

# MSTBW 2,5/ 3-G BK - PCB header

1974559

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The figure shows a 10-position version of the product

PCB headers, nominal cross section: 2.5 mm<sup>2</sup>, color: black, nominal current: 12 A, rated voltage (III/2): 320 V, contact surface: Sn, contact connection type: Pin, number of potentials: 3, number of rows: 1, number of positions: 3, number of connections: 3, product range: MSTBW 2,5/..-G, pitch: 5 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 mm, number of solder pins per potential: 1, plug-in system: COMBICON MSTB 2,5, Pin connector pattern alignment: Standard, locking: without, mounting method: without, 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
- Stand-offs enable the PCB to be cleaned or sealed

## Commercial data

Item number	1974559
Packing unit	50 pc
Minimum order quantity	50 pc
Note	Made to order (non-returnable)
Sales key	AA03
Product key	AACSGL
GTIN	4017918947507
Weight per piece (including packing)	1.706 g
Weight per piece (excluding packing)	1.378 g
Customs tariff number	85366930
Country of origin	IN

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## Technical data

### Product properties

Product type	PCB headers
Product family	MSTBW 2,5/..-G
Product line	COMBICON Connectors M
Number of positions	3
Pitch	5 mm
Number of connections	3
Number of rows	1
Number of potentials	3
Mounting type	without
Pin layout	Linear pinning
Solder pins per potential	1

### Electrical properties

#### Properties

Nominal current $I_N$	12 A
Nominal voltage $U_N$	320 V
Contact resistance	1.4 m $\Omega$
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
Rated voltage (II/2)	400 V
Rated surge voltage (II/2)	4 kV

### Mounting

Mounting type	Wave 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 (5 $\mu\text{m}$ - 7 $\mu\text{m}$ Sn)
Metal surface contact area (middle layer)	Nickel (2 $\mu\text{m}$ - 3 $\mu\text{m}$ Ni)
Metal surface soldering area (top layer)	Tin (5 $\mu\text{m}$ - 7 $\mu\text{m}$ Sn)
Metal surface soldering area (middle layer)	Nickel (2 $\mu\text{m}$ - 3 $\mu\text{m}$ Ni)

#### Material data - housing

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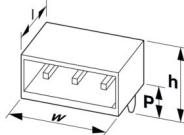
<https://www.phoenixcontact.com/us/products/1974559>

Color (Housing)	black (9005)
Insulating material	PBT
Insulating material group	IIIa
CTI according to IEC 60112	225
Flammability rating according to UL 94	V0

## 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.
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## Dimensions

Dimensional drawing	
Pitch	5 mm
Width [w]	15 mm
Height [h]	15.95 mm
Length [l]	12 mm
Installed height	12.45 mm
Solder pin length [P]	3.5 mm
Pin dimensions	1 x 1 mm

## PCB design

Hole diameter	1.4 mm
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## 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

### Contact holder in insert

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

## Insertion and withdrawal forces

Specification	IEC 60512-13-2:2006-02
Result	Test passed
No. of cycles	25
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	7 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 225
Rated insulation voltage (III/3)	250 V
Rated surge voltage (III/3)	4 kV
minimum clearance value - non-homogenous field (III/3)	3 mm
minimum creepage distance (III/3)	4 mm
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

### Durability test

Specification	IEC 60512-9-1:2010-03
Impulse withstand voltage at sea level	4.8 kV
Contact resistance $R_1$	1.4 mΩ
Contact resistance $R_2$	1.5 mΩ
Insertion/withdrawal cycles	25
Insulation resistance, neighboring positions	> 5 MΩ

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## 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

## 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)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis

## Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 70 °C
Relative humidity (storage/transport)	30 % ... 70 %
Ambient temperature (assembly)	-5 °C ... 100 °C
Ambient temperature (operation)	-40 °C ... 100 °C (dependent on the derating curve)

## Packaging specifications

Type of packaging	packed in cardboard
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Drawings

