

# MDSTBA 2,5/ 3-G-5,08 BK - PCB header



1800751

<https://www.phoenixcontact.com/us/products/1800751>

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PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: black, nominal current: 10 A, rated voltage (III/2): 320 V, contact surface: Tin, contact connection type: Pin, number of rows: 2, number of positions: 3, product range: MDSTBA 2,5/-G, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.2 mm, number of solder pins per potential: 1, plug-in system: COMBICON MSTB 2,5, Pin connector pattern alignment: Standard, locking: without, mounting: without, type of packaging: packed in cardboard

## Your advantages

- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies
- Easy PCB replacement thanks to plug-in modules
- Well-known mounting principle allows worldwide use
- Conductor connection on several levels enables higher contact density

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1800751       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1,000 pc      |
| Sales key                            | AA03          |
| Product key                          | AACSDC        |
| GTIN                                 | 4055626333656 |
| Weight per piece (including packing) | 5.63 g        |
| Weight per piece (excluding packing) | 5.63 g        |
| Customs tariff number                | 85366930      |
| Country of origin                    | DE            |

## Technical data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Product line              | COMBICON Connectors M |
| Product type              | PCB headers           |
| Product family            | MDSTBA 2,5/..-G       |
| Number of positions       | 3                     |
| Pitch                     | 5.08 mm               |
| Number of rows            | 2                     |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 1                     |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 10 A   |
| Nominal voltage $U_N$       | 320 V  |
| Degree of pollution         | 3      |
| Contact resistance          | 1.3 mΩ |
| Rated voltage (III/3)       | 250 V  |
| Rated surge voltage (III/3) | 4 kV   |
| Rated voltage (III/2)       | 320 V  |
| Rated surge voltage (III/2) | 4 kV   |
| Rated voltage (II/2)        | 400 V  |
| Rated surge voltage (II/2)  | 4 kV   |

### Mounting

|               |                |
|---------------|----------------|
| Mounting type | Wave soldering |
| Pin layout    | Linear pinning |

### 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)  |
| 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        | PBT          |
| Insulating material group  | IIIa         |
| CTI according to IEC 60112 | 225          |

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|  |    |
|--|----|
| Flammability rating according to UL 94 | V0 |
|--|----|

## Notes

|                    |  |
|--------------------|--|
| Notes on operation | In accordance with IEC 61984, COMBICON connectors have no switching power (COC). During designated use, they must not be plugged in or disconnected when carrying voltage or under load. |
|--------------------|--|

## Dimensions

|                       |  |
|-----------------------|--|
| Dimensional drawing   |  |
| Pitch                 | 5.08 mm  |
| Width [w]             | 19.78 mm   |
| Height [h]            | 26.9 mm  |
| Length [l]            | 22.1 mm  |
| Installed height      | 23.7 mm  |
| Solder pin length [P] | 3.2 mm   |
| Pin dimensions        | 1 x 1 mm   |

## PCB design

|               |          |
|---------------|----------|
| Pin spacing   | 10.00 mm |
| Hole diameter | 1.4 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 |
| Contact holder in insert Requirements >20 N | Test passed            |

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## Insertion and withdrawal forces

| Result                              | Test passed |
|-------------------------------------|-------------|
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 8 N         |
| Withdraw strength per pos. approx.  | 6 N         |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 12                    |

### 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 225             |
| Rated insulation voltage (III/3)                       | 250 V               |
| Rated surge voltage (III/3)                            | 4 kV                |
| minimum clearance value - non-homogenous field (III/3) | 3 mm                |
| minimum creepage distance (III/3)                      | 4 mm                |
| Rated insulation voltage (III/2)                       | 320 V               |
| Rated surge voltage (III/2)                            | 4 kV                |
| minimum clearance value - non-homogenous field (III/2) | 3 mm                |
| minimum creepage distance (III/2)                      | 4 mm                |
| Rated insulation voltage (II/2)                        | 400 V               |
| Rated surge voltage (II/2)                             | 4 kV                |
| minimum clearance value - non-homogenous field (II/2)  | 3 mm                |
| minimum creepage distance (II/2)                       | 4 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) |
| Sweep speed            | 5g (60.1 Hz ... 150 Hz)     |
| Test duration per axis | 2.5 h                       |

