

# MSTBVA 2,5/23-G-5,08 - PCB header



1755943

<https://www.phoenixcontact.com/de/produkte/1755943>

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PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Male connector, number of potentials: 23, number of rows: 1, number of positions: 23, number of connections: 23, product range: MSTBVA 2,5/..-G, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.9 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
- Well-known mounting principle allows worldwide use
- Vertical connection enables multi-row arrangement on the PCB
- Closed contour for optimum stability of the plug-in connection
- Easy PCB replacement thanks to plug-in modules

## Commercial Data

|                                      |                           |
|--------------------------------------|---------------------------|
| Item number                          | 1755943                   |
| Packing unit                         | 50 pc                     |
| Minimum order quantity               | 50 pc                     |
| Sales Key                            | E1 - Leiterplattenanschl. |
| Product Key                          | AACSMF                    |
| Catalog Page                         | Page 168 (CC-2005)        |
| GTIN                                 | 4017918029524             |
| Weight per Piece (including packing) | 9,819 g                   |
| Weight per Piece (excluding packing) | 9,002 g                   |
| Customs tariff number                | 85366930                  |
| Country of origin                    | DE                        |

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## Technical Data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Type                      | Standard              |
| Product line              | COMBICON Connectors M |
| Product type              | PCB headers           |
| Product family            | MSTBVA 2,5/..-G       |
| Number of positions       | 23                    |
| Pitch                     | 5.08 mm               |
| Number of connections     | 23                    |
| Number of rows            | 1                     |
| Mounting flange           | without               |
| Number of potentials      | 23                    |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 1                     |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 12 A   |
| Nominal voltage $U_N$       | 320 V  |
| Degree of pollution         | 3      |
| Contact resistance          | 2.4 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   |
|                             | 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

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|  |              |
|--|--------------|
| Color (Housing)                        | green (6021) |
| Insulating material                    | PBT          |
| Insulating material group              | IIIa         |
| CTI according to IEC 60112             | 225          |
| Flammability rating according to UL 94 | V0           |

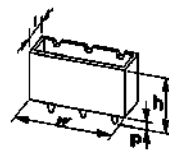
## Material data – actuating element

|          |    |
|----------|----|
| Color () | () |
|----------|----|

## 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]             | 118.84 mm   |
| Height [h]            | 15.9 mm   |
| Length [l]            | 8.6 mm  |
| Installed height      | 12 mm   |
| Solder pin length [P] | 3.9 mm  |

## Mechanical tests

### Test for conductor damage and slackening

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
| Result        | Test passed         |

### Pull-out test

|   |   |
|---|---|
| Specification   | IEC 60999-1:1999-11                     |
| 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 |
|   | 2.5 mm <sup>2</sup> / solid / > 50 N    |
|   | 2.5 mm <sup>2</sup> / flexible / > 50 N |

### 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         |

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## Torque test

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
|---------------|---------------------|

## Contact holder in insert

|   |                        |
|---|------------------------|
| Specification                               | IEC 60512-15-1:2008-05 |
| Contact holder in insert Requirements >20 N | 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            |

## Visual inspection

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

## Dimension check

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

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 24                    |

### 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)                      | 3.2 mm              |
| Rated insulation voltage (II/2)                        | 400 V               |
| Rated surge voltage (II/2)                             | 4 kV                |

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|   |      |
|---|------|
| 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                |
| Contact resistance R <sub>1</sub>            | 2.4 mΩ                |
| Contact resistance R <sub>2</sub>            | 2.5 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

