

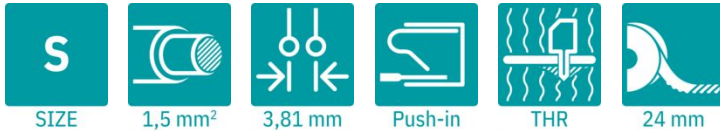
# SPT-THR 1,5/ 2-H-3,81 P20 R24 - PCB terminal block



1823748

<https://www.phoenixcontact.com/us/products/1823748>

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PCB terminal block, nominal current: 17.5 A, rated voltage (III/2): 160 V, nominal cross section: 1.5 mm<sup>2</sup>, number of potentials: 2, number of rows: 1, number of positions per row: 2, product range: SPT 1,5/...-H-THR, pitch: 3.81 mm, connection method: Push-in spring connection, mounting: THR soldering / wave soldering, conductor/PCB connection direction: 0 °, color: black, Pin layout: Linear pinning, Solder pin [P]: 2 mm, number of solder pins per potential: 2, type of packaging: 24 mm wide tape

## Your advantages

- Time saving push-in connection, tools not required
- Defined contact force ensures that contact remains stable over the long term
- Intuitive operation due to color-coded actuating push button
- Designed for integration into the SMT soldering process
- Quick and convenient testing using integrated test option
- Operation and conductor connection from one direction enable integration into front of device
- Two solder pins reduce the mechanical strain on the soldering spots

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1823748                        |
| Packing unit                         | 250 pc                         |
| Minimum order quantity               | 250 pc                         |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AA12                           |
| Product key                          | AALCCD                         |
| GTIN                                 | 4046356814393                  |
| Weight per piece (including packing) | 2.5 g                          |
| Weight per piece (excluding packing) | 2.5 g                          |
| Customs tariff number                | 85369010                       |
| Country of origin                    | CN                             |

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## Technical data

### Product properties

|                           |                      |
|---------------------------|----------------------|
| Product type              | PCB terminal block   |
| Product family            | SPT 1,5/...-H-THR    |
| Product line              | COMBICON Terminals S |
| Number of positions       | 2                    |
| Pitch                     | 3.81 mm              |
| Number of connections     | 2                    |
| Number of rows            | 1                    |
| Number of potentials      | 2                    |
| Pin layout                | Linear pinning       |
| Solder pins per potential | 2                    |

### Electrical properties

#### Properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 17.5 A |
| Nominal voltage $U_N$       | 160 V  |
| Rated voltage (III/3)       | 160 V  |
| Rated surge voltage (III/3) | 2.5 kV |
| Rated voltage (III/2)       | 160 V  |
| Rated surge voltage (III/2) | 2.5 kV |
| Rated voltage (II/2)        | 320 V  |
| Rated surge voltage (II/2)  | 2.5 kV |

### Connection data

#### Connection technology

|                       |                     |
|-----------------------|---------------------|
| Nominal cross section | 1.5 mm <sup>2</sup> |
|-----------------------|---------------------|

#### Conductor connection

|   |  |
|---|--|
| Connection method   | Push-in spring connection                    |
| Conductor cross-section rigid   | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross-section flexible  | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross-section AWG   | 24 ... 16                                    |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve    | 0.2 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| Stripping length  | 8 mm   |

### Mounting

|               |                                |
|---------------|--------------------------------|
| Mounting type | THR soldering / wave soldering |
| Pin layout    | Linear pinning                 |

#### Processing notes

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|                                  |                       |
|----------------------------------|-----------------------|
| Process                          | Reflow/wave soldering |
| Moisture Sensitive Level         | MSL 1                 |
| Classification temperature $T_c$ | 260 °C                |
| Solder cycles in the reflow      | 3                     |

## Material specifications

### Material data - contact

|  |  |
|--|--|
| Note                                     | WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201 |
| Contact material                         | Cu alloy   |
| Surface characteristics                  | hot-dip tin-plated   |
| Metal surface terminal point (top layer) | Tin (4 $\mu$ m - 8 $\mu$ m Sn)   |
| Metal surface soldering area (top layer) | Tin (4 $\mu$ m - 8 $\mu$ m Sn)   |

### Material data - housing

|  |              |
|--|--------------|
| Color (Housing)                        | black (9005) |
| Insulating material                    | LCP          |
| Insulating material group              | IIIa         |
| CTI according to IEC 60112             | 175          |
| Flammability rating according to UL 94 | V0           |