### Durability test

|  |                       |
|--|-----------------------|
| Specification                          | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level | 4.8 kV                |

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|  |        |
|--|--------|
| Contact resistance R <sub>1</sub>            | 1.3 mΩ |
| Contact resistance R <sub>2</sub>            | 1.3 mΩ |
| Contact resistance R <sub>2</sub> 2nd level  | 1.6 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 | 2.21 kV   |

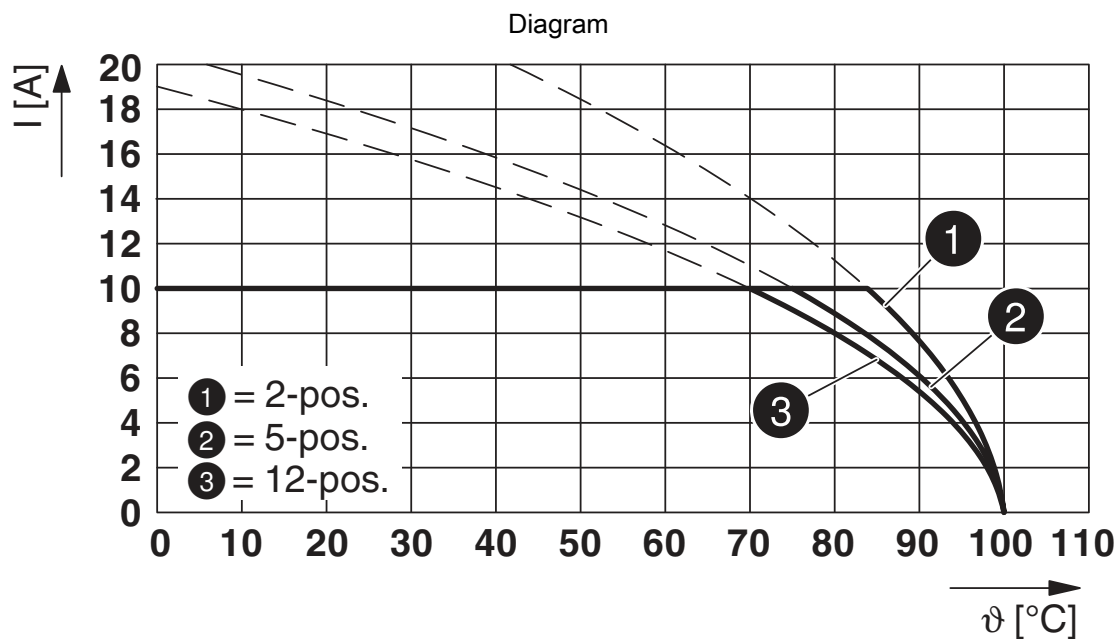
## Ambient conditions

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

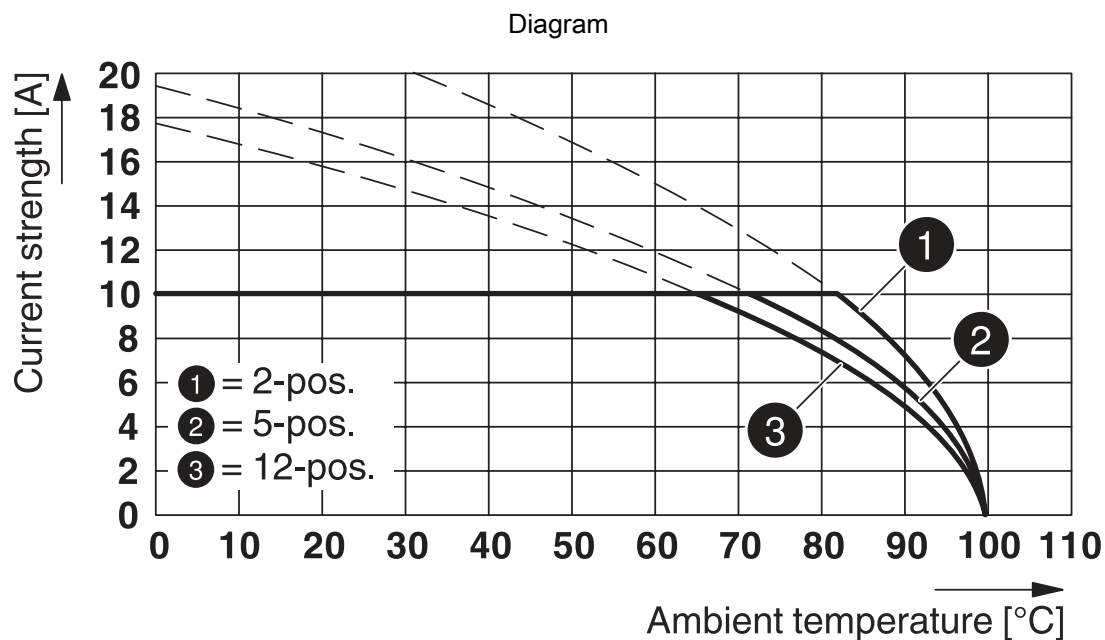
## Packaging specifications

|                   |                     |
|-------------------|---------------------|
| Type of packaging | packed in cardboard |
|-------------------|---------------------|

