

# SCHRACK MINIATURE POWER PCB RELAY PB HAZARDOUS LOCATIONS

## GENERAL PURPOSE | LOW POWER PCB RELAYS

### FEATURES

- 1pole 10 A, 1 form C (CO) or 1 form A (NO)
- Environmentally-friendly cadmium-free contacts
- Class F coil system standard
- Compact and simple design gives high process security
- Plastic materials according to IEC 60335-1 (domestic appliances)
- Enclosed-break device approvals:
  - Group IIA acc. to IEC 60079-1 Clause 15.5 (former IEC 60079-15 Clause 22.4)



### APPLICATIONS

- Household appliances
- Boiler control
- Refrigerator.

### APPROVALS

- VDE Cert. No. 40008364
- UL E214025



Technical data of approved types on request.

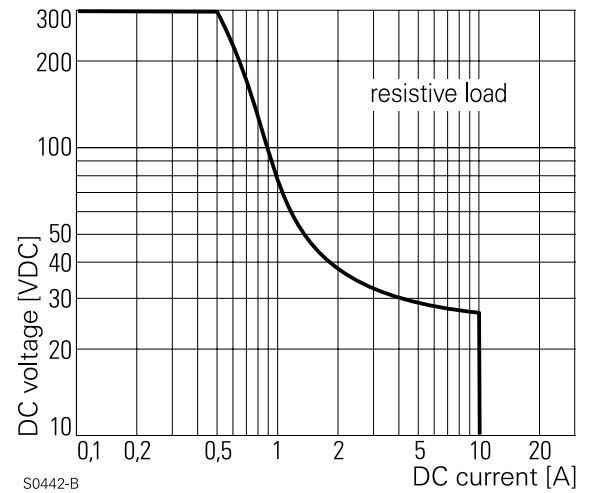
# SCHRACK Miniature Power PCB Relay PB Hazardous Locations

Low Power PCB Relays

## CONTACT DATA

|   |                                |
|---|--------------------------------|
| Contact arrangement                               | 1 form C (CO) or 1 form A (NO) |
| Rated voltage                                     | 250 VAC                        |
| Max. switching voltage                            | 400 VAC                        |
| Rated current                                     | 10 A                           |
| Limiting making current, max 4 s, duty factor 10% | 15 A                           |
| Breaking capacity max.                            | 2500 VA                        |
| Contact material                                  | AgNi 90/10                     |
| Frequency of operation, with/without load         | 360/36000h-1                   |
| Operate/release time max.                         | 10/20 ms                       |
| Bounce time max., form A/form B                   | 10/15 ms                       |

