

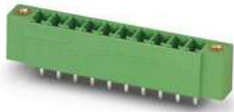
# MCV 1,5/15-GF-3,5 - PCB header



1843350

<https://www.phoenixcontact.com/de/produkte/1843350>

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PCB headers, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Male connector, number of potentials: 15, number of rows: 1, number of positions: 15, number of connections: 15, product range: MCV 1,5/..-GF, pitch: 3.5 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.4 mm, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, Pin connector pattern alignment: Standard, locking: Screw locking, mounting: Threaded flange, type of packaging: packed in cardboard

## Your advantages

- Well-known mounting principle allows worldwide use
- Screwable flange for superior mechanical stability
- Vertical connection enables multi-row arrangement on the PCB
- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies

## Commercial Data

|                                      |                           |
|--------------------------------------|---------------------------|
| Item number                          | 1843350                   |
| Packing unit                         | 50 pc                     |
| Minimum order quantity               | 50 pc                     |
| Sales Key                            | E1 - Leiterplattenanschl. |
| Product Key                          | AABSAF                    |
| Catalog Page                         | Page 227 (C-1-2013)       |
| GTIN                                 | 4017918112547             |
| Weight per Piece (including packing) | 4,88 g                    |
| Weight per Piece (excluding packing) | 4,43 g                    |
| Customs tariff number                | 85366930                  |
| Country of origin                    | DE                        |

# MCV 1,5/15-GF-3,5 - PCB header



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## Technical Data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Type                      | Standard              |
| Product line              | COMBICON Connectors S |
| Product type              | PCB headers           |
| Product family            | MCV 1,5/...-GF        |
| Number of positions       | 15                    |
| Pitch                     | 3.5 mm                |
| Number of connections     | 15                    |
| Number of rows            | 1                     |
| Mounting flange           | Threaded flange       |
| Number of potentials      | 15                    |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 1                     |

### Electrical properties

|                             |                |
|-----------------------------|----------------|
| Nominal current $I_N$       | 8 A            |
| Nominal voltage $U_N$       | 160 V          |
| Degree of pollution         | 3              |
| Contact resistance          | 1.7 m $\Omega$ |
| 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)        | 250 V          |
| Rated surge voltage (II/2)  | 2.5 kV         |

### Mounting

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

### Flange

|                   |        |
|-------------------|--------|
| Tightening torque | 0.3 Nm |
|-------------------|--------|

### 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 $\mu\text{m}$ Sn)   |
| Metal surface contact area (middle layer) | Nickel (1 - 3 $\mu\text{m}$ Ni)  |
| Metal surface soldering area (top layer)  | Tin (3 - 5 $\mu\text{m}$ Sn)   |

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1843350

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|   |                      |
|---|----------------------|
| Metal surface soldering area (middle layer) | Nickel (1 - 3 µm Ni) |
|---|----------------------|

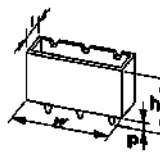
## Material data - housing

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

## Dimensions

|                       |   |
|-----------------------|---|
| Dimensional drawing   |  |
| Pitch                 | 3.5 mm  |
| Width [w]             | 62.8 mm   |
| Height [h]            | 12.6 mm   |
| Length [l]            | 7.25 mm   |
| Installed height      | 9.2 mm  |
| Solder pin length [P] | 3.4 mm  |

## Mechanical tests

### Test for conductor damage and slackening

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

### Repeated connection and disconnection

|               |                     |
|---------------|---------------------|
| 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 |
|   | 1.5 mm <sup>2</sup> / solid / > 40 N    |
|   | 1.5 mm <sup>2</sup> / flexible / > 40 N |

### Insertion and withdrawal forces

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

# MCV 1,5/15-GF-3,5 - PCB header



1843350

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|   |                        |
|---|------------------------|
| Withdraw strength per pos. approx.          | 6 N                    |
| 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 | 20                    |

### 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)                       | 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              |
| minimum creepage distance (III/2)                      | 1.6 mm              |
| Rated insulation voltage (II/2)                        | 250 V               |
| Rated surge voltage (II/2)                             | 2.5 kV              |
| minimum clearance value - non-homogenous field (II/2)  | 1.5 mm              |

