

# CCV 2,5/22-GF-5,08-LR P26THR - PCB header



1827854

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PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: black, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Sn, contact connection type: Pin, number of potentials: 22, number of rows: 1, number of positions: 22, number of connections: 22, product range: CCV 2,5/..-GF-LR, pitch: 5.08 mm, mounting: THR soldering / wave soldering, pin layout: Linear pinning, solder pin [P]: 2.6 mm, number of solder pins per potential: 1, plug-in system: COMBICON MSTB 2,5, Pin connector pattern alignment: Standard, locking: Lock-and-release locking system, mounting method: Lock & release threaded flange, type of packaging: packed in cardboard



## Your advantages

- Designed for integration into the SMT soldering process
- Vertical connection enables multi-row arrangement on the PCB
- Screwable flange for superior mechanical stability
- Automatic locking and intuitive release through Lock and Release operating lever in contrasting color
- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1827854                        |
| Packing unit                         | 52 pc                          |
| Minimum order quantity               | 50 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AA03                           |
| Product key                          | AACTBK                         |
| GTIN                                 | 4046356953368                  |
| Weight per piece (including packing) | 8.51 g                         |
| Weight per piece (excluding packing) | 7.163 g                        |
| Customs tariff number                | 85366930                       |
| Country of origin                    | DE                             |

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## Technical data

### Product properties

|                           |  |
|---------------------------|--|
| Product type              | PCB headers                                |
| Product family            | CCV 2,5/..-GF-LR                           |
| Product line              | COMBICON Connectors M                      |
| Type                      | Component suitable for through hole reflow |
| Number of positions       | 22   |
| Pitch                     | 5.08 mm                                    |
| Number of connections     | 22   |
| Number of rows            | 1  |
| Number of potentials      | 22   |
| Mounting type             | Lock & release threaded flange             |
| Pin layout                | Linear pinning                             |
| Solder pins per potential | 1  |

### Electrical properties

#### Properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 12 A   |
| Nominal voltage $U_N$       | 320 V  |
| Contact resistance          | 0.9 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 | THR soldering / wave soldering |
| Pin layout    | Linear pinning                 |

#### Flange

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

#### Processing notes

|                                  |                       |
|----------------------------------|-----------------------|
| Process                          | Reflow/wave soldering |
| Moisture Sensitive Level         | MSL 1                 |
| Classification temperature $T_c$ | 260 °C                |
| Solder cycles in the reflow      | 3                     |

### Material specifications

#### Material data - contact

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

## Notes

|                                 |  |
|---------------------------------|--|
| Details for soldering processes | Processing using reflow processes in compliance with IEC 60068-2-58 or DIN EN 61760-1 (latest version)<br>Moisture Sensitive Level (MSL) = 1 according to IPC/JEDEC J-STD-020-C          |
| 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]             | 121.87 mm |
| Height [h]            | 14.6 mm   |
| Length [l]            | 8.57 mm   |
| Installed height      | 12 mm     |
| Solder pin length [P] | 2.6 mm    |
| Pin dimensions        | 1 x 1 mm  |

## PCB design

|               |        |
|---------------|--------|
| Hole diameter | 1.6 mm |
|---------------|--------|

## Mechanical tests

### Visual inspection

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

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## 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            |

## Insertion and withdrawal forces

|                                     |                        |
|-------------------------------------|------------------------|
| Specification                       | IEC 60512-13-2:2006-02 |
| 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 | 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 175             |
| 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               |

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

### Durability test

|  |                       |
|--|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 4.8 kV                |
| Contact resistance $R_1$                     | 0.9 m $\Omega$        |
| Contact resistance $R_2$                     | 1.2 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                    | 105 °C/168 h  |
| Power-frequency withstand voltage | 2.21 kV   |

### 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           |

### Shocks

|                 |                                   |
|-----------------|-----------------------------------|
| Specification   | IEC 60068-2-27:2008-02            |
| Pulse shape     | Semi-sinusoidal                   |
| Acceleration    | 20g                               |
| Shock duration  | 11 ms                             |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