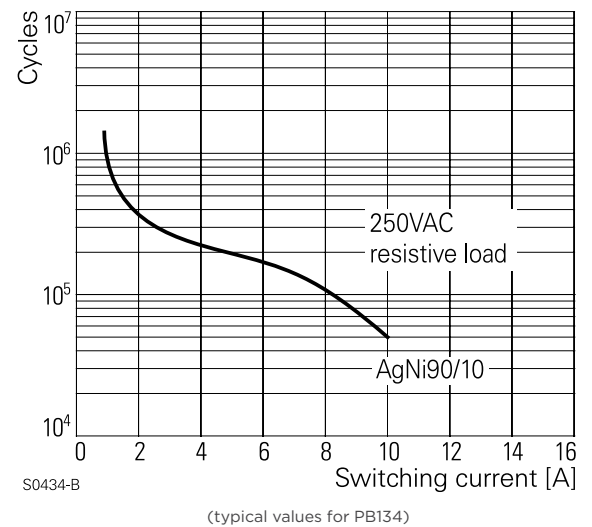
## MAX. DC LOAD BREAKING CAPACITY



## CONTACT RATINGS FOR SR4

| Type                             | Contact     | Load                                    | Cycles              |
|----------------------------------|-------------|---|---------------------|
| <b>IEC 61810</b>                 |             |   |                     |
| PB114                            | A/B (NO/NC) | 10 A/3 A, 250 VAC, $\cos\phi=1$ , 85 °C | 30x10 <sup>3</sup>  |
| PB114                            | A of C      | 10 A, 250 VAC, $\cos\phi=1$ , 85 °C     | 30x10 <sup>3</sup>  |
| PB134                            | A (NO)      | 10 A, 250 VAC, $\cos\phi=1$ , 85 °C     | 20x10 <sup>3</sup>  |
| PB634                            | A (NO)      | 10 A, 250 VAC, $\cos\phi=1$ , 85 °C     | 100x10 <sup>3</sup> |
| <b>UL61810-1 (former UL 508)</b> |             |   |                     |
| PB1x4                            | A (NO)      | 10 A, 250 VAC, $\cos\phi=1$ , 85 °C     | 20x10 <sup>3</sup>  |
| PB634                            | A (NO)      | 10 A, 250 VAC GP, 85 °C                 | 100x10 <sup>3</sup> |
| Mechanical endurance, DC coil    |             | 5x10 <sup>6</sup> operations            |                     |

## ELECTRICAL ENDURANCE



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## COIL DATA

|                            | PB1         | PB6         |
|----------------------------|-------------|-------------|
| Coil voltage range         | 5 to 48 VDC | 5 to 36 VDC |
| Operative range, IEC 61810 | 2           | 2           |

## COIL VERSIONS, DC-COIL

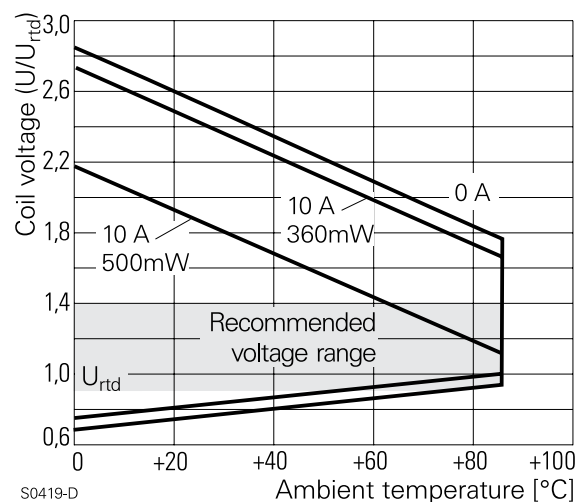
| Coil code                             | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|---------------------------------------|-------------------|---------------------|---------------------|-----------------------------------|---------------------|
| <b>Coil versions, DC-coil, 360 mW</b> |                   |                     |                     |                                   |                     |
| 005                                   | 5                 | 3.75                | 0.5                 | 70                                | 357                 |
| 006                                   | 6                 | 4.50                | 0.6                 | 100                               | 360                 |
| 009                                   | 9                 | 6.75                | 0.9                 | 225                               | 360                 |
| 012                                   | 12                | 9.00                | 1.2                 | 400                               | 360                 |
| 018                                   | 18                | 13.50               | 1.8                 | 900                               | 360                 |
| 022                                   | 22                | 16.50               | 2.2                 | 1344                              | 360                 |
| 024                                   | 24                | 18.00               | 2.4                 | 1600                              | 360                 |
| 048                                   | 48                | 36.00               | 4.8                 | 6400                              | 360                 |
| <b>Coil versions, DC-coil, 500 mW</b> |                   |                     |                     |                                   |                     |
| 005                                   | 5                 | 3.75                | 0.5                 | 48                                | 521                 |
| 006                                   | 6                 | 4.5                 | 0.6                 | 69                                | 522                 |
| 012                                   | 12                | 9                   | 1.2                 | 274                               | 526                 |
| 024                                   | 24                | 18                  | 2.4                 | 1097                              | 525                 |
| 036                                   | 36                | 27                  | 3.6                 | 2592                              | 500                 |

All figures are given for coil without pre-energization, at ambient temperature +23 °C.

## INSULATION DATA

|                                    |               |
|------------------------------------|---------------|
| Initial dielectric strength        |               |
| Between open contacts              | 1000 Vrms     |
| Between contact and coil           | 2500 Vrms     |
| Clearance/creepage                 |               |
| Between contact and coil           |               |
| Form C (CO) version                | $\geq 3/4$ mm |
| Form A (NO) version                | $\geq 4/5$ mm |
| Material group of insulation parts | IIIa          |
| Tracking index of relay base       | PTI250        |

## COIL OPERATING RANGE DC



Other coil voltages on request.