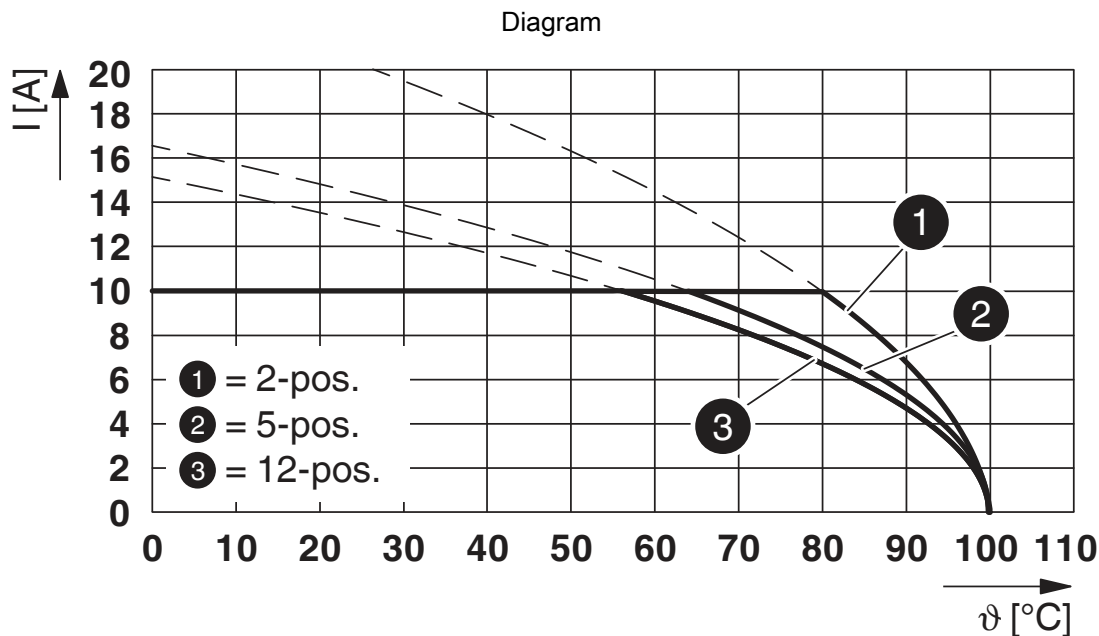
Drawings



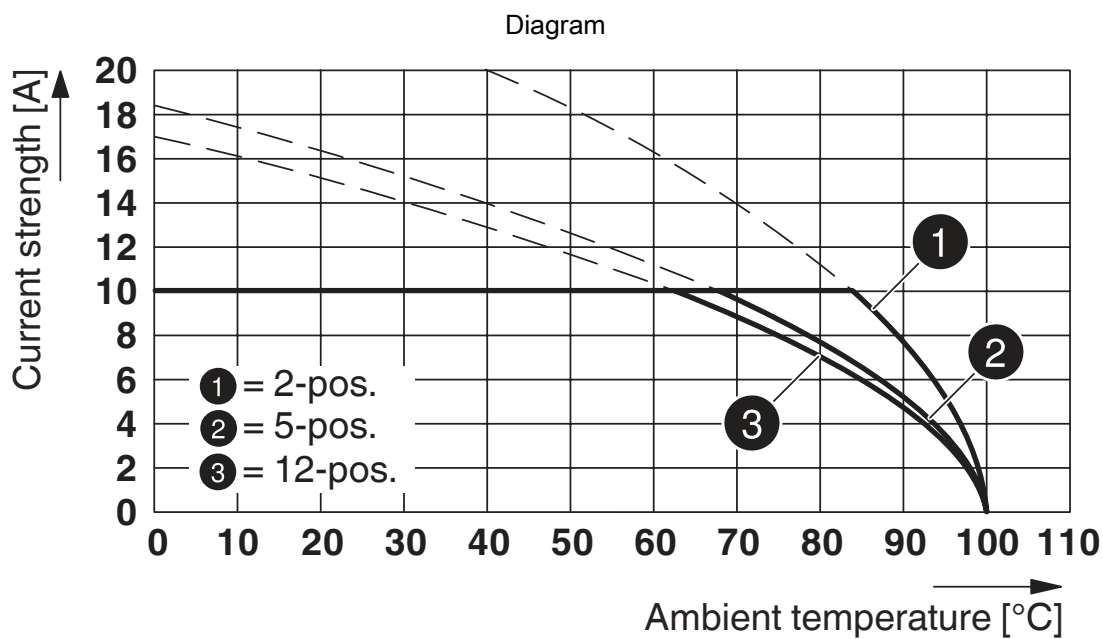
Type: FKCV(W/R) 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08



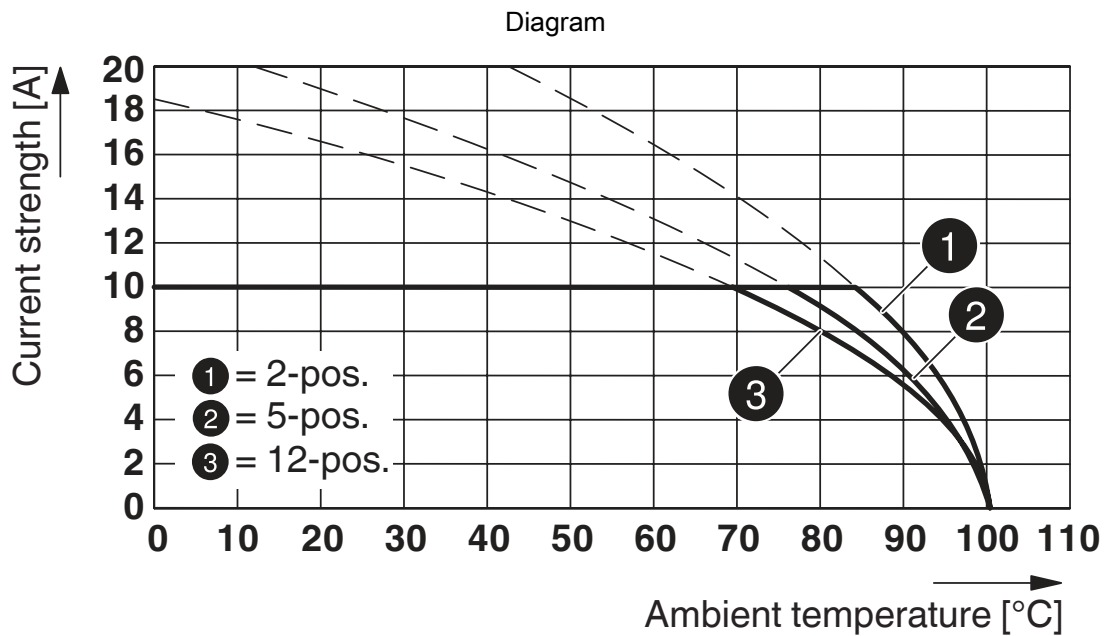
Type: MSTB 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08



