

# PTSM 0,5/ 7-HH-2,5-SMD R44 - PCB header



1778816

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PCB headers, nominal cross section: 0.5 mm<sup>2</sup>, color: black, nominal current: 6 A, rated voltage (III/2): 160 V, contact surface: Sn, contact connection type: Pin, number of potentials: 7, number of rows: 1, number of positions: 7, number of connections: 7, product range: PTSM 0,5/..-HH-SMD, pitch: 2.5 mm, mounting: SMD soldering, pin layout: Linear pad geometry, number of solder pins per potential: 1, plug-in system: COMBICON PTSM, Pin connector pattern alignment: Standard, locking: without, mounting method: without, type of packaging: 44 mm wide tape, Article with anti-rotation pin

## Your advantages

- Designed for integration into the SMT soldering process
- Supplied in tape-on-reel packing according to IEC 60286-3 for automated mounting
- Additional solder anchors reduce the mechanical strain on the soldering spots

## Commercial data

|                                      |                   |
|--------------------------------------|-------------------|
| Item number                          | 1778816           |
| Packing unit                         | 600 pc            |
| Minimum order quantity               | 600 pc            |
| Sales key                            | AAA               |
| Product key                          | AAAUPB            |
| Catalog page                         | Page 57 (CC-2011) |
| GTIN                                 | 4046356530026     |
| Weight per piece (including packing) | 1.886 g           |
| Weight per piece (excluding packing) | 1.124 g           |
| Customs tariff number                | 85366930          |
| Country of origin                    | IN                |

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## Technical data

### Product properties

|                           |                        |
|---------------------------|------------------------|
| Product type              | PCB headers            |
| Product family            | PTSM 0,5/...-HH-SMD    |
| Product line              | COMBICON Connectors XS |
| Type                      | Standard               |
| Number of positions       | 7                      |
| Pitch                     | 2.5 mm                 |
| Number of connections     | 7                      |
| Number of rows            | 1                      |
| Number of potentials      | 7                      |
| Mounting flange           | without                |
| Pin layout                | Linear pad geometry    |
| Solder pins per potential | 1                      |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 6 A    |
| Nominal voltage $U_N$       | 160 V  |
| Contact resistance          | 3.6 mΩ |
| Rated voltage (III/3)       | 50 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)        | 160 V  |
| Rated surge voltage (II/2)  | 2.5 kV |

### Mounting

|               |                     |
|---------------|---------------------|
| Mounting type | SMD soldering       |
| Pin layout    | Linear pad geometry |

### Processing notes

|                                  |                  |
|----------------------------------|------------------|
| Process                          | Reflow 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                | Tin-plated                                                                       |
| Metal surface contact area (top layer) | Tin (3 - 5 μm Sn)                                                                |

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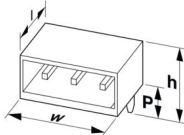
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|                                             |                        |
|---------------------------------------------|------------------------|
| Metal surface contact area (middle layer)   | Nickel (1.3 - 3 µm Ni) |
| Metal surface soldering area (top layer)    | Tin (3 - 5 µm Sn)      |
| Metal surface soldering area (middle layer) | Nickel (1.3 - 3 µm Ni) |

## 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           |

## Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Pitch               | 2.5 mm                                                                             |
| Width [w]           | 21.3 mm                                                                            |
| Height [h]          | 5 mm                                                                               |
| Length [l]          | 7.5 mm                                                                             |
| Installed height    | 5 mm                                                                               |

## PCB design

|              |              |
|--------------|--------------|
| Pad geometry | 1.2 x 3.2 mm |
| Pin spacing  | 2.50 mm      |

## Mechanical tests

### Visual inspection

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-1:2002-02 |
| Result        | Test passed           |

### Dimension check

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-1-2:2002-02 |
| Result        | Test passed           |

### Resistance of inscriptions

|               |                        |
|---------------|------------------------|
| Specification | IEC 60068-2-70:1995-12 |
| Result        | Test passed            |

### Polarization and coding

|               |                        |
|---------------|------------------------|
| Specification | IEC 60512-13-5:2006-02 |
| Result        | Test passed            |

### Contact holder in insert

|               |                        |
|---------------|------------------------|
| Specification | IEC 60512-15-1:2008-05 |
|---------------|------------------------|

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|                                                |             |
|------------------------------------------------|-------------|
| Contact holder in insert<br>Requirements >20 N | Test passed |
|------------------------------------------------|-------------|

