

# IC 2,5/ 4-G-5,08 - PCB header

1786420

<https://www.phoenixcontact.com/us/products/1786420>



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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, contact connection type: Socket, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: IC 2,5/..-G, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 mm, number of solder pins per potential: 2, 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
- Inverted header with socket contacts for touch-proof device outputs or PCB/PCB connections

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1786420             |
| Packing unit                         | 50 pc               |
| Minimum order quantity               | 50 pc               |
| Sales key                            | AA03                |
| Product key                          | AACSAC              |
| Catalog page                         | Page 332 (C-1-2013) |
| GTIN                                 | 4017918042578       |
| Weight per piece (including packing) | 4.98 g              |
| Weight per piece (excluding packing) | 2.932 g             |
| Customs tariff number                | 85366930            |
| Country of origin                    | DE                  |

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## Technical data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Product type              | PCB headers           |
| Product family            | IC 2,5/...-G          |
| Product line              | COMBICON Connectors M |
| Type                      | Inverted              |
| Number of positions       | 4                     |
| Pitch                     | 5.08 mm               |
| Number of connections     | 4                     |
| Number of rows            | 1                     |
| Number of potentials      | 4                     |
| Mounting flange           | without               |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 2                     |

### Electrical properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 12 A   |
| Nominal voltage $U_N$       | 320 V  |
| Degree of pollution         | 3      |
| Contact resistance          | 1.2 mΩ |
| Rated voltage (III/3)       | 320 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)        | 630 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                  | hot-dip tin-plated                                                               |
| Metal surface contact area (top layer)   | Tin (4 - 8 μm Sn)                                                                |
| Metal surface soldering area (top layer) | Tin (4 - 8 μm Sn)                                                                |

#### Material data - housing

|                     |              |
|---------------------|--------------|
| Color (Housing)     | green (6021) |
| Insulating material | PA           |

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|                                                                   |        |
|-------------------------------------------------------------------|--------|
| Insulating material group                                         | I      |
| CTI according to IEC 60112                                        | 600    |
| Flammability rating according to UL 94                            | V0     |
| Glow wire flammability index GWFI according to EN 60695-2-12      | 850    |
| Glow wire ignition temperature GWIT according to EN 60695-2-13    | 775    |
| Temperature for the ball pressure test according to EN 60695-10-2 | 125 °C |

## 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]             | 22.32 mm                                                                            |
| Height [h]            | 13.7 mm                                                                             |
| Length [l]            | 18.9 mm                                                                             |
| Installed height      | 10.2 mm                                                                             |
| Solder pin length [P] | 3.5 mm                                                                              |
| Pin dimensions        | 0.47 x 1.15 mm                                                                      |

### PCB design

|               |         |
|---------------|---------|
| Pin spacing   | 5.04 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

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|               |                        |
|---------------|------------------------|
| 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<br>Requirements >20 N | Test passed            |

## 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 | 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                              | I                   |
| Comparative tracking index (IEC 60112)                 | CTI 600             |
| Rated insulation voltage (III/3)                       | 320 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 mm                |
| Rated insulation voltage (II/2)                        | 630 V               |
| Rated surge voltage (II/2)                             | 4 kV                |
| minimum clearance value - non-homogenous field (II/2)  | 3 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          |

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|                        |                             |
|------------------------|-----------------------------|
| Amplitude              | 0.35 mm (10 Hz ... 60.1 Hz) |
| Acceleration           | 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>            | 1.2 mΩ                |
| Contact resistance R <sub>2</sub>            | 1.2 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 |
|-------------------|---------------------|