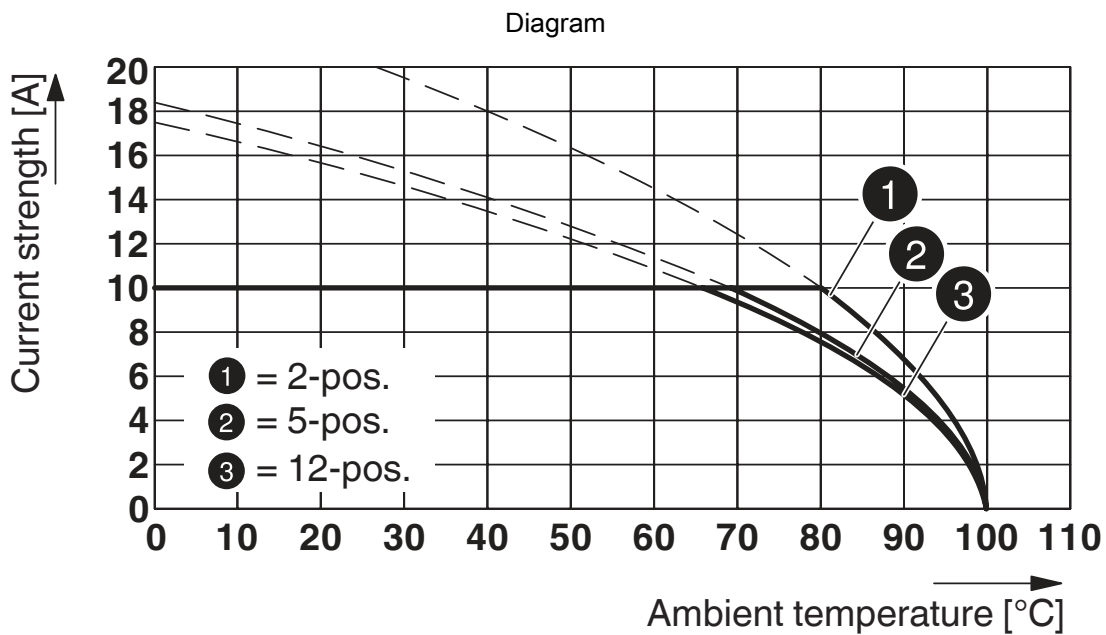
Type: FKCT 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08



