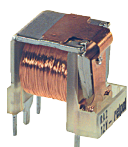


RA2

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	50 V / 50 V
Min. switching voltage		1 V
Min. switching current		10 mA
Max. make 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, 6, 9, 12 , 15, 18, 24, 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		50 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
(non-condensation and/or icing)	• operating	-40...+85 °C
Cover protection category		IP 40 or IP 00 (without cover) EN 60529
Environmental protection		RTI EN 61810-1
Solder bath temperature		max. 270 °C
Soldering time		max. 5 s

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

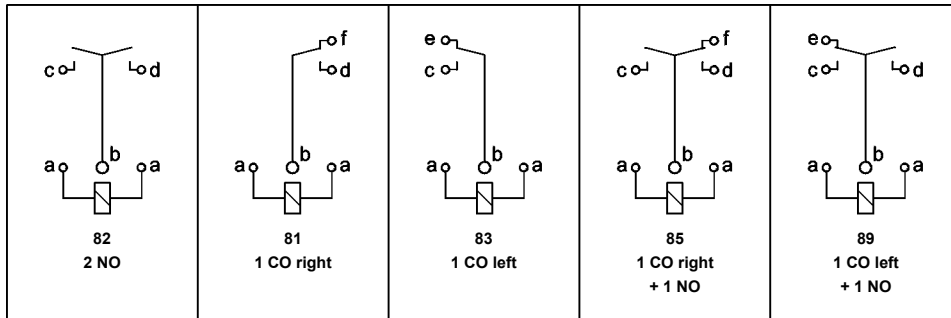
Connection diagrams (pin side view)

Relay terminals:

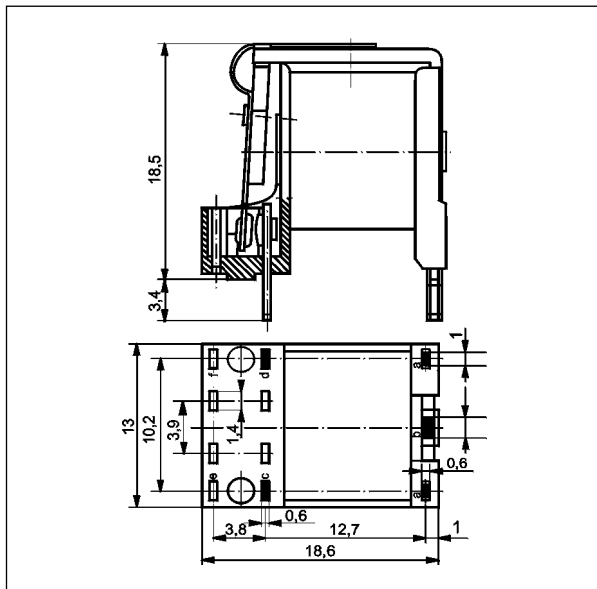
c, d, e, f - 0,6 x 1,4 mm

a - 0,6 x 1,0 mm

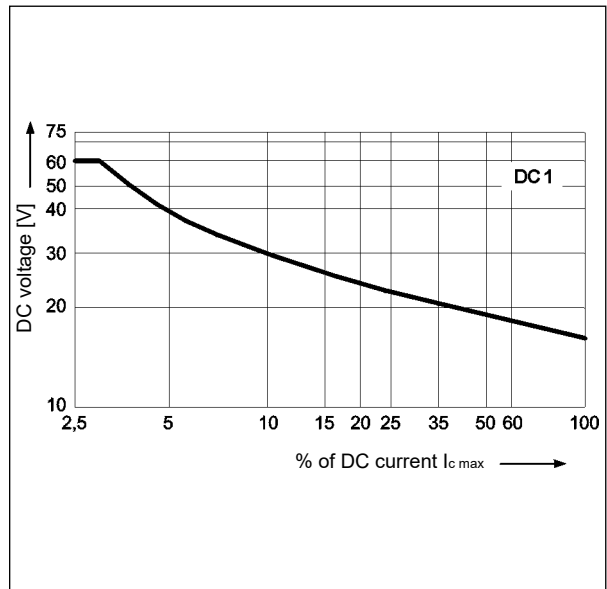
b - 1,0 x 1,5 mm



Dimensions



Max. DC resistive load breaking capacity Fig. 1



Mounting

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

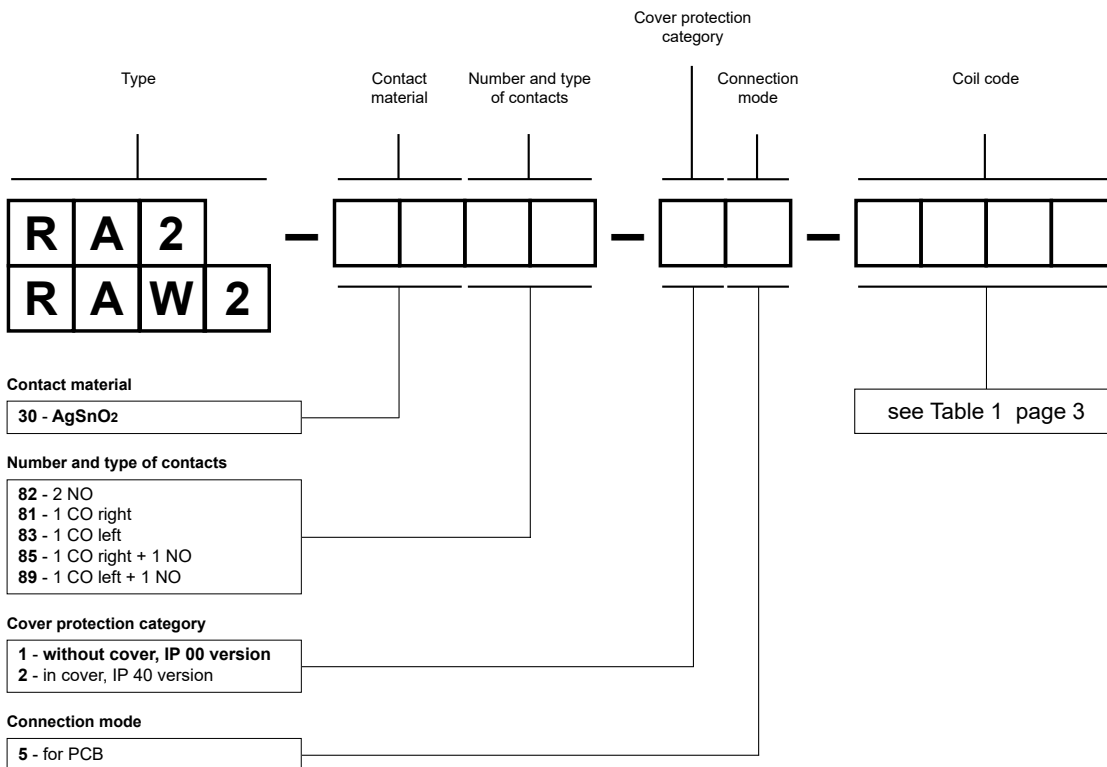
Coil data - DC voltage version

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	± 10%	4,0	6,6
1006	6	24	± 10%	4,8	8,0
1009	9	55	± 10%	7,2	12,0
1012	12	100	± 10%	9,6	16,0
1015	15	152	± 10%	12,0	20,0
1018	18	230	± 10%	14,4	23,9
1024	24	390	± 10%	19,2	31,9
1048	48	1 590	± 10%	38,4	63,8

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

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.