# MCV 1,5/15-GF-3,5 - PCB header



1843350

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|                                  |        |
|----------------------------------|--------|
| minimum creepage distance (II/2) | 2.5 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       | 2.95 kV               |
| Contact resistance $R_1$                     | 1.7 m $\Omega$        |
| Contact resistance $R_2$                     | 1.6 m $\Omega$        |
| Insertion/withdrawal cycles                  | 25                    |
| Insulation resistance, neighboring positions | > 5 M $\Omega$        |

### 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 | 1.39 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 |
|-------------------|---------------------|

# MCV 1,5/15-GF-3,5 - PCB header

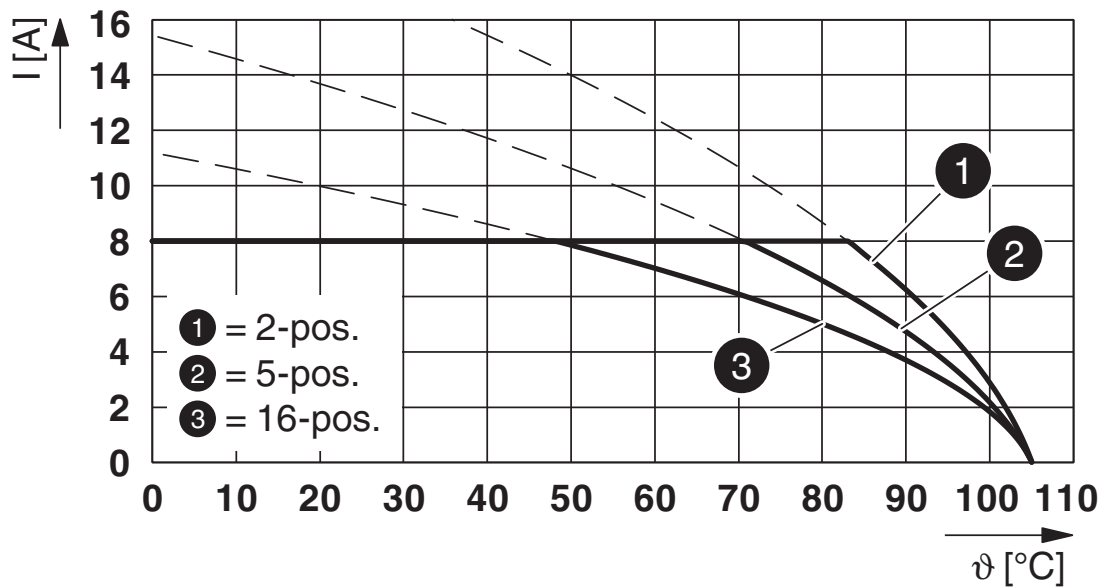


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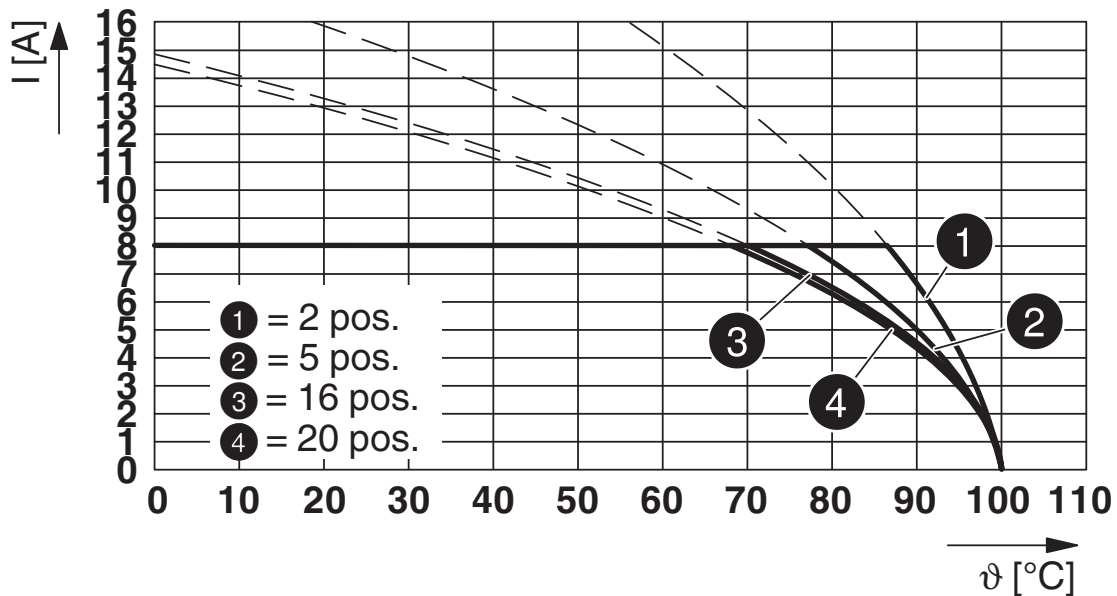
## Drawings