Diagram

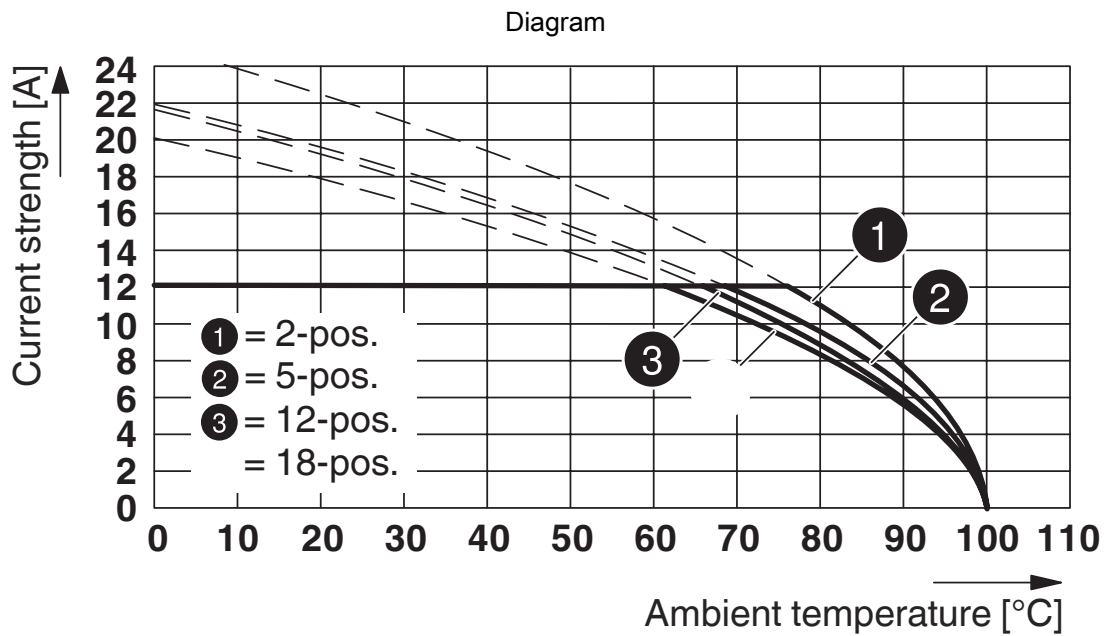


Type: MSTB 2,5/...-ST with MSTBW 2,5/...-G

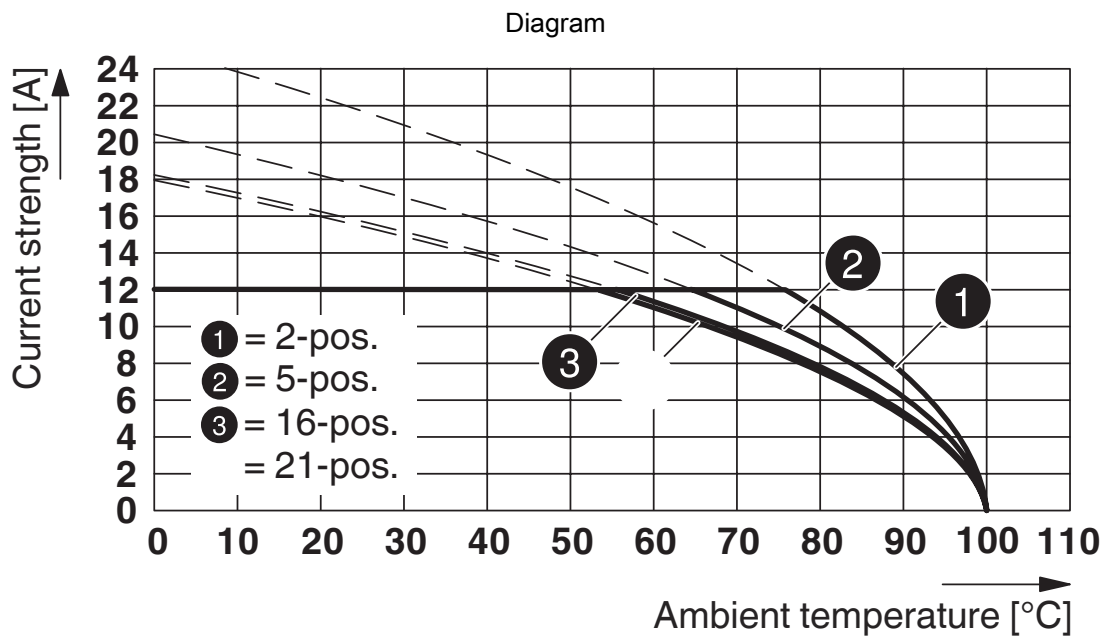
Diagram



Type: MVSTB(R/W) 2,5/...-ST with MSTBW 2,5/...-G



Type: MSTBT 2,5/...-ST with MSTBW 2,5/...-G