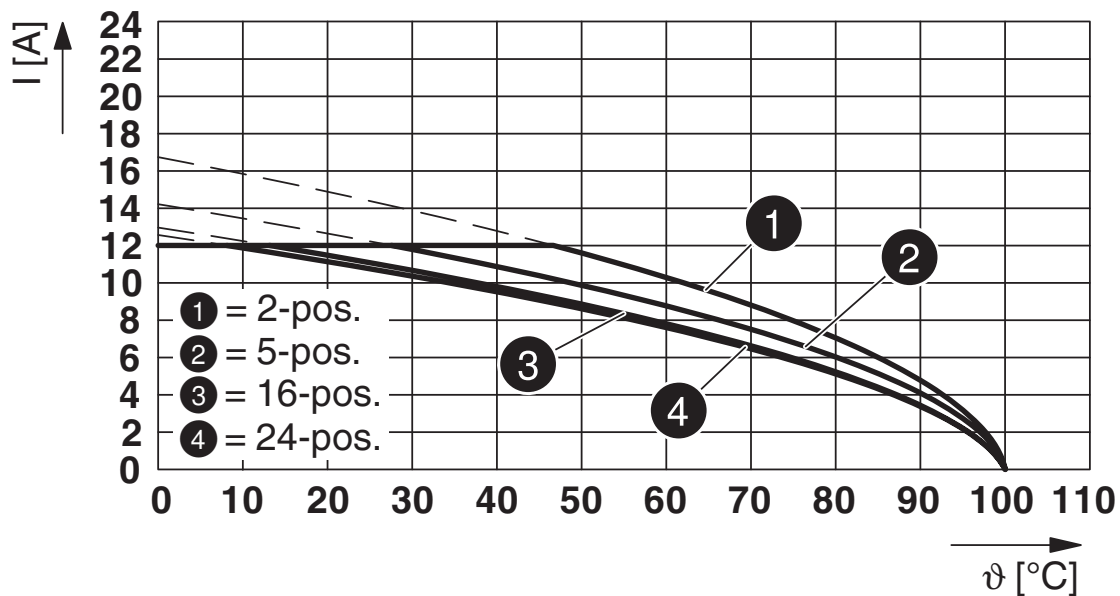
|   |   |
|---|---|
| Ambient temperature (operation)         | -40 °C ... 100 °C (dependent on the derating curve) |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C                                    |
| Relative humidity (storage/transport)   | 30 % ... 70 %                           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