# IC 2,5/ 4-G-5,08 - PCB header

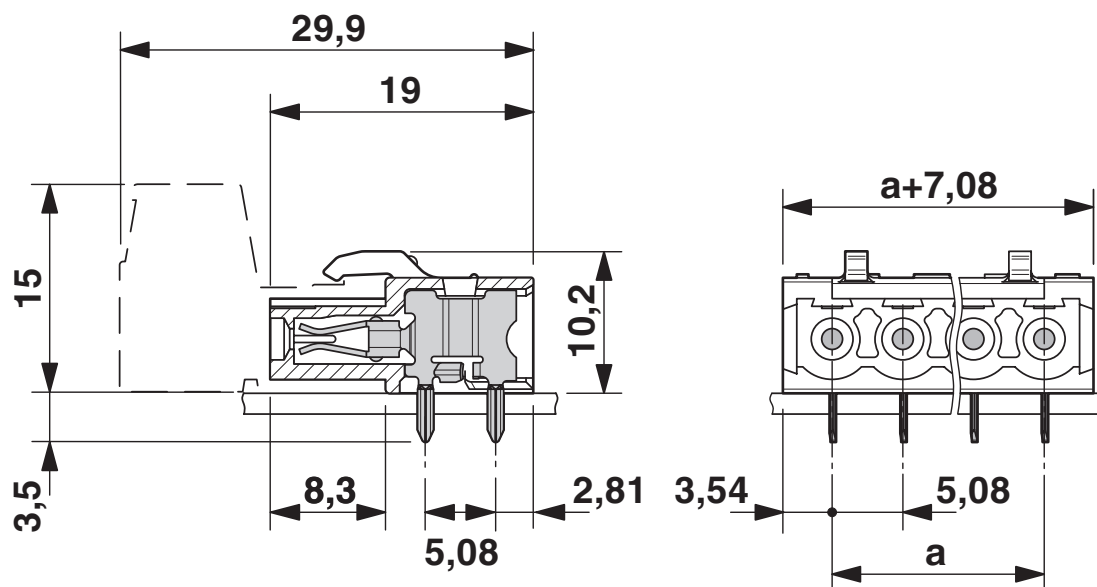
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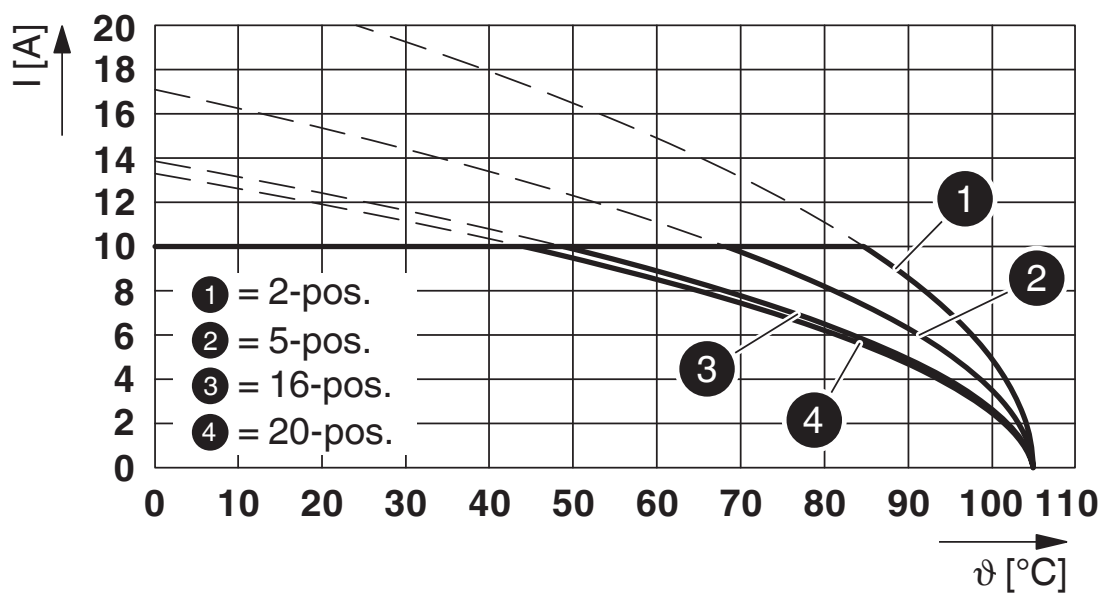


