

## Miniature Power PCB Relay PB

- 1pole 10A, 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
- Product in accordance to IEC 60335-1



### Typical applications

White goods, small home appliances, heating temperature controllers.



### Approvals

VDE Cert. No. 40008364, UL E214025  
Technical data of approved types on request.

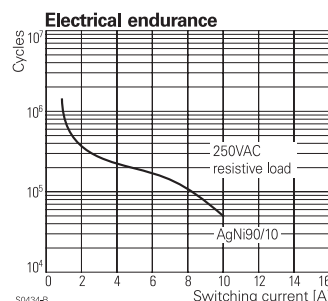
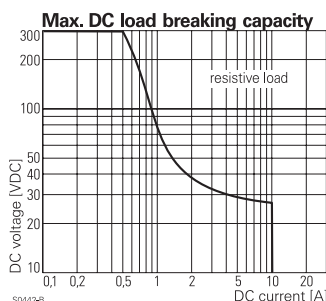
### Contact Data

|   |                                |
|---|--------------------------------|
| Contact arrangement                               | 1 form C (CO) or 1 form A (NO) |
| Rated voltage                                     | 250VAC                         |
| Max. switching voltage                            | 400VAC                         |
| Rated current                                     | 10A                            |
| Limiting making current, max 4 s, duty factor 10% | 15A                            |
| Breaking capacity max.                            | 2500VA                         |
| Contact material                                  | AgNi 90/10, AgSnO <sub>2</sub> |
| Frequency of operation, with/without load         | 360/36000h <sup>-1</sup>       |
| Operate/release time max.                         | 10/20ms                        |
| Bounce time max., form A/form B                   | 10/15ms                        |

### Contact ratings

| Type             | Contact     | Load                         | Cycles              |
|------------------|-------------|------------------------------|---------------------|
| <b>IEC 61810</b> |             |                              |                     |
| PB114; PB113     | A/B (NO/NC) | 10A/3A, 250VAC, cosφ=1, 85°C | 30x10 <sup>3</sup>  |
| PB114; PB514     | A of C      | 10A, 250VAC, cosφ=1, 85°C    | 30x10 <sup>3</sup>  |
| PB134; PB133     | A (NO)      | 10A, 250VAC, cosφ=1, 85°C    | 20x10 <sup>3</sup>  |
| PB134            | A (NO)      | 6.5A, 440VAC, cosφ=1, 85°C   | 50x10 <sup>3</sup>  |
| PB634            | A (NO)      | 10A, 250VAC, cosφ=1, 85°C    | 100x10 <sup>3</sup> |
| <b>UL 508</b>    |             |                              |                     |
| PB1x4            | A (NO)      | 10A, 250VAC, cosφ=1, 85°C    | 20x10 <sup>3</sup>  |
| PB113            | A (NO)      | 10A, 250VAC GP, 85°C         | 6x10 <sup>3</sup>   |
| PB5x4            | A (NO)      | 10A, 250VAC GP, 85°C         | 20x10 <sup>3</sup>  |
| PB634            | A (NO)      | 10A, 250VAC GP, 85°C         | 100x10 <sup>3</sup> |

Mechanical endurance, DC coil 5x10<sup>6</sup> operations



(typical values for PB134)

| Coil Data                  | PB1         | PB5         | PB6         |
|----------------------------|-------------|-------------|-------------|
| Coil voltage range         | 5 to 48 VDC | 5 to 24 VDC | 5 to 36 VDC |
| Operative range, IEC 61810 | 2           | 2           | 2           |

### Coil versions, DC coil

| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance Ω±10% | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|-----------------------|---------------------|
|-----------|-------------------|---------------------|---------------------|-----------------------|---------------------|

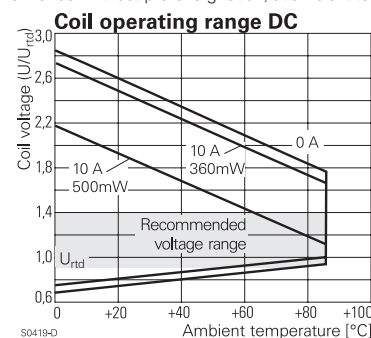
#### Coil versions, DC-coil, 360mW

|     |    |       |     |      |     |
|-----|----|-------|-----|------|-----|
| 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 |

#### Coil versions, DC-coil, 500mW

|     |    |      |     |      |     |
|-----|----|------|-----|------|-----|
| 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.



Other coil voltages on request.

