

# MCDN 1,5/10-G1-3,5 P26THR - PCB header

1953790

<https://www.phoenixcontact.com/us/products/1953790>



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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: 20, number of rows: 2, number of positions: 10, number of connections: 20, product range: MCDN 1,5/..-G1-THR, pitch: 3.5 mm, mounting: THR soldering / wave soldering, pin layout: Linear pinning, solder pin [P]: 2.6 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 2.6 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
- 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

## Commercial data

Item number	1953790
Packing unit	30 pc
Minimum order quantity	30 pc
Sales key	AA02
Product key	AABTGB
Catalog page	Page 219 (C-1-2013)
GTIN	4017918919320
Weight per piece (including packing)	8.87 g
Weight per piece (excluding packing)	6.558 g
Customs tariff number	85366930
Country of origin	DE

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## Technical data

### Product properties

Product type	PCB headers
Product family	MCDN 1,5/..-G1-THR
Product line	COMBICON Connectors S
Type	Component suitable for through hole reflow
Number of positions	10
Pitch	3.5 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
Contact resistance	2.1 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 / wave soldering
Pin layout	Linear pinning

### 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 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)

# MCDN 1,5/10-G1-3,5 P26THR - PCB header

1953790

<https://www.phoenixcontact.com/us/products/1953790>



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

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	3.5 mm
Width [w]	36.5 mm
Height [h]	17.8 mm
Length [l]	13.3 mm
Installed height	15.2 mm
Solder pin length [P]	2.6 mm
Pin dimensions	0.8 x 0.8 mm

## PCB design

Pin spacing	3.50 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
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# MCDN 1,5/10-G1-3,5 P26THR - PCB header

1953790

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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	Test passed
Requirements >20 N	

## Insertion and withdrawal forces

Result	Test passed
No. of cycles	25
Insertion strength per pos. approx.	9 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
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1953790

<https://www.phoenixcontact.com/us/products/1953790>



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
Impulse withstand voltage at sea level	2.95 kV
Contact resistance $R_1$	2.1 mΩ
Contact resistance $R_2$	2.4 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	100 °C/168 h
Power-frequency withstand voltage	1.39 kV

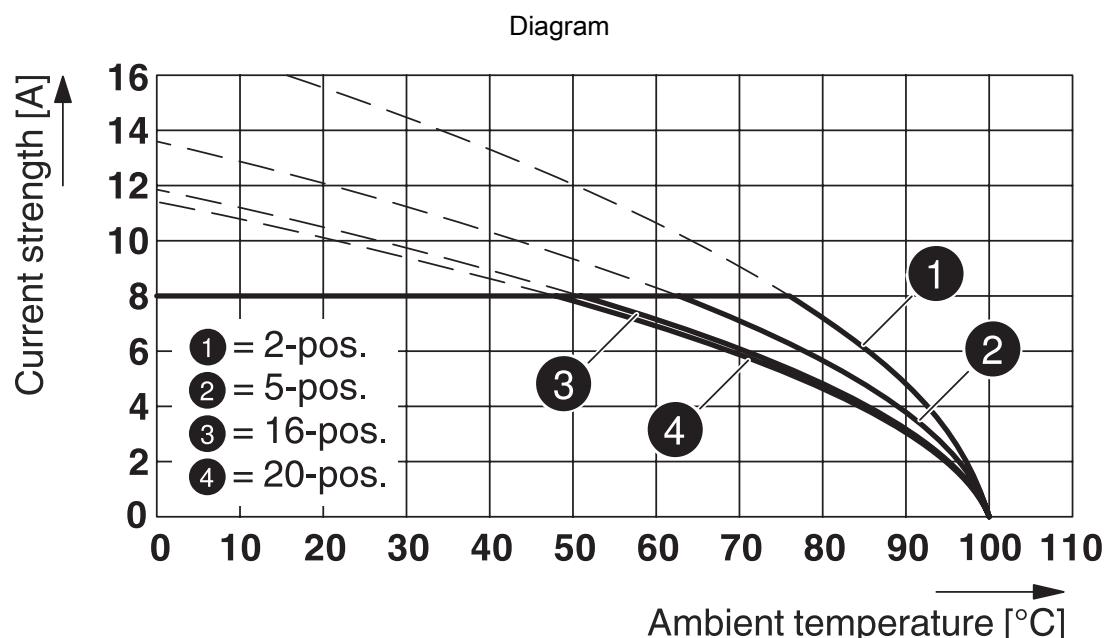
## Ambient conditions

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

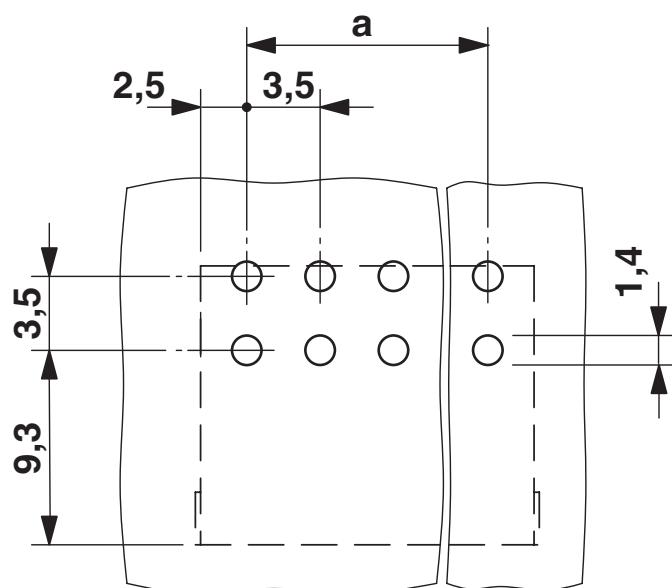
Type of packaging	packed in cardboard
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Drawings