## Drawings

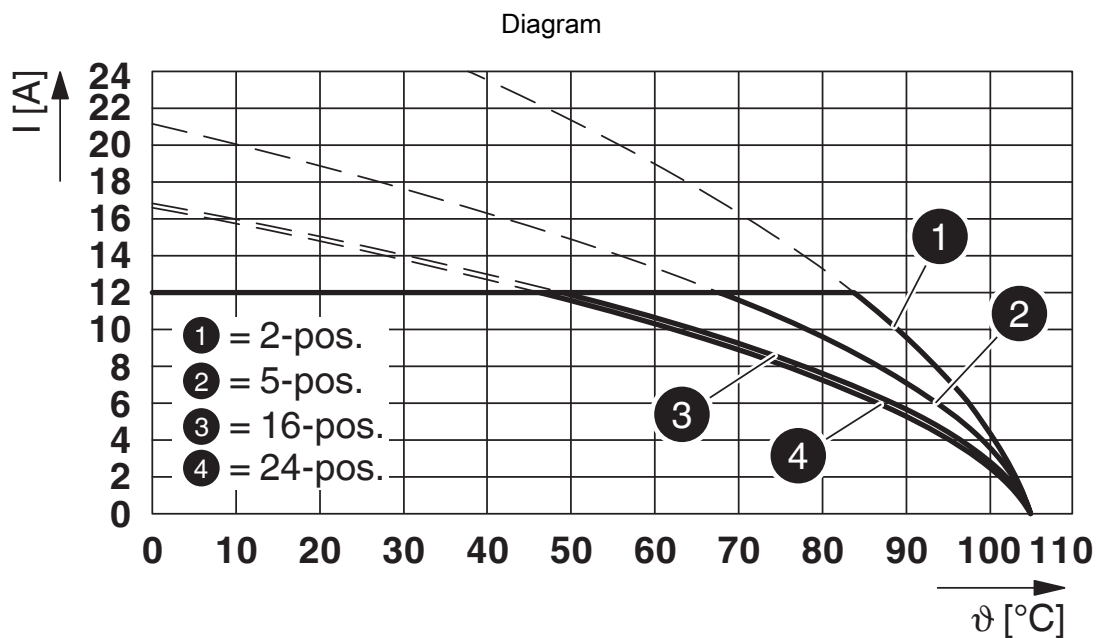
Dimensional drawing



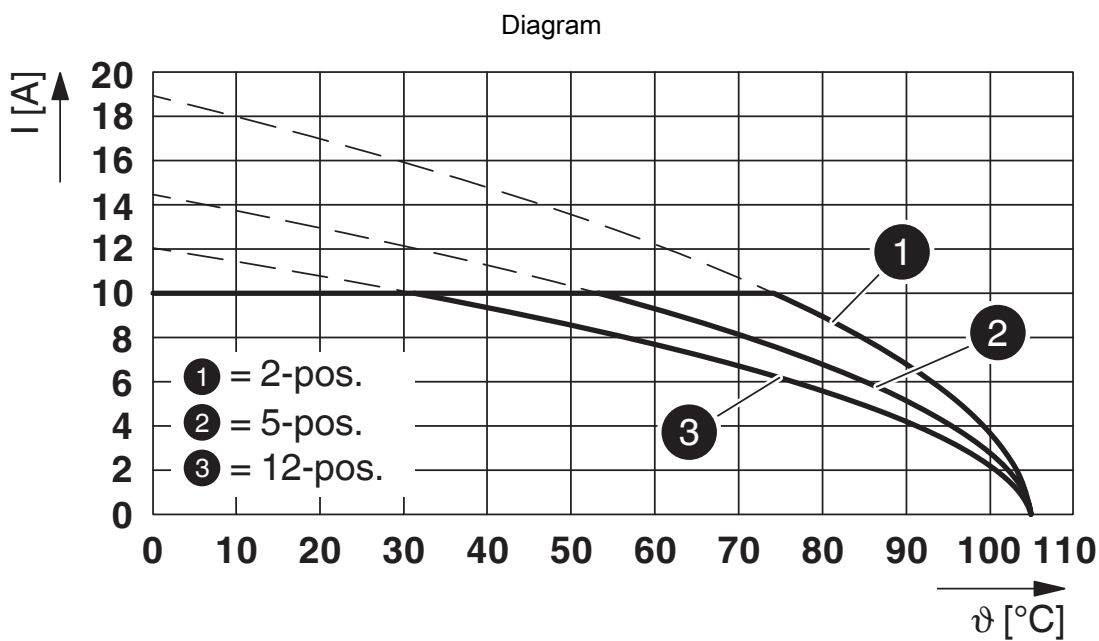
Diagram



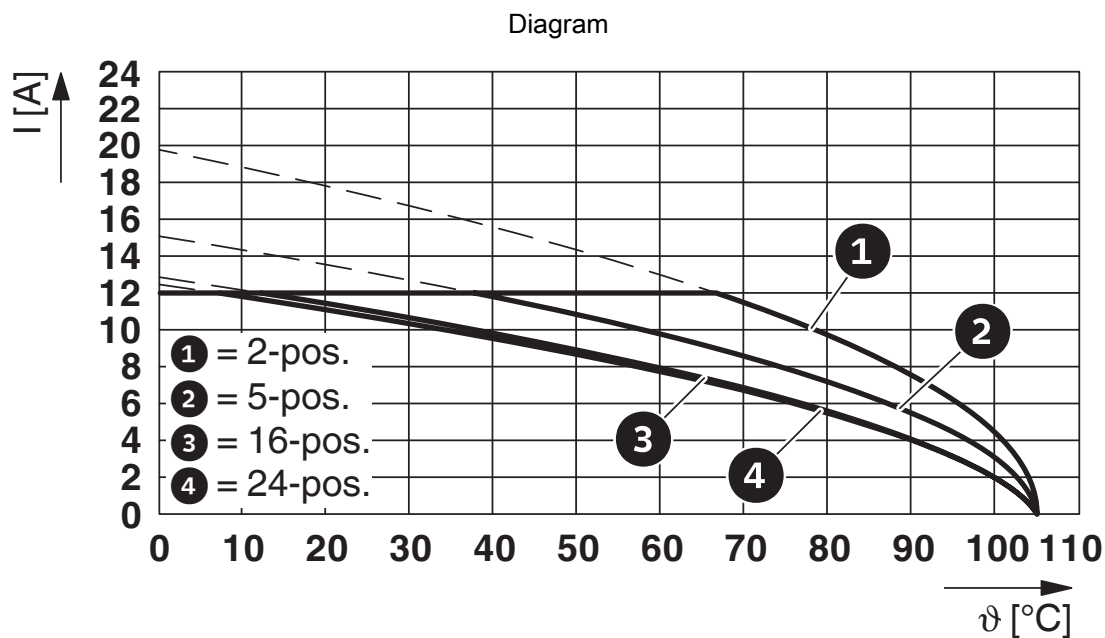
Type: IC 2,5/...-G-5,08 with MDSTB 2,5/...-G1-5,08