## Insertion and withdrawal forces

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 4 N         |
| Withdraw strength per pos. approx.  | 4 N         |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 8                     |

### Insulation resistance

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-3-1:2002-02 |
| Insulation resistance, neighboring positions | > 5 MΩ                |

### Air clearances and creepage distances |

|                                                        |                     |
|--------------------------------------------------------|---------------------|
| Specification                                          | IEC 60664-1:2007-04 |
| Insulating material group                              | IIIa                |
| Comparative tracking index (IEC 60112)                 | CTI 175             |
| Rated insulation voltage (III/3)                       | 50 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)                      | 1.9 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              |
| minimum creepage distance (III/2)                      | 1.6 mm              |
| Rated insulation voltage (II/2)                        | 160 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)                       | 1.6 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           |

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## Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 1.75 kV               |
| Contact resistance $R_1$                     | 3.6 mΩ                |
| Contact resistance $R_2$                     | 3.8 mΩ                |
| Insertion/withdrawal cycles                  | 25                    |
| Insulation resistance, neighboring positions | > 5 MΩ                |

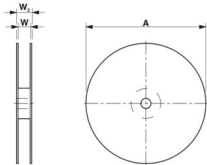
## Climatic test

|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| Specification                     | ISO 6988:1985-02                                                          |
| Corrosive stress                  | 0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle |
| Thermal stress                    | 100 °C/168 h                                                              |
| Power-frequency withstand voltage | 0.84 kV                                                                   |

## Ambient conditions

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

## Packaging specifications

|                             |                                                                                      |  |
|-----------------------------|--------------------------------------------------------------------------------------|--|
| Dimensional drawing         |  |  |
| Type of packaging           | 44 mm wide tape                                                                      |  |
| [W] tape width              | 44 mm                                                                                |  |
| [W2] coil overall dimension | 50.4 mm                                                                              |  |
| [A] coil diameter           | 330 mm                                                                               |  |
| Outer packaging type        | Transparent-Bag                                                                      |  |
| ESD level                   | (D) electrostatically conductive                                                     |  |
| Specification               | DIN EN 61340-5-1 (VDE 0300-5-1): 2008-07                                             |  |

