

# DFMC 1,5/13-ST-3,5 - PCB connector

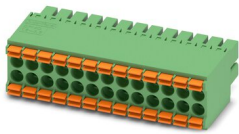


1790218

<https://www.phoenixcontact.com/in/products/1790218>

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Plug, nominal current: 8 A, rated voltage (III/2): 160 V, number of positions: 13 with 26 contacts, pitch: 3.5 mm, connection method: spring-cage connection, color: green, contact surface: tin



## Your advantages

- Time saving push-in connection, tools not required
- Defined contact force ensures that contact remains stable over the long term
- Intuitive use through colour coded actuation lever
- Optimized for tight installation situations: operation and conductor connection from one direction

## Commercial Data

Item number	1790218
Packing unit	50 pc
Minimum order quantity	50 pc
Sales Key	AAB
Product Key	AABFJA
Catalog Page	Page 184 (C-1-2013)
GTIN	4046356594363
Weight per Piece (including packing)	13.478 g
Weight per Piece (excluding packing)	13.478 g
Customs tariff number	85366990
Country of origin	DE

# DFMC 1,5/13-ST-3,5 - PCB connector



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## Technical Data

### Product properties

Type	Plug component
Product line	COMBICON Connectors S
Product type	PCB plug
Product family	DFMC 1,5/..-ST
Number of positions	13
Pitch	3.5 mm
Number of connections	26
Number of rows	2
Mounting flange	without
Number of potentials	26

### 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)	320 V
Rated surge voltage (II/2)	2.5 kV

### Connection data

#### Connection technology

Type	Plug component
Connector system	COMBICON DFMC 1,5
Nominal cross section	1.5 mm <sup>2</sup>
Type of contact	Socket

#### Interlock

Locking type	without
Mounting flange	without

#### Conductor connection

Connection method	Push-in spring connection
Conductor/PCB connection direction	0 °
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 16
Conductor cross section flexible, with ferrule without plastic	0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>

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sleeve	
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.14 mm <sup>2</sup> ... 0.75 mm <sup>2</sup>
Cylindrical gauge a x b / diameter	2.4 mm x 1.5 mm / 1.6 mm
Stripping length	10 mm

## Specifications for ferrules without insulating collar

recommended crimping tool	1212034 CRIMPFOX 6
ferrules without insulating collar, according to DIN 46228-1	Cross section: 0.25 mm <sup>2</sup> ; Length: 7 mm
	Cross section: 0.34 mm <sup>2</sup> ; Length: 7 mm
	Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm
	Cross section: 0.75 mm <sup>2</sup> ; Length: 8 mm ... 10 mm
	Cross section: 1 mm <sup>2</sup> ; Length: 8 mm ... 10 mm
	Cross section: 1.5 mm <sup>2</sup> ; Length: 10 mm

## Specifications for ferrules with insulating collar

recommended crimping tool	1212034 CRIMPFOX 6
ferrules with insulating collar, according to DIN 46228-4	Cross section: 0.14 mm <sup>2</sup> ; Length: 8 mm
	Cross section: 0.25 mm <sup>2</sup> ; Length: 8 mm ... 10 mm
	Cross section: 0.34 mm <sup>2</sup> ; Length: 8 mm ... 10 mm
	Cross section: 0.5 mm <sup>2</sup> ; Length: 8 mm ... 10 mm
	Cross section: 0.75 mm <sup>2</sup> ; Length: 10 mm

## 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	hot-dip tin-plated
Metal surface terminal point (top layer)	Tin (4 - 8 µm Sn)
Metal surface contact area (top layer)	Tin (4 - 8 µm Sn)

### Material data - housing

Color (Housing)	green (6021)
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

### Material data – actuating element

Color (Actuating element)	orange (2003)
Insulating material	PBT

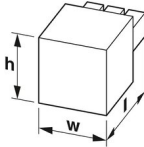
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Insulating material group	I
CTI according to IEC 60112	600
Flammability rating according to UL 94	V0

## Dimensions

Dimensional drawing	
Pitch	3.5 mm
Width [w]	46.3 mm
Height [h]	13.25 mm
Length [l]	23.35 mm

## Mechanical tests

### Test for conductor damage and slackening

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

### Repeated connection and disconnection

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

### Pull-out test

Specification	IEC 60999-1:1999-11
Conductor cross section/conductor type/tractive force setpoint/actual value	0.2 mm <sup>2</sup> / solid / > 10 N
	0.2 mm <sup>2</sup> / flexible / > 10 N
	1.5 mm <sup>2</sup> / solid / > 40 N
	1.5 mm <sup>2</sup> / flexible / > 40 N