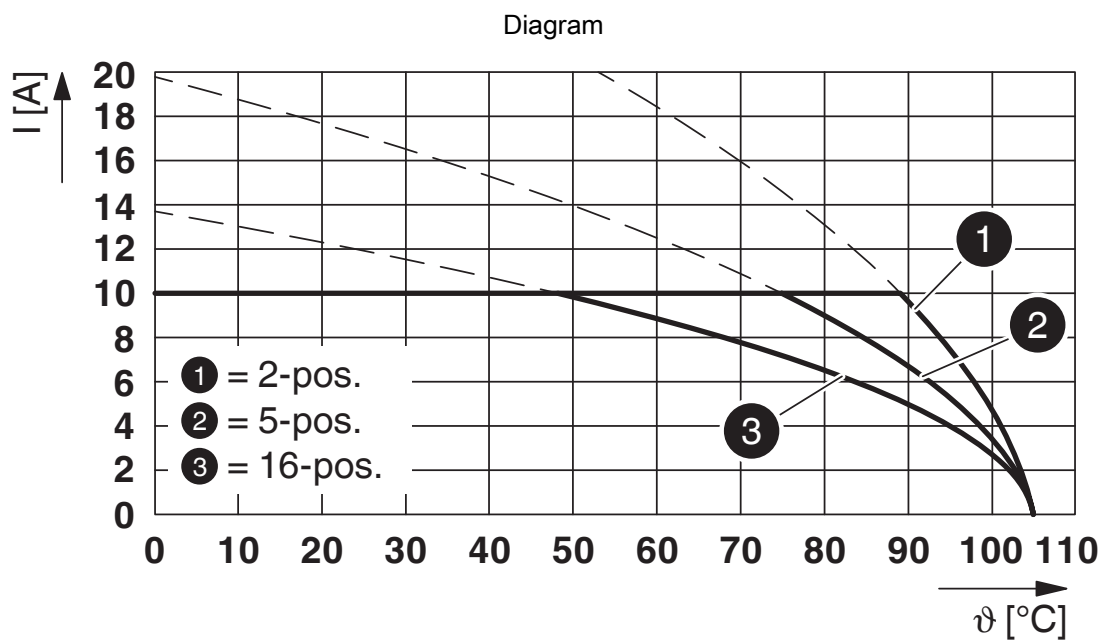
Type: IC 2,5/...-G-5,08 with MSTB 2,5/...-G-5,08



