

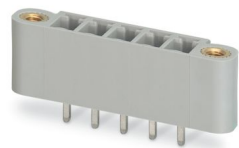
# BCH-381VF-16 GY - PCB header

5431893

<https://www.phoenixcontact.com/us/products/5431893>



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PCB headers, nominal cross section: 1.5 mm<sup>2</sup>, color: signal grey, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Pin, number of potentials: 16, number of rows: 1, number of positions: 16, number of connections: 16, product range: BCH-VF, pitch: 3.81 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 mm, number of solder pins per potential: 1, plug-in system: BASICLINE 1,5, Pin connector pattern alignment: Standard, locking: Screw locking mechanism, mounting: Threaded flange, type of packaging: packed in cardboard

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 5431893                        |
| Packing unit                         | 100 pc                         |
| Minimum order quantity               | 100 pc                         |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AA02                           |
| Product key                          | AABSYD                         |
| GTIN                                 | 4046356169585                  |
| Weight per piece (including packing) | 4 g                            |
| Weight per piece (excluding packing) | 3.9 g                          |
| Customs tariff number                | 85366930                       |
| Country of origin                    | CN                             |

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## Technical data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Product type              | PCB headers           |
| Product family            | BCH-VF                |
| Product line              | COMBICON Connectors S |
| Type                      | Standard              |
| Number of positions       | 16                    |
| Pitch                     | 3.81 mm               |
| Number of connections     | 16                    |
| Number of rows            | 1                     |
| Number of potentials      | 16                    |
| Mounting flange           | Threaded flange       |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 1                     |

### Electrical properties

|                             |                |
|-----------------------------|----------------|
| Nominal current $I_N$       | 8 A            |
| Nominal voltage $U_N$       | 160 V          |
| Degree of pollution         | 3              |
| Contact resistance          | 4.3 m $\Omega$ |
| 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)        | 320 V          |
| Rated surge voltage (II/2)  | 2.5 kV         |

### Mounting

|               |                |
|---------------|----------------|
| Mounting type | Wave soldering |
| Pin layout    | Linear pinning |

### Flange

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

### 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 contact area (top layer)    | Tin (4 - 8 $\mu$ m Sn)                                                           |
| Metal surface contact area (middle layer) | Nickel (1.5 - 4 $\mu$ m Ni)                                                      |
| Metal surface soldering area (top layer)  | Tin (4 - 8 $\mu$ m Sn)                                                           |

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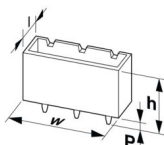
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|                                             |                        |
|---------------------------------------------|------------------------|
| Metal surface soldering area (middle layer) | Nickel (1.5 - 4 µm Ni) |
|---------------------------------------------|------------------------|

## Material data - housing

|                                                                   |                    |
|-------------------------------------------------------------------|--------------------|
| Color (Housing)                                                   | signal grey (7004) |
| 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             |

## Dimensions

|                       |                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------|
| Dimensional drawing   |  |
| Pitch                 | 3.81 mm                                                                             |
| Width [w]             | 71.35 mm                                                                            |
| Height [h]            | 12.7 mm                                                                             |
| Length [l]            | 7.4 mm                                                                              |
| Installed height      | 9.2 mm                                                                              |
| Solder pin length [P] | 3.5 mm                                                                              |
| Pin dimensions        | 0.8 x 0.8 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 |
|-------------------------------------|-------------|
| Insertion and withdrawal forces     |             |
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 5 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                              | I                   |
| Comparative tracking index (IEC 60112)                 | CTI 600             |
| 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 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)                      | 1.5 mm              |
| Rated insulation voltage (II/2)                        | 320 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

### 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                       |

### Durability test

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

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|                                              |         |
|----------------------------------------------|---------|
| Impulse withstand voltage at sea level       | 2.95 kV |
| Contact resistance R <sub>1</sub>            | 4.3 mΩ  |
| Contact resistance R <sub>2</sub>            | 4.3 mΩ  |
| Insertion/withdrawal cycles                  | 25      |
| Insulation resistance, neighboring positions | > 5 MΩ  |

## Climatic test

|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| Specification                     | ISO 22479:2019-05                                                         |
| 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 | 1.39 kV                                                                   |