### 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

### Contact holder in insert

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

## Visual inspection

Specification	IEC 60512-1-1:2002-02
Result	Test passed

## Dimension check

Specification	IEC 60512-1-2:2002-02
Result	Test passed

## 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)
Sweep speed	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 m $\Omega$
Contact resistance $R_2$	2.3 m $\Omega$
Insertion/withdrawal cycles	25

## 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

## Electrical tests

## Thermal test | Test group C

Specification	IEC 60512-5-1:2002-02
Tested number of positions	20

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## 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	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

## Packaging specifications

Type of packaging	packed in cardboard
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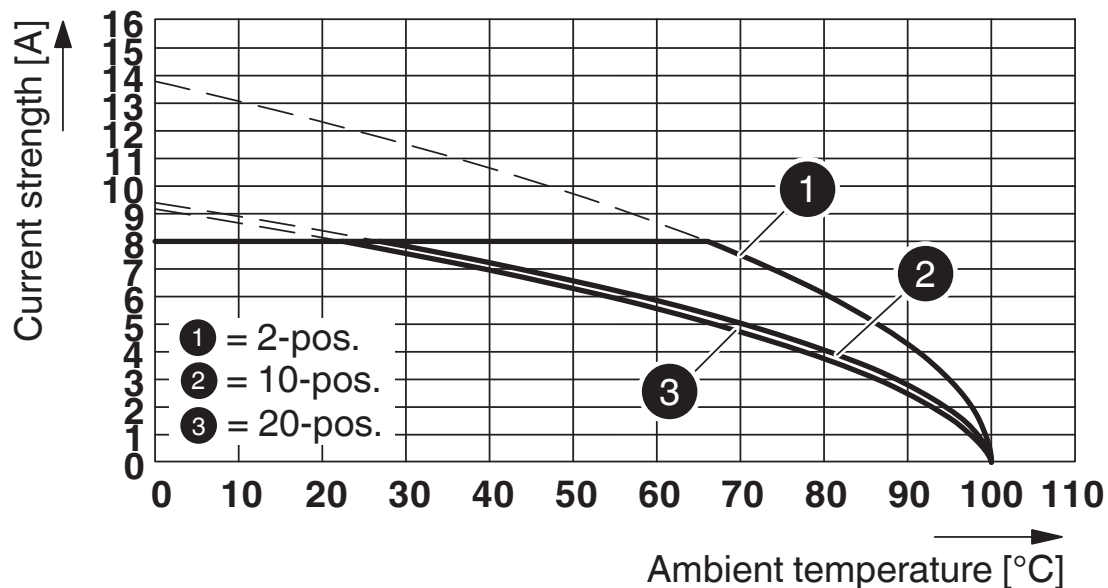
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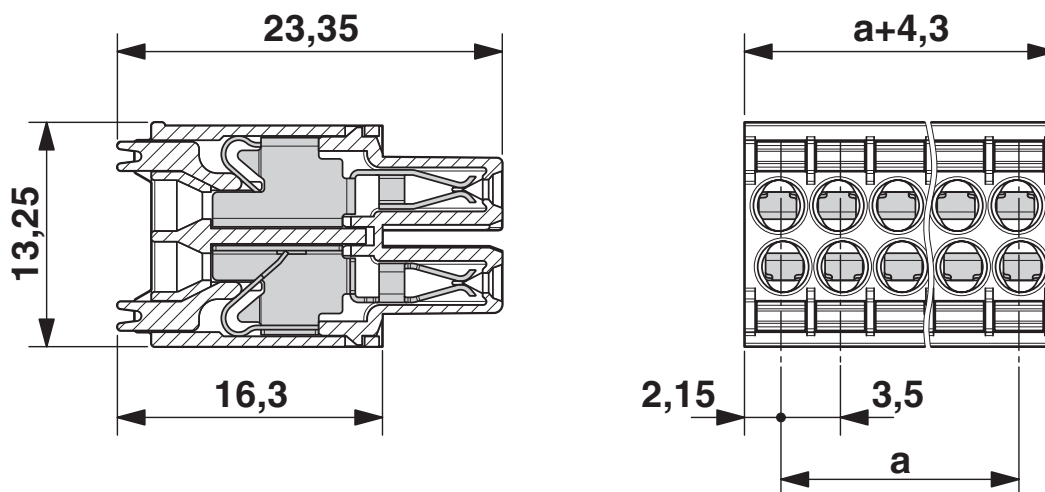
## Drawings