## Packaging specifications

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

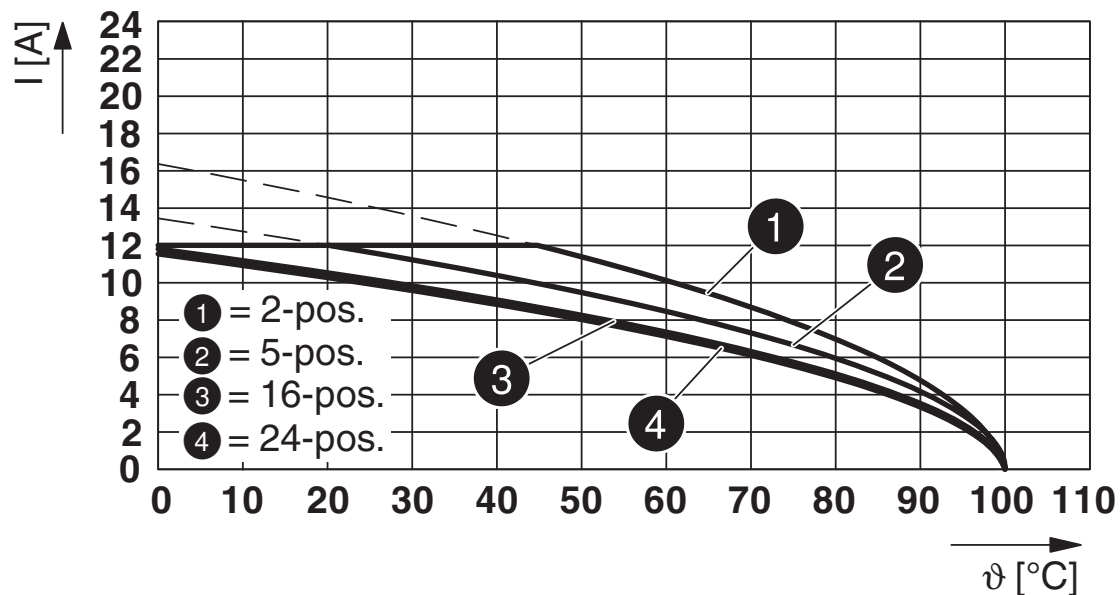
## Drawings

Diagram

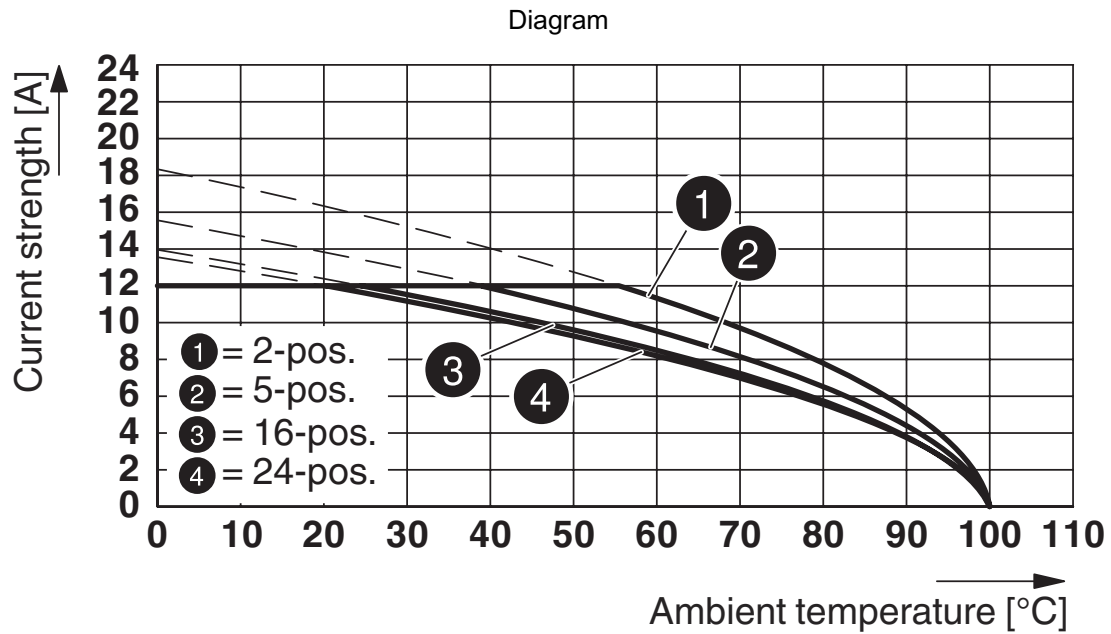


Type: SMSTB 2,5/...-ST-5,08 with MSTBVA 2,5/...-G-5,08