Type: MSTBT 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08

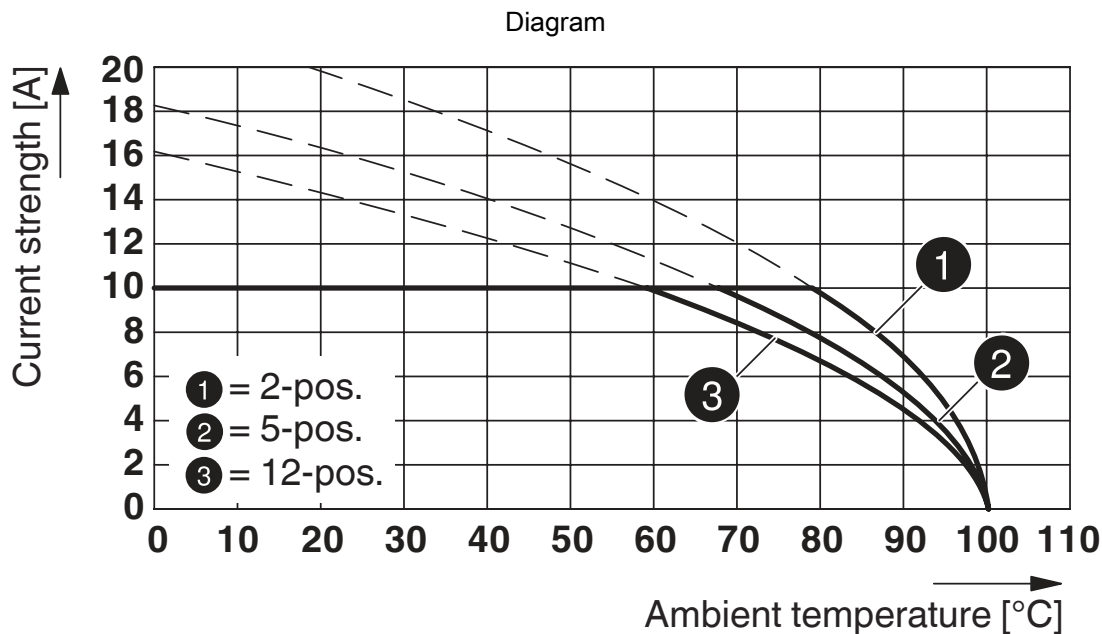


Type: FKCN 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08

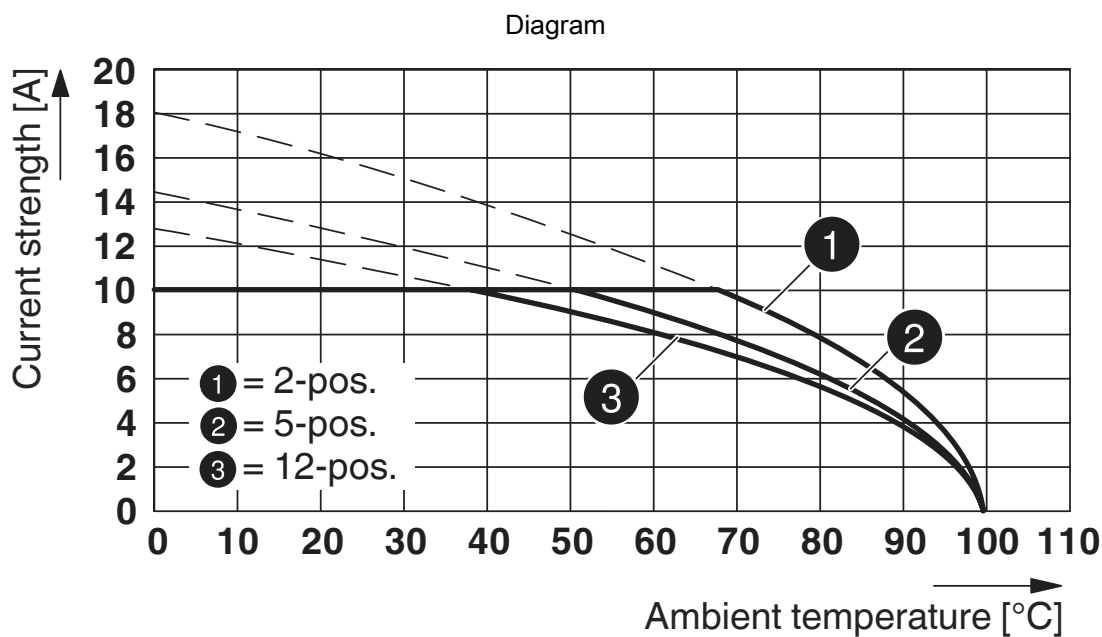


