

MC 1,5/14-GF-3,81 P20 THR - PCB header



1829140

<https://www.phoenixcontact.com/us/products/1829140>

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PCB headers, nominal cross section: 1.5 mm², color: black, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Sn, contact connection type: Pin, number of rows: 1, number of positions: 14, product range: MC 1,5/..-GF-THR, pitch: 3.81 mm, mounting: THR soldering / wave soldering, pin layout: Linear pinning, solder pin [P]: 2 mm, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, Pin connector pattern alignment: Standard, locking: Screw locking mechanism, mounting method: Threaded flange, type of packaging: packed in cardboard



The figure shows a 14-position version

Your advantages

- Designed for integration into the SMT soldering process
- Screwable flange for superior mechanical stability
- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 1829140 |
| Packing unit | 50 pc |
| Minimum order quantity | 50 pc |
| Sales key | AA02 |
| Product key | AABTBA |
| GTIN | 4046356869027 |
| Weight per piece (including packing) | 4.59 g |
| Weight per piece (excluding packing) | 4.127 g |
| Customs tariff number | 85366930 |
| Country of origin | DE |

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Technical data

Product properties

| | |
|---------------------------|--|
| Product type | PCB headers |
| Product family | MC 1,5/..-GF-THR |
| Product line | COMBICON Connectors S |
| Type | Component suitable for through hole reflow |
| Number of positions | 14 |
| Pitch | 3.81 mm |
| Number of rows | 1 |
| Mounting type | Threaded flange |
| Pin layout | Linear pinning |
| Solder pins per potential | 1 |

Electrical properties

Properties

| | |
|-----------------------------|--------|
| Nominal current I_N | 8 A |
| Nominal voltage U_N | 160 V |
| Contact resistance | 1.4 mΩ |
| 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 | 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 | 250 °C |
| Solder cycles in the reflow | 3 |

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 |

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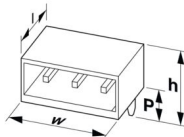
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| | |
|---|---------------------------|
| Surface characteristics | Tin-plated |
| Metal surface contact area (top layer) | Tin (3 µm - 5 µm Sn) |
| Metal surface contact area (middle layer) | Nickel (1.3 µm - 3 µm Ni) |
| Metal surface soldering area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

Dimensions

| | |
|-----------------------|---|
| Dimensional drawing |  |
| Pitch | 3.81 mm |
| Width [w] | 63.73 mm |
| Height [h] | 8.9 mm |
| Length [l] | 9.2 mm |
| Installed height | 6.9 mm |
| Solder pin length [P] | 2 mm |
| Pin dimensions | 0.8 x 0.8 mm |

PCB design

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

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| | |
|---|------------------------|
| 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) | 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 |
| minimum creepage distance (II/2) | 2.5 mm |

Environmental and real-life conditions

Durability test

| | |
|--|-----------------------|
| Specification | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level | 2.95 kV |
| Contact resistance R ₁ | 1.4 mΩ |

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| | |
|-----------------------------|----------------|
| Contact resistance R_2 | 1.5 m Ω |
| Insertion/withdrawal cycles | 25 |

Climatic test

| | |
|-----------------------------------|---|
| Specification | ISO 6988:1985-02 |
| Corrosive stress | 0.2 dm ³ SO ₂ on 300 dm ³ /40 °C/1 cycle |
| Thermal stress | 100 °C/168 h |
| Power-frequency withstand voltage | 1.39 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 | Half-sine |
| Acceleration | 30g |
| Shock duration | 18 ms |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

Railway application: Shocks

| | |
|-----------------|-----------------------------------|
| Acceleration | 30g |
| Shock duration | 18 ms |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

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 ... 100 °C (dependent on the derating curve) |