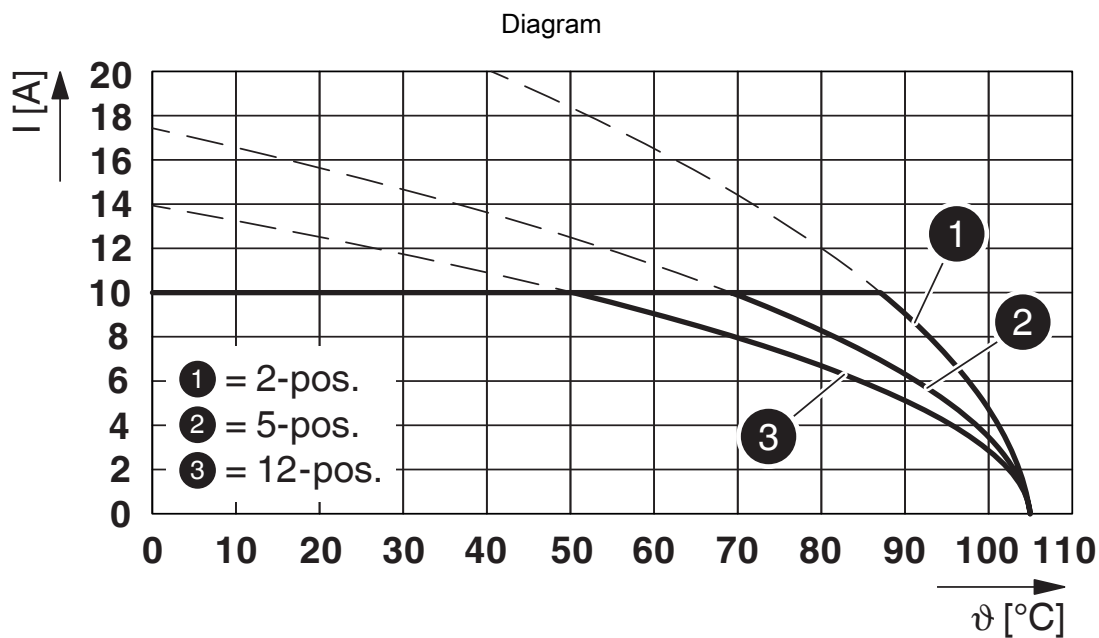
Type: IC 2,5/...-G-5,08 with MDSTBVA 2,5/...-G-5,08



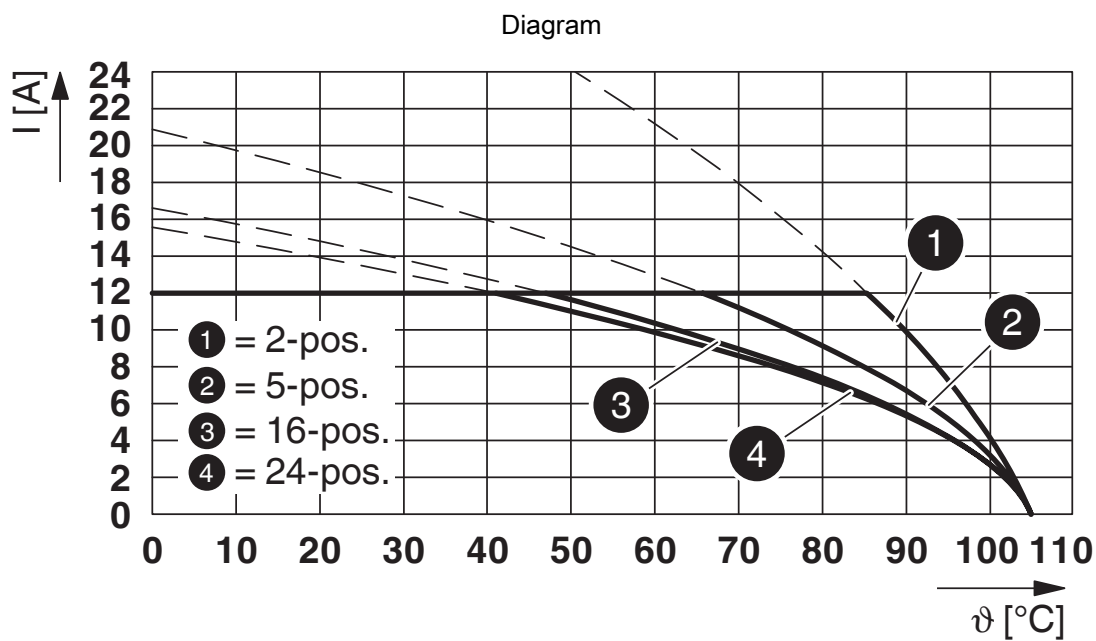
Type: IC 2,5/...-G-5,08 with MSTBV 2,5/...-G-5,08



