

https://www.phoenixcontact.com/us/products/1777086



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PCB headers, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Male connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: MSTBV 2,5/..-GF, pitch: 5.08 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3. 9 mm, number of solder pins per potential: 1, plug-in system: COMBICON MSTB 2,5, Pin connector pattern alignment: Standard, locking: Screw locking, mounting: Threaded flange, type of packaging: packed in cardboard

## Your advantages

- · Maximum flexibility when it comes to device design one header for connectors with different connection technologies
- · Well-known mounting principle allows worldwide use
- · Vertical connection enables multi-row arrangement on the PCB
- · Screwable flange for superior mechanical stability

### **Commercial Data**

Item number	1777086
Packing unit	1 pc
Minimum order quantity	250 pc
Sales Key	A01
Product Key	AACSMD
Catalog Page	Page 317 (C-1-2013)
GTIN	4017918039257
Weight per Piece (including packing)	2.849 g
Weight per Piece (excluding packing)	2.5 g
Customs tariff number	85366930
Country of origin	DE



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## **Technical Data**

## Product properties

Туре	Standard
Product line	COMBICON Connectors M
Product type	PCB headers
	MSTBV 2,5/GF
Number of positions	3
Pitch	5.08 mm
Number of connections	3
Number of rows	1
Mounting flange	Threaded flange
Number of potentials	3
Pin layout	Linear pinning
Solder pins per potential	1

## Electrical properties

Nominal current I <sub>N</sub>	12 A
Nominal voltage U <sub>N</sub>	320 V
Degree of pollution	3
Contact resistance	2.5 mΩ
Rated voltage (III/3)	250 V
Rated surge voltage (III/3)	4 kV
Rated voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV

## Mounting

Mounting type	Wave soldering
Pin layout	Linear pinning
Flange	
Tightening torque	0.3 Nm
Attachment on the PCB	
Tightening torque	0.3 Nm
Screw	Sheet metal screw ISO 1481-ST 2,2x6,5 C or ISO 7049-ST 2,2x6,5 C

## Material specifications

### Material data - contact

Note	WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201
	00000-2-02/02/02/02 02 02 02 02 02 02 02 02 02 02 02 02 0
Contact material	Cu alloy
Surface characteristics	Tin-plated



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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	
Color (Housing)	green (6021)
Insulating material	PBT
Insulating material group	Illa
CTI according to IEC 60112	225
Flammability rating according to UL 94	V0
Material data – actuating element	
Color ()	()

## Notes

Notes on operation	In accordance with IEC 61984, COMBICON connectors have no
	switching power (COC). During designated use, they must not be
	plugged in or disconnected when carrying voltage or under load.

## Dimensions

Dimensional drawing	h ph
Pitch	5.08 mm
Width [w]	25.4 mm
Height [h]	15.9 mm
Length [I]	8.6 mm
Installed height	12 mm
Solder pin length [P]	3.9 mm

### Mechanical tests

Test for conductor damage and slackening

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 mm² / solid / > 10 N
	0.2 mm² / flexible / > 10 N
	2.5 mm² / solid / > 50 N

2.5 mm<sup>2</sup> / flexible / > 50 N



1777086

https://www.phoenixcontact.com/us/products/1777086

nsertion and withdrawal forces	
Result	Test passed
No. of cycles	25
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	6 N
Torque test	
Specification	IEC 60999-1:1999-11
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
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
ectrical tests	
Thermal test   Test group C	
Specification	IEC 60512-5-1:2002-02
Tested number of positions	20
nsulation resistance	IEC 60542 2 4:2002 02
Specification Insulation resistance, neighboring positions	IEC 60512-3-1:2002-02 > 5 MΩ
insulation resistance, neighboring positions	> 5 IVILI
Air clearances and creepage distances	
Specification	IEC 60664-1:2007-04
Insulating material group	Illa
Comparative tracking index (IEC 60112)	CTI 225
Rated insulation voltage (III/3)	250 V
Nated insulation voitage (iii/o)	
Rated surge voltage (III/3)	4 kV
	4 kV 3 mm



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Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
minimum clearance value - non-homogenous field (III/2)	3 mm
minimum creepage distance (III/2)	3.2 mm
Rated insulation voltage (II/2)	400 V
Rated surge voltage (II/2)	4 kV
minimum clearance value - non-homogenous field (II/2)	3 mm
minimum creepage distance (II/2)	4 mm

### Environmental and real-life conditions

۱/i	hration	toct

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	4.8 kV	
Contact resistance R <sub>1</sub>	$2.5~\text{m}\Omega$	
Contact resistance R <sub>2</sub>	$2.6~\text{m}\Omega$	
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	2.21 kV	

### Shocks

Specification	IEC 60068-2-27:2008-02
Pulse shape	Semi-sinusoidal
Acceleration	30g
Shock duration	18 ms
Test directions	X-, Y- and Z-axis (pos. and neg.)