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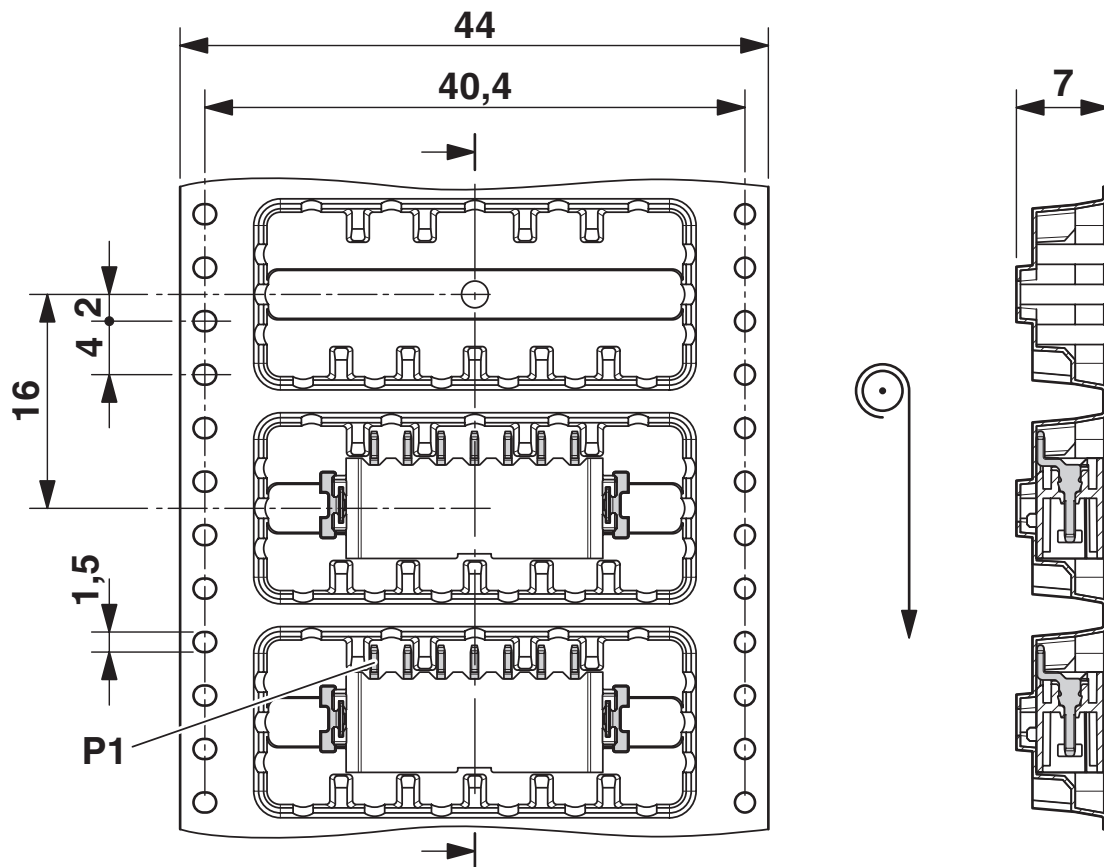
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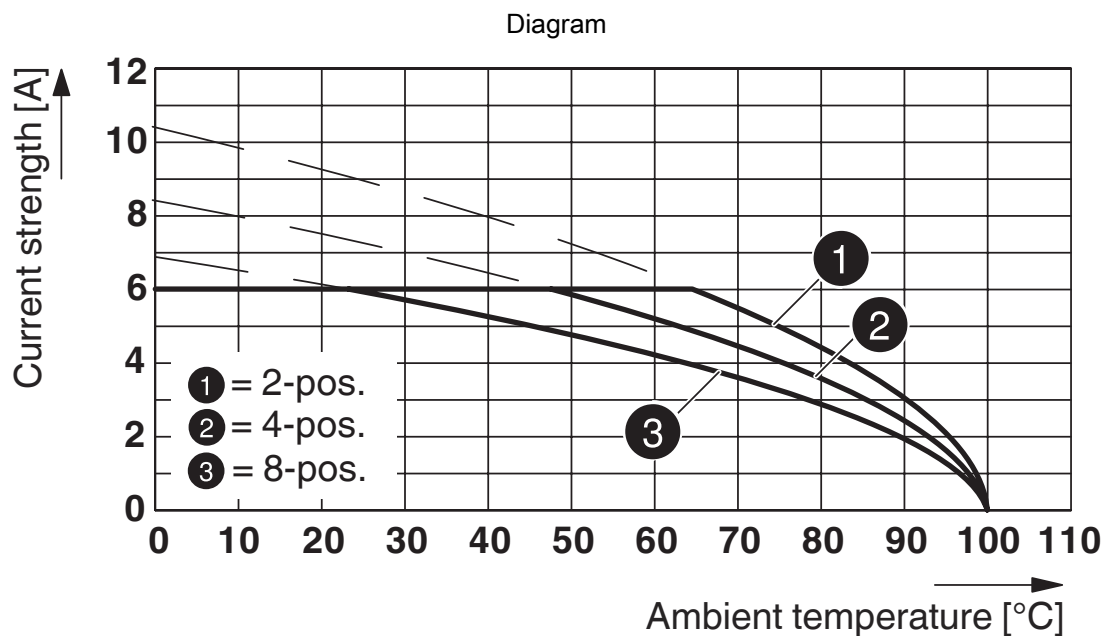


