

# DMC 1,5/ 4-G1F-3,5-LR P20THR - PCB header



1787030

<https://www.phoenixcontact.com/us/products/1787030>

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PCB headers, nominal cross section: 1.5 mm<sup>2</sup>, color: black, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Pin, number of potentials: 8, number of rows: 2, number of positions: 4, number of connections: 8, product range: DMC 1,5/...G1F-THR, pitch: 3.5 mm, mounting: THR soldering, pin layout: Linear pinning, solder pin [P]: 2 mm, number of solder pins per potential: 1, plug-in system: COMBICON DFMC 1,5, Pin connector pattern alignment: Standard, locking: Snap-in locking, mounting: Lock & release threaded flange, type of packaging: packed in cardboard

## Your advantages

- Designed for integration into the SMT soldering process
- Screwable flange for superior mechanical stability
- Automatic locking and intuitive release through Lock and Release operating lever in contrasting color
- Conductor connection on several levels enables higher contact density
- Small component size for applications where space is at a premium

## Commercial Data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1787030             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 50 pc               |
| Sales Key                            | AA02                |
| Product Key                          | AABTJA              |
| Catalog Page                         | Page 187 (C-1-2013) |
| GTIN                                 | 4046356596541       |
| Weight per Piece (including packing) | 2.984 g             |
| Weight per Piece (excluding packing) | 2.984 g             |
| Customs tariff number                | 85366930            |
| Country of origin                    | DE                  |

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## Technical Data

### Product properties

|                           |                                |
|---------------------------|--------------------------------|
| Type                      | Headers                        |
| Product line              | COMBICON Connectors S          |
| Product type              | PCB headers                    |
| Product family            | DMC 1,5/...-G1F-THR            |
| Number of positions       | 4                              |
| Pitch                     | 3.5 mm                         |
| Number of connections     | 8                              |
| Number of rows            | 2                              |
| Mounting flange           | Lock & release threaded flange |
| Number of potentials      | 8                              |
| 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          | 2 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  |
| Pin layout    | Linear pinning |

### Flange

|                   |        |
|-------------------|--------|
| Tightening torque | 0.2 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

|      |                                                        |
|------|--------------------------------------------------------|
| Note | WEEE/RoHS-compliant, free of whiskers according to IEC |
|------|--------------------------------------------------------|

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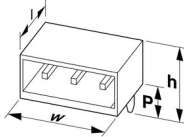
<https://www.phoenixcontact.com/us/products/1787030>

|                                             |                           |
|---------------------------------------------|---------------------------|
|                                             | 60068-2-82/JEDEC JESD 201 |
| Contact material                            | Cu alloy                  |
| Surface characteristics                     | Tin-plated                |
| Metal surface contact area (top layer)      | Tin (3 - 5 µm Sn)         |
| Metal surface contact area (middle layer)   | Nickel (1 - 3 µm Ni)      |
| Metal surface soldering area (top layer)    | Tin (3 - 5 µm Sn)         |
| Metal surface soldering area (middle layer) | Nickel (1 - 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                 | 3.5 mm                                                                               |
| Width [w]             | 21 mm                                                                                |
| Height [h]            | 12.8 mm                                                                              |
| Length [l]            | 11.6 mm                                                                              |
| Installed height      | 10.8 mm                                                                              |
| Solder pin length [P] | 2 mm                                                                                 |
| Pin dimensions        | 0.8 x 0.8 mm                                                                         |

## PCB design

|               |         |
|---------------|---------|
| Pin spacing   | 2.50 mm |
| 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<br>Requirements >20 N | Test passed            |

## Insertion and withdrawal forces

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 3 N         |
| Withdraw strength per pos. approx.  | 2 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                |

### Temperature cycles

|               |                     |
|---------------|---------------------|
| Specification | IEC 60999-1:1999-11 |
| Result        | Test passed         |

### 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

# DMC 1,5/ 4-G1F-3,5-LR P20THR - PCB header



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## 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)              |
| Sweep speed            | 50 m/s <sup>2</sup> (60.1 Hz ... 150 Hz) |
| Test duration per axis | 2.5 h                                    |

## Durability test

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level       | 2.95 kV               |
| Contact resistance R <sub>1</sub>            | 2 mΩ                  |
| Contact resistance R <sub>2</sub>            | 2.3 mΩ                |
| Insertion/withdrawal cycles                  | 25                    |
| Insulation resistance, neighboring positions | > 5 MΩ                |

