

MC 0,5/ 4-G-2,54 P20THRR24C2 - PCB header



1706204

<https://www.phoenixcontact.com/us/products/1706204>

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The figure shows the 10-position version

PCB headers, nominal cross section: 0.5 mm², color: black, nominal current: 6 A, rated voltage (III/2): 160 V, contact surface: Au, contact connection type: Pin, number of potentials: 4, number of rows: 1, number of positions: 4, number of connections: 4, product range: MC 0,5/-G-THR, pitch: 2.54 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 FMC 0,5, Pin connector pattern alignment: Standard, locking: without, mounting method: without, type of packaging: 24 mm wide tape, Fixed coding of the last position, can be combined with the FMC 0,5/...-ST-2,54 C2 connector

Your advantages

- Designed for integration into the SMT soldering process
- Additional solder anchors reduce the mechanical strain on the soldering spots
- Gold-plated contacts ensure transfer quality remains stable over the long term
- Supplied in tape-on-reel packing according to IEC 60286-3 for automated mounting

Commercial data

| | |
|--------------------------------------|--------------------------------|
| Item number | 1706204 |
| Packing unit | 465 pc |
| Minimum order quantity | 465 pc |
| Note | Made to order (non-returnable) |
| Sales key | AA01 |
| Product key | AAATAA |
| GTIN | 4046356841573 |
| Weight per piece (including packing) | 1.56 g |
| Weight per piece (excluding packing) | 1.12 g |
| Customs tariff number | 85366930 |
| Country of origin | PL |

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Technical data

Product properties

| | |
|---------------------------|--|
| Product type | PCB headers |
| Product family | MC 0,5/..-G-THR |
| Product line | COMBICON Connectors XS |
| Type | Component suitable for through hole reflow |
| Number of positions | 4 |
| Pitch | 2.54 mm |
| Number of connections | 4 |
| Number of rows | 1 |
| Number of potentials | 4 |
| Mounting type | without |
| Pin layout | Linear pinning |
| Solder pins per potential | 1 |

Electrical properties

Properties

| | |
|-----------------------------|----------------|
| Nominal current I_N | 6 A |
| Nominal voltage U_N | 160 V |
| Contact resistance | 2.1 m Ω |
| Rated voltage (III/3) | 32 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) | 160 V |
| Rated surge voltage (II/2) | 2.5 kV |

Mounting

| | |
|---------------|--------------------------------|
| Mounting type | THR soldering / wave soldering |
| Pin layout | Linear pinning |

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

| | |
|------------------|--|
| Note | WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201 |
| Contact material | Cu alloy |

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| | |
|---|-------------------------|
| Surface characteristics | Completely gold-plated |
| Metal surface contact area (top layer) | Gold (min. 0.25 µm Au) |
| Metal surface contact area (middle layer) | Nickel (2 µm - 4 µm Ni) |
| Metal surface soldering area (top layer) | Gold (0.25 µm Au) |
| Metal surface soldering area (middle layer) | Nickel (2 µm - 4 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 | 2.54 mm |
| Width [w] | 14.7 mm |
| Height [h] | 6.85 mm |
| Length [l] | 7.1 mm |
| Installed height | 4.85 mm |
| Solder pin length [P] | 2 mm |
| Pin dimensions | 0.64 x 0.64 mm |

PCB design

| | |
|---------------|--------|
| Hole diameter | 1.2 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 | 100 |
| Insertion strength per pos. approx. | 2 N |
| Withdraw strength per pos. approx. | 3 N |

Electrical tests

Thermal test | Test group C

| | |
|----------------------------|-----------------------|
| Specification | IEC 60512-5-1:2002-02 |
| Tested number of positions | 16 |

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) | 32 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) | 1.5 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) | 160 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) | 1.6 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 | 2.1 mΩ |

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| | |
|--|----------------|
| Contact resistance R_2 | 2.1 m Ω |
| Insertion/withdrawal cycles | 100 |
| Insulation resistance, neighboring positions | > 5 M Ω |

Climatic test

| | |
|-----------------------------------|---|
| Specification | DIN 50018:2013-05 |
| Corrosive stress | 1.0 dm ³ SO ₂ on 300 dm ³ /40 °C/1 cycle |
| Thermal stress | 105 °C/168 h |
| Power-frequency withstand voltage | 1.39 kV |

Vibration test

| | |
|------------------------|-----------------------------|
| Specification | IEC 60068-2-6:2007-12 |
| Frequency | 10 - 500 - 10 Hz |
| Sweep speed | 1 octave/min |
| Amplitude | 0.35 mm (10 Hz ... 60.1 Hz) |
| Acceleration | 5g (60.1 Hz ... 500 Hz) |
| Test duration per axis | 2 h |
| Test directions | X-, Y- and Z-axis |