## Ambient conditions

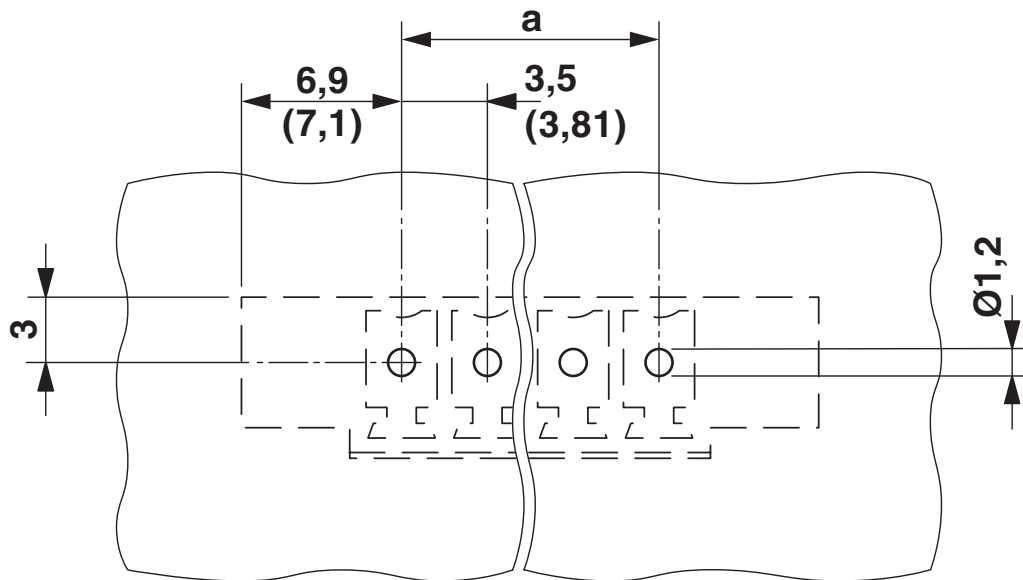
|                                         |                                                     |
|-----------------------------------------|-----------------------------------------------------|
| Ambient temperature (operation)         | -40 °C ... 100 °C (dependent on the derating curve) |
| Ambient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

## Packaging specifications

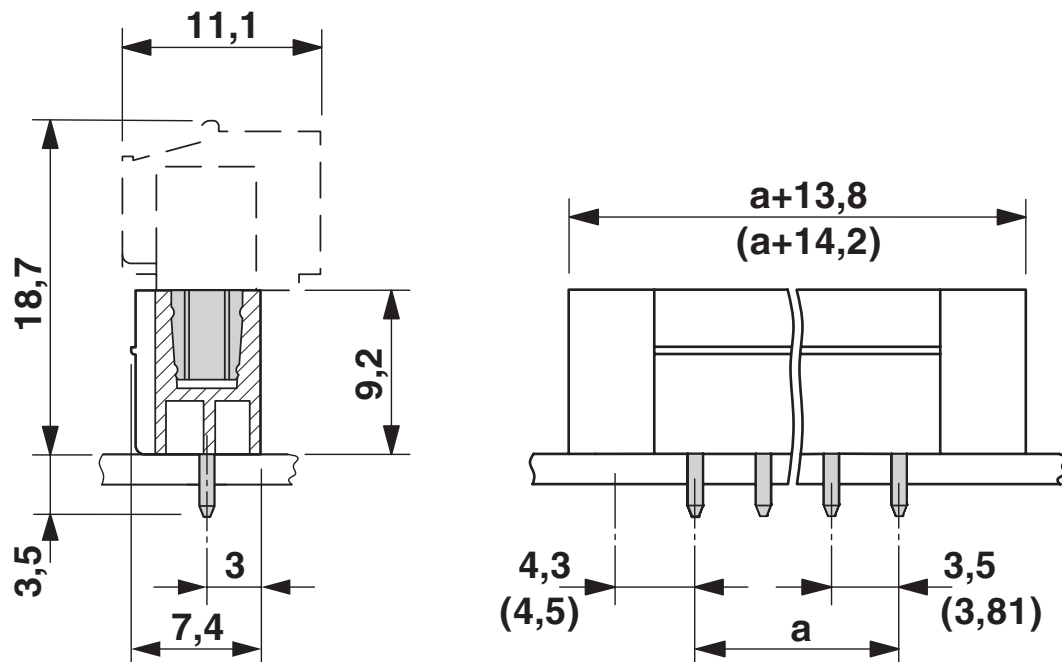
|                   |                     |
|-------------------|---------------------|
| Type of packaging | packed in cardboard |
|-------------------|---------------------|

## Drawings

Drilling plan/solder pad geometry



Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/5431893>

|                                                                                                                                                       |                       |                       |                   |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
| <div> <b>cULus Recognized</b><br/>Approval ID: E60425-20071007</div> |                       |                       |                   |                             |
|                                                                                                                                                       | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                                                                                                                           |                       |                       |                   |                             |
|                                                                                                                                                       | 250 V                 | 8 A                   | -                 | -                           |
| Use group D                                                                                                                                           |                       |                       |                   |                             |
|                                                                                                                                                       | 300 V                 | 8 A                   | -                 | -                           |

|                                                                                                                                                                       |                       |                       |                   |                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
| <div> <b>VDE Gutachten mit Fertigungsüberwachung</b><br/>Approval ID: 40040694</div> |                       |                       |                   |                             |
|                                                                                                                                                                       | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                                                                                                                                       | 160 V                 | 8 A                   | -                 | 0.2 - 1.5                   |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27460201 |
| ECLASS-12.0 | 27460201 |
| ECLASS-13.0 | 27460201 |

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | 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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