

MCDNV 1,5/10-G1-3,81 P14THR - PCB header



1750180

<https://www.phoenixcontact.com/us/products/1750180>

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PCB headers, nominal cross section: 1.5 mm², color: black, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Pin, number of potentials: 20, number of rows: 2, number of positions: 10, number of connections: 20, product range: MCDNV 1,5/...-G1-THR, pitch: 3.81 mm, mounting: THR soldering, pin layout: Linear pinning, solder pin [P]: 1.4 mm, number of solder pins per potential: 1, plug-in system: COMBICON MC 1,5, 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".

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

Commercial data

Item number	1750180
Packing unit	30 pc
Minimum order quantity	30 pc
Note	Made to order (non-returnable)
Sales key	AA02
Product key	AABTHD
Catalog page	Page 220 (C-1-2013)
GTIN	4046356314619
Weight per piece (including packing)	7.05 g
Weight per piece (excluding packing)	6.514 g
Customs tariff number	85366930
Country of origin	DE

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Technical data

Product properties

Product type	PCB headers
Product family	MCDNV 1,5/..-G1-THR
Product line	COMBICON Connectors S
Type	Component suitable for through hole reflow
Number of positions	10
Pitch	3.81 mm
Number of connections	20
Number of rows	2
Number of potentials	20
Mounting flange	without
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	1.8 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

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 (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

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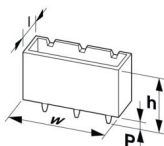
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Color (Housing)	black (9005)
Insulating material	LCP
Insulating material group	IIIa
CTI according to IEC 60112	175
Flammability rating according to UL 94	V0

Notes

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

Dimensional drawing	
Pitch	3.81 mm
Width [w]	39.19 mm
Height [h]	14.7 mm
Length [l]	15.2 mm
Installed height	13.3 mm
Solder pin length [P]	1.4 mm
Pin dimensions	0.8 x 0.8 mm

PCB design	
Pin spacing	8.30 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

Polarization and coding	
Specification	IEC 60512-13-5:2006-02
Result	Test passed

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Contact holder in insert

Specification	IEC 60512-15-1:2008-05
Contact holder in insert Requirements >20 N	Test passed

Insertion and withdrawal forces

Result	Test passed
No. of cycles	25
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	6 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

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

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)

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Test duration per axis	2.5 h
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Durability test

Specification	IEC 60512-9-1:2010-03
Impulse withstand voltage at sea level	2.95 kV
Contact resistance R ₁	1.8 mΩ
Contact resistance R ₂	2 mΩ
Insertion/withdrawal cycles	25
Insulation resistance, neighboring positions	> 5 MΩ

Climatic test

Specification	ISO 6988:1985-02
Corrosive stress	0.2 dm ³ SO ₂ on 300 dm ³ /40 °C/1 cycle
Thermal stress	100 °C/168 h
Power-frequency withstand voltage	1.39 kV

