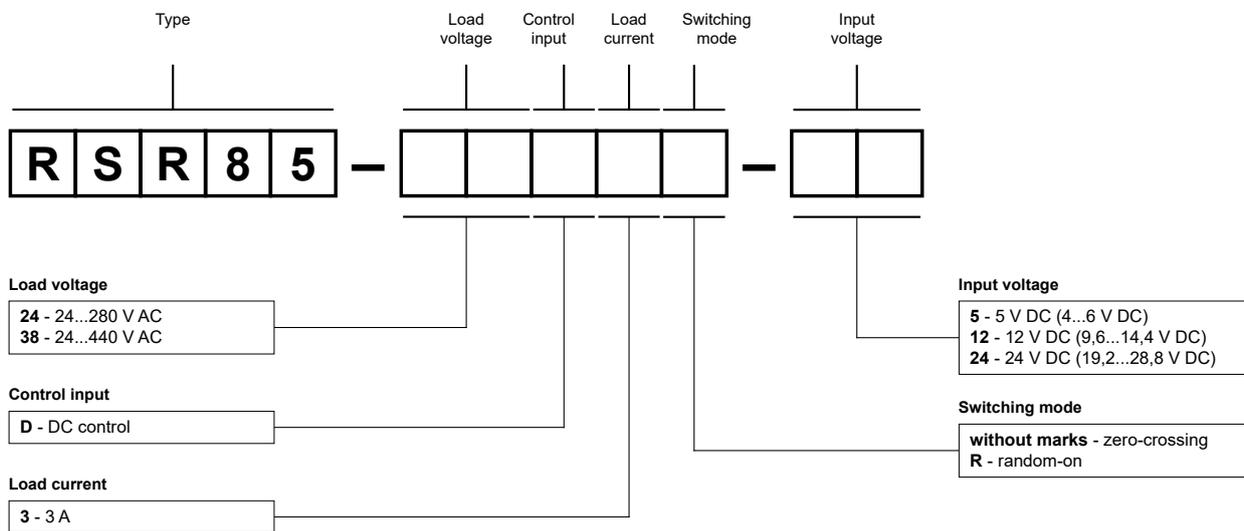
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## Connection diagrams



## Ordering codes



Examples of ordering codes ☉:

**RSR85-24D3R-12**

relay **RSR85**, miniature for PCB, random-on switching, DC control, input voltage 12 V DC, load voltage 24...280 V AC (single-phase), load current 3 A

**RSR85-38D3-24**

relay **RSR85**, miniature for PCB, zero-crossing switching, DC control, input voltage 24 V DC, load voltage 24...440 V AC (single-phase), load current 3 A

☉ Ordering codes **RSR85** are specified in table "Type" on page 1.