## OTHER DATA

|  |  |
|--|--|
| Material compliance                          | EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at <a href="http://www.te.com/customer-support/rohssupportcenter">www.te.com/customer-support/rohssupportcenter</a> |
| Resistance to heat and fire version PB1, PB5 | according EN60335, par.30  |
| Ambient temperature, DC coil                 | -40 to +85 °C  |
| Explosive Atmospheres                        |  |
| IEC 60079-15                                 | Enclosed-break device Group IIA <sup>1)</sup>  |
| Category of environmental protection         |  |
| IEC 61810                                    | RTII - flux proof  |

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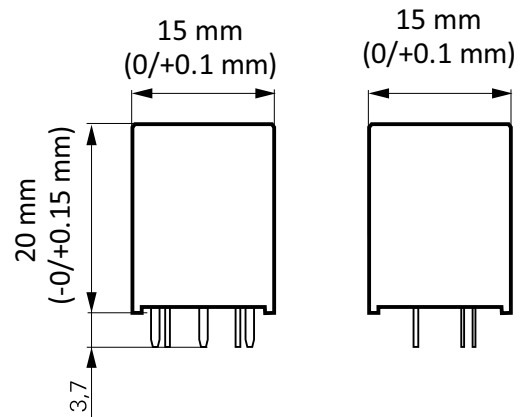
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## OTHER DATA

|   |                             |
|---|-----------------------------|
| Vibration resistance (functional), form A/form B,<br>30 to 400 Hz |                             |
| PB1, PB6  | > 10/4 g                    |
| Shock resistance<br>(destructive)                                 | > 100 g                     |
| Terminal type   | PCB-THT                     |
| Weight  | 5.4 g                       |
| Resistance to soldering heat THT                                  |                             |
| IEC 60068-2-20  | 270 °C/ 10 s                |
| Packaging/unit  | tube/35 pcs., box/1050 pcs. |

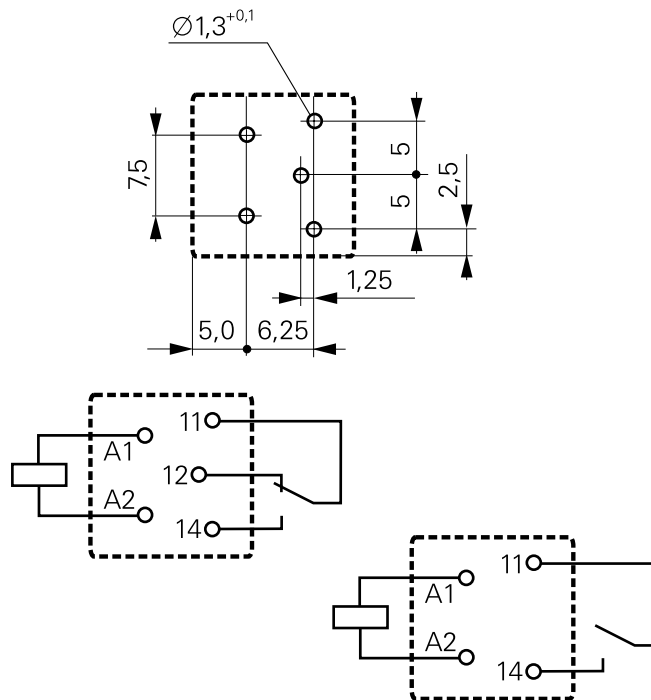
1) The enclosures are capable of withstanding normal handling and assembly operations without damage to seals according IEC 60079-15. Only relays without damage and unaffected open louver (e.g. labeling, conformal coating, glue) meet the requirements of IEC 60079-15.