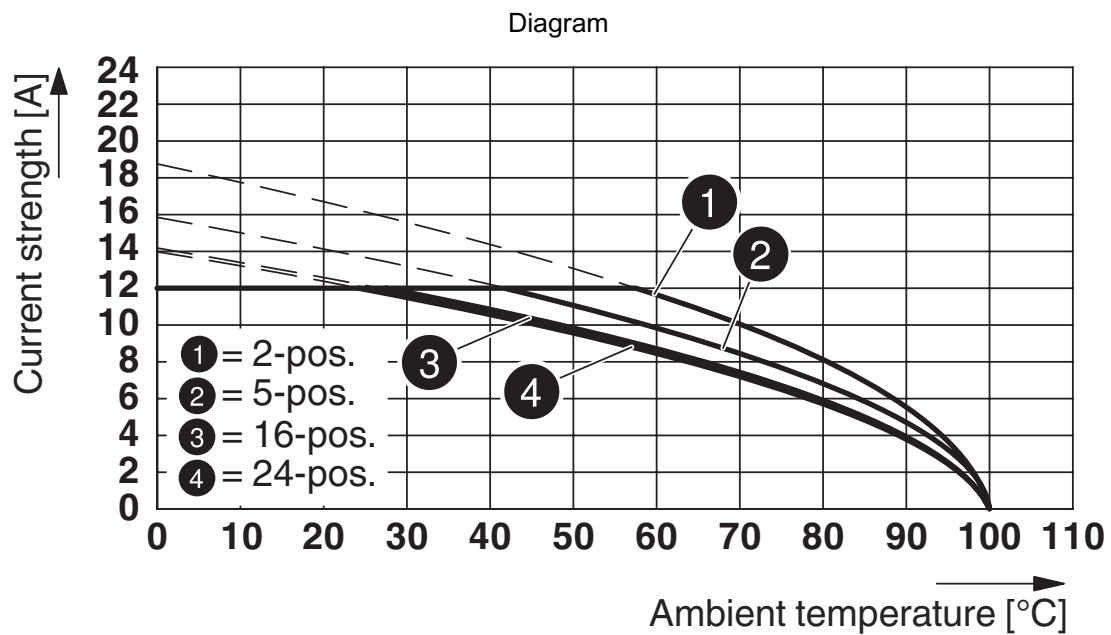
Diagram



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



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

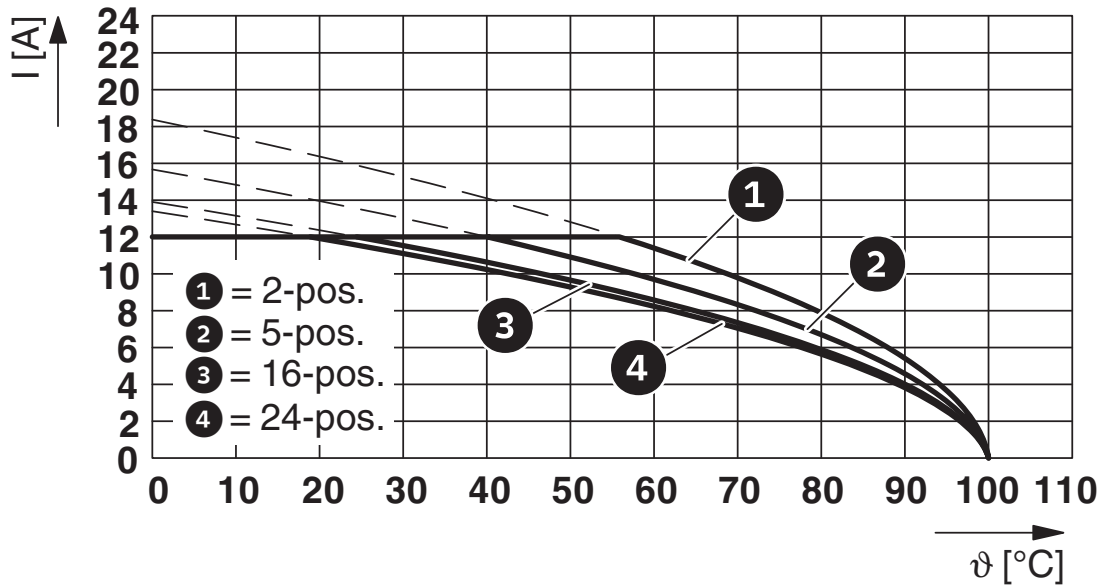