Diagram



Type: MCVR 1,5/...-STF-3,5 with MCV 1,5/...-GF-3,5

Diagram

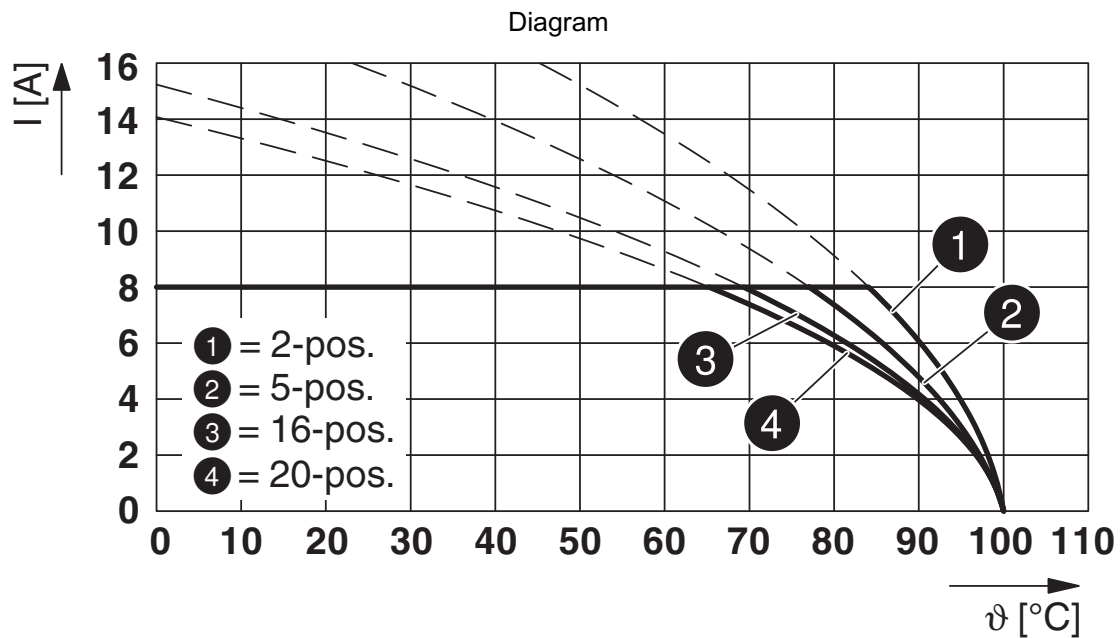


Type: FK-MCP 1,5/...-STF-3,5 with MCV 1,5/...-GF-3,5