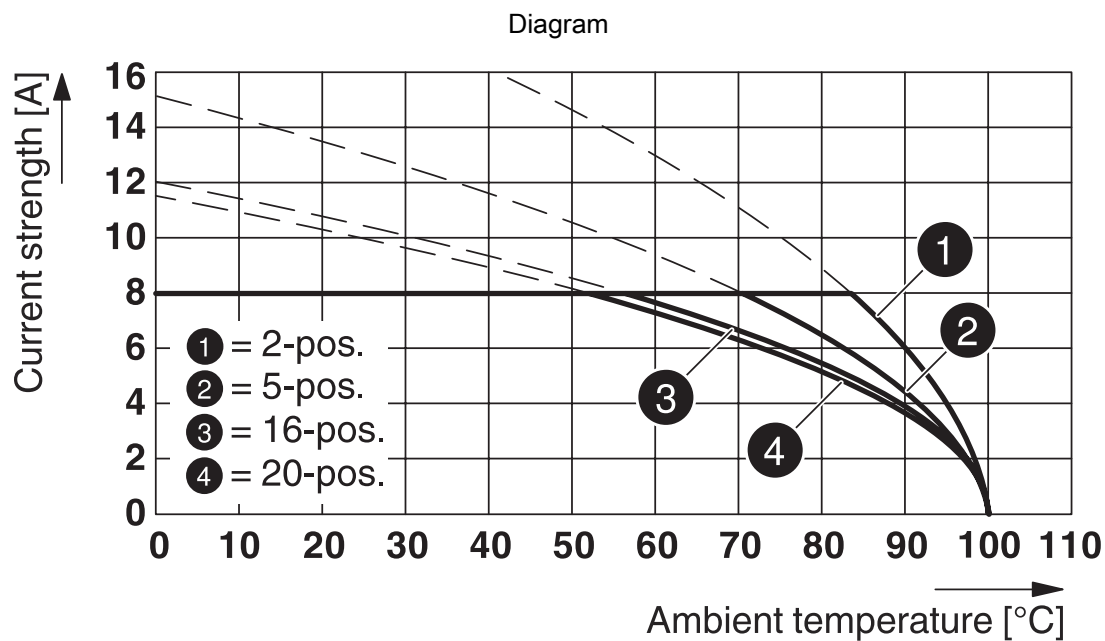
Ambient conditions

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

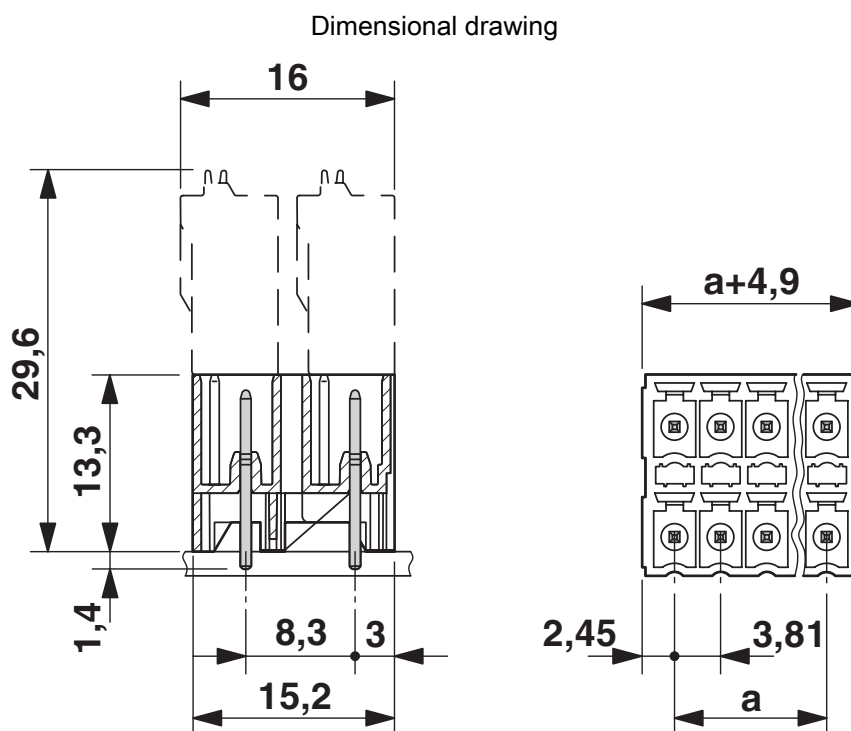
Packaging specifications

Type of packaging	packed in cardboard
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Drawings



Type: FMC 1,5/...-ST-3,81 with MCDNV 1,5/...-G1-3,81 P...THR



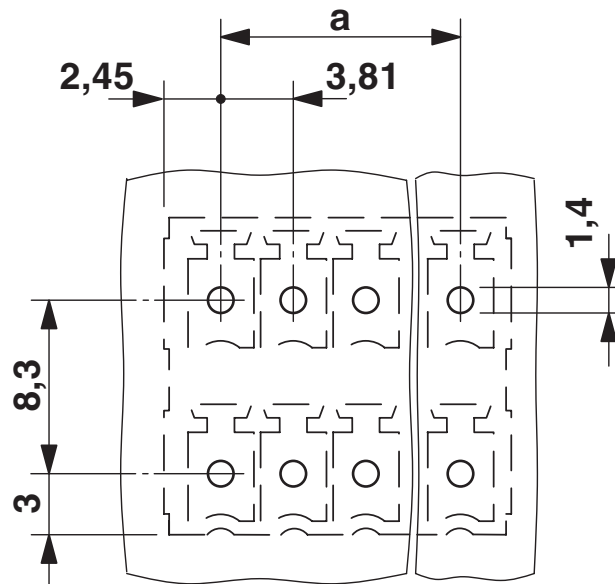
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Drilling plan/solder pad geometry



*) $\leq 8\text{-pos.} = 1.3$ / $> 8\text{-pos.} = 1.4$

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1750180>

 cULus Recognized Approval ID: E60425-20110128				
	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section mm^2
Use group B				
	150 V	8 A	-	-
Use group D				
	150 V	8 A	-	-

 VDE Zeichengenehmigung Approval ID: 40011723				
	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section 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 9.0	EC002637
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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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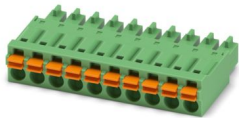
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Accessories

FMC 1,5/10-ST-3,81 - PCB connectors

1748053

<https://www.phoenixcontact.com/us/products/1748053>

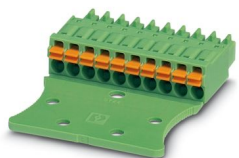


PCB connector, nominal cross section: 1.5 mm², color: green, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Socket, number of potentials: 10, number of rows: 1, number of positions: 10, number of connections: 10, product range: FMC 1,5/...-ST, pitch: 3.81 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

FMC 1,5/10-ST-3,81 BK - PCB connectors

1708665

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PCB connector, nominal cross section: 1.5 mm², color: black, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Socket, number of potentials: 10, number of rows: 1, number of positions: 10, number of connections: 10, product range: FMC 1,5/...-ST, pitch: 3.81 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

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