Diagram



Type: DFMC 1.5/...-ST-3.5 with DMC 1.5/...-G1-3.5 P35

Dimensional drawing

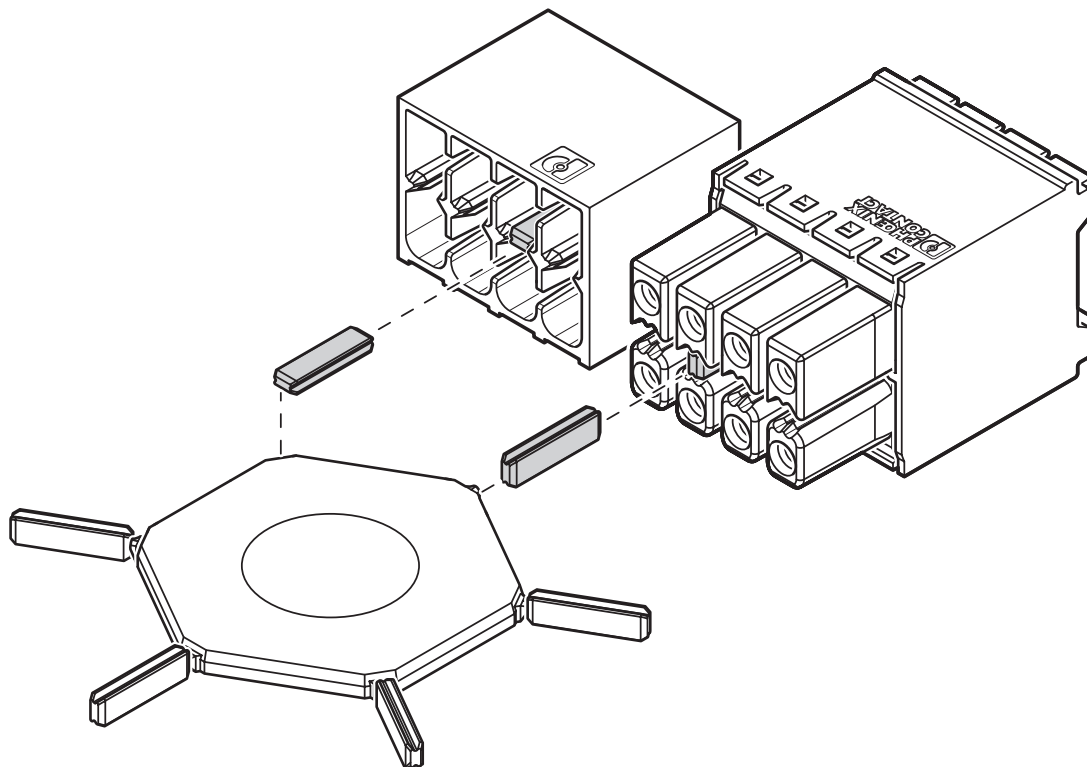


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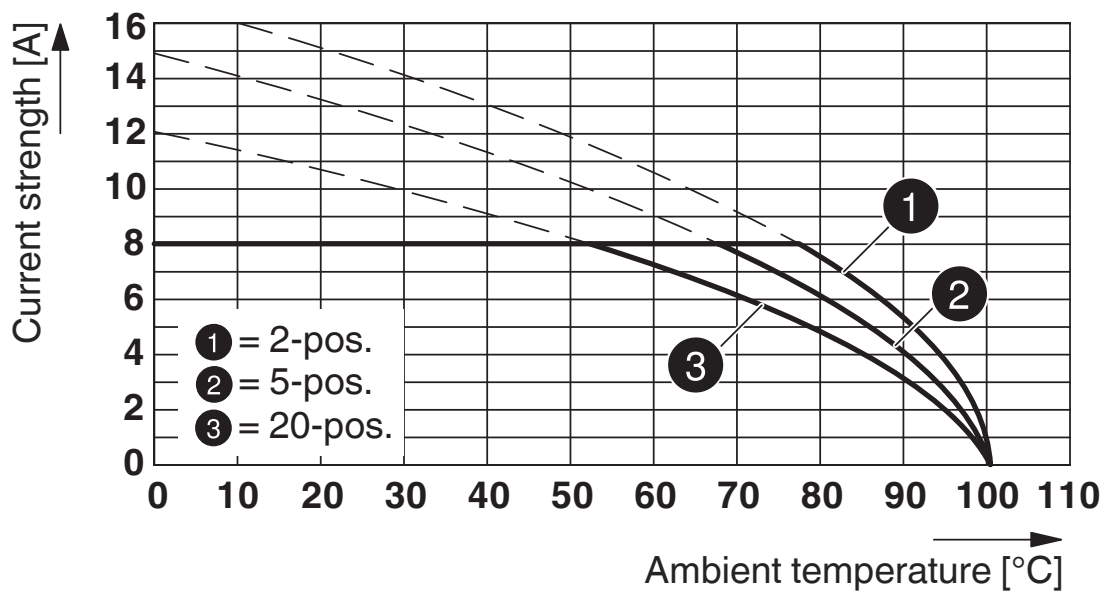
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Schematic diagram