# MCV 1,5/15-GF-3,5 - PCB header

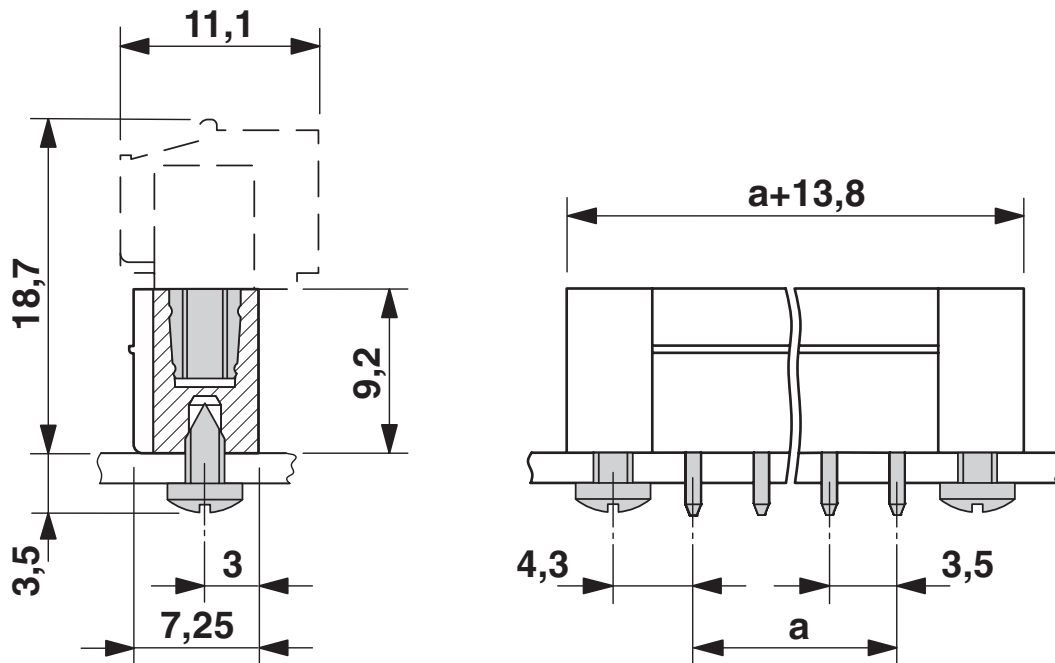
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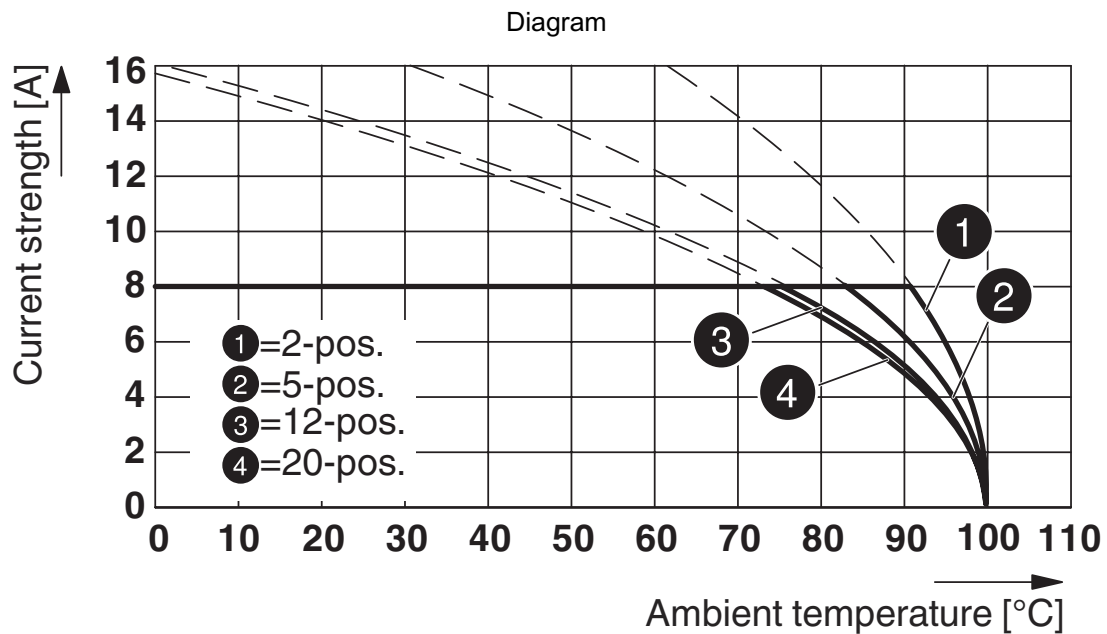
Type: FMC 1,5/...-STF-3,5 with MCV 1,5/...-GF-3,5