### Material data – actuating element

|  |              |
|--|--------------|
| Color (Actuating element)              | white (9010) |
| Insulating material                    | PA GF        |
| Insulating material group              | I            |
| CTI according to IEC 60112             | 600          |
| Flammability rating according to UL 94 | V0           |

## Notes

|               |  |
|---------------|--|
| Assembly note | This item is not suitable for PCB cleaning with liquids. |
|---------------|--|

## Dimensions

|                       |              |
|-----------------------|--------------|
| Dimensional drawing   |              |
| Pitch                 | 3.81 mm      |
| Width [w]             | 7.81 mm      |
| Height [h]            | 9.7 mm       |
| Length [l]            | 13.6 mm      |
| Installed height      | 7.7 mm       |
| Solder pin length [P] | 2 mm         |
| Pin dimensions        | 0.7 x 0.3 mm |

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## PCB design

|               |        |
|---------------|--------|
| Pin spacing   | 7 mm   |
| Hole diameter | 1.1 mm |

## Mechanical tests

### Connection test

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60998-2-2:2002-12 |
| Result        | Test passed           |

### Test for conductor damage and slackening

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60998-2-2:2002-12 |
| Result        | Test passed           |

### Pull-out test

|   |   |
|---|---|
| Specification   | IEC 60998-2-2:2002-12                   |
| Conductor cross-section/conductor type/tractive force setpoint/actual value | 0.2 mm <sup>2</sup> / solid / > 10 N    |
|   | 0.2 mm <sup>2</sup> / flexible / > 10 N |
|   | 1.5 mm <sup>2</sup> / solid / > 40 N    |
|   | 1.5 mm <sup>2</sup> / flexible / > 40 N |

### Flexion test

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60998-2-2:2002-12 |
| Result        | Test passed           |

## Electrical tests

### Temperature-rise test

|                                   |  |
|-----------------------------------|--|
| Specification                     | IEC 60947-7-4:2019-01  |
| Requirement temperature-rise test | The sum of ambient temperature and temperature rise of the PCB terminal block shall not exceed the upper limiting temperature. |

### Insulation resistance

|  |                     |
|--|---------------------|
| Specification                                | IEC 60998-1:2002-12 |
| Insulation resistance, neighboring positions | > 5 MΩ              |

### Air clearances and creepage distances |

|  |                       |
|--|-----------------------|
| Specification  | IEC 60947-7-4:2013-08 |
| Insulating material group                              | IIIa                  |
| Comparative tracking index (IEC 60112)                 | CTI 175               |
| Rated insulation voltage (III/3)                       | 160 V                 |
| Rated surge voltage (III/3)                            | 2.5 kV                |
| minimum clearance value - non-homogenous field (III/3) | 1.5 mm                |
| minimum creepage distance (III/3)                      | 2.5 mm                |
| Rated insulation voltage (III/2)                       | 160 V                 |
| Rated surge voltage (III/2)                            | 2.5 kV                |
| minimum clearance value - non-homogenous field (III/2) | 1.5 mm                |

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|   |        |
|---|--------|
| minimum creepage distance (III/2)                     | 1.6 mm |
| Rated insulation voltage (II/2)                       | 320 V  |
| Rated surge voltage (II/2)                            | 2.5 kV |
| minimum clearance value - non-homogenous field (II/2) | 1.5 mm |
| minimum creepage distance (II/2)                      | 3.2 mm |

## Environmental and real-life conditions

### Vibration test

|                        |                             |
|------------------------|-----------------------------|
| Specification          | IEC 60068-2-6:2007-12       |
| Frequency              | 10 - 150 - 10 Hz            |
| Sweep speed            | 1 octave/min                |
| Amplitude              | 0.35 mm (10 Hz ... 60.1 Hz) |
| Acceleration           | 5g (60.1 Hz ... 150 Hz)     |
| Test duration per axis | 2.5 h                       |
| Test directions        | X-, Y- and Z-axis           |

### Glow-wire test

|                  |                     |
|------------------|---------------------|
| Specification    | IEC 60998-1:2002-12 |
| Temperature      | 850 °C              |
| Time of exposure | 5 s                 |