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

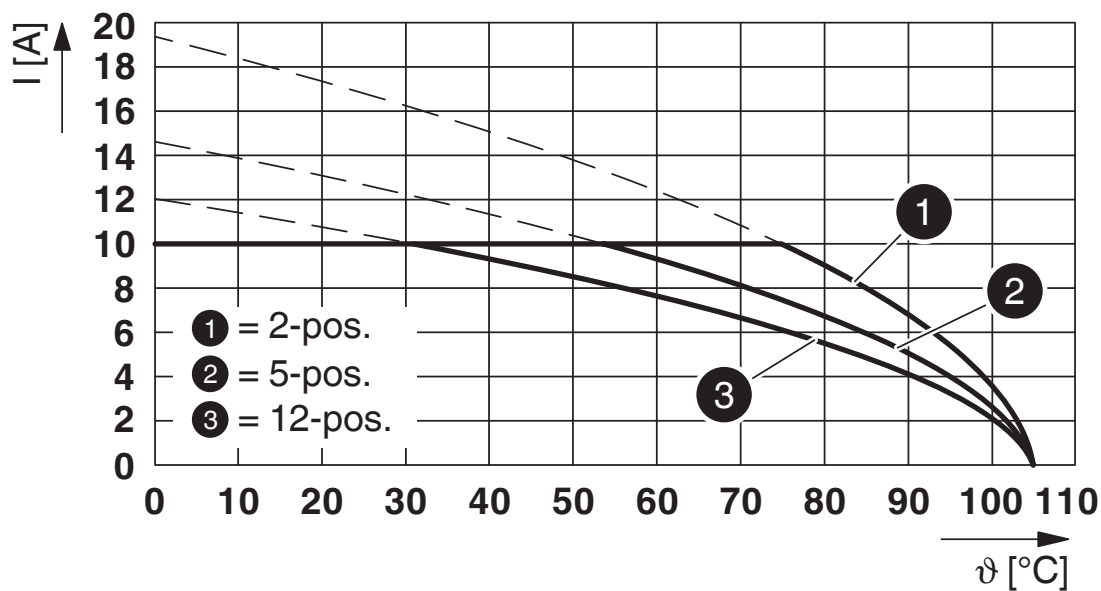


Type: IC 2,5/...-G-5,08 with MDSTBW 2,5/...-G-5,08



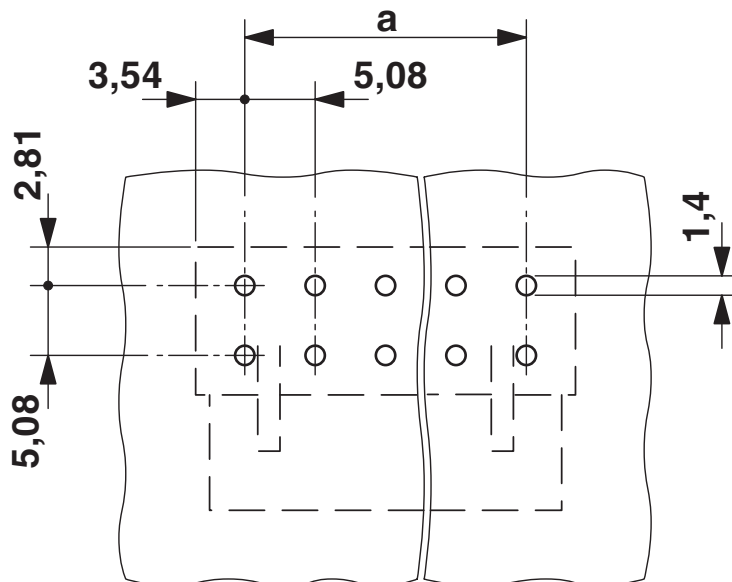
Type: IC 2,5/...-G-5,08 with MSTBW 2,5/...-G-5,08