Type: MSTB 2,5/...-ST-5,08 with MSTBVA 2,5/...-G-5,08

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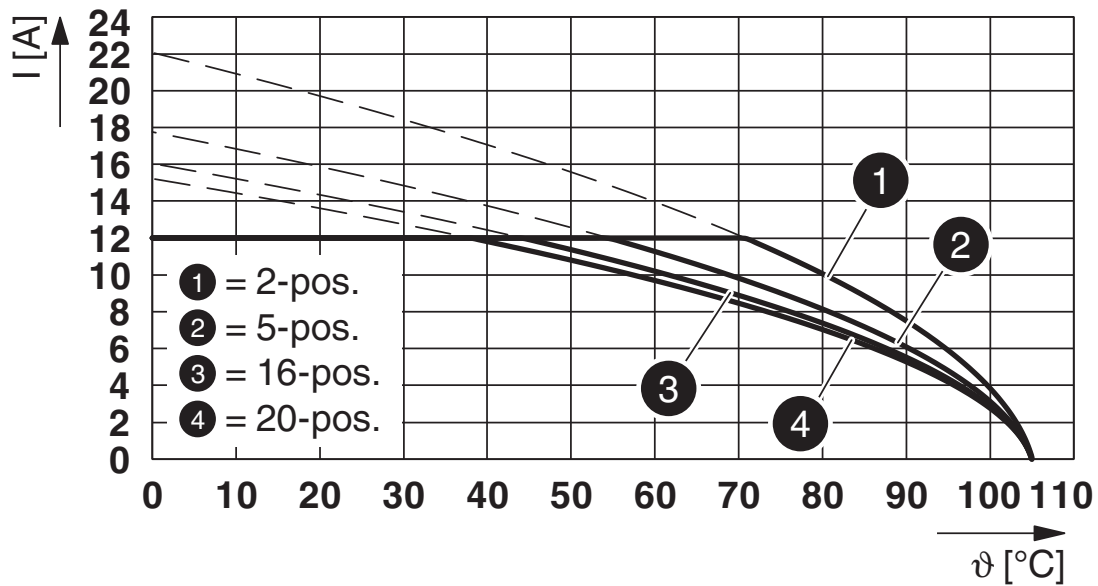
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Diagram