Type: MSTBP 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08





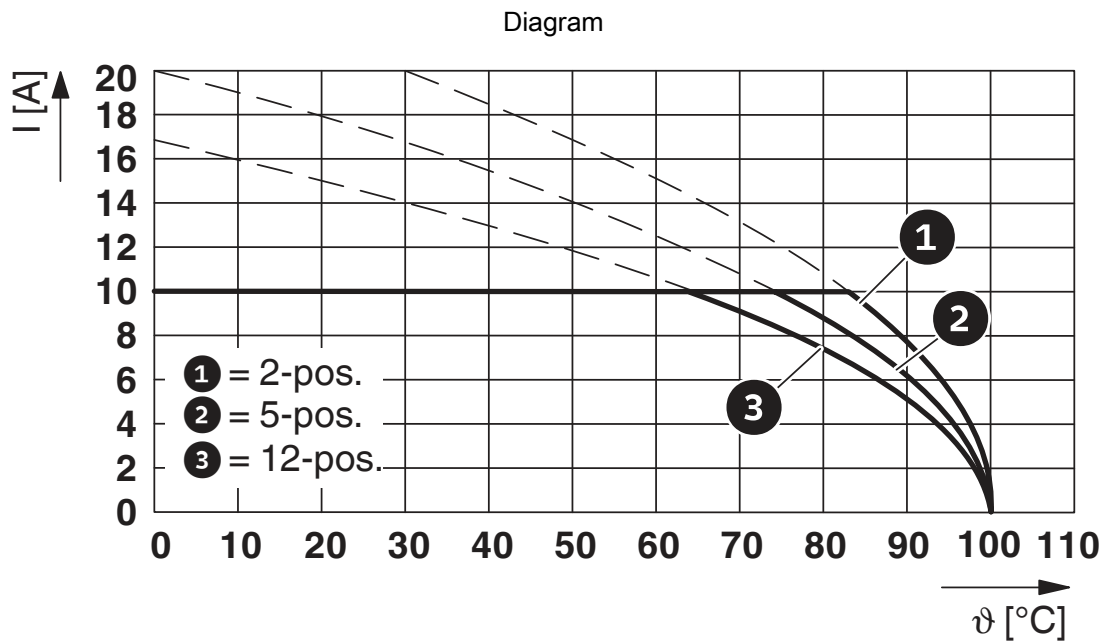
Type: FRONT-MSTB 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08