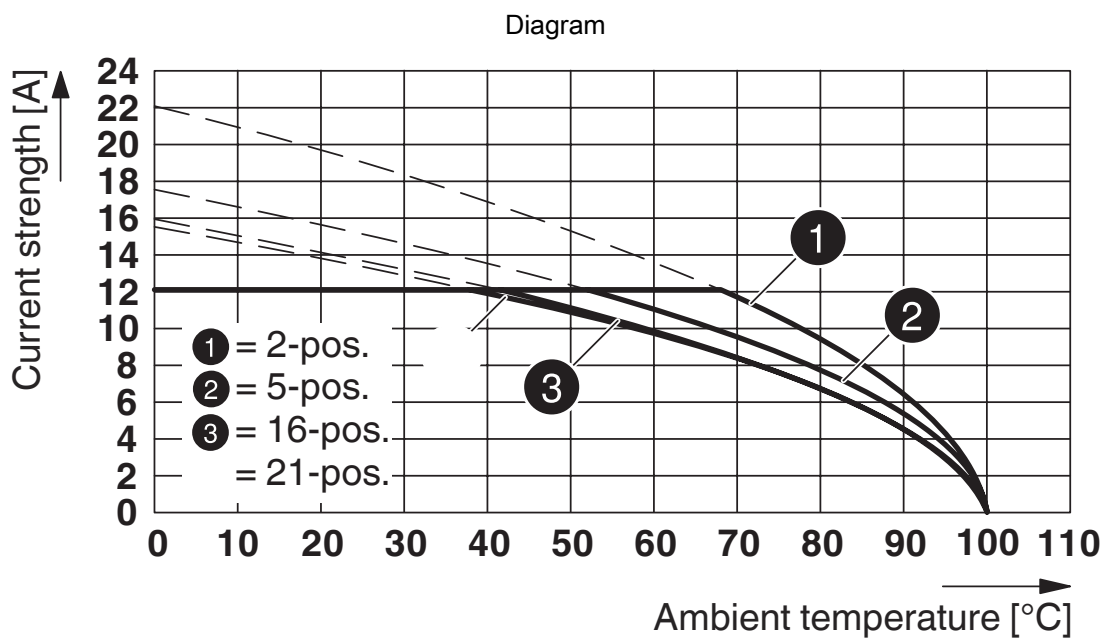
Type: FRONT-MSTB 2,5/...-ST with MSTBW 2,5/...-G

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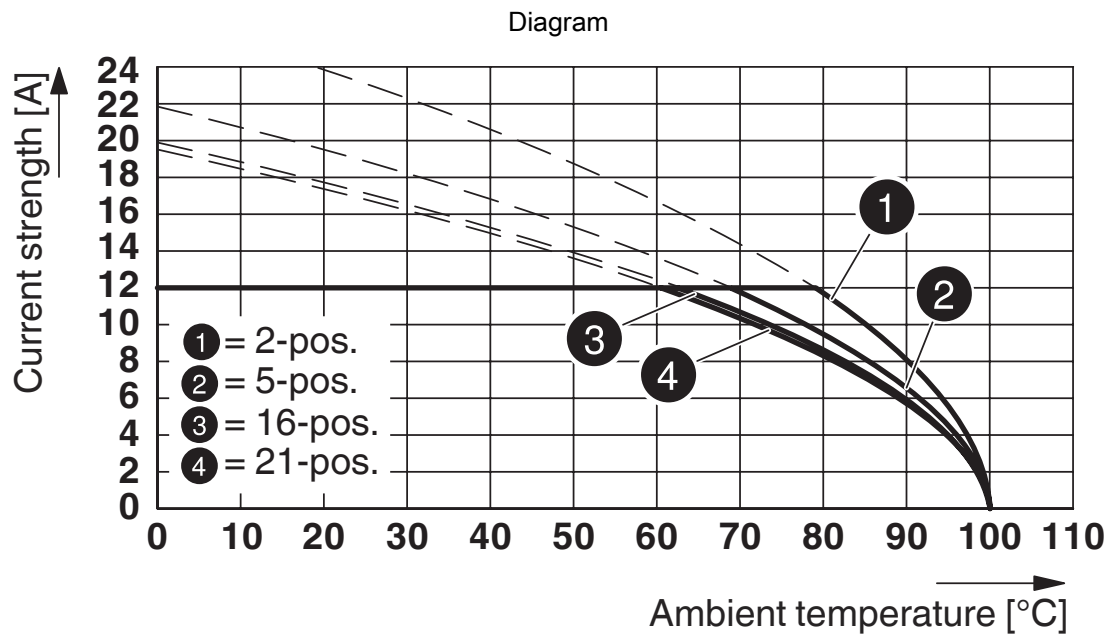
Type: FKCS 2,5/...-ST with MSTBW 2,5/...-G