## Drawings

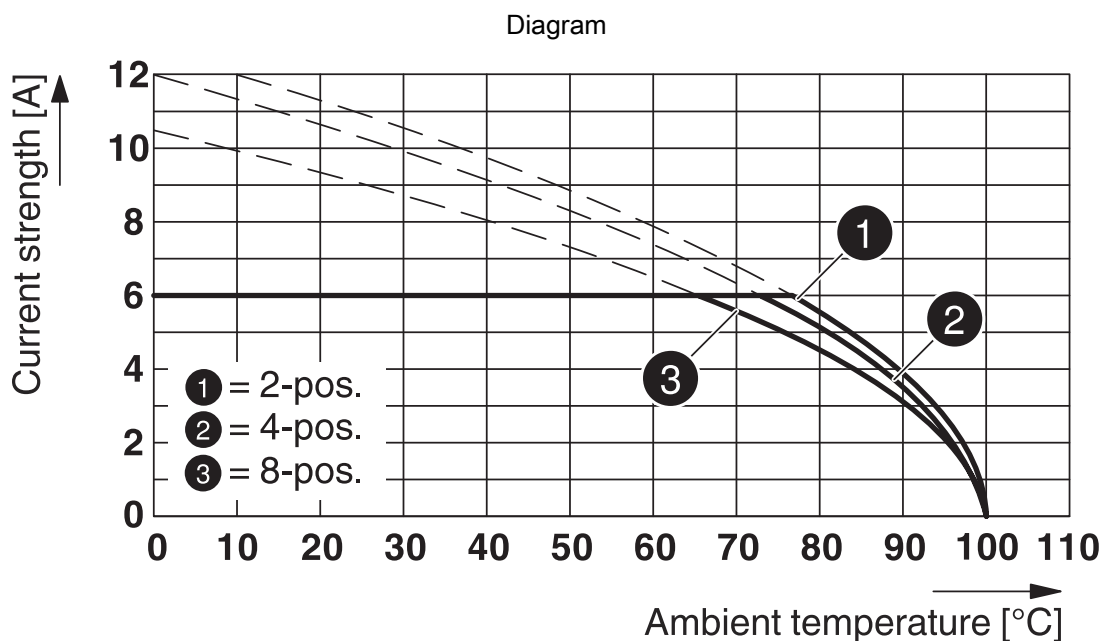
Dimensional drawing



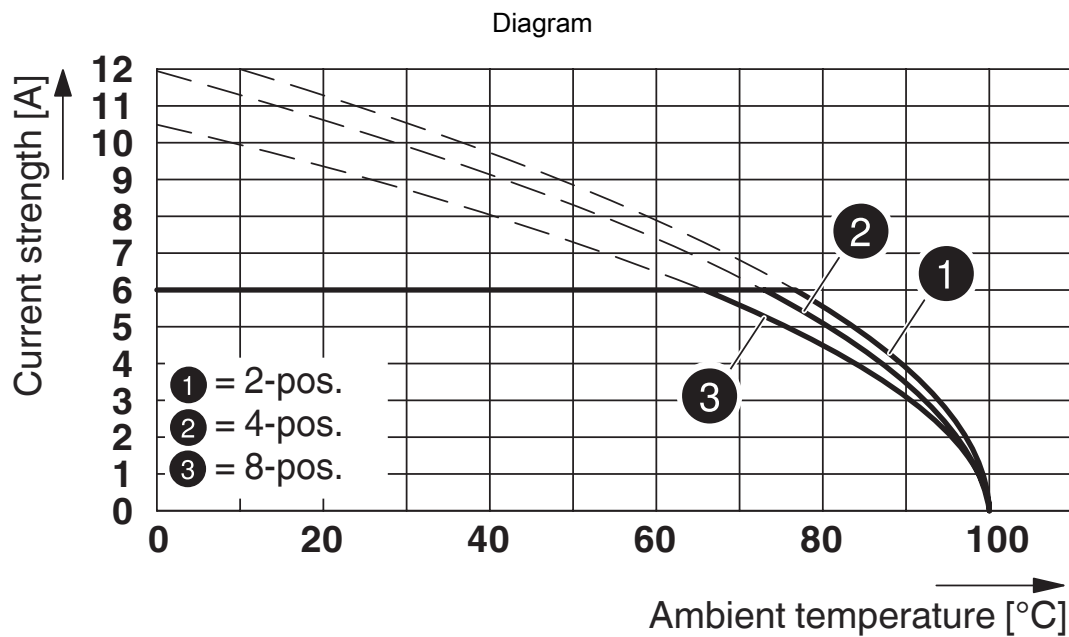
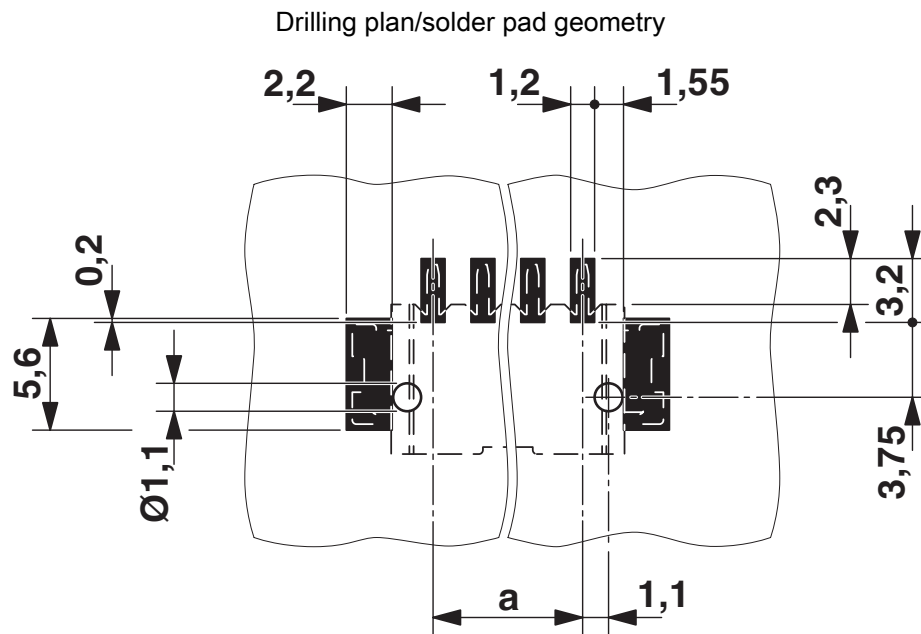
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Type: PTSM 0,5/...-HHI-2,5-SMD R... with PTSM 0,5/...-HH-2,5-SMD R...