## Climatic test

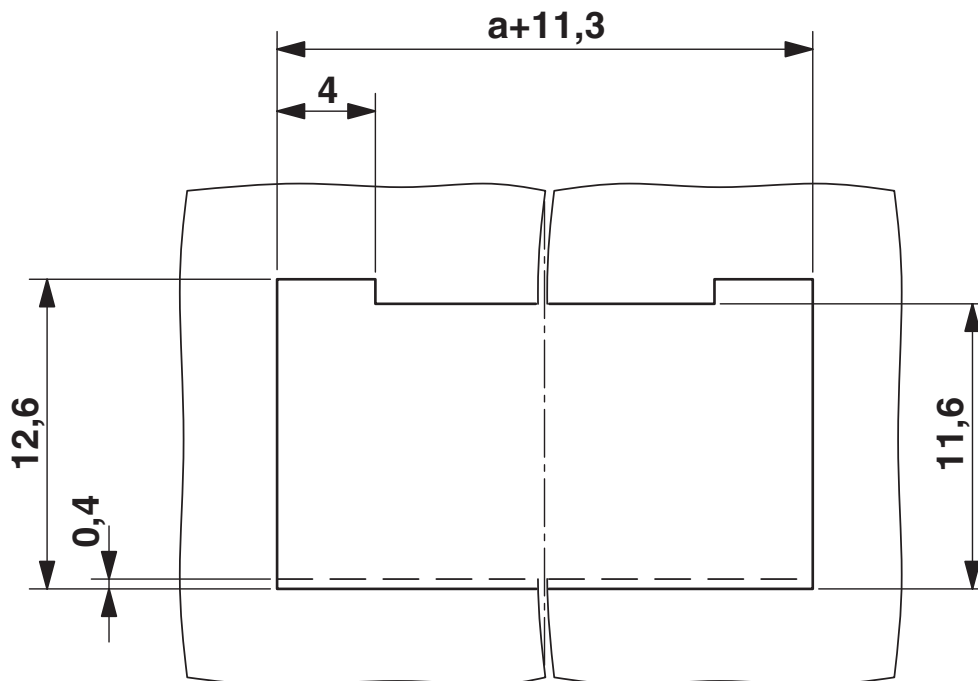
|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| Specification                     | ISO 6988:1985-02                                                          |
| 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 | 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                                    |

