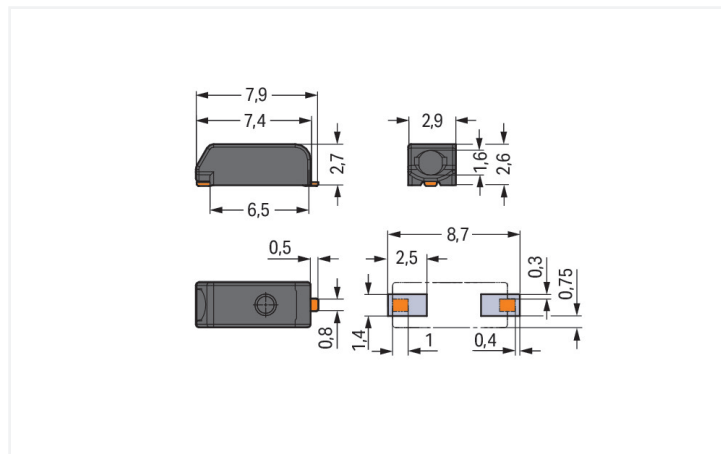


## Data Sheet | Item Number: 2059-321/998-403

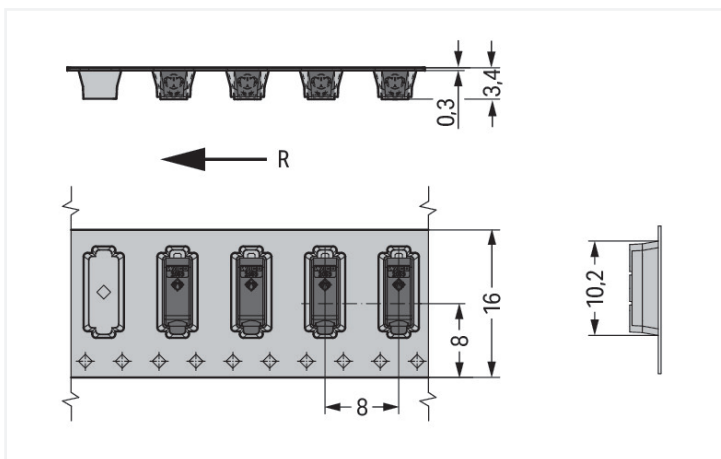
SMD PCB terminal block; 0.5 mm<sup>2</sup>; Pin spacing 3 mm; 1-pole; PUSH WIRE®; in tape-and-reel packaging; black

<https://www.wago.com/2059-321/998-403>



Color: ■ black

Dimensions in mm



Dimensions in mm  
R = feed direction

### PCB terminal block, 2059 Series, black

Connect conductors quickly and safely with this PCB terminal block (item number 2059-321/998-403). It is a universal connector that can be used practically anywhere, for example, as a pluggable PCB connector, panel feedthrough header, connector for rail-mount terminal blocks, or a floating connector for different mounting methods. Conductors should only be connected to this PCB terminal block if their strip length is between 4 and 5.5 mm. This product features one conductor terminal and utilizes PUSH WIRE®. Our proven PUSH WIRE® connection offers the fastest method for clamping conductors. It utilizes the conductor's stiffness to overcome the clamping spring's contact force. Dimensions: (2.9 x 2.7 x 7.9) mm (width x height x depth). Depending on the conductor type, this PCB terminal block is suitable for conductor cross sections ranging from 0.14 mm<sup>2</sup> to 0.34 mm<sup>2</sup> on one side and for conductor cross sections from 0.5 mm<sup>2</sup> to 0.5 mm<sup>2</sup> on the other side.

Tin is used for coating the contact surfaces. This PCB terminal block is operated with an operating tool. The PCB terminal block is designed for SMD soldering. Insert the conductor into the board at a 0° angle..

The 2059 Series SMD PCB Terminal Block is the smallest 2.7 mm terminal block with an insulated plastic housing in the portfolio. The white housing is perfect for use in LED lights and provides minimal shadowing thanks to its small design with rounded corners. WAGO's 2059 Series design is accented by a clean look and characteristic round hole for the operating tool for disconnecting conductors. Thanks to the slim design, terminal blocks can be arranged side-by-side without pole loss and without limitation. The slightly slanted shape of the terminal block front with the balcony-like projection of the underside not only allows a good view from above of the conductor entry hole, it also enables quick and easy insertion of solid conductors.

