

RA2

automotive relays



- Cadmium - free contacts • Miniature dimensions
- Automotive applications
- High resistance to inrush current
- For PCB
- Following relays versions are available:
 - RA2** - standard design
 - RAW2** - narrow pin layout design
- Recognitions, certifications, directives: RoHS,

Contact data

Number and type of contacts		1 CO, 1 NO, 2 NO
Contact material		AgSnO₂
Rated / max. switching voltage	DC	60 V / 60 V
Min. switching voltage		1 V
Min. switching current		10 mA
Max. inrush current		1 CO: 110 A / 50 A (NO/NC) 1 NO: 110 A 2 NO: 2 x 110 A
Rated current		1 CO: 20 A / 12 A (NO/NC) 1 NO: 20 A 2 NO: 2 x 12,5 A
Max. breaking capacity		1 CO: 270 W / 162 W (NO/NC) 1 NO: 270 W 2 NO: 2 x 168 W
Min. breaking capacity		1 W
Contact resistance		≤ 3 mΩ
Max. operating frequency		
• at rated load	AC1	900 cycles/hour 2 s ON / 2 s OFF
• at motor load		450 cycles/hour 2 s ON / 6 s OFF
• at incandescent lamp load		120 cycles/hour 2 s ON / 30 s OFF
• no load		36 000 cycles/hour
Coil data		
Rated voltage	DC	5 ... 48 V
Must release voltage		DC: ≥ 0,15 U _n
Operating range of supply voltage		see Table 1
Must operate voltage		≤ 0,6 U _n
Rated power consumption	DC	1,44 W
Insulation		
Insulation rated voltage		60 V AC
Dielectric strength		
• between coil and contacts		500 V AC
• contact clearance		500 V AC
Contact - coil distance		
• clearance		≥ 1 mm
• creepage		≥ 1 mm
General data		
Operating / release time (typical values)		10 ms / 3 ms
Electrical life		
• resistive DC1		1 CO: > 10 ⁵ 20 A / 12 A (NO/NC), 13,5 V DC 1 NO: > 10 ⁵ 20 A, 13,5 V DC 2 NO: > 10 ⁵ 2 x 12,5 A, 13,5 V DC
Mechanical life (cycles)		> 10 ⁷
Dimensions (L x W x H)		IP 00: 18,6 x 13,0 x 18,5 mm IP 40: 20,5 x 15,3 x 19,7 mm
Weight		12 g
Ambient temperature	• storage	-40...+100 °C
	• operating	-40...+85 °C
Cover protection category		IP 40 or IP 00 (without cover) PN-EN 60529
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

The data in bold type pertain to the standard versions of the relays.