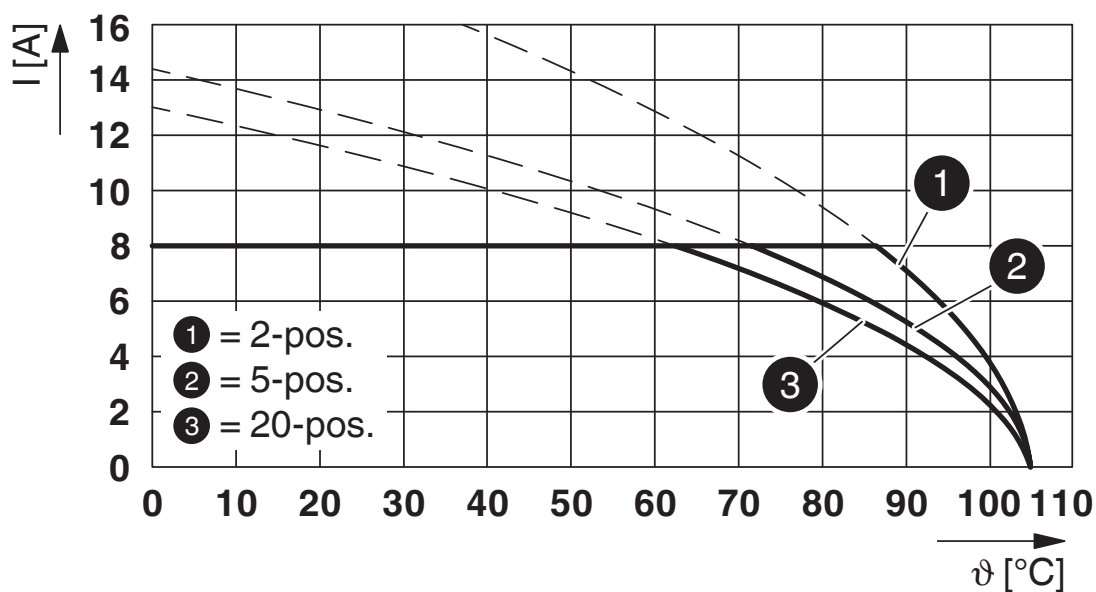
## Drawings

Schematic diagram



Panel cutout

Diagram



Type: DFMC 1,5/...-ST-3,5-LR with DMC 1,5/...-G1F-3,5-LR P...THR

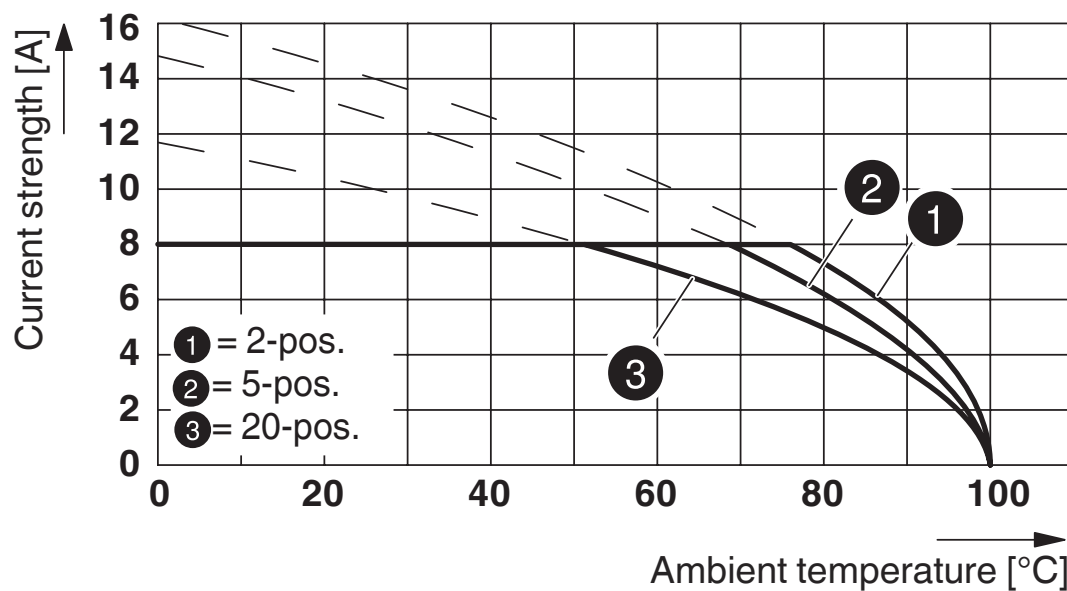
# DMC 1,5/ 4-G1F-3,5-LR P20THR - PCB header



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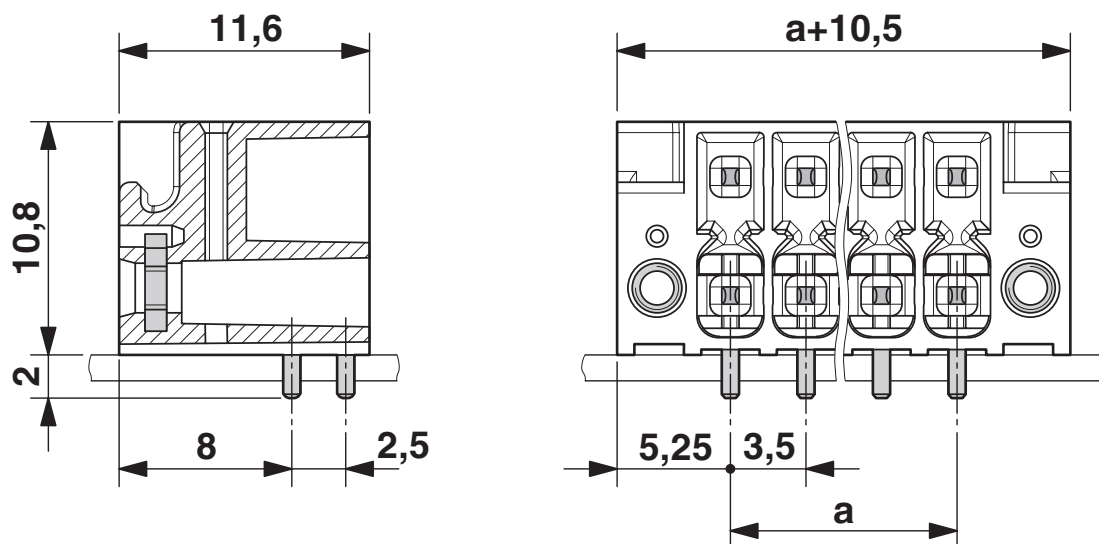
<https://www.phoenixcontact.com/us/products/1787030>