### 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



1777086

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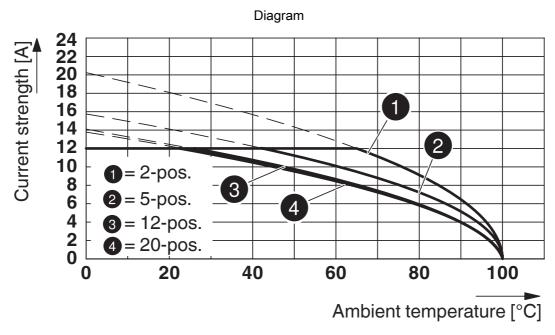
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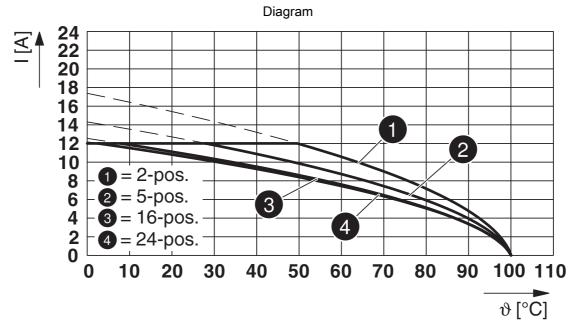
https://www.phoenixcontact.com/us/products/1777086



## **Drawings**



Type: MSTB 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

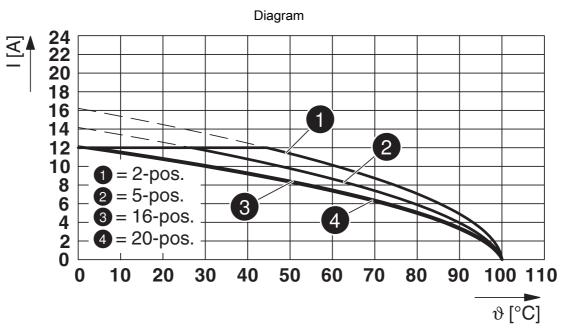


Type: SMSTB 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

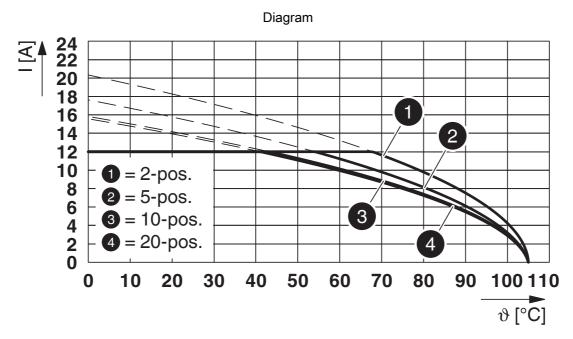


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Type: MVSTB(R/W) 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

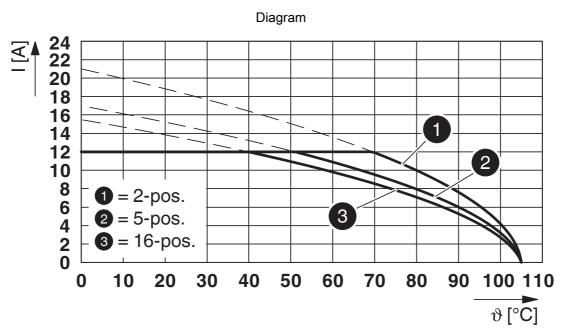


Type: LPC 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

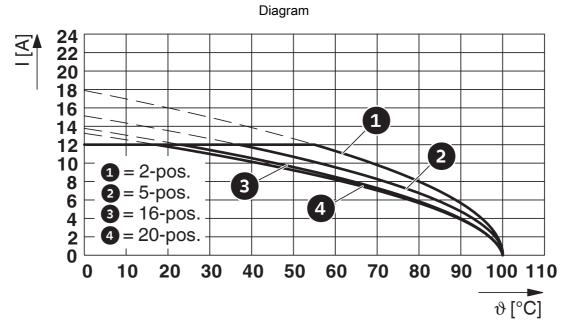


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Type: FKCVR 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