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

Diagram

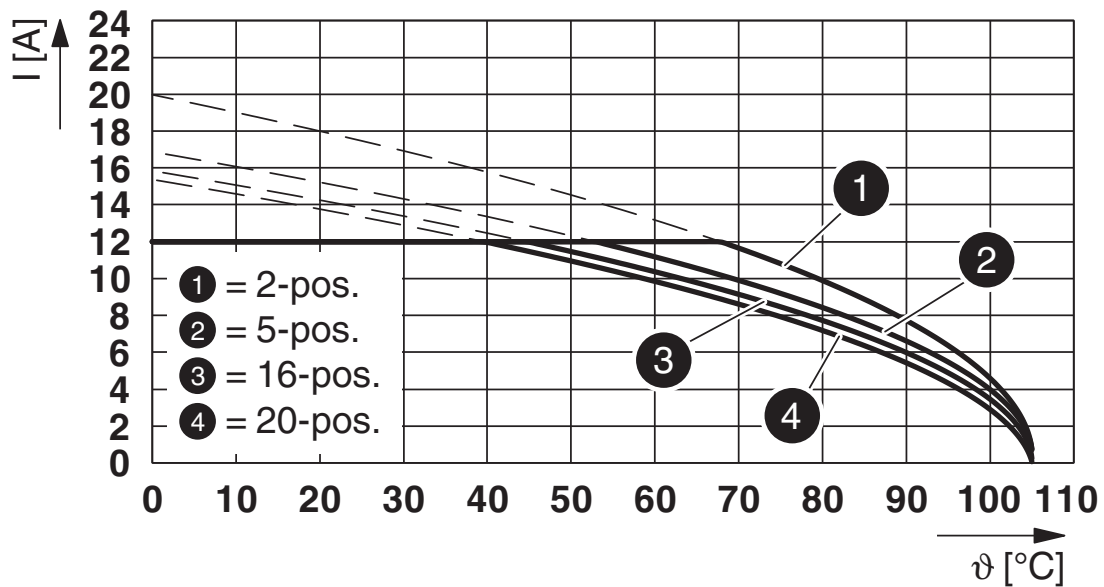


Type: FKCS 2,5/...-ST-5,08 with MSTBVA 2,5/...-G-5,08

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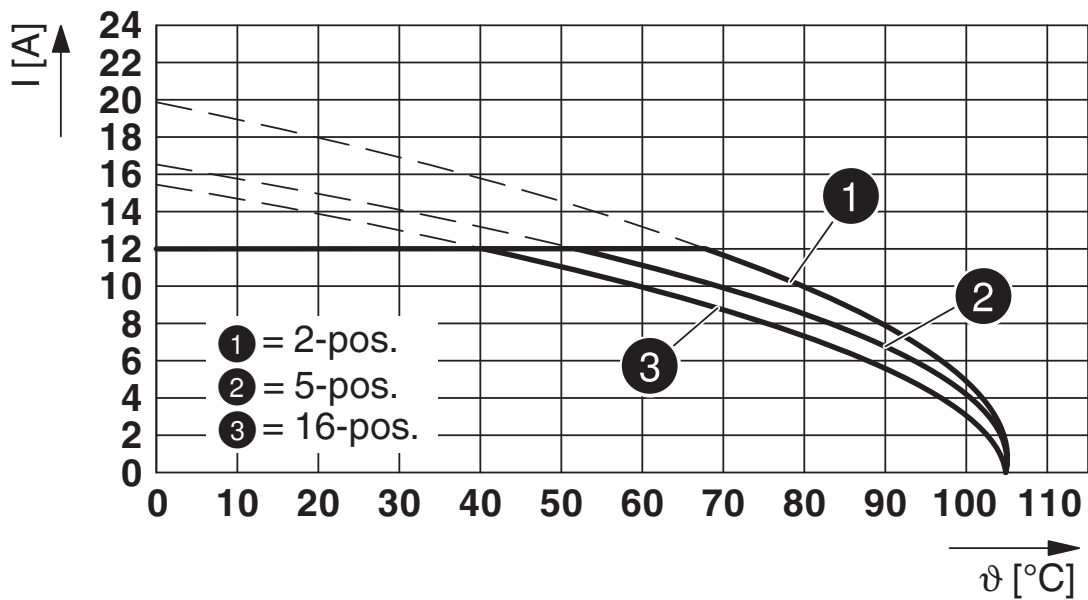
<https://www.phoenixcontact.com/de/produkte/1755943>