## Dimensional drawing

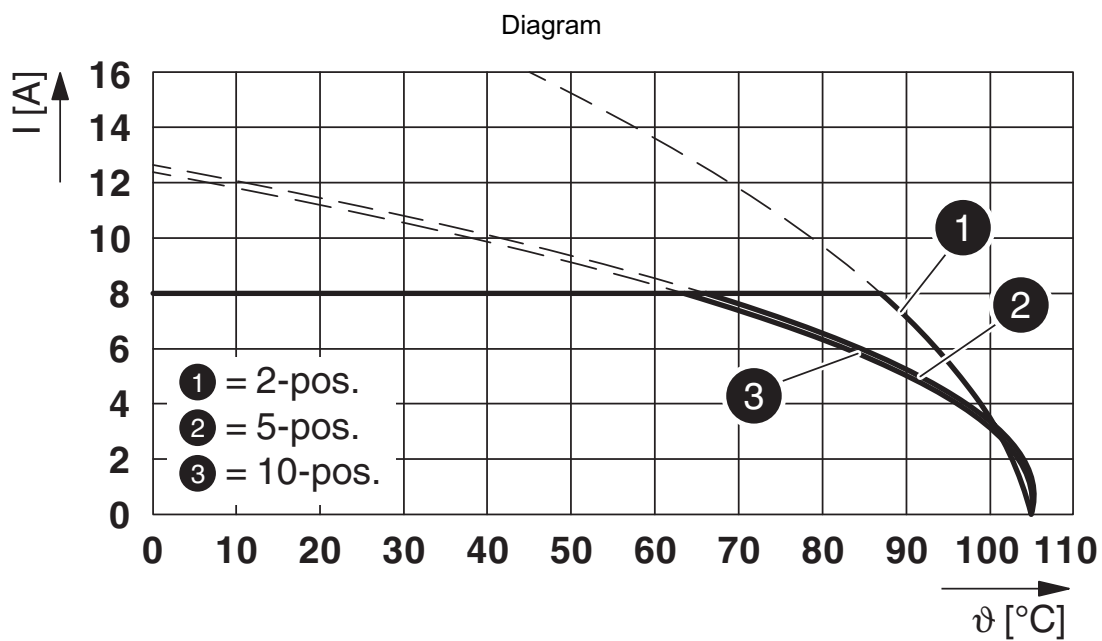


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Type: MC 1,5/...-STF-3,5 with MCV 1,5/...-GF-3,5



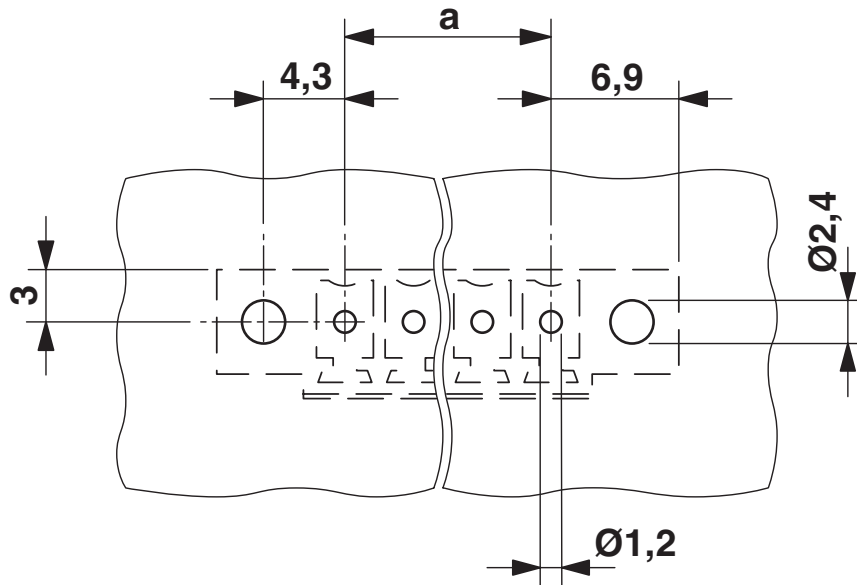
Type: TFMC 1,5/...-STF-3,5 with MCV 1,5/...-GF-3,5

# MCV 1,5/15-GF-3,5 - PCB header

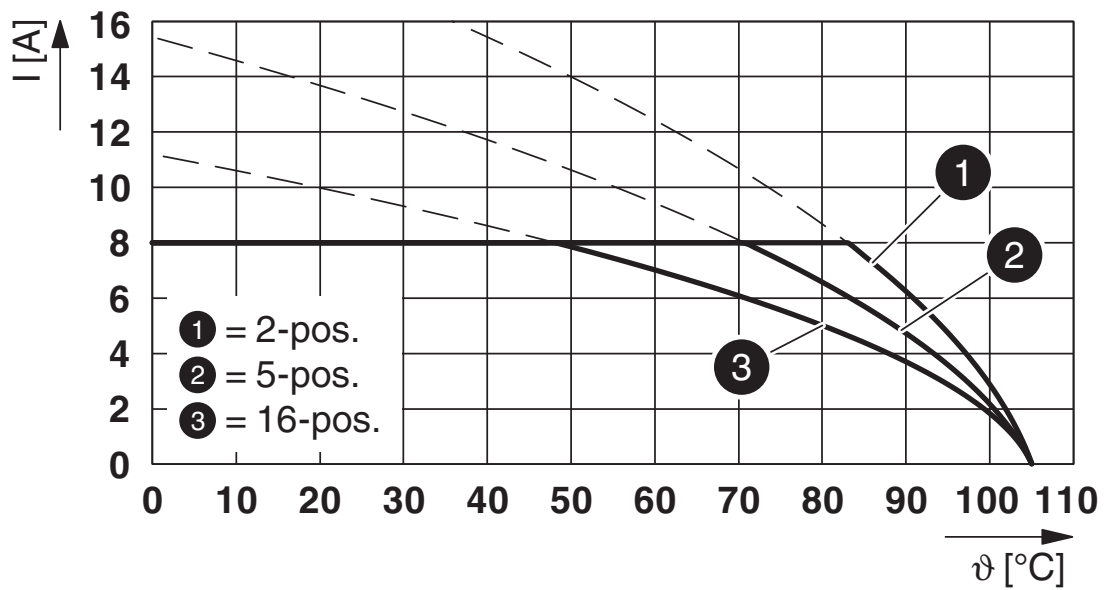
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Drilling plan/solder pad geometry