Type: FMC 1,5/...-ST-3,5 with MCDN 1,5/...-G1-3,5 P26THR

Drilling plan/solder pad geometry



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

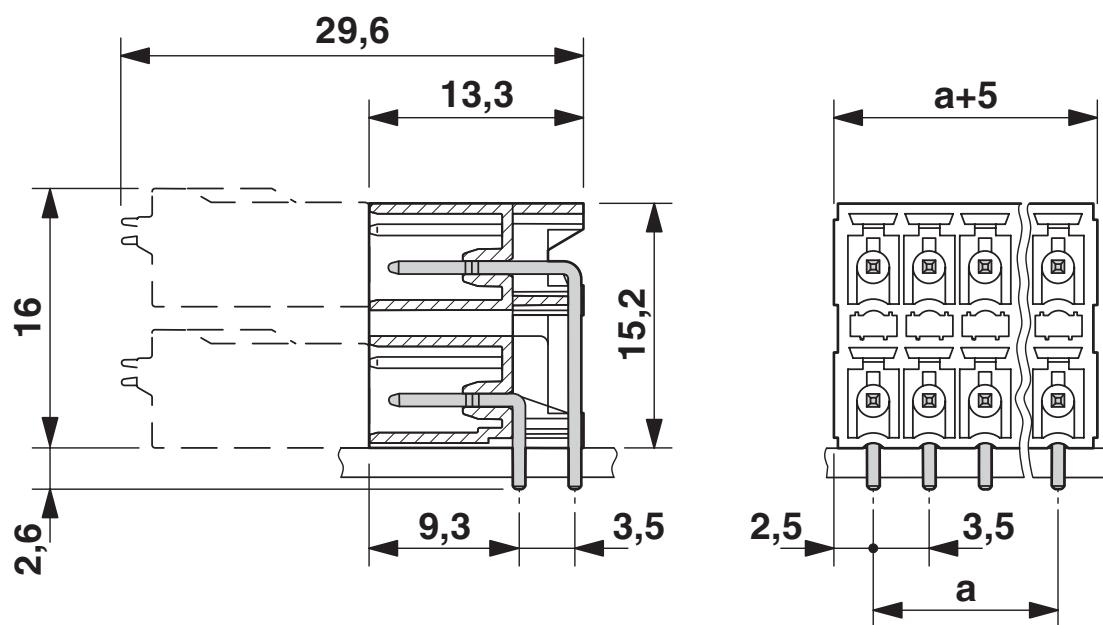
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Dimensional drawing



# MCDN 1,5/10-G1-3,5 P26THR - PCB header



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## Approvals

ⓘ To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1953790>

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	-	-

# MCDN 1,5/10-G1-3,5 P26THR - PCB header

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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
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### 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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## Accessories

### CP-MSTB - Coding profile

1734634

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



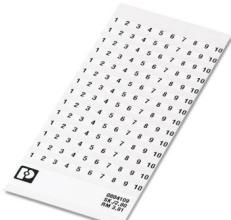
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### SK 3,81/2,8:FORTL.ZAHLEN - Marker card

0804109

<https://www.phoenixcontact.com/us/products/0804109>

Marker card, Sheet, 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, Number of individual labels: 14



# MCDN 1,5/10-G1-3,5 P26THR - PCB header



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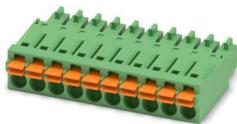
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## FMC 1,5/10-ST-3,5 - PCB connectors

1952348

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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, 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: 3.5 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

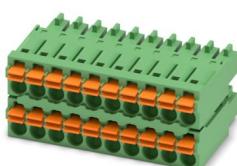


## FMCD 1,5/10-ST-3,5 - PCB connectors

1738885

<https://www.phoenixcontact.com/us/products/1738885>

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, contact connection type: Socket, number of potentials: 20, number of rows: 2, number of positions: 10, number of connections: 20, product range: FMCD 1,5/..-ST, pitch: 3.5 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



# MCDN 1,5/10-G1-3,5 P26THR - PCB header



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## FMC 1,5/10-ST-3,5 GY - PCB connectors

1253120

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PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: gray, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Socket, number of rows: 1, number of positions: 10, product range: FMC 1,5/..-ST, pitch: 3.5 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

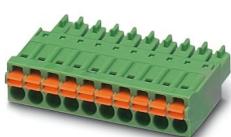


## FMC 1,5/10-ST-3,5 BK - PCB connectors

1703955

<https://www.phoenixcontact.com/us/products/1703955>

PCB connector, 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: Socket, number of potentials: 10, number of rows: 1, number of positions: 10, number of connections: 10, product range: FMC 1,5/..-ST, pitch: 3.5 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



# MCDN 1,5/10-G1-3,5 P26THR - PCB header



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

1707920

<https://www.phoenixcontact.com/us/products/1707920>

PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: yellow, 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: 3.5 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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