Diagram



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

Diagram

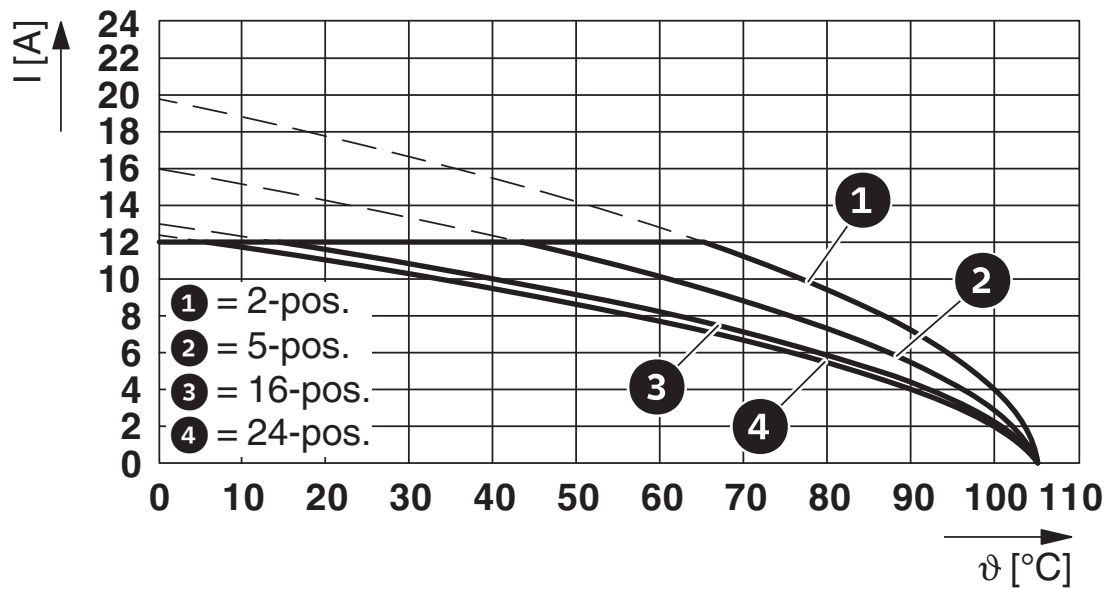


Type: FKCVR 2,5/...-ST-5,08 with MSTBVA 2,5/...-G-5,08

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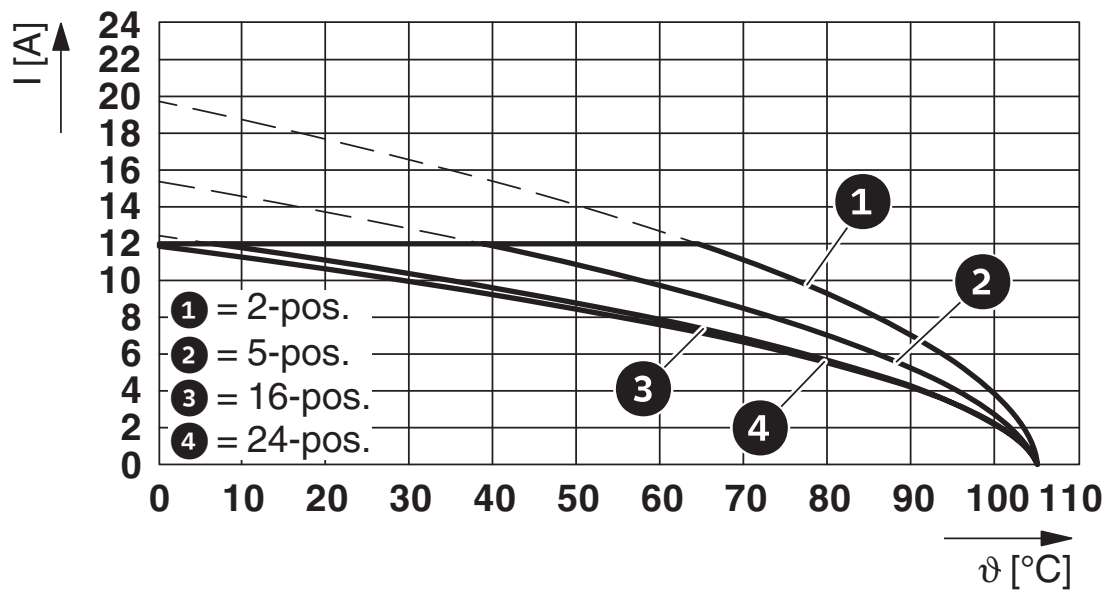
<https://www.phoenixcontact.com/de/produkte/1755943>

Diagram



Type: ICV 2,5/...-G-5,08 with MSTBVA 2,5/...-G-5,08

Diagram



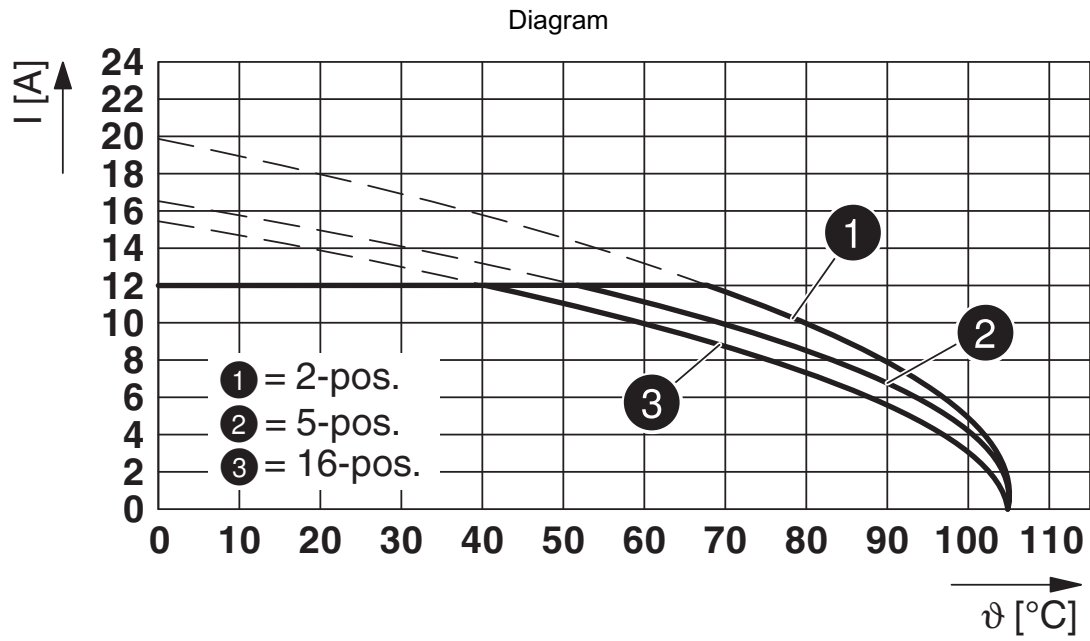
Type: IC 2,5/...-G-5,08 with MSTBVA 2,5/...-G-5,08