Diagram



Type: MCVW 1,5/...-STF-3,5 with MCV 1,5/...-GF-3,5


# MCV 1,5/15-GF-3,5 - 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 $\text{mm}^2$ |
| Use group B  | 300 V                 | 8 A                   | -                 | -                           |
| Use group D  | 300 V                 | 8 A                   | -                 | -                           |

|  <b>IECEE CB Scheme</b><br>Approval ID: DE1-60987-B1B2 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $\text{mm}^2$ |
|   | 160 V                 | 8 A                   | -                 | -                           |

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

|  <b>cULus Recognized</b><br>Approval ID: E60425-20110128 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $\text{mm}^2$ |
| Use group B   | 300 V                 | 8 A                   | -                 | -                           |
| Use group D   | 300 V                 | 8 A                   | -                 | -                           |

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40011723 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $\text{mm}^2$ |
|  | 160 V                 | 8 A                   | -                 | -                           |

# MCV 1,5/15-GF-3,5 - 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 |
|-------------|----------|

# MCV 1,5/15-GF-3,5 - PCB header

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## Environmental Product Compliance

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

# MCV 1,5/15-GF-3,5 - PCB header

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## Accessories

### SK 3,5/2,8:FORTL.ZAHLEN - Marker card

0804073

<https://www.phoenixcontact.com/de/produkte/0804073>



Marker card, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 99, mounting type: adhesive, for terminal block width: 3.5 mm, lettering field size: 3.5 x 2.8 mm

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### CP-MSTB - Coding profile

1734634

<https://www.phoenixcontact.com/de/produkte/1734634>



Coding profile, is inserted into the slot on the plug or inverted header, red insulating material

# MCV 1,5/15-GF-3,5 - PCB header

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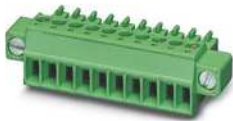
<https://www.phoenixcontact.com/de/produkte/1843350>



## MC 1,5/15-STF-3,5 - PCB connector

1847259

<https://www.phoenixcontact.com/de/produkte/1847259>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, number of potentials: 15, number of rows: 1, number of positions: 15, number of connections: 15, product range: MC 1,5/..-STF, pitch: 3.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

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## MCVW 1,5/15-STF-3,5 - PCB connector

1863136

<https://www.phoenixcontact.com/de/produkte/1863136>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, number of potentials: 15, number of rows: 1, number of positions: 15, number of connections: 15, product range: MCVW 1,5/..-STF, pitch: 3.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: -90 °, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

# MCV 1,5/15-GF-3,5 - PCB header

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## MCVR 1,5/15-STF-3,5 - PCB connector

1863437

<https://www.phoenixcontact.com/de/produkte/1863437>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, number of potentials: 15, number of rows: 1, number of positions: 15, number of connections: 15, product range: MCVR 1,5/..-STF, pitch: 3.5 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 90 °, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

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## FK-MCP 1,5/15-STF-3,5 - PCB connector

1940224

<https://www.phoenixcontact.com/de/produkte/1940224>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, number of potentials: 15, number of rows: 1, number of positions: 15, number of connections: 15, product range: FK-MCP 1,5/..-STF, pitch: 3.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

# MCV 1,5/15-GF-3,5 - PCB header

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## FMC 1,5/15-STF-3,5 - Printed-circuit board connector

1966224

<https://www.phoenixcontact.com/de/produkte/1966224>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, number of potentials: 15, number of rows: 1, number of positions: 15, number of connections: 15, product range: FMC 1,5/...-STF, pitch: 3.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

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