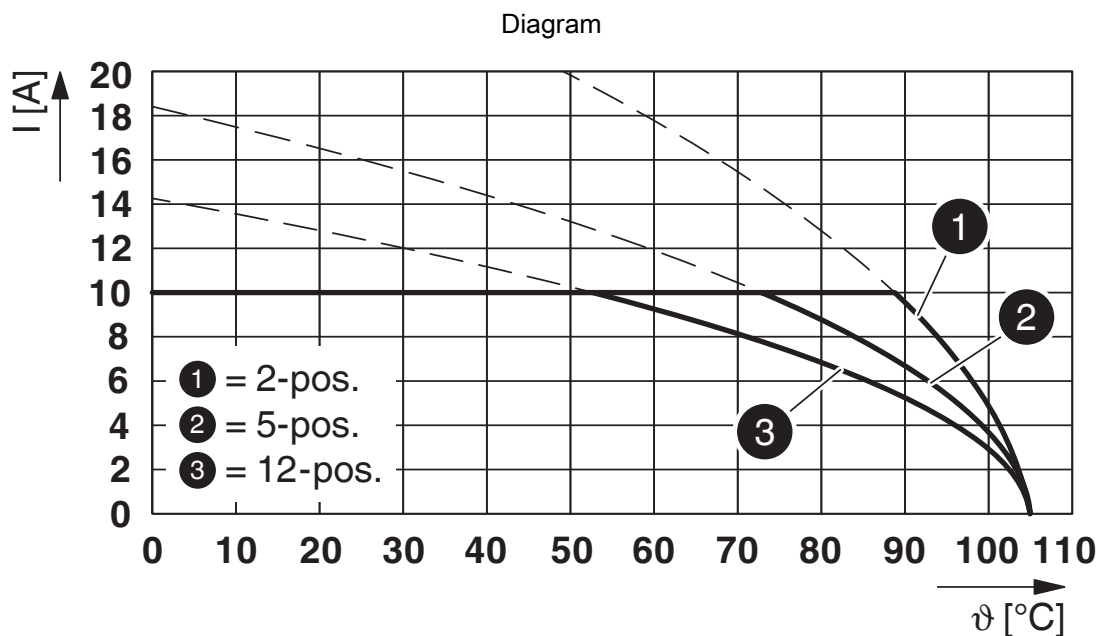
Diagram



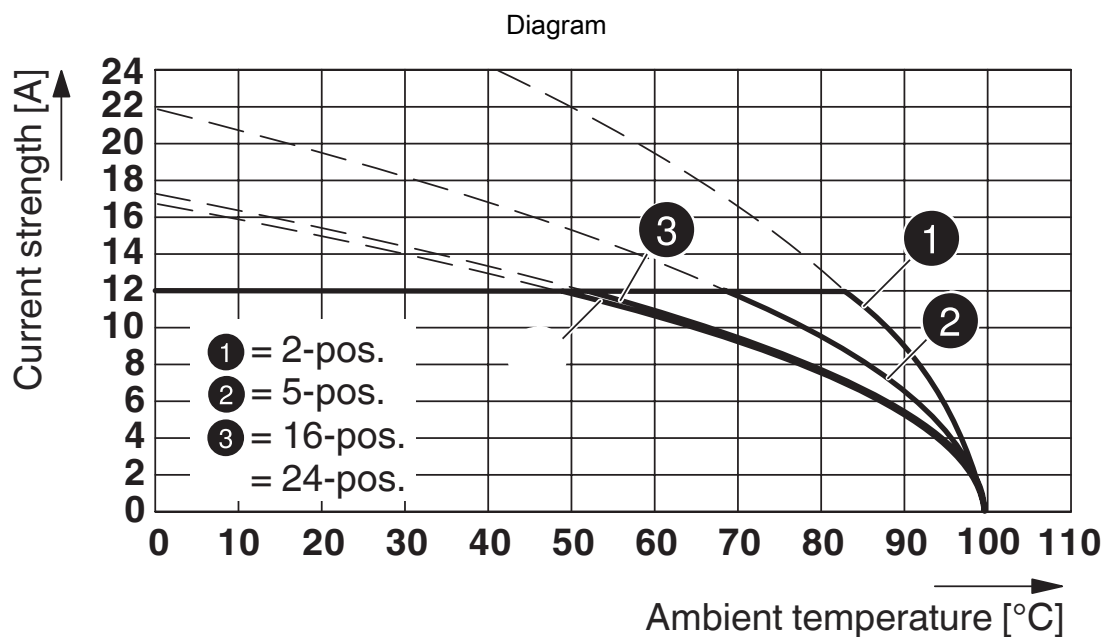
Type: IC 2,5/...-G-5,08 with MDSTBV 2,5/...-G-5,08

Drilling plan/solder pad geometry





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



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

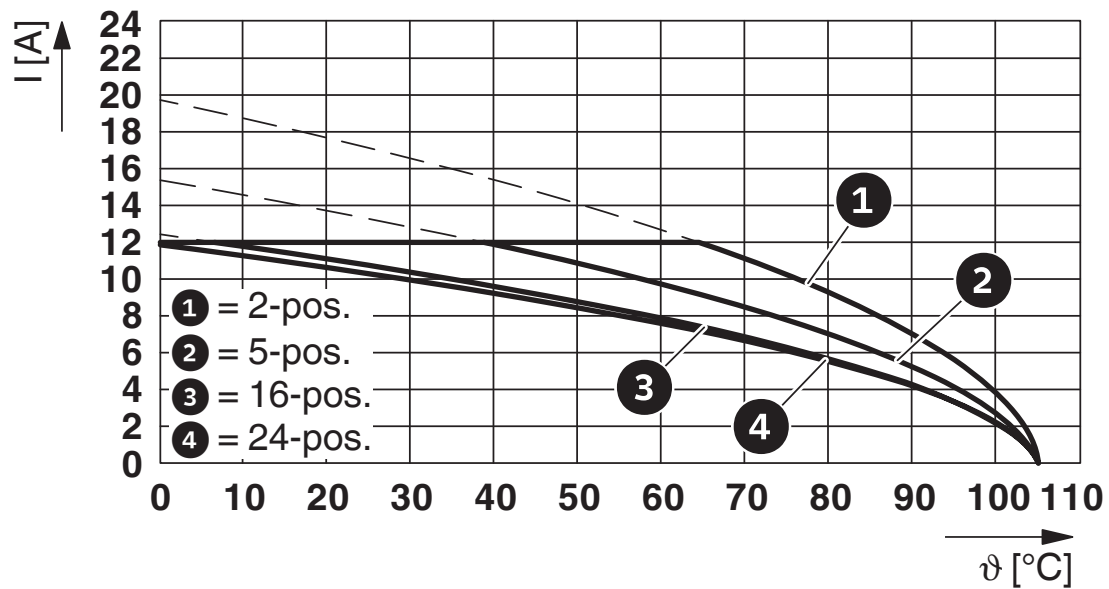
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Diagram