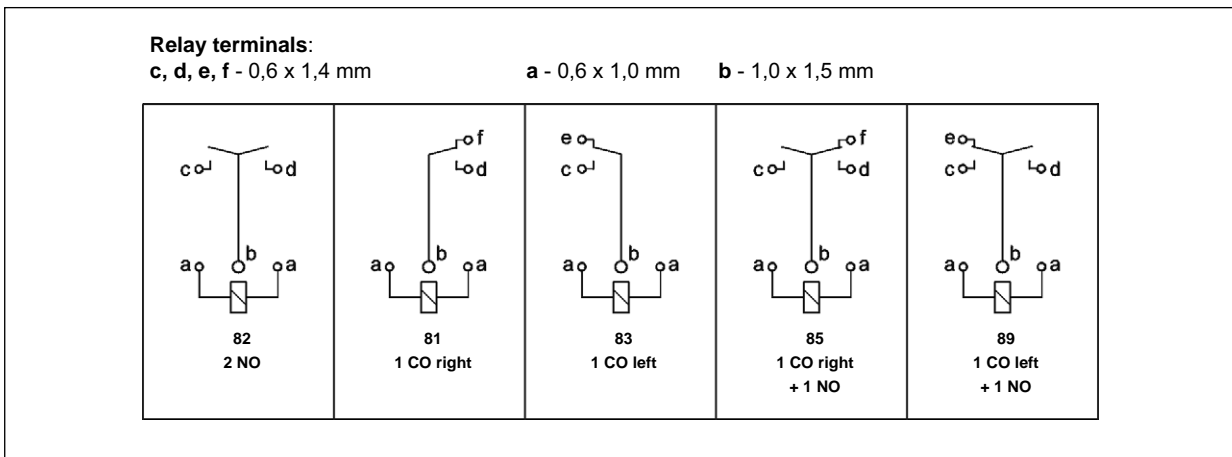
Coil data - DC voltage version

Table 1

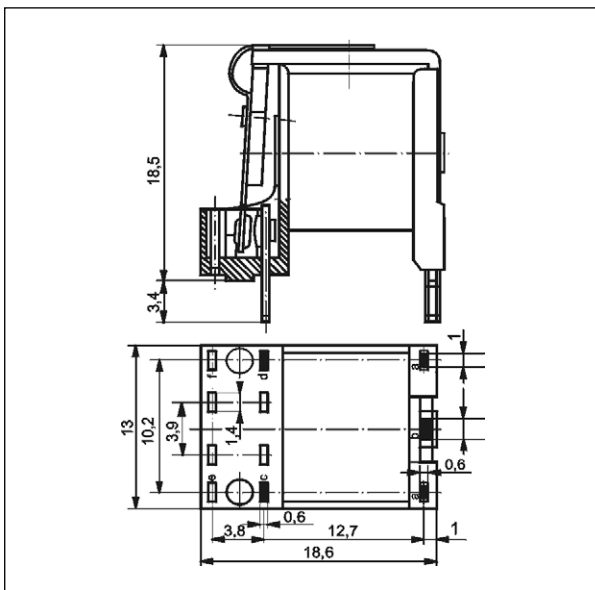
Coil code	Rated voltage V DC	Coil resistance at 20 °C Ω	Acceptable resistance	Coil operating range V DC	
				min. (at 20 °C)	max. (at 20 °C)
1005	5	18	$\pm 10\%$	4,0	6,6
1006	6	24	$\pm 10\%$	4,8	8,0
1009	9	55	$\pm 10\%$	7,2	12,0
1012	12	100	$\pm 10\%$	9,6	16,0
1015	15	152	$\pm 10\%$	12,0	20,0
1018	18	230	$\pm 10\%$	14,4	23,9
1024	24	390	$\pm 10\%$	19,2	31,9
1048	48	1 590	$\pm 10\%$	38,4	63,8

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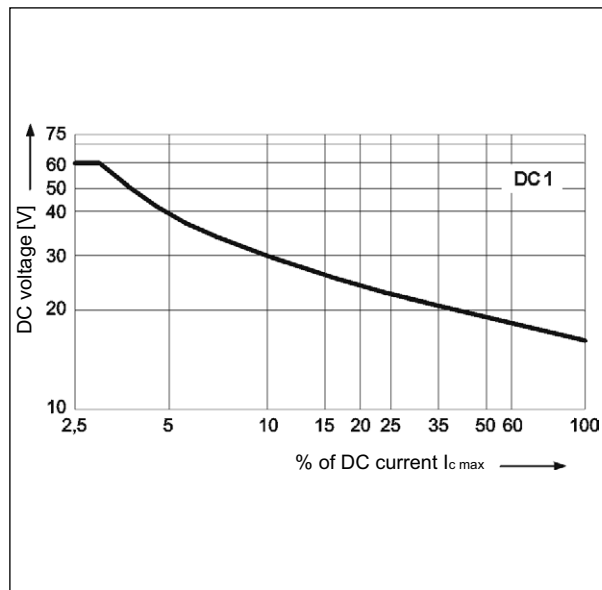
Connection diagrams (pin side view)



