

# ICC20-H/3R5,0-7035 - PCB header

2203901

<https://www.phoenixcontact.com/us/products/2203901>

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PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: light gray, nominal current: 16 A, rated voltage (III/2): 320 V, contact surface: Sn, contact connection type: Pin, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: ICC...-H/.. R5,0, pitch: 5 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 mm, number of solder pins per potential: 1, plug-in system: ICC 2,5, Pin connector pattern alignment: Standard, locking: Snap-in locking, mounting method: without, type of packaging: Box packaging, Product with pin output on right side

## Your advantages

- Variable coding, for reliable protection against incorrect connection
- Designed for integration into the wave soldering process
- Easy and fast push-in mounting of assembled printed-circuit boards, thanks to stable guide rails
- Quick and easily coded when initially connecting the connector and header

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2203901       |
| Packing unit                         | 50 pc         |
| Minimum order quantity               | 50 pc         |
| Sales key                            | AC09          |
| Product key                          | ACHAFB        |
| GTIN                                 | 4055626466064 |
| Weight per piece (including packing) | 4.24 g        |
| Weight per piece (excluding packing) | 4.24 g        |
| Customs tariff number                | 85366930      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                           |                                 |
|---------------------------|---------------------------------|
| Product type              | PCB headers                     |
| Product family            | ICC...-H/..R5,0                 |
| Type                      | Header perpendicular to the PCB |
| Number of positions       | 3                               |
| Pitch                     | 5 mm                            |
| Number of connections     | 3                               |
| Number of rows            | 1                               |
| Number of potentials      | 3                               |
| Mounting type             | without                         |
| Pin layout                | Linear pinning                  |
| Solder pins per potential | 1                               |

### Electrical properties

#### Properties

|                             |                |
|-----------------------------|----------------|
| Nominal current $I_N$       | 16 A           |
| Nominal voltage $U_N$       | 320 V          |
| Contact resistance          | 1.5 m $\Omega$ |
| 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)        | 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                     | Tin-plated   |
| Metal surface terminal point (top layer)    | Tin (2 $\mu\text{m}$ - 4 $\mu\text{m}$ Sn)                                       |
| Metal surface terminal point (middle layer) | Nickel (1.3 $\mu\text{m}$ - 3 $\mu\text{m}$ Ni)                                  |
| Metal surface contact area (top layer)      | Tin (2 $\mu\text{m}$ - 4 $\mu\text{m}$ Sn)                                       |
| Metal surface contact area (middle layer)   | Nickel (1.3 $\mu\text{m}$ - 3 $\mu\text{m}$ Ni)                                  |
| Metal surface soldering area (top layer)    | Tin (2 $\mu\text{m}$ - 4 $\mu\text{m}$ Sn)                                       |
| Metal surface soldering area (middle layer) | Nickel (1.3 $\mu\text{m}$ - 3 $\mu\text{m}$ Ni)                                  |

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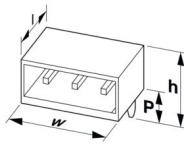
## Material data - housing

|   |                   |
|---|-------------------|
| Color (Housing)   | light gray (7035) |
| Insulating material   | PA                |
| 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

|               |   |
|---------------|---|
| Assembly note | Please observe the application note in the download area.                       |
| General       | Further information and detailed dimensions are available in the download area. |

## Dimensions

|                       |  |
|-----------------------|--|
| Dimensional drawing   |  |
| Pitch                 | 5 mm   |
| Width [w]             | 20 mm  |
| Height [h]            | 22.4 mm  |
| Length [l]            | 20.12 mm   |
| Solder pin length [P] | 3.5 mm   |
| Pin dimensions        | 1 x 1 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            |

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## 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. | 13 N                   |
| Withdraw strength per pos. approx.  | 8 N                    |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 4                     |

### Insulation resistance

|  |                       |
|--|-----------------------|
| Specification                                | IEC 60512-3-1:2002-02 |
| Insulation resistance, neighboring positions | > 30 GΩ               |

### 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)                       | 250 V               |
| Rated surge voltage (III/3)                            | 4 kV                |
| minimum clearance value - non-homogenous field (III/3) | 3 mm                |
| minimum creepage distance (III/3)                      | 3.2 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)                      | 1.6 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

### Durability test

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-9-1:2010-03 |
|---------------|-----------------------|

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|  |         |
|--|---------|
| Impulse withstand voltage at sea level       | 4.8 kV  |
| Contact resistance R <sub>1</sub>            | 1.5 mΩ  |
| Contact resistance R <sub>2</sub>            | 1.6 mΩ  |
| Insertion/withdrawal cycles                  | 25      |
| Insulation resistance, neighboring positions | > 30 GΩ |