## Notes

## Note

## Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to application-specific variables (component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

## Recommendation

## Recommendation for stencil:

150 µm material thickness; Pattern layout identical to solder pad layout

## Electrical data

| Ratings per                     | IEC/EN 60664-1 |        |        | Approvals per | UL 1977 |
|---------------------------------|----------------|--------|--------|---------------|---------|
|                                 | III            | III    | II     |               |         |
| Overvoltage category            | III            | III    | II     | Rated voltage | 600 V   |
| Pollution degree                | 3              | 2      | 2      | Rated current | 3 A     |
| Nominal voltage                 | 63 V           | 160 V  | 320 V  |               |         |
| Rated impulse withstand voltage | 2.5 kV         | 2.5 kV | 2.5 kV |               |         |
| Rated current                   | 3 A            | 3 A    | 3 A    |               |         |

## Connection Data

|                            |   |
|----------------------------|---|
| Clamping units             | 1 |
| Total number of potentials | 1 |
| Number of connection types | 1 |
| Number of levels           | 1 |

## Connection 1

|                                       |  |
|---------------------------------------|--|
| Connection technology                 | PUSH WIRE®   |
| Actuation type                        | Operating tool   |
| Solid conductor                       | 0.14 ... 0.34 mm <sup>2</sup> / 26 ... 22 AWG  |
| Note (conductor cross-section)        | For conductors (26 AWG) that are not rigid enough, the clamping unit must be opened using an operating tool. |
| Strip length                          | 4 ... 5.5 mm / 0.16 ... 0.22 inches  |
| Conductor connection direction to PCB | 0°   |
| Pole number                           | 1  |

## Connection 2

|                                |   |
|--------------------------------|---|
| Solid conductor                | 0.5 mm <sup>2</sup> / 20 AWG  |
| Note (conductor cross-section) | No reconnection of smaller conductor cross-sections (0.5 mm <sup>2</sup> /20 AWG) |
| Strip length                   | 6 ... 7.5 mm / 0.24 ... 0.3 inches  |

## Physical data

|  |                       |
|--|-----------------------|
| Pin spacing                              | 3 mm / 0.118 inches   |
| Width                                    | 2.9 mm / 0.114 inches |
| Height                                   | 2.7 mm / 0.106 inches |
| Depth                                    | 7.9 mm / 0.311 inches |
| Reel diameter of tape-and-reel packaging | 330 mm                |
| Tape width                               | 16 mm                 |

### PCB contact

|                                     |  |
|-------------------------------------|--|
| PCB contact                         | SMD                                      |
| Solder pin arrangement              | over the entire terminal strip (in-line) |
| Number of solder pins per potential | 2  |

### Material data

|                                    |  |
|------------------------------------|--|
| Note (material data)               | <a href="#">Information on material specifications can be found here</a> |
| Color                              | black  |
| Material group                     | I  |
| Insulation material (main housing) | Polyphthalamide (PPA GF)   |
| Flammability class per UL94        | V0   |
| Contact material                   | Copper alloy   |
| Contact Plating                    | Tin  |
| Fire load                          | 0.001 MJ   |
| Weight                             | 0.1 g  |

### Environmental requirements

|   |   |
|---|---|
| Limit temperature range   | -60 ... +105 °C                                     |
| <b>Environmental Testing</b>  |   |
| Test specification:<br>Railway applications –<br>Rolling stock –<br>Electronic equipment            | DIN EN 50155 (VDE 0115-200):2022-06                 |
| Test procedure:<br>Railway applications –<br>Rolling stock equipment –<br>Vibration and shock tests | DIN EN 61373 (VDE 0115-0106):2011-04                |
| Spectrum/Mounting location  | Service life test, Category 1, Class A/B            |
| Functional test with noise-like oscillations  | Test passed according to Section 8 of the standard  |
| Frequency   | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$      |
| Acceleration  | 0.101g (highest test level used for all axes)       |
| Test duration per axis  | 10 min.   |
| Test directions   | X, Y and Z axes                                     |
| Monitoring of contact faults and interruptions  | Passed  |
| Voltage drop measurement before and after each axis   | Passed  |
| Simulated service life test through increased levels of noise-like oscillations                     | Test passed according to Section 9 of the standard  |
| Frequency   | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$      |
| Acceleration  | 0.572g (highest test level used for all axes)       |
| Test duration per axis  | 5 h   |
| Test directions   | X, Y and Z axes                                     |
| Extended testing: Monitoring of contact faults and interruptions                                    | Passed  |
| Extended testing: Voltage drop measurement before and after each axis                               | Passed  |
| Shock test  | Test passed according to Section 10 of the standard |
| Shock pulse form  | Half sine   |
| Acceleration  | 5g (highest test level used for all axes)           |
| Shock duration  | 30 ms   |
| Number of shocks (per axis)   | 3 pos. und 3 neg.                                   |
| Test directions   | X, Y and Z axes                                     |
| Extended testing: Monitoring of contact faults and interruptions                                    | Passed  |