Packaging specifications

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

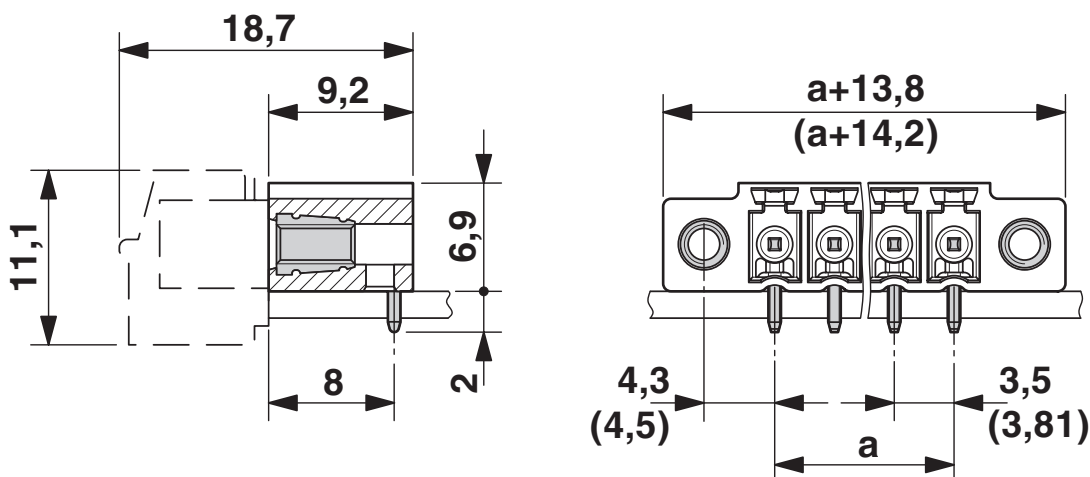
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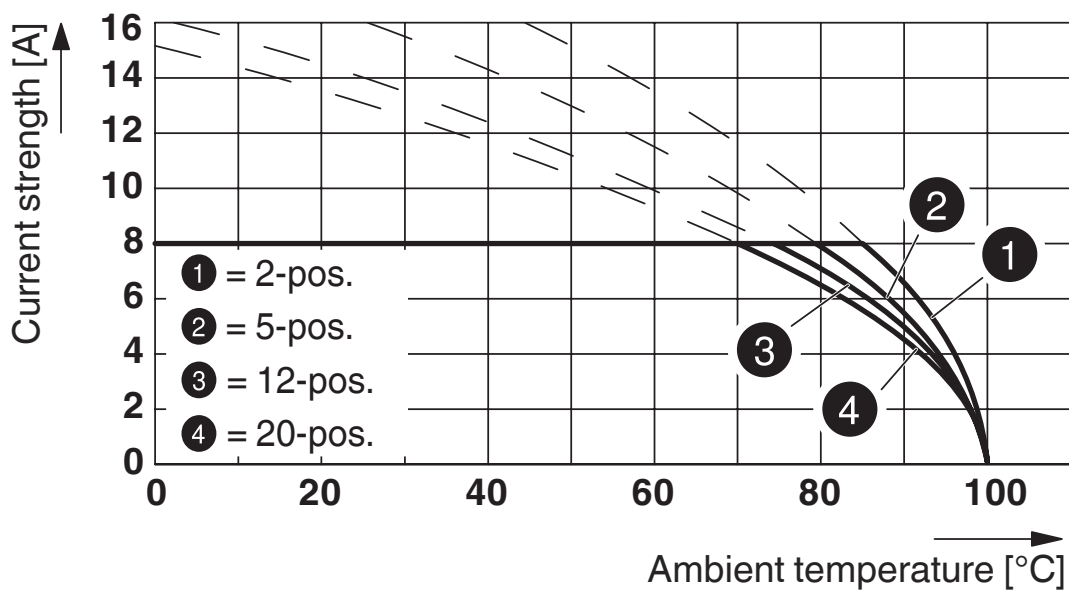
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Drawings

Dimensional drawing



Diagram



Type: FK-MCP 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P... THR

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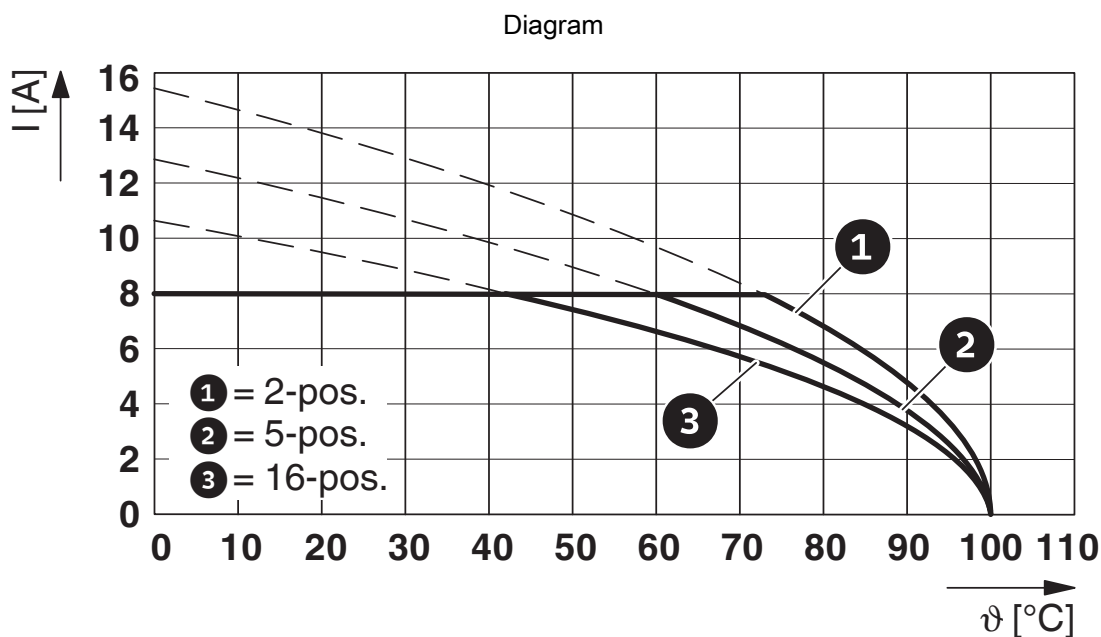