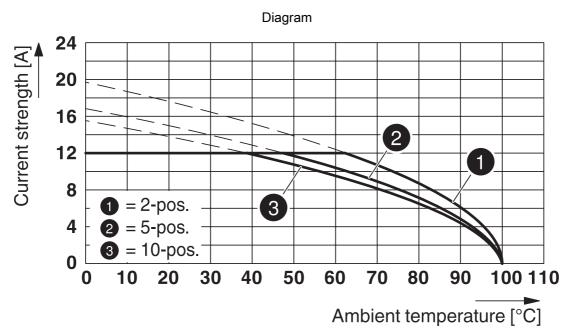


Type: FRONT-MSTB 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

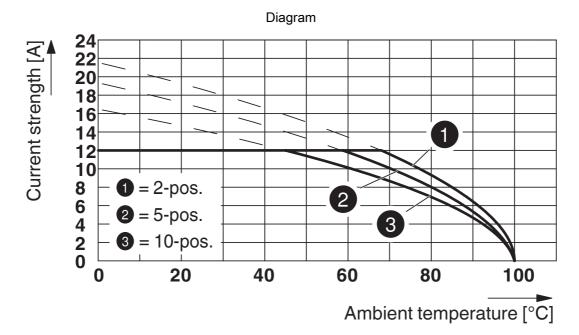


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Type: TVMSTB 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

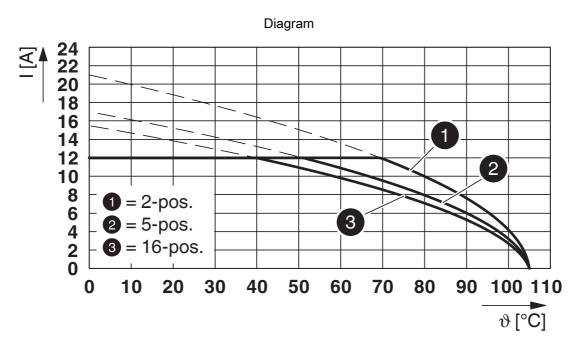


Type: TFKC 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08



1777086

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Type: FKCVW 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08



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## Approvals

CSA Approval ID: 13631				
	Nominal Voltage U <sub>N</sub>	Nominal Current I <sub>N</sub>	Cross Section AWG	Cross Section mm <sup>2</sup>
Use group B				
	300 V	12 A	-	-
Use group D				
	300 V	10 A	-	-

CB scheme	IECEE CB Scheme Approval ID: DE1-60988				
		Nominal Voltage U <sub>N</sub>	Nominal Current I <sub>N</sub>	Cross Section AWG	Cross Section mm <sup>2</sup>
		250 V	12 A	-	-

EHC	EAC
LIIL	Approval ID: B.01687

CULus Recognized Approval ID: E60425-19931011					
	Nominal Voltage $\mathbf{U}_{\mathrm{N}}$	Nominal Current I <sub>N</sub>	Cross Section AWG	Cross Section mm <sup>2</sup>	
Use group B					
	300 V	12 A	-	-	
Use group D					
	300 V	10 A	-	-	

DNV GL
Approval ID: TAF00001FV

VDE Zeichengenehmigung Approval ID: 40050648				
	Nominal Voltage U <sub>N</sub>	Nominal Current I <sub>N</sub>	Cross Section AWG	Cross Section mm <sup>2</sup>
	250 V	12 A	-	-



1777086

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## Classifications

UNSPSC 21.0

### **ECLASS**

ECLASS-	-9.0	27440402
ECLASS	-10.0.1	27440402
ECLASS-	-11.0	27460201
ETIM		
ETIM 8.0		EC002637
UNSPSC		

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

### Coding section

Coding section - CR-MSTB - 1734401 https://www.phoenixcontact.com/us/products/1734401

Coding section, inserted into the recess in the header or the inverted plug, red insulating material



### Marker card

Marker card - SK 5,08/3,8:FORTL.ZAHLEN - 0804293 https://www.phoenixcontact.com/us/products/0804293



Marker card, white, labeled, horizontal: consecutive numbers 1  $\dots$  10, 11  $\dots$  20, etc. up to 91  $\dots$  (99)100, mounting type: adhesive, for terminal block width: 5.08 mm, lettering field size: 5.08 x 3.8 mm



1777086

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### Accessories

Accessories - MSTB-BL - 1755477 https://www.phoenixcontact.com/us/products/1755477



Keying cap, for forming sections, plugs onto header pin, green insulating material

### Marker card

Marker card - SK 5,08/3,8:UNBEDRUCKT - 0805412 https://www.phoenixcontact.com/us/products/0805412

Marker card, white, unlabeled, can be labeled with: Marker pen, mounting type: adhesive, for terminal block width: 5.08 mm, lettering field size: 5.08 x 3.8 mm