Dimensions



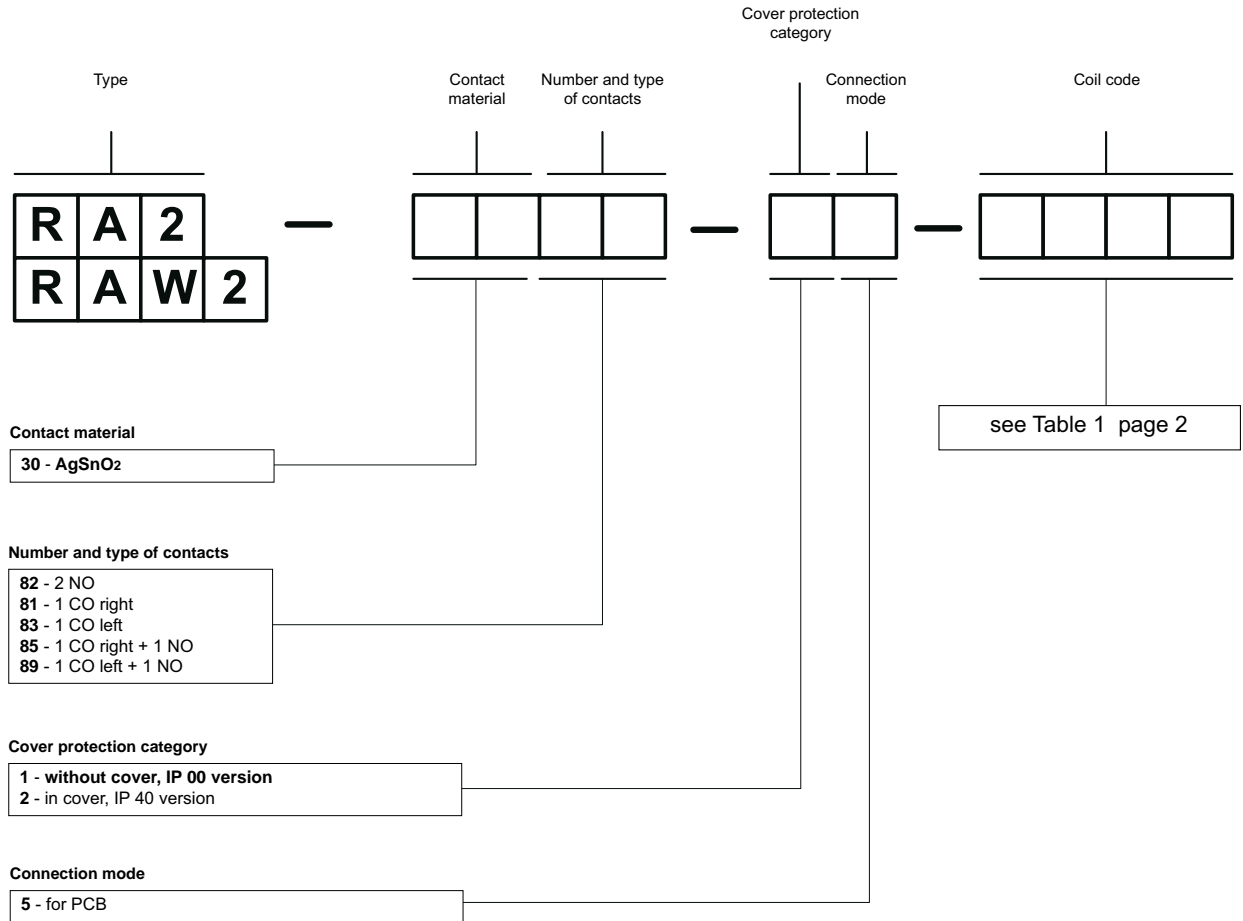
Max. DC resistive load breaking capacity Fig. 1



Mounting

Relays **RA2** are designed for direct PCB mounting.

Ordering codes



Examples of ordering codes:

- RA2-3081-15-1012** relay **RA2**, for PCB, one right changeover contact, contact material AgSnO₂, coil voltage 12 V DC, without cover IP 00
- RAW2-3082-25-1024** relay **RAW2** with narrow pin layout design, for PCB, two normally open contacts, contact material AgSnO₂, coil voltage 24 V DC, in cover IP 40

PRECAUTIONS:

1. Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. 2. Never touch any live parts of the device. 3. Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. 4. In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.