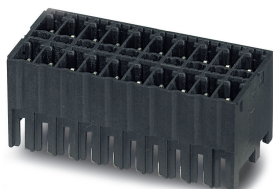


# Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

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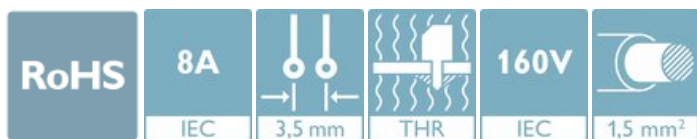


PCB header, nominal cross section: 1.5 mm<sup>2</sup>, color: black, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Male connector, number of potentials: 28, Number of rows: 2, Number of positions per row: 14, number of connections: 28, product range: MCDNV 1,5/..-G1-THR, pitch: 3.5 mm, mounting: THR soldering, pin layout: Linear pinning, solder pin [P]: 1.4 mm, plug-in system: MINI COMBICON, Pin connector pattern alignment: Standard, Locking: without, mounting: without, type of packaging: packed in cardboard, The pin length is 1.4 mm. User information and design recommendations on Through Hole Reflow Technology can be found at: Downloads".

The figure shows a 10-pos. version with 20 contacts

### Your advantages

- ✔ Designed for integration into the SMT soldering process
- ✔ Vertical connection enables multi-row arrangement on the PCB
- ✔ Maximum flexibility when it comes to device design – one header for connectors with different connection technologies
- ✔ Conductor connection on several levels enables higher contact density



### Key Commercial Data

|                        |               |
|------------------------|---------------|
| Packing unit           | 40 pc         |
| Minimum order quantity | 40 pc         |
| GTIN                   |               |
| GTIN                   | 4017918920296 |

### Technical data

#### Item properties

|                           |                     |
|---------------------------|---------------------|
| Brief article description | PCB header          |
| Connector system          | MINI COMBICON       |
| Type of contact           | Male connector      |
| Range of articles         | MCDNV 1,5/..-G1-THR |
| Pitch                     | 3.5 mm              |
| Number of positions       | 14                  |
| Mounting type             | THR soldering       |
| Pin layout                | Linear pinning      |

# Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

## Technical data

### Item properties

|                                 |          |
|---------------------------------|----------|
| Locking                         | without  |
| Number of levels                | 2        |
| Number of connections           | 28       |
| Number of potentials            | 28       |
| Pin connector pattern alignment | Standard |

### Electrical parameters

|                             |        |
|-----------------------------|--------|
| Nominal current             | 8 A    |
| Nom. voltage                | 160 V  |
| Rated voltage (III/3)       | 160 V  |
| Rated voltage (III/2)       | 160 V  |
| Rated voltage (II/2)        | 250 V  |
| Rated surge voltage (III/3) | 2.5 kV |
| Rated surge voltage (III/2) | 2.5 kV |
| Rated surge voltage (II/2)  | 2.5 kV |

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

### Material data - housing

|  |              |
|--|--------------|
| Housing color                          | black (9005) |
| Insulating material                    | LCP          |
| Insulating material group              | IIIa         |
| CTI according to IEC 60112             | 175          |
| Flammability rating according to UL 94 | V0           |

### Flange specifications

|                 |         |
|-----------------|---------|
| Type of locking | without |
| Mounting flange | without |

### Dimensions for the product

|              |  |
|--------------|--|
| Caption      | Schematische Abbildung - weitere Details siehe Produktfamilienzeichnung im Download Center |
| Length [ l ] | 15.2 mm  |
| Width [ w ]  | 50.5 mm  |
| Height [ h ] | 14.7 mm  |

# Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

## Technical data

### Dimensions for the product

|                             |              |
|-----------------------------|--------------|
| Pitch                       | 3.5 mm       |
| Height (without solder pin) | 13.3 mm      |
| Solder pin [P]              | 1.4 mm       |
| Pin spacing                 | 8.30 mm      |
| Pin dimensions              | 0.8 x 0.8 mm |

### Dimensions for PCB design

|               |         |
|---------------|---------|
| Hole diameter | 1.4 mm  |
| Pin spacing   | 8.30 mm |

### Packaging information

|                            |                     |
|----------------------------|---------------------|
| Type of packaging          | packed in cardboard |
| Pieces per package         | 40                  |
| Denomination packing units | Pcs.                |