### Railway application: Oscillation/broadband noise

|                        |  |
|------------------------|--|
| Specification          | DIN EN 50155 (VDE 0115-200):2022-06              |
|                        | IEC 61373:2010-05                                |
| Spectrum               | Long life test category 1, class B, body mounted |
| Frequency              | $f_1 = 5$ Hz to $f_2 = 150$ Hz                   |
| ASD level              | 0.964 (m/s <sup>2</sup> )/Hz                     |
| Acceleration           | 0.572 g  |
| Test duration per axis | 5 h  |
| Test directions        | X-, Y- and Z-axis                                |
| Contact interruption   | < 1 $\mu$ s                                      |

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|        |             |
|--------|-------------|
| Result | Test passed |
|--------|-------------|

## Railway application: Shocks

|                                |  |
|--------------------------------|--|
| Specification                  | DIN EN 50155 (VDE 0115-200):2022-06<br>IEC 61373:2010-05 |
| Pulse shape                    | Semi-sinusoidal  |
| Acceleration                   | 20g  |
| Shock duration                 | 11 ms  |
| Number of shocks per direction | 3  |
| Test directions                | X-, Y- and Z-axis (pos. and neg.)                        |
| Contact interruption           | < 1 $\mu$ s  |
| Result                         | Test passed  |

## Ambient conditions

|   |   |
|---|---|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C                                    |
| Relative humidity (storage/transport)   | 30 % ... 70 %                                       |
| Ambient temperature (assembly)          | -5 °C ... 100 °C                                    |
| Ambient temperature (operation)         | -40 °C ... 105 °C (dependent on the derating curve) |

## Packaging specifications

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

Drawings

Diagram



Type: LPC 2,5/...-ST-5,08-LR with CCV 2,5/...-GF-5,08-LR P...THR

Diagram



Type: FKCN 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P... THR



Type: MSTBT 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08 P...THR



Type: MVSTB(R/W) 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR

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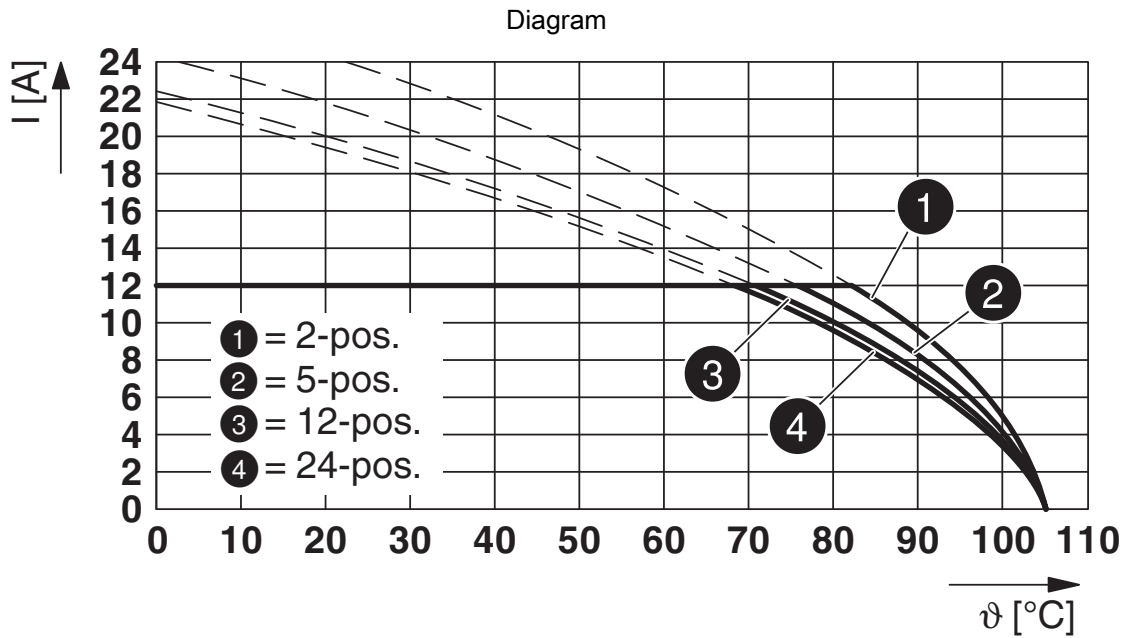
<https://www.phoenixcontact.com/us/products/1827854>