## DIMENSIONS (Unit: mm)



## PCB LAYOUT<sup>2)</sup>/ TERMINAL ASSIGNMENT

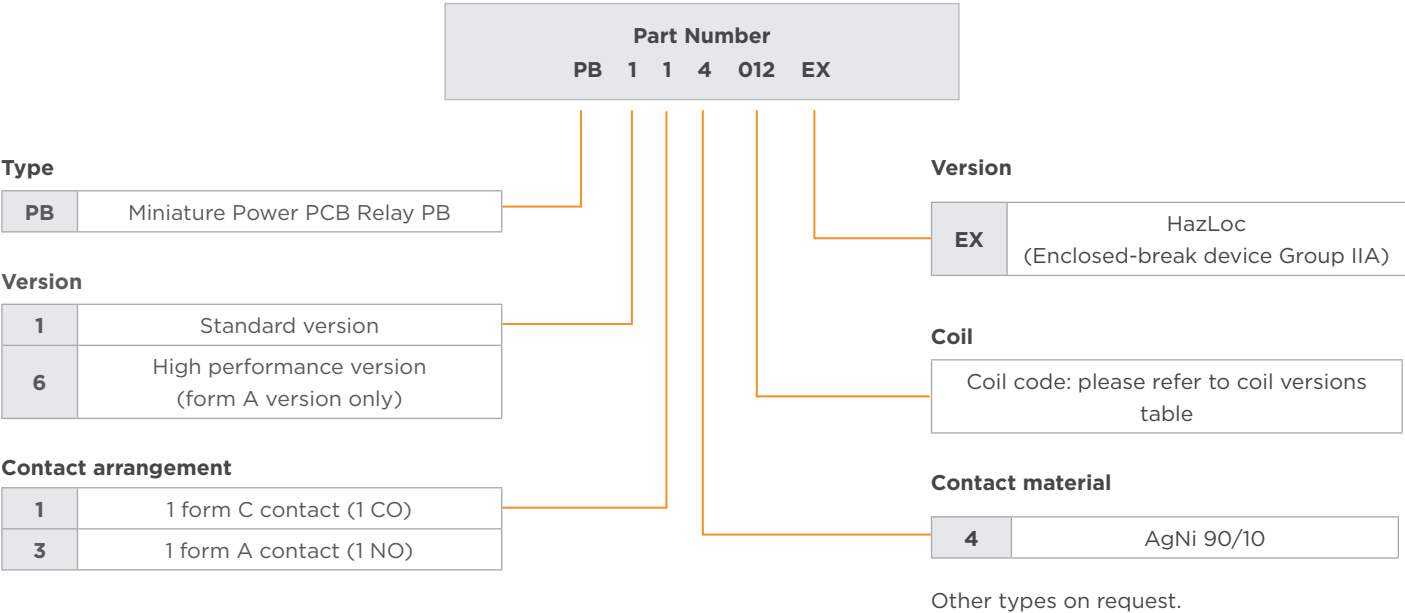
Bottom view on solder pins



### 2) Layout note:

No openings (e.g. holes, slots, cutouts, unused pins, open through connections, etc.) allowed under the relay base. The relay base must be fully covered by the PCB, recommended minimum distance between the relay and the edge of the printed circuit board is 5 mm. For more information, please contact our application support.

ORDERING INFORMATION



PRODUCT INFORMATION

| Product code | Version                  | Contact configuration    | Contact material | Coil   | Part Number                 |
|--------------|--------------------------|--------------------------|------------------|--------|-----------------------------|
| PB114012EX   | Standard class F         | 1 form C<br>1 CO contact | AgNi 90/10       | 12 VDC | <a href="#">1-1415030-2</a> |
| PB634012EX   | High performance version | 1 form A<br>1 NO contact |                  | 12 VDC | <a href="#">2-1415030-2</a> |

EXPLOSIVE ATMOSPHERES

- Equipment protection by type of protection „n“:

Relays are sparking electrical equipment according IEC 60079-15 Explosive atmospheres – Part 15: Equipment protection by type of protection „n“ and can be either approved as enclosed-break devices, or as hermetically sealed devices.

Enclosed-break devices are subjected to a type test filled with and surrounded by an explosive mixture according to the stated group of the equipment, as follows:

- Group IIA: (6.5/0.5) % ethylene/air at atmospheric pressure;
- Group IIB: (27.5/1.5) % hydrogen/air at atmospheric pressure;
- Group IIC: (34.2) % hydrogen, (17.1) % oxygen and the remainder nitrogen at atmospheric pressure or alternatively (27.5/1,5) % hydrogen/air at an overpressure of 500 mbar.

The explosive mixture within the device shall be ignited by the operation of the enclosed contacts, repeated 10 times with a fresh explosive mixture for each test and the explosive mixture surrounding the device shall not be ignited.

Sealed devices are subjected to a type test consisting of (a) voltage test between the terminals and the outer surface of the device and (b) leakage test allowing 3 different methods – see IEC 60079-15.

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