### Ambient conditions

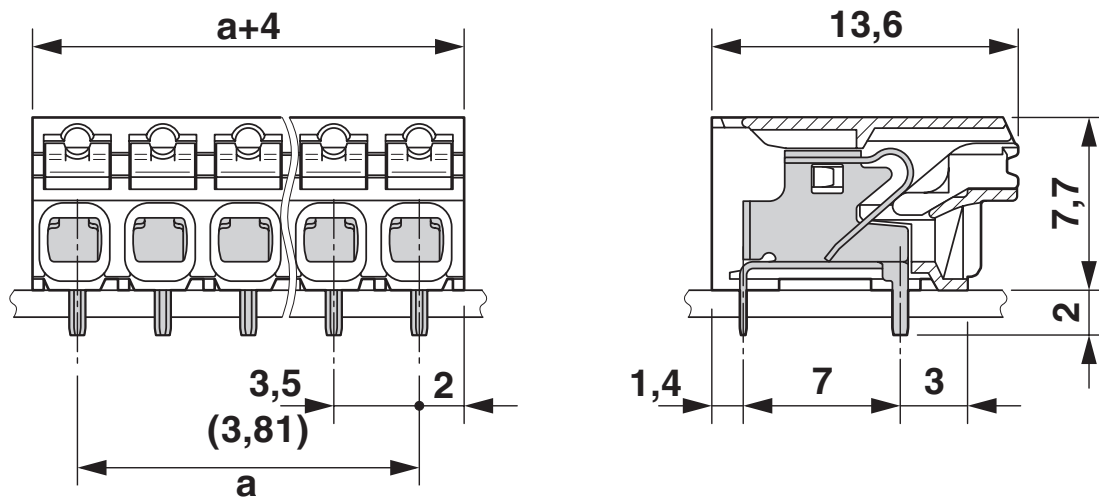
|   |   |
|---|---|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C  |
| Relative humidity (storage/transport)   | 30 % ... 70 %   |
| Ambient temperature (assembly)          | -5 °C ... 100 °C  |
| Ambient temperature (operation)         | -40 °C ... 105 °C (Depending on the current carrying capacity/derating curve) |

## Packaging specifications

|                             |                 |
|-----------------------------|-----------------|
| Dimensional drawing         |                 |
| Type of packaging           | 24 mm wide tape |
| [W] tape width              | 24 mm           |
| [W2] coil overall dimension | ≤ 30.4 mm       |
| [A] coil diameter           | ≤ 330 mm        |
| Outer packaging type        | Transparent-Bag |

Drawings

Dimensional drawing



Diagram



Type: SPT-THR 1,5/...-H-3,81 P...

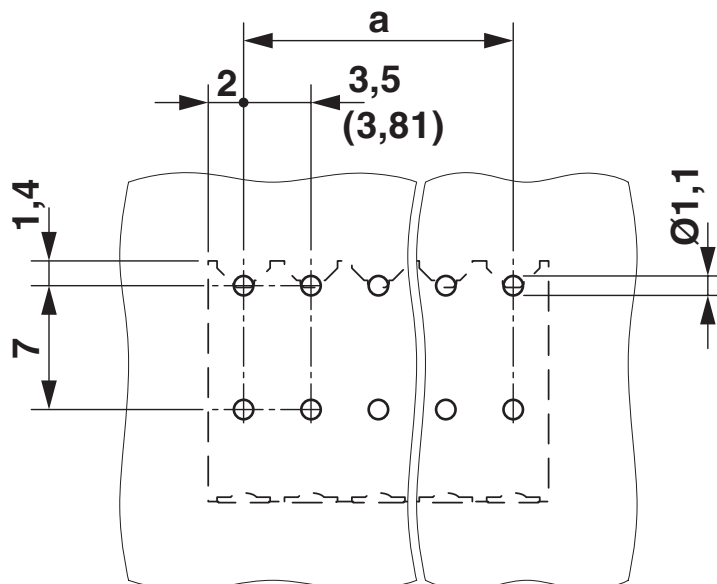
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Drilling plan/solder pad geometry



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1823748>

|  <b>cULus Recognized</b><br>Approval ID: E60425-20061129 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B   | 300 V                 | 10 A                  | 24 - 16           | -                           |
| D   | 300 V                 | 10 A                  | 24 - 16           | -                           |

|  <b>VDE approval of drawings</b><br>Approval ID: 40046113 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  | 160 V                 | 17.5 A                | -                 | 0.2 - 1.5                   |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27460101 |
| ECLASS-15.0 | 27460101 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002643 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121400 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|   |                    |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|---|--------------------|

### China RoHS

|  |  |
|--|--|
| Environment friendly use period (EFUP) | EFUP-E                                   |
|  | No hazardous substances above the limits |

### EU REACH SVHC

|                                     |                            |
|-------------------------------------|----------------------------|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 0.023 kg CO2e |
|---------|---------------|

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