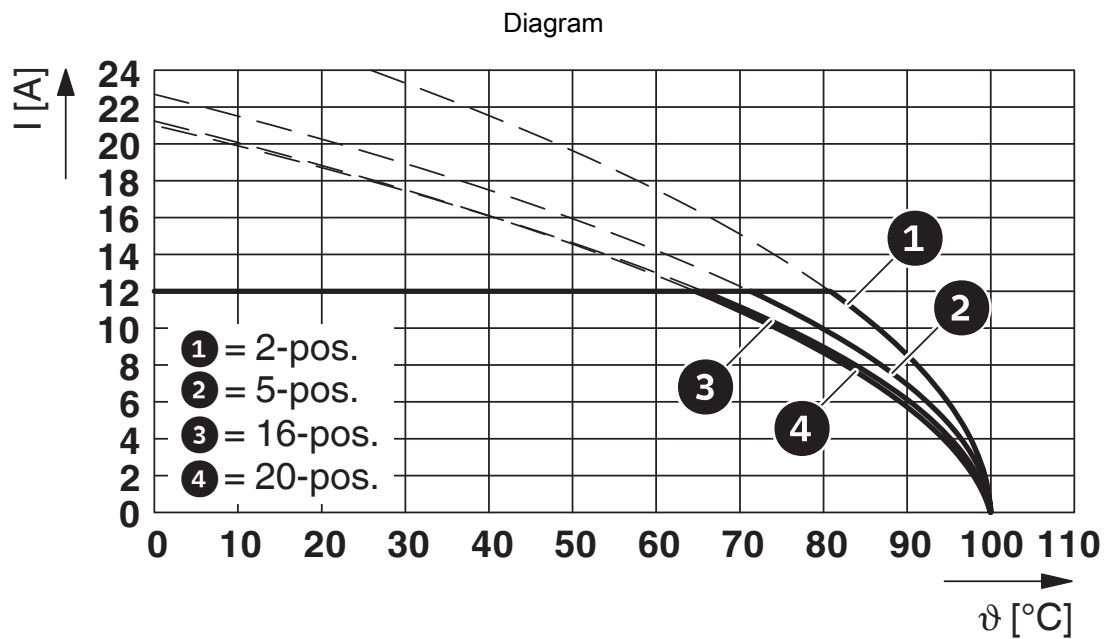
Type: SMSTB 2,5/...-ST with MSTBW 2,5/...-G

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Type: MSTBP 2,5/...-ST with MSTBW 2,5/...-G