Type: PTSM 0,5/...-PL-2,5 ... with PTSM 0,5/...-HH-2,5-SMD... R...

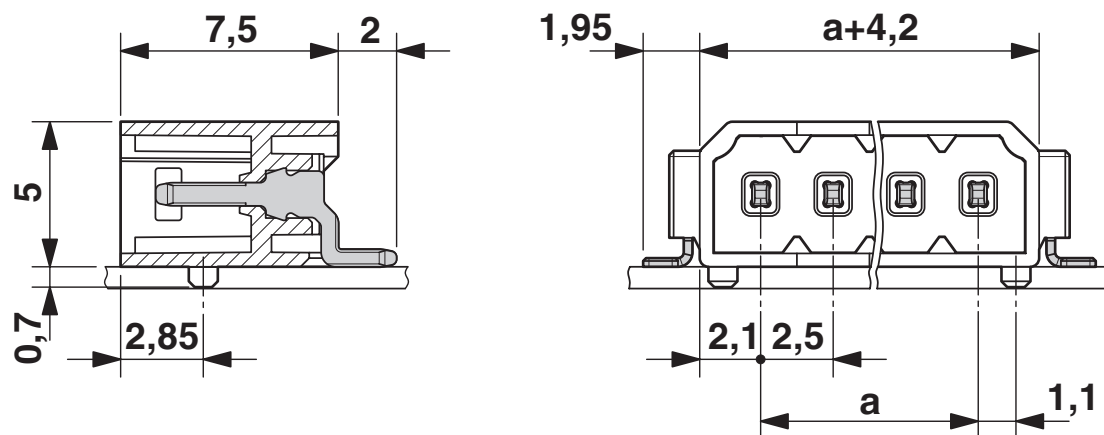


Derating curve for: PTSM 0,5/...-P-2,5 with PTSM 0,5/...-HH-2,5-SMD R..

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Dimensional drawing



# PTSM 0,5/ 7-HH-2,5-SMD R44 - PCB header



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/in/products/1778816>

|  <b>UL Recognized</b><br>Approval ID: E118976-20130619 |                       |                       |                   |                             |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                         | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                             |                       |                       |                   |                             |
|                                                                                                                                         | 150 V                 | 5 A                   | -                 | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425-20110108 |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                               |                       |                       |                   |                             |
|                                                                                                                                           | 150 V                 | 6 A                   | -                 | -                           |

|  <b>VDE approval of drawings</b><br>Approval ID: 40048497 |                       |                       |                   |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                              | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                                                                                                              | 160 V                 | 6 A                   | -                 | -                           |

# PTSM 0,5/ 7-HH-2,5-SMD R44 - PCB header



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27460201 |
| ECLASS-12.0 | 27460201 |
| ECLASS-13.0 | 27460201 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002637 |
|----------|----------|

### 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%               |

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## Accessories

### PTSM 0,5/ 7-P-2,5 - PCB connector

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PCB connector, nominal cross section: 0.5 mm<sup>2</sup>, color: black, nominal current: 6 A, rated voltage (III/2): 160 V, contact surface: Sn, contact connection type: Socket, number of potentials: 7, number of rows: 1, number of positions: 7, number of connections: 7, product range: PTSM 0,5/...-P, pitch: 2.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON PTSM, locking: without, mounting method: without, type of packaging: packed in cardboard

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