**Environmental Testing**

|   |        |
|---|--------|
| Extended testing: Voltage drop measurement before and after each axis | Passed |
| Vibration and shock stress for rolling stock equipment                | Passed |

**Commercial data**

|                       |                  |
|-----------------------|------------------|
| PU (SPU)              | 31800 (2650) pcs |
| Packaging type        | Box              |
| Country of origin     | CH               |
| GTIN                  | 4055143476584    |
| Customs tariff number | 85369010000      |

**Product Classification**

|             |                      |
|-------------|----------------------|
| UNSPSC      | 39121409             |
| eCl@ss 10.0 | 27-14-11-06          |
| eCl@ss 9.0  | 27-14-11-06          |
| ETIM 9.0    | EC001284             |
| ETIM 10.0   | EC001284             |
| ECCN        | NO US CLASSIFICATION |

**Environmental Product Compliance**

|                        |                         |
|------------------------|-------------------------|
| RoHS Compliance Status | Compliant, No Exemption |
|------------------------|-------------------------|

**Approvals / Certificates**

**General approvals**



| Approval                              | Standard     | Certificate Name |
|---------------------------------------|--------------|------------------|
| CCA<br>DEKRA Certification B.V.       | EN 60947-7-4 | NTR NL-7819      |
| CCA<br>DEKRA Certification B.V.       | EN 60947-7-4 | 71-111131        |
| CCA<br>DEKRA Certification B.V.       | EN 60838     | NTR NL-7720      |
| KEMA/KEUR<br>DEKRA Certification B.V. | EN 60838     | 71-106226        |

**Declarations of conformity and manufacturer's declarations**



| Approval                      | Standard | Certificate Name |
|-------------------------------|----------|------------------|
| Railway<br>WAGO GmbH & Co. KG | -        | Z00004395.000    |

**Downloads**

**Environmental Product Compliance**

|  |
|--|
| <b>Compliance Search</b>                             |
| Environmental Product Compliance<br>2059-321/998-403 |



## Documentation

### Additional Information

|                   |            |                   |  |
|-------------------|------------|-------------------|--|
| Technical Section | 03.04.2019 | pdf<br>2027.26 KB |  |
|-------------------|------------|-------------------|--|

## CAD/CAE-Data

| CAD data                         | PCB Design  |
|----------------------------------|---|
| 2D/3D Models<br>2059-321/998-403 | Symbol and Footprint<br>via SamacSys<br>2059-321/998-403        |
|                                  | Symbol and Footprint<br>via Ultra Librarian<br>2059-321/998-403 |

## 1 Compatible Products

### 1.1 Optional Accessories

#### 1.1.1 Board-to-board link

##### 1.1.1.1 Board-to-board link



**Item No.: 2059-901**

Board-to-Board Link; Pin spacing 3 mm;  
1-pole; Length: 15.3 mm; white



**Item No.: 2059-901/018-000**

Board-to-Board Link; Pin spacing 3 mm;  
1-pole; Length: 17.5 mm; white



**Item No.: 2059-901/021-000**

Board-to-Board Link; Pin spacing 3 mm;  
1-pole; Length: 20.5 mm; white

### 1.1.2 Tool

#### 1.1.2.1 Operating tool



**Item No.: 206-859**

Operating tool; for 2059 Series; multicoloured



**Item No.: 2059-189**

Operating tool; made of insulating material; for 2059 Series

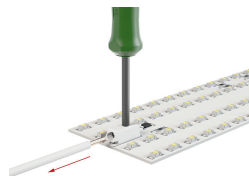
## Installation Notes

### Conductor termination



Insert solid conductors via push-in termination.

Conductor termination



Easy conductor removal, e.g., via operating tool (Item No. 206-859) or "twist & pull" (max. 10 x, no reconnection of smaller conductors possible)