Diagram



Type: DFMC 1,5/...-STF-3,5 with DMC 1,5/...-G1F-3,5-LR P...THR

Dimensional drawing



# DMC 1,5/ 4-G1F-3,5-LR P20THR - PCB header



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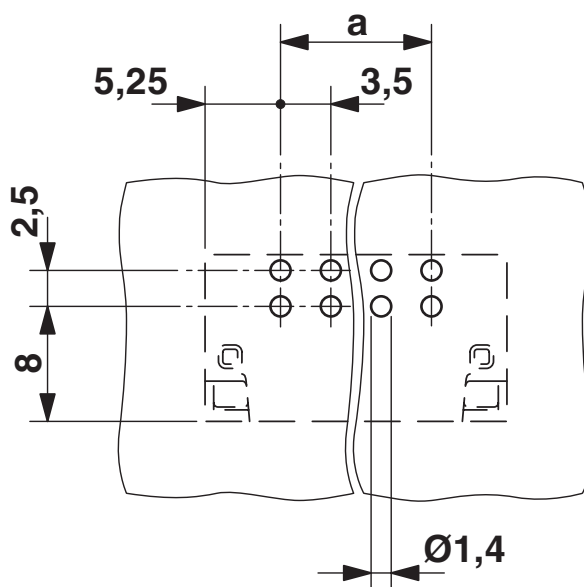
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Schematic diagram



Use of the CP-DMC... coding profile

Drilling plan/solder pad geometry



# DMC 1,5/ 4-G1F-3,5-LR P20THR - PCB header



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1787030>

|  | IECEE CB Scheme             |                       |                   |                             |
|-----------------------------------------------------------------------------------|-----------------------------|-----------------------|-------------------|-----------------------------|
|                                                                                   | Approval ID: DE1-63831-B1B2 |                       |                   |                             |
|                                                                                   | Nominal Voltage $U_N$       | Nominal Current $I_N$ | Cross Section AWG | Cross Section $\text{mm}^2$ |
|                                                                                   | 160 V                       | 8 A                   | -                 | -                           |

|  | EAC                  |
|-----------------------------------------------------------------------------------|----------------------|
|                                                                                   | Approval ID: B.01687 |

|  | cULus Recognized             |                       |                   |                             |
|-----------------------------------------------------------------------------------|------------------------------|-----------------------|-------------------|-----------------------------|
|                                                                                   | Approval ID: E60425-20110128 |                       |                   |                             |
|                                                                                   | Nominal Voltage $U_N$        | Nominal Current $I_N$ | Cross Section AWG | Cross Section $\text{mm}^2$ |
| Use group B                                                                       |                              |                       |                   |                             |
|                                                                                   | 150 V                        | 8 A                   | -                 | -                           |
| Use group C                                                                       |                              |                       |                   |                             |
|                                                                                   | 50 V                         | 8 A                   | -                 | -                           |
| Use group D                                                                       |                              |                       |                   |                             |
|                                                                                   | 300 V                        | 8 A                   | -                 | -                           |

|  | VDE Gutachten mit Fertigungsüberwachung |                       |                   |                             |
|-------------------------------------------------------------------------------------|-----------------------------------------|-----------------------|-------------------|-----------------------------|
|                                                                                     | Approval ID: 40038423                   |                       |                   |                             |
|                                                                                     | Nominal Voltage $U_N$                   | Nominal Current $I_N$ | Cross Section AWG | Cross Section $\text{mm}^2$ |
|                                                                                     | 160 V                                   | 8 A                   | -                 | -                           |

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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

|            |                                                         |
|------------|---------------------------------------------------------|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

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## Accessories

### CP-DMC 1,5 NAT - Coding profile

1790647

<https://www.phoenixcontact.com/us/products/1790647>

Coding profile, for insertion between the coding ribs of the connector and the header following the reflow soldering process, insulating material, color: natural



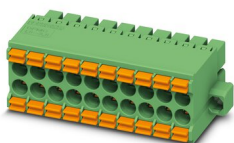
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### DFMC 1,5/ 4-STF-3,5 - PCB connector

1790315

<https://www.phoenixcontact.com/us/products/1790315>

Plug, nominal current: 8 A, rated voltage (III/2): 160 V, number of positions: 4 with 8 contacts, pitch: 3.5 mm, connection method: spring-cage connection, color: green, contact surface: tin



# DMC 1,5/ 4-G1F-3,5-LR P20THR - PCB header

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## DFMC 1,5/ 4-ST-3,5-LR - PCB connector

1790506

<https://www.phoenixcontact.com/us/products/1790506>



Plug, nominal current: 8 A, rated voltage (III/2): 160 V, number of positions: 4 with 8 contacts, pitch: 3.5 mm, connection method: spring-cage connection, color: green, contact surface: tin

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