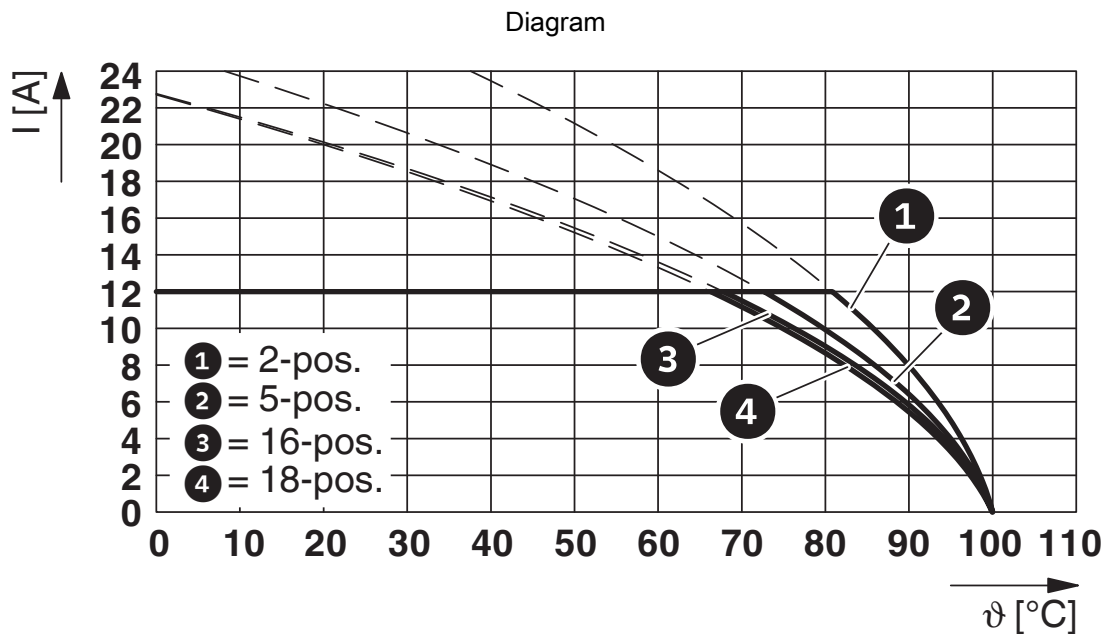
Type: FKCT 2,5/...-ST with MSTBW 2,5/...-G

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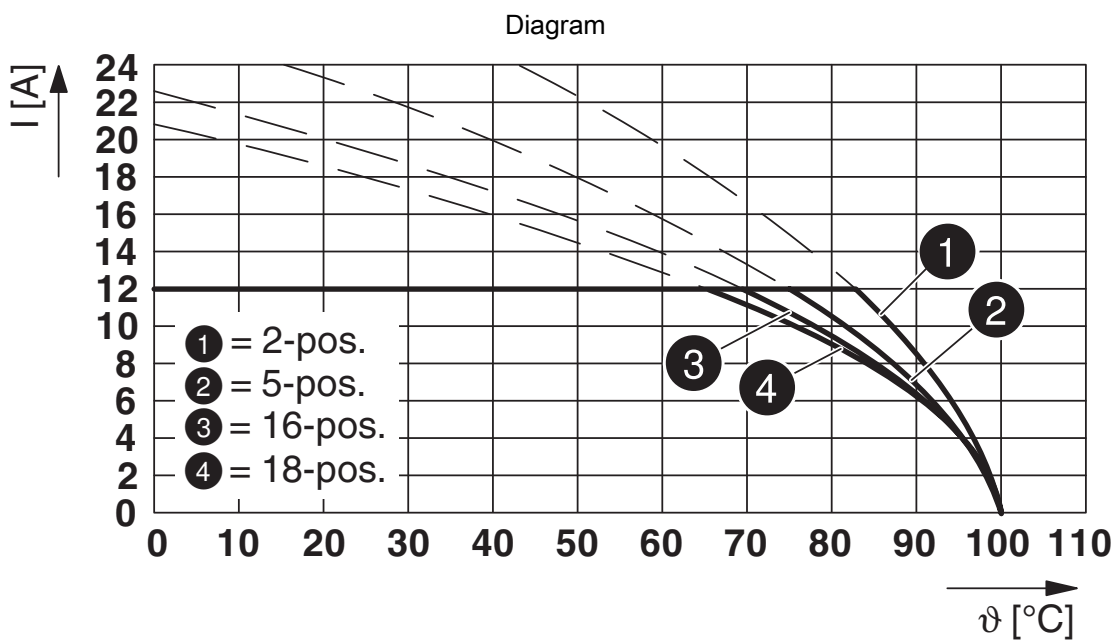


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Type: FKCN 2,5/...-ST with MSTBW 2,5/...-G



Type: FKCV(W/R) 2,5/...-ST with MSTBW 2,5/...-G

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1974559>

 <b>CSA</b> Approval ID: 13631-2585951				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
B	300 V	15 A	-	-
D	300 V	10 A	-	-

 <b>cULus Recognized</b> Approval ID: E60425-19931011				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
B	300 V	15 A	-	-
D	300 V	10 A	-	-

 <b>VDE approval of drawings</b> Approval ID: 40050648				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
keine	250 V	12 A	-	-

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## Classifications

### ECLASS

ECLASS-13.0	27460201
ECLASS-15.0	27460201

### ETIM

ETIM 10.0	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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