### Insulation Data

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

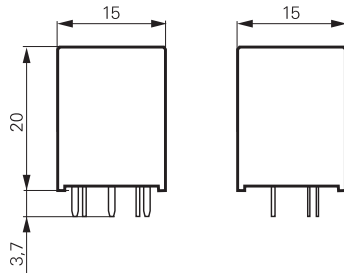
## Miniature Power PCB Relay PB (Continued)

### Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at [www.te.com/customer-support/rohssupportcenter](http://www.te.com/customer-support/rohssupportcenter)

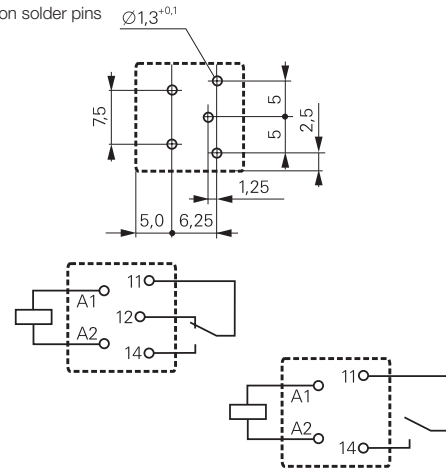
|   |                             |
|---|-----------------------------|
| Resistance to heat and fire                                   |                             |
| version PB1, PB5  | according EN60335, par.30   |
| Ambient temperature, DC coil                                  | -40 to +85°C                |
| Category of environmental protection                          |                             |
| IEC 61810   | RTII - flux proof           |
| Vibration resistance (functional), form A/form B, 30 to 400Hz |                             |
| PB1, PB6  | >10/4g                      |
| PB5   | >10/6 g                     |
| Shock resistance (destructive)                                | >100g                       |
| Terminal type   | PCB-THT                     |
| Weight  | 5.4g                        |
| Resistance to soldering heat THT                              |                             |
| IEC 60068-2-20  | 270°C/10s                   |
| Packaging/unit  | tube/35 pcs., box/1050 pcs. |

### Dimensions



### PCB layout<sup>1)</sup> / terminal assignment

Bottom view on solder pins



#### <sup>1)</sup> 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.

### Product code structure

Typical product code **PB 1 1 4 012**

|                            |  |                           |  |  |
|----------------------------|--|---------------------------|--|--|
| <b>Type</b>                | PB Miniature Power PCB Relay PB                |                           |  |  |
| <b>Version</b>             | 1 Standard version                             | 5 500 mW version          | 6 High performance version (form A version only) |  |
| <b>Contact arrangement</b> | 1 1 form C contact (1 CO)                      | 3 1 form A contact (1 NO) |  |  |
| <b>Contact material</b>    | 3 AgSnO <sub>2</sub>                           | 4 AgNi 90/10              |  |  |
| <b>Coil</b>                | Coil code: please refer to coil versions table |                           |  |  |

| Product code | Version                  | Contacts     | Contact material | Coil  | Part number |
|--------------|--------------------------|--------------|------------------|-------|-------------|
| PB113009     | Standard class F         | 1 form C     | AgSnO            | 9VDC  | 6-1415535-8 |
| PB113012     |                          | 1 CO contact |                  | 12VDC | 6-1415535-9 |
| PB113024     |                          |              |                  | 24VDC | 2-1415543-0 |
| PB114005     |                          |              |                  | 5VDC  | 6-1415029-1 |
| PB114006     |                          |              | AgNi 90/10       | 6VDC  | 7-1415029-1 |
| PB114012     |                          |              |                  | 12VDC | 8-1415029-1 |
| PB114024     |                          |              |                  | 24VDC | 9-1415029-1 |
| PB134005     |                          | 1 form A     |                  | 5VDC  | 1415030-1   |
| PB134006     |                          | 1 NO contact |                  | 6VDC  | 1-1415030-1 |
| PB134012     |                          |              |                  | 12VDC | 2-1415030-1 |
| PB134024     |                          |              |                  | 24VDC | 3-1415030-1 |
| PB514012     | 500 mW version           | 1 form C     |                  | 12VDC | 2-1415538-5 |
| PB514024     |                          | 1 CO contact |                  | 24VDC | 5-1415535-6 |
| PB634005     | High performance version | 1 form A     |                  | 5VDC  | 3-1415541-8 |
| PB634006     |                          | 1 NO contact |                  | 6VDC  | 3-1415541-9 |
| PB634009     |                          |              |                  | 9VDC  | 4-1415541-0 |
| PB634012     |                          |              |                  | 12VDC | 4-1415541-1 |
| PB634024     |                          |              |                  | 24VDC | 4-1415541-2 |
| PB634036     |                          |              |                  | 36VDC | 4-1415541-3 |

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