Use of the CP-DMC... coding profile

Diagram



Typ: DFMC 1,5/...-ST-3,5 with DMCV 1,5/...-G1-3,5 P20 THR

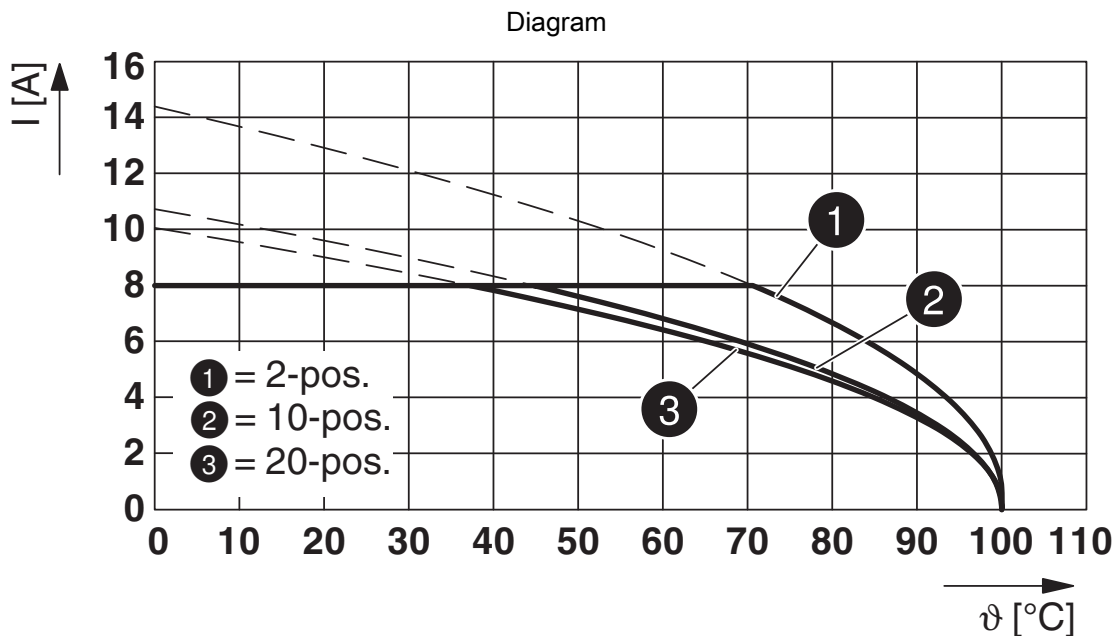


# DFMC 1,5/13-ST-3,5 - PCB connector

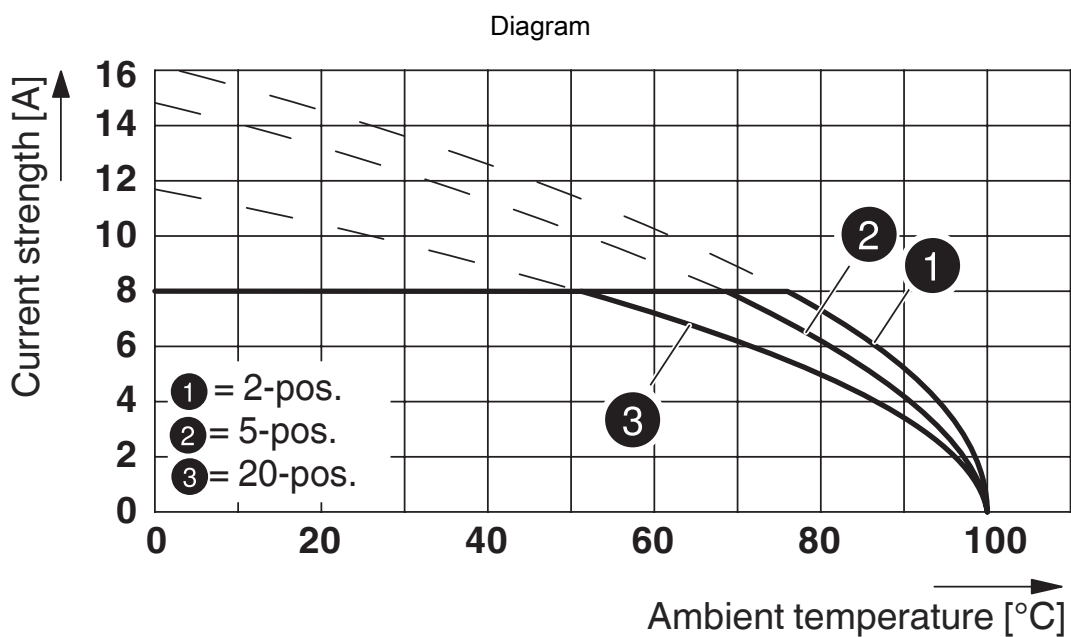


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Type: DFMC 1,5/...-ST-3,5 with DMCV 1,5/...-G1-3,5 P35



Type: DFMC 1,5/...-ST-3,5 with DMC 1,5/...-G1-3,5 P20 THR


# DFMC 1,5/13-ST-3,5 - PCB connector





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## Approvals

 <b>IECEE CB Scheme</b> Approval ID: DE1-60359-B1B2				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	160 V	8 A	-	-

 <b>EAC</b> Approval ID: B.01687				
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 <b>cULus Recognized</b> Approval ID: E60425-19920306				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	300 V	8 A	24 - 16	-
	50 V	8 A	24 - 16	-
	300 V	8 A	24 - 16	-

 <b>VDE Gutachten mit Fertigungsüberwachung</b> Approval ID: 40038423				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	160 V	8 A	-	0.2 - 1.5

# DFMC 1,5/13-ST-3,5 - PCB connector



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## Classifications

### ECLASS

ECLASS-11.0	27460202
ECLASS-12.0	27460202
ECLASS-13.0	27460202

### ETIM

ETIM 8.0	EC002638
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### UNSPSC

UNSPSC 21.0	39121400
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# DFMC 1,5/13-ST-3,5 - PCB connector



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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/in/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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### SZS 0,4X2,5 VDE - Screwdriver

1205037

<https://www.phoenixcontact.com/in/products/1205037>

Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip



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## CRIMPFOX 6 - Crimping pliers

1212034

<https://www.phoenixcontact.com/in/products/1212034>



Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm<sup>2</sup> ... 6.0 mm<sup>2</sup>, lateral entry, trapezoidal crimp