### General product information

|              |   |
|--------------|---|
| Type of note | Details for soldering processes   |
| Note         | Processing using reflow processes in compliance with IEC 60068-2-58 or DIN EN 61760-1 (latest version)<br>Moisture Sensitive Level (MSL) = 1 according to IPC/JEDEC J-STD-020-C |
| Type of note | Details for soldering processes   |
| Note         | Processing using reflow processes in compliance with IEC 60068-2-58 or DIN EN 61760-1 (latest version)<br>Moisture Sensitive Level (MSL) = 1 according to IPC/JEDEC J-STD-020-C |

### Processing notes

|   |  |
|---|--|
| Process                                   | Reflow/wave soldering                    |
| Specification                             | Following IPC/JEDEC J-STD-020D.1:2008-03 |
|   | Following IEC 61760-1:2006-04            |
|   | Following IEC 60068-2-58:2005-02         |
| Moisture Sensitive Level                  | MSL 1                                    |
| Classification temperature T <sub>c</sub> | 260 °C                                   |
| Solder cycles in the reflow               | 3  |

### Ambient conditions

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

### Air clearances and creepage distances

|   |                     |
|---|---------------------|
| Clearances and creepage distances               | IEC 60664-1:2007-04 |
| Specification                                   | IEC 60664-1:2007-04 |
| Minimum clearance - inhomogeneous field (III/3) | 1.5 mm              |

# Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

## Technical data

### Air clearances and creepage distances

|   |        |
|---|--------|
| Minimum clearance - inhomogeneous field (III/2) | 1.5 mm |
| Minimum clearance - inhomogeneous field (II/2)  | 1.5 mm |
| Minimum creepage distance value (III/3)         | 2.5 mm |
| Minimum creepage distance value (III/2)         | 1.6 mm |
| Minimum creepage distance value (II/2)          | 2.5 mm |

### Mechanical tests (A)

|  |             |
|--|-------------|
| Test specification                           | IEC 61984   |
| Insertion strength per pos. approx.          | 8 N         |
| Withdraw strength per pos. approx.           | 6 N         |
| Polarization when inserted requirement >20 N | Test passed |
| Contact holder in insert requirements >20 N  | Test passed |

### Durability tests (B)

|  |                       |
|--|-----------------------|
| Specification                          | IEC 60512-9-1:2010-03 |
| Contact resistance R <sub>1</sub>      | 1.8 mΩ                |
| Insertion/withdrawal cycles            | 25                    |
| Contact resistance R <sub>2</sub>      | 1.9 mΩ                |
| Impulse withstand voltage at sea level | 2.95 kV               |

### Thermal tests (C)

|   |                       |
|---|-----------------------|
| Specification                                   | IEC 60512-5-1:2002-02 |
| Number of positions                             | 20                    |
| Upper limiting temperature requirements <100 °C | Test passed           |

### Climatic tests (D)

|  |   |
|--|---|
| Specification                          | ISO 6988:1985-02  |
| Cold stress                            | -40 °C/2 h  |
| Thermal stress                         | 100 °C/168 h  |
| Corrosive stress                       | 0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle |
| Impulse withstand voltage at sea level | 2.95 kV   |
| Power-frequency withstand voltage      | 1.39 kV   |

### Environmental and durability tests (E)

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| Specification                         | IEC 61984:2008-10                   |
| Result, degree of protection, IP code | Finger safety with IP20 test finger |

### Vibration test

|               |                        |
|---------------|------------------------|
| Specification | IEC 60068-2-6:2007-12  |
| Frequency     | 10 - 150 - 10 Hz       |
| Sweep speed   | 1 octave/min           |
| Amplitude     | 0.35 mm (10 - 60.1 Hz) |

# Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

## Technical data

### Vibration test

|                        |                    |
|------------------------|--------------------|
| Acceleration           | 5g (60.1 - 150 Hz) |
| Test duration per axis | 2.5 h              |

### Standards and Regulations

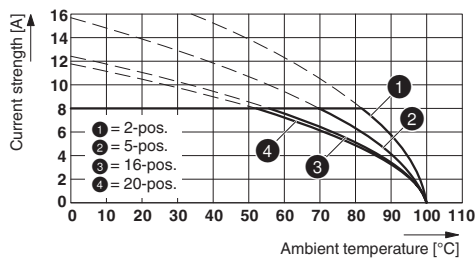
|  |        |
|--|--------|
| Connection in acc. with standard       | EN-VDE |
|  | CUL    |
| Flammability rating according to UL 94 | V0     |

### Environmental Product Compliance

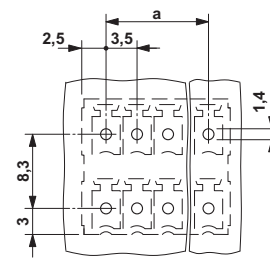
|            |   |
|------------|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