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Type: FKCVW 2,5/...-ST-5,08 with MSTBVA 2,5/...-G-5,08


# MSTBVA 2,5/23-G-5,08 - PCB header



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## Approvals

|  <b>CSA</b><br>Approval ID: 13631 |                       |                       |                   |                      |
|--|-----------------------|-----------------------|-------------------|----------------------|
|  | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
| Use group B  | 300 V                 | 12 A                  | -                 | -                    |
| Use group D  | 300 V                 | 10 A                  | -                 | -                    |

|  <b>IECEE CB Scheme</b><br>Approval ID: DE1-60988-B1B2 |                       |                       |                   |                      |
|---|-----------------------|-----------------------|-------------------|----------------------|
|   | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
|   | 250 V                 | 12 A                  | -                 | -                    |

|  <b>EAC</b><br>Approval ID: B.01687 |  |  |  |  |
|--|--|--|--|--|
|--|--|--|--|--|

|  <b>cULus Recognized</b><br>Approval ID: E60425-19931011 |                       |                       |                   |                      |
|---|-----------------------|-----------------------|-------------------|----------------------|
|   | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
| Use group B   | 300 V                 | 12 A                  | -                 | -                    |
| Use group D   | 300 V                 | 10 A                  | -                 | -                    |

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40050648 |                       |                       |                   |                      |
|--|-----------------------|-----------------------|-------------------|----------------------|
|  | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
|  | 250 V                 | 12 A                  | -                 | -                    |

# MSTBVA 2,5/23-G-5,08 - PCB header



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## Classifications

### ECLASS

|               |          |
|---------------|----------|
| ECLASS-9.0    | 27440402 |
| ECLASS-10.0.1 | 27440402 |
| ECLASS-11.0   | 27460201 |

### ETIM

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

### UNSPSC

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

# MSTBVA 2,5/23-G-5,08 - PCB header



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## Environmental Product Compliance

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

# MSTBVA 2,5/23-G-5,08 - PCB header

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## Accessories

### CR-MSTB - Coding section

1734401

<https://www.phoenixcontact.com/de/produkte/1734401>

Coding section, inserted into the recess in the header or the inverted plug, red insulating material



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### SK 5,08/3,8:FORTL.ZAHLEN - Marker card

0804293

<https://www.phoenixcontact.com/de/produkte/0804293>

Marker card, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... (99)100, mounting type: adhesive, for terminal block width: 5.08 mm, lettering field size: 5.08 x 3.8 mm



# MSTBVA 2,5/23-G-5,08 - PCB header

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## MSTB-BL - Accessories

1755477

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Keying cap, for forming sections, plugs onto header pin, green insulating material

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## MSTB 2,5/23-ST-5,08 - PCB connector

1757226

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PCB connector, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 23, number of rows: 1, number of positions: 23, number of connections: 23, product range: MSTB 2,5/..-ST, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: without, mounting: without, type of packaging: packed in cardboard

# MSTBVA 2,5/23-G-5,08 - PCB header

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## MSTBP 2,5/23-ST-5,08 - PCB connector

1769227

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PCB connector, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 23, number of rows: 1, number of positions: 23, number of connections: 23, product range: MSTBP 2,5/...-ST, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: without, mounting: without, type of packaging: packed in cardboard

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