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## DMC 1,5/13-G1-3,5 P20THR - PCB header

1786947

<https://www.phoenixcontact.com/in/products/1786947>



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, type of contact: Pin, number of potentials: 26, number of rows: 2, number of positions: 13, number of connections: 26, product range: DMC 1,5/..-G1-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: without, mounting: without, type of packaging: packed in cardboard

# DFMC 1,5/13-ST-3,5 - PCB connector



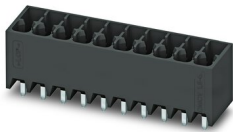
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## DMCV 1,5/13-G1-3,5 P20THR - PCB header

1787315

<https://www.phoenixcontact.com/in/products/1787315>



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, type of contact: Pin, number of potentials: 26, number of rows: 2, number of positions: 13, number of connections: 26, product range: DMCV 1,5/...-G1-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: without, mounting: without, type of packaging: packed in cardboard

## DMC 1,5/13-G1-3,5 P20THR R72 - PCB header

1706052

<https://www.phoenixcontact.com/in/products/1706052>



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, type of contact: Pin, number of potentials: 26, number of rows: 2, number of positions: 13, number of connections: 26, product range: DMC 1,5/...-G1-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: without, mounting: without, type of packaging: 72 mm wide tape

# DFMC 1,5/13-ST-3,5 - PCB connector



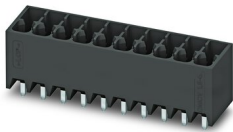
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## DMCV 1,5/13-G1-3,5 P20THR R72 - PCB header

1818685

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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, type of contact: Pin, number of potentials: 26, number of rows: 2, number of positions: 13, number of connections: 26, product range: DMCV 1,5/...-G1-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: without, mounting: without, type of packaging: 72 mm wide tape

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