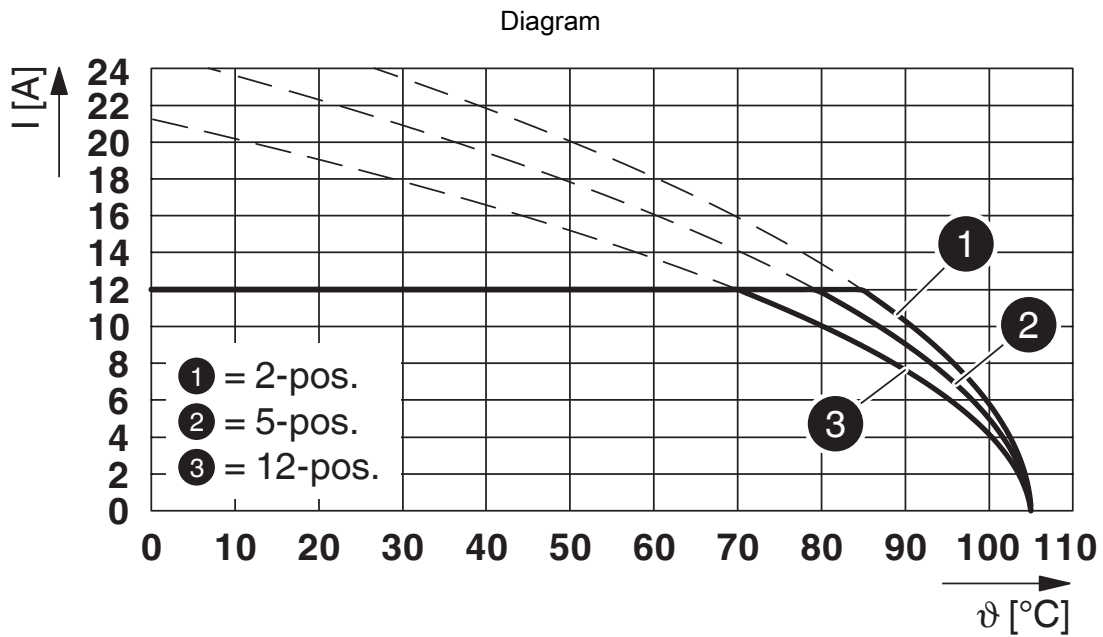
Type: SMSTB 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR



Type: MSTB 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR



Type: FRONT-MSTB 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR



Type: FKCS 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR

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Type: FKCVR 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR



Type: FKCVW 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR

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Type: FKCT 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P26THR



Type: TFKC 2,5/...-STF-5,08 with CCV 2,5/...-GF-5,08-LR P...THR

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1827854>

|  <b>cULus Recognized</b><br>Approval ID: E60425-19931011 |                       |                       |                   |                      |
|---|-----------------------|-----------------------|-------------------|----------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
| B   |                       |                       |                   |                      |
| Standard  | 300 V                 | 16 A                  | -                 | -                    |
| D   |                       |                       |                   |                      |
| Standard  | 300 V                 | 10 A                  | -                 | -                    |
| Alternative 1   | 150 V                 | 15 A                  | -                 | -                    |

|  <b>VDE report with production monitoring</b><br>Approval ID: 40041286 |                       |                       |                   |                      |
|---|-----------------------|-----------------------|-------------------|----------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
| keine   |                       |                       |                   |                      |
|   | 400 V                 | 12 A                  | -                 | -                    |

|  <b>VDE approval of drawings</b><br>Approval ID: 40050079 |                       |                       |                   |                      |
|--|-----------------------|-----------------------|-------------------|----------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
| keine  |                       |                       |                   |                      |
|  | 320 V                 | 16 A                  | -                 | -                    |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27460201 |
| ECLASS-15.0 | 27460201 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | 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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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)