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

# IC 2,5/ 4-G-5,08 - PCB header



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1786420>

|  <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                 | 10 A                  | -                 | -                           |
| Use group D                                                                                                        |                       |                       |                   |                             |
|                                                                                                                    | 300 V                 | 10 A                  | -                 | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425-19931014 |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                               |                       |                       |                   |                             |
|                                                                                                                                           | 250 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 $\text{mm}^2$ |
|                                                                                                                                            | 250 V                 | 12 A                  | -                 | -                           |

# IC 2,5/ 4-G-5,08 - 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 |
|-------------|----------|

# IC 2,5/ 4-G-5,08 - PCB header

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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%               |

# IC 2,5/ 4-G-5,08 - PCB header

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## Accessories

### CP-MSTB - Coding profile

1734634

<https://www.phoenixcontact.com/us/products/1734634>

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



### DFK-MSTBA 2,5/ 4-G-5,08 - Feed-through header

1898855

<https://www.phoenixcontact.com/us/products/1898855>



Feed-through header, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, contact connection type: Pin, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: DFK-MSTBA 2,5/-G, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.23 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

## IC 2,5/ 4-G-5,08 - PCB header

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### MSTBO 2,5/ 4-GL-5,08 - PCB header

1850453

<https://www.phoenixcontact.com/us/products/1850453>



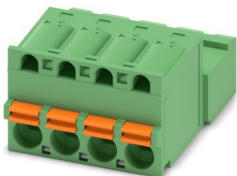
PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 320 V, contact surface: Tin, contact connection type: Pin, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: MSTBO 2,5/...-GL, 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, locking: without, mounting: without, type of packaging: packed in cardboard

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### FKIC 2,5/ 4-ST-5,08 - PCB connector

1873375

<https://www.phoenixcontact.com/us/products/1873375>



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, contact connection type: Pin, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: FKIC 2,5/...-ST, pitch: 5.08 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: without, mounting: without, type of packaging: packed in cardboard

## IC 2,5/ 4-G-5,08 - PCB header

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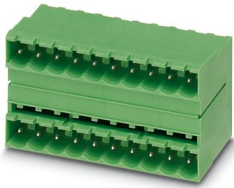
<https://www.phoenixcontact.com/us/products/1786420>



### MDSTB 2,5/ 4-G1-5,08 - PCB header

1736713

<https://www.phoenixcontact.com/us/products/1736713>



PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 10 A, rated voltage (III/2): 320 V, contact surface: Tin, contact connection type: Pin, number of potentials: 8, number of rows: 2, number of positions: 4, number of connections: 8, product range: MDSTB 2,5/...-G1, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.3 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, In combination with MVSTB or FKCV plug components, both an MVSTBW (or FKCVW) and an MVSTBR plug (or FKCVR) must be used. Combination with TMSTBP plug components is not possible!

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### SMSTBA 2,5/ 4-G-5,08 - PCB header

1767397

<https://www.phoenixcontact.com/us/products/1767397>



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, contact connection type: Pin, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: SMSTBA 2,5/...-G, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 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

# IC 2,5/ 4-G-5,08 - PCB header

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## SMSTB 2,5/ 4-G-5,08 - PCB header

1769489

<https://www.phoenixcontact.com/us/products/1769489>



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, contact connection type: Pin, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: SMSTB 2,5/...-G, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 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

## ICC 2,5/ 4-STZ-5,08 - PCB connector

1823862

<https://www.phoenixcontact.com/us/products/1823862>



PCB connector, nominal cross section: 2.5 mm<sup>2</sup>, color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact connection type: Pin, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: ICC 2,5/...-STZ, pitch: 5.08 mm, connection method: Crimp connection, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Snap-in locking, mounting: Engagement nose, type of packaging: packed in cardboard, Corresponding male crimp contacts with current [A] and conductor cross section range [mm<sup>2</sup>] data: 10A/ICC-MT 0,5-1,0 (3190577); 10A/ICC-MT 0,5-1,0 BA (3190603); 12A/ICC-MT 1,5-2,5 (3190580); 12A/ICC-MT 1,5-2,5 BA (3190593). BA = Bandkontakte

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