## 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   |

## 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           |

## Ambient conditions

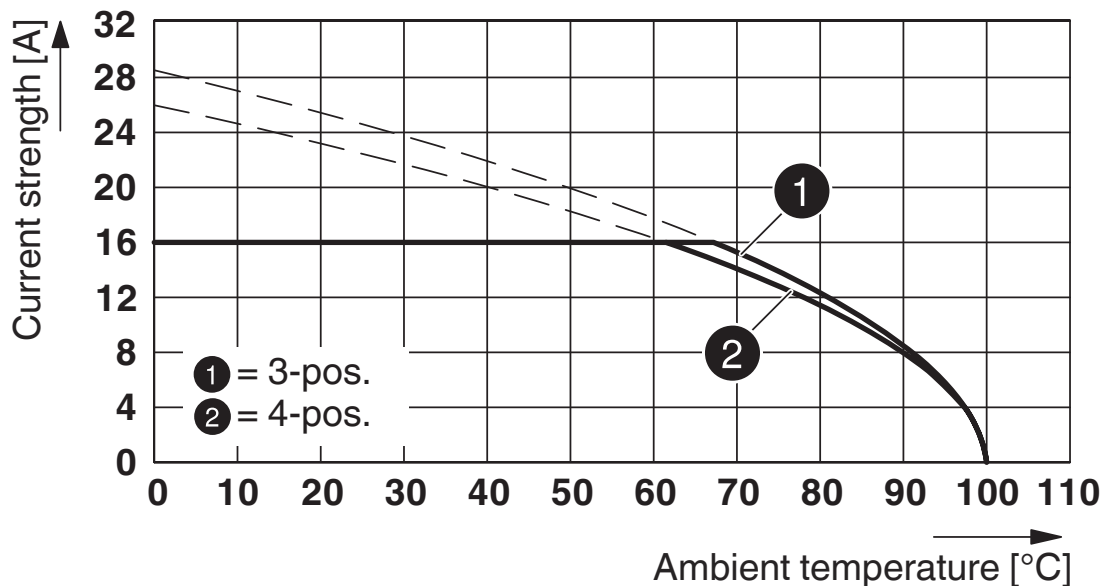
|   |   |
|---|---|
| Ambient temperature (storage/transport) | -40 °C ... 55 °C                                    |
| Relative humidity (storage/transport)   | 30 % ... 70 %                                       |
| Ambient temperature (assembly)          | -5 °C ... 100 °C                                    |
| Ambient temperature (operation)         | -40 °C ... 105 °C (dependent on the derating curve) |

## Packaging specifications

|                      |               |
|----------------------|---------------|
| Type of packaging    | Box packaging |
| Outer packaging type | Carton        |

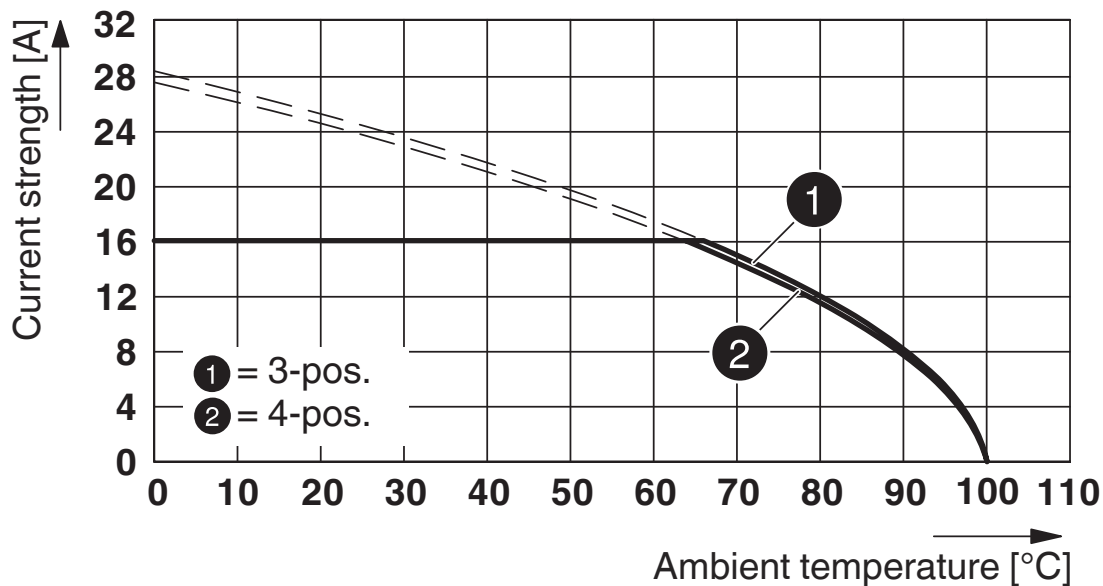
Drawings

Diagram



Type: PSPT 2,5/...-ST ... with ICC20(25)-H/...L(R)5,0-...

Diagram



Type: MSTBT 2,5 HC/...-STF with ICC20(25)-H/...L(R)5,0-...

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Diagram



Type: ICC20(25)-PPC2,5/...-5,0-... with ICC20(25)-H/...L(R)5,0-...

Diagram



Type: ICC25-PSC 2,5/...-5,0-AA with ICC20(25)-H/...L(R) 5,0

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2203901>

|  <b>cULus Recognized</b><br>Approval ID: E60425-20181123 |  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|---|--|-----------------------|-----------------------|-------------------|-----------------------------|
| B   |  | 300 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% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 0.049 kg CO2e |
|---------|---------------|

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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)