Shocks

| | |
|-----------------|-----------------------------------|
| Specification | IEC 60068-2-27:2008-02 |
| Pulse shape | Semi-sinusoidal |
| Acceleration | 30g |
| Shock duration | 18 ms |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

Railway application: Oscillation/broadband noise

| | |
|------------------------|--|
| Specification | DIN EN 50155 (VDE 0115-200):2018-05 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 ²) ² /Hz |
| Acceleration | 0.572 g |
| Test duration per axis | 5 h |
| Test directions | X-, Y- and Z-axis |
| Contact interruption | < 1 μ s |
| Result | Test passed |

Railway application: Shocks

| | |
|--------------------------------|--|
| Specification | DIN EN 50155 (VDE 0115-200):2018-05 IEC 61373:2010-05 |
| Pulse shape | Semi-sinusoidal |
| Acceleration | 30g |
| Shock duration | 18 ms |
| Number of shocks per direction | 3 |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

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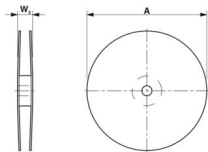
<https://www.phoenixcontact.com/us/products/1706204>

| | |
|----------------------|-------------|
| Contact interruption | < 1 μ 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 ... 100 °C (dependent on the derating curve) |

Packaging specifications

| | |
|-----------------------------|--|
| Dimensional drawing |  |
| Type of packaging | 24 mm wide tape |
| [W] tape width | 24 mm |
| [W2] coil overall dimension | ≤ 30.4 mm |
| [A] coil diameter | ≤ 330 mm |
| Outer packaging type | Transparent-Bag |

Drawings

Dimensional drawing



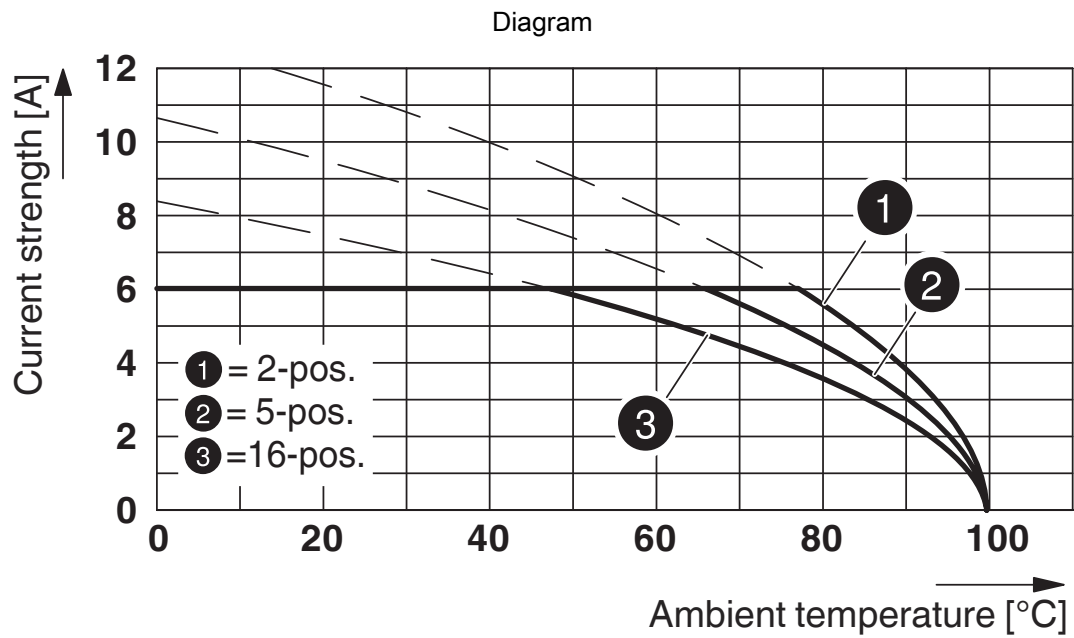
Diagram



Type: MCC 0,5/...-ST-2,54 with MC 0,5/...-G-2,54 P20 THR R...

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Type: FMC 0,5/...-ST-2,54 with MC 0,5/...-G-2,54 P20 THR R..

Drilling plan/solder pad geometry



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1706204>

|  cULus Recognized Approval ID: E60425-19920306 | | | | |
|---|-----------------------|-----------------------|-------------------|----------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| B | | | | |
| Field wiring | 150 V | 6 A | - | - |
| C | | | | |
| Factory wiring | 50 V | 6 A | - | - |

|  VDE report with production monitoring Approval ID: 40042258 | | | | |
|---|-----------------------|-----------------------|-------------------|----------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| keine | | | | |
| | 160 V | 6 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% |
|-------------------------------------|----------------------------|

EF3.1 Climate Change

| | |
|---------|--------------|
| CO2e kg | 0.08 kg CO2e |
|---------|--------------|

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