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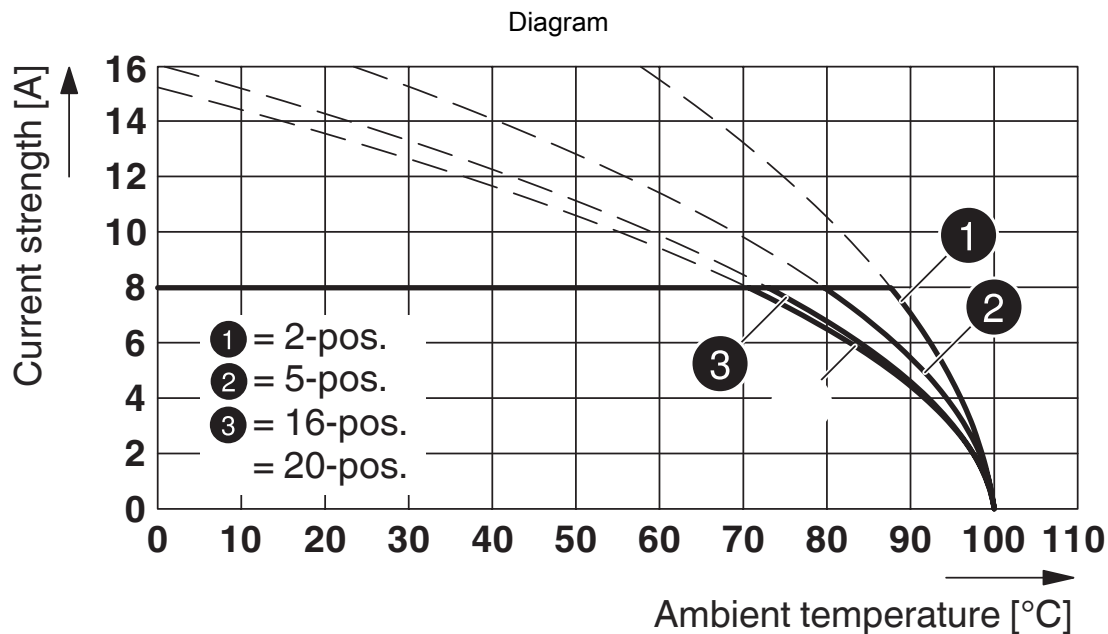
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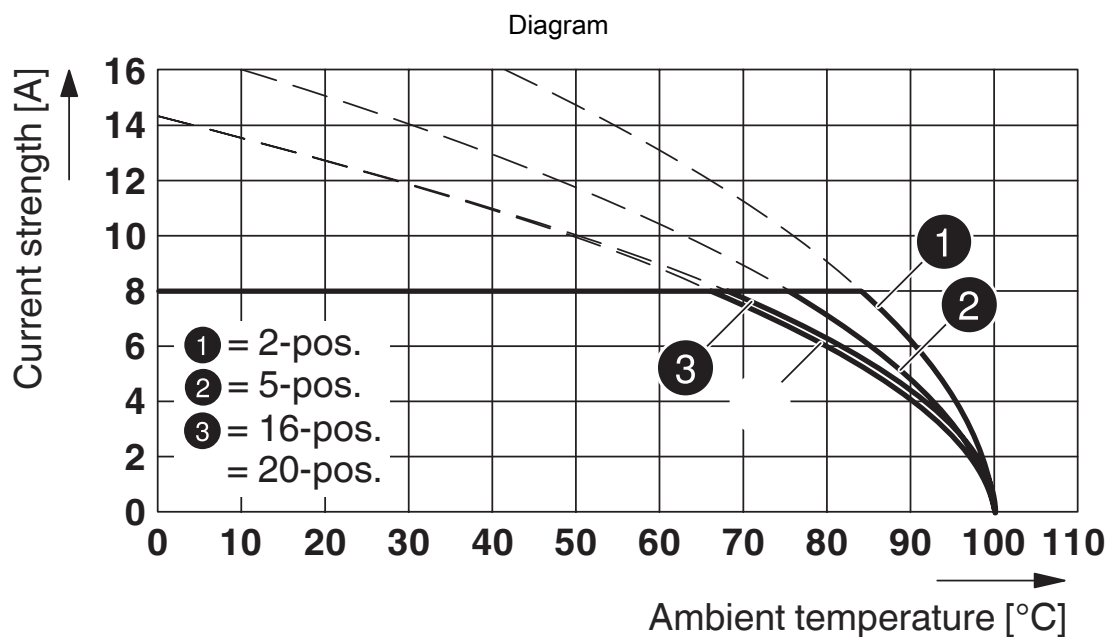
Type: FMC 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P...THR



Type: MCV(W/R) 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P...THR



Type: MC 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P26THR



Type: FRONT-MC 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P...THR

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Diagram



Type: MCV(W/R) 1,5/...-STF-3,81 with MC 1,5/...-GF-3,81 P...THR

Drilling plan/solder pad geometry



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1829140>

|  cULus Recognized Approval ID: E60425-20110128 | | | | |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| B | 300 V | 8 A | - | - |
| D | 300 V | 8 A | - | - |

|  VDE Zeichengenehmigung Approval ID: 40011723 | | | | |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| keine | 160 V | 8 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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