## Drawings

Diagram



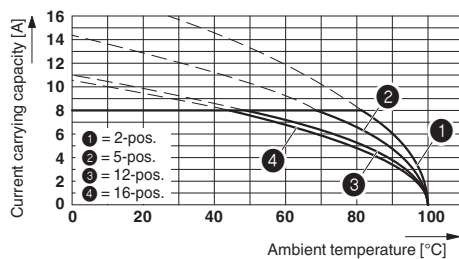
Drilling diagram



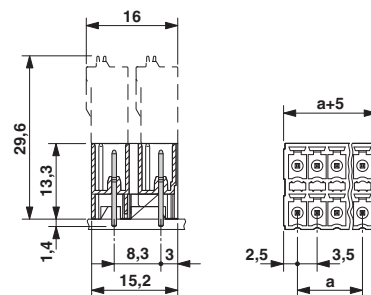
Typ: FMC 1,5/...-ST-3,5 with MCDNV 1,5/...-G1-3,5 P...THR

\*) ≤ 8-pos. = 1.3 / > 8-pos. = 1.4

Diagram



Dimensional drawing



Typ: FMCD 1,5/...-ST-3,5 with MCDNV 1,5/...-G1-3,5 P...THR

## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27440402 |
| eCl@ss 11.0   | 27460201 |
| eCl@ss 4.0    | 27260700 |

# Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.1 | 27260700 |
| eCl@ss 5.0 | 27260700 |
| eCl@ss 5.1 | 27260700 |
| eCl@ss 6.0 | 27260700 |
| eCl@ss 7.0 | 27440402 |
| eCl@ss 9.0 | 27440402 |

### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC001121 |
| ETIM 4.0 | EC002637 |
| ETIM 6.0 | EC002637 |
| ETIM 7.0 | EC002637 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211810 |
| UNSPSC 7.0901 | 39121409 |
| UNSPSC 11     | 39121409 |
| UNSPSC 12.01  | 39121409 |
| UNSPSC 13.2   | 39121409 |
| UNSPSC 18.0   | 39121409 |
| UNSPSC 19.0   | 39121409 |
| UNSPSC 20.0   | 39121409 |
| UNSPSC 21.0   | 39121409 |

## Approvals

### Approvals

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#### Approvals

VDE Gutachten mit Fertigungsüberwachung / IECEE CB Scheme / EAC / cULus Recognized

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#### Ex Approvals

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### Approval details

# Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

## Approvals

|  |  |  |          |
|--|--|--|----------|
| VDE Gutachten mit<br>Fertigungsüberwachung |  | <a href="http://www2.vde.com/de/Institut/Online-Service/VDE-gepruefteProdukte/Seiten/Online-Suche.aspx">http://www2.vde.com/de/Institut/Online-Service/<br/>VDE-gepruefteProdukte/Seiten/Online-Suche.aspx</a> | 40011723 |
| Nominal voltage UN                         |  | 160 V  |          |
| Nominal current IN                         |  | 8 A  |          |

|                    |  |   |                |
|--------------------|--|---|----------------|
| IECEE CB Scheme    |  | <a href="http://www.iecee.org/">http://www.iecee.org/</a> | DE1-60987-B1B2 |
| Nominal voltage UN |  | 160 V   |                |
| Nominal current IN |  | 8 A   |                |

|     |  |         |
|-----|--|---------|
| EAC |  | B.01687 |
|-----|--|---------|

|                    |  |   |                 |
|--------------------|--|---|-----------------|
| cULus Recognized   |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | E60425-20110128 |
| Nominal voltage UN |  | B<br>150 V  | D<br>150 V      |
| Nominal current IN |  | 8 A   | 8 A             |

## Accessories

### Accessories

### Coding element

Coding profile - CP-MSTB - 1734634

Coding profile, is inserted into the slot on the plug or inverted header, red insulating material



### Labeled terminal marker

## Printed-circuit board connector - MCDNV 1,5/14-G1-3,5 P14THR - 1953130

### Accessories

Marker card - SK 3,81/2,8:FORTL.ZAHLEN - 0804109



Marker card, Card, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... (99)100, mounting type: adhesive, for terminal block width: 3.81 mm, lettering field size: 3.81 x 2.8 mm

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### Additional products

Printed-circuit board connector - FMC 1,5/14-ST-3,5 - 1952380



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Female connector, number of potentials: 14, Number of rows: 1, Number of positions per row: 14, number of connections: 14, product range: FMC 1,5/..-ST, pitch: 3.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: MINI COMBICON, Locking: without, mounting: without, type of packaging: packed in cardboard

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