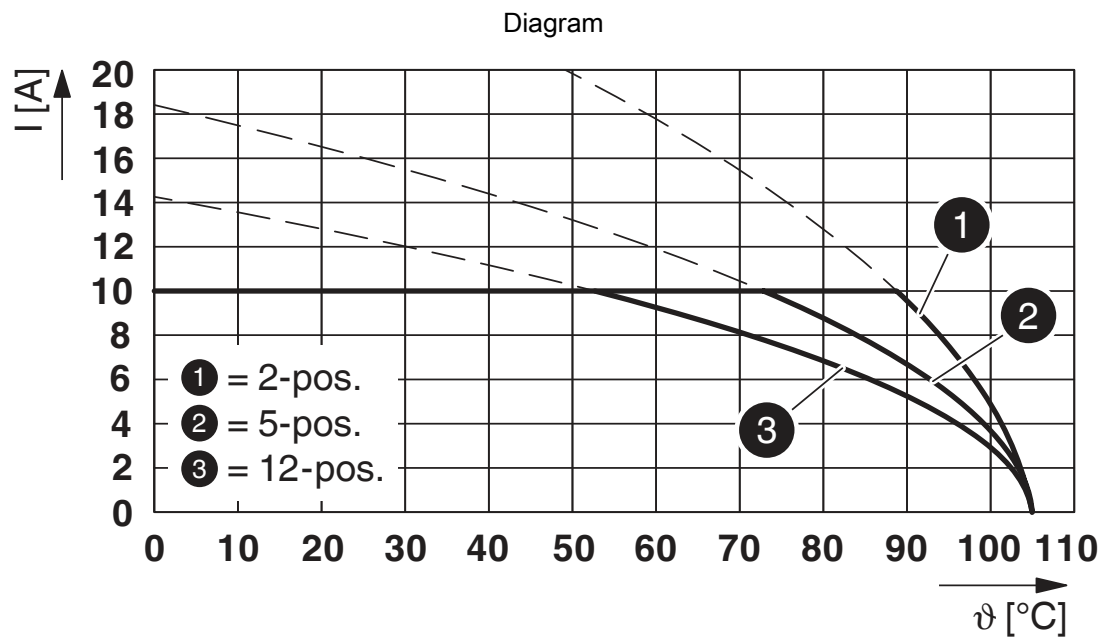
Type: MVSTB(R/W) 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08

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Type: FKCS 2,5/...-ST-5,08 with MDSTBA 2,5/...-G-5,08



Type: IC 2,5/...-G-5,08 with MDSTBA 2,5/...-G-5,08

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1800751>



**EAC**

Approval ID: B.01687



**cULus Recognized**

Approval ID: E60425-19931011

|             | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|-------------|-----------------------|-----------------------|-------------------|-----------------------------|
| Use group B |                       |                       |                   |                             |
|             | 300 V                 | 15 A                  | -                 | -                           |
| Use group D |                       |                       |                   |                             |
|             | 300 V                 | 10 A                  | -                 | -                           |



**VDE Zeichengenehmigung**

Approval ID: 40050648

|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | 250 V                 | 10 A                  | -                 | -                           |

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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC002637 |
|----------|----------|

### UNSPSC

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

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## Environmental product compliance

|            |   |
|------------|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

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