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### PCB connector

PCB connector - TVMSTB 2,5/ 3-STF-5,08 - 1719105 https://www.phoenixcontact.com/us/products/1719105



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 400 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 6, product range: TVMSTB 2,5/..-STF, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 90 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

### PCB connector

PCB connector - FKCN 2,5/ 3-STF-5,08 - 1754801 https://www.phoenixcontact.com/us/products/1754801



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: FKCN 2,5/..-STF, pitch: 5.08 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard



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### PCB connector

PCB connector - FRONT-MSTB 2,5/ 3-STF-5,08 - 1777811 https://www.phoenixcontact.com/us/products/1777811



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: FRONT-MSTB 2,5/..-STF, pitch: 5.08 mm, connection method: Front screw connection, screw head form: L Slotted, conductor/PCB connection direction: 0 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

### PCB connector

PCB connector - MSTB 2,5/ 3-STF-5,08 - 1777992 https://www.phoenixcontact.com/us/products/1777992



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: MSTB 2,5/..-STF, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard



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### PCB connector

PCB connector - MSTBT 2,5/ 3-STF-5,08 - 1805314 https://www.phoenixcontact.com/us/products/1805314



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: MSTBT 2,5/..-STF, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

### PCB connector

PCB connector - MSTBC 2,5/ 3-STZF-5,08 - 1809747 https://www.phoenixcontact.com/us/products/1809747



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: MSTBC 2,5/..-STZF, pitch: 5.08 mm, connection method: Crimp connection, conductor/PCB connection direction: 0°, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard, Corresponding female crimp contacts with current [A] and conductor cross section range [mm²] data: 10A/MSTBC-MT 0,5-1,0 (3190564); 10A/MSTBC-MT 0,5-1,0 BA (3190645); 12A/MSTBC-MT 1,5-2,5 (3190551); 12A/MSTBC-MT 1,5-2,5 BA (3190658). BA = Bandkontakte



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### PCB connector

PCB connector - MVSTBW 2,5/ 3-STF-5,08 - 1834916 https://www.phoenixcontact.com/us/products/1834916



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: MVSTBW 2,5/..-STF, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: -90 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

### PCB connector

PCB connector - MVSTBR 2,5/ 3-STF-5,08 - 1835106 https://www.phoenixcontact.com/us/products/1835106



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: MVSTBR 2,5/..-STF, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 90 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard



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### PCB connector

PCB connector - TMSTBP 2,5/ 3-STF-5,08 - 1853117 https://www.phoenixcontact.com/us/products/1853117



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 6, product range: TMSTBP 2,5/..-STF, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0°, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard, The plug allows conductors to be looped through from module to module.

### PCB connector

PCB connector - FKC 2,5/ 3-STF-5,08 - 1873210 https://www.phoenixcontact.com/us/products/1873210



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: FKC 2,5/..-STF, pitch: 5.08 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard



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### PCB connector

PCB connector - FKCVW 2,5/ 3-STF-5,08 - 1873812 https://www.phoenixcontact.com/us/products/1873812



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: FKCVW 2,5/..-STF, pitch: 5.08 mm, connection method: Push-in spring connection, conductor/PCB connection direction: -90 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

### PCB connector

PCB connector - FKCVR 2,5/ 3-STF-5,08 - 1874112 https://www.phoenixcontact.com/us/products/1874112



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: FKCVR 2,5/..-STF, pitch: 5.08 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 90 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard



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### PCB connector

PCB connector - QC 1/ 3-STF-5,08 - 1883365 https://www.phoenixcontact.com/us/products/1883365



PCB connector, nominal cross section: 1 mm², color: green, nominal current: 10 A, rated voltage (III/2): 630 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: QC 1/..-STF, pitch: 5.08 mm, connection method: Displacement connection, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

### PCB connector

PCB connector - FKCT 2,5/ 3-STF-5,08 - 1902314 https://www.phoenixcontact.com/us/products/1902314



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: FKCT 2,5/..-STF, pitch: 5.08 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard



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### PCB connector

PCB connector - TFKC 2,5/ 3-STF-5,08 - 1962707 https://www.phoenixcontact.com/us/products/1962707



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 6, product range: TFKC 2,5/..-STF, pitch: 5.08 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

### PCB connector

PCB connector - SMSTB 2,5/ 3-STF-5,08 - 1971073 https://www.phoenixcontact.com/us/products/1971073



PCB connector, nominal cross section: 2.5 mm², color: green, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Tin, type of contact: Female connector, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: SMSTB 2,5/..-STF, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: -45 °, locking clip: - Locking clip, plug-in system: COMBICON MSTB 2,5, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard