

# MSTBO 2,5/ 3-G1L BK - PCB header

2909646

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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: MSTBO 2,5/..-G1L, pitch: 5 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 mm, number of solder pins per potential: 1, Pin connector pattern alignment: Orthogonal, locking: without, type of packaging: packed in cardboard, Product with pin output on left side

## Your advantages

- Plug-in direction orthogonal to the PCB

## Commercial data

Item number	2909646
Packing unit	200 pc
Minimum order quantity	200 pc
Sales key	AC08
Product key	ACHADB
GTIN	4017918236663
Weight per piece (including packing)	1.7 g
Weight per piece (excluding packing)	1.6 g
Customs tariff number	85366930
Country of origin	DE

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## Technical data

### Product properties

Product type	PCB headers
Product family	MSTBO 2,5/..-G1L
Type	Header perpendicular to the PCB
Number of positions	3
Pitch	5 mm
Number of connections	3
Number of rows	1
Number of potentials	3
Mounting type	no
Pin layout	Linear pinning
Solder pins per potential	1

### Electrical properties

#### Properties

Nominal current $I_N$	12 A
Nominal voltage $U_N$	250 V
Contact resistance	1.5 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)	630 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 (Sn)
Metal surface soldering area (middle layer)	Nickel (1.3 $\mu\text{m}$ - 3 $\mu\text{m}$ Ni)

#### Material data - housing

Color (Housing)	black (9005)
Insulating material	PA

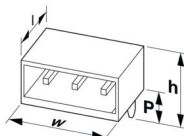
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Insulating material group	I
CTI according to IEC 60112	600
Flammability rating according to UL 94	V0
Glow wire flammability index GWFI according to EN 60695-2-12	850
Glow wire ignition temperature GWIT according to EN 60695-2-13	775
Temperature for the ball pressure test according to EN 60695-10-2	125 °C

## Dimensions

Dimensional drawing	
Pitch	5 mm
Width [w]	14.95 mm
Height [h]	16.5 mm
Length [l]	14.65 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

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

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## Insertion and withdrawal forces

Specification	IEC 60512-13-2:2006-02
Result	Test passed
No. of cycles	25
Insertion strength per pos. approx.	13 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	4

### 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	I
Comparative tracking index (IEC 60112)	CTI 600
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)	3.2 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 mm
Rated insulation voltage (II/2)	630 V
Rated surge voltage (II/2)	4 kV
minimum clearance value - non-homogenous field (II/2)	3 mm
minimum creepage distance (II/2)	3.2 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 <sub>1</sub>	1.5 mΩ
Contact resistance R <sub>2</sub>	1.5 mΩ
Insertion/withdrawal cycles	25
Insulation resistance, neighboring positions	> 5 MΩ

### Climatic test

Specification	ISO 6988:1985-02
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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 ... 55 °C
Relative humidity (storage/transport)	30 % ... 70 %
Ambient temperature (assembly)	-5 °C ... 100 °C
Ambient temperature (operation)	-40 °C ... 105 °C (dependent on the derating curve)

## Packaging specifications

Type of packaging	packed in cardboard
Outer packaging type	Carton

## Drawings

Diagram



Type: MSTBT 2,5/...-ST with MSTBO 2,5/...-G1L

Diagram



Type: MSTB 2,5/...-ST with MSTBO 2,5/...-G1L

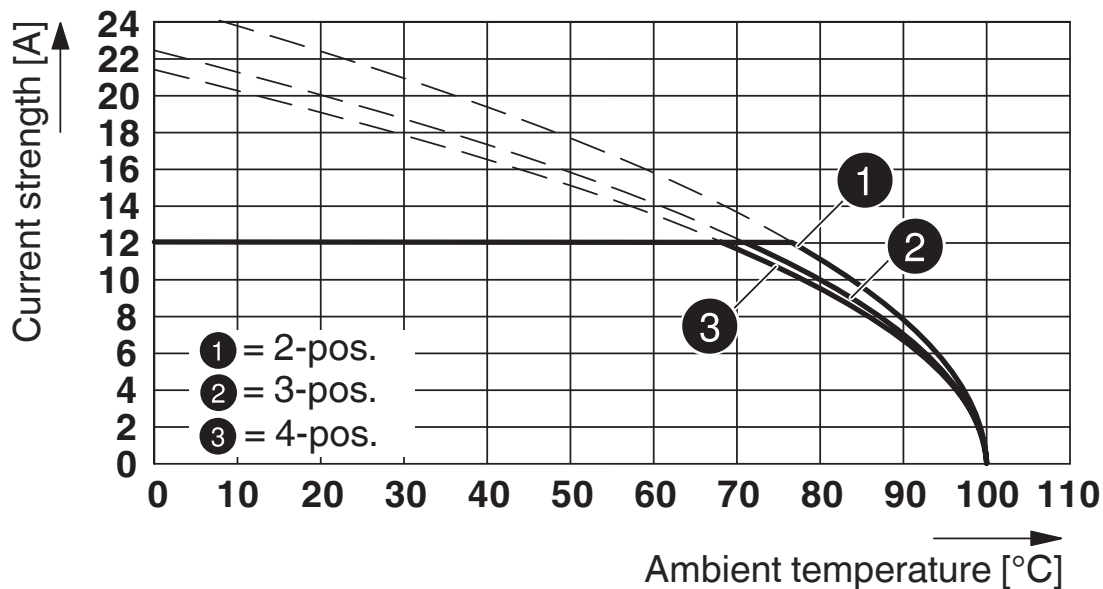
# MSTBO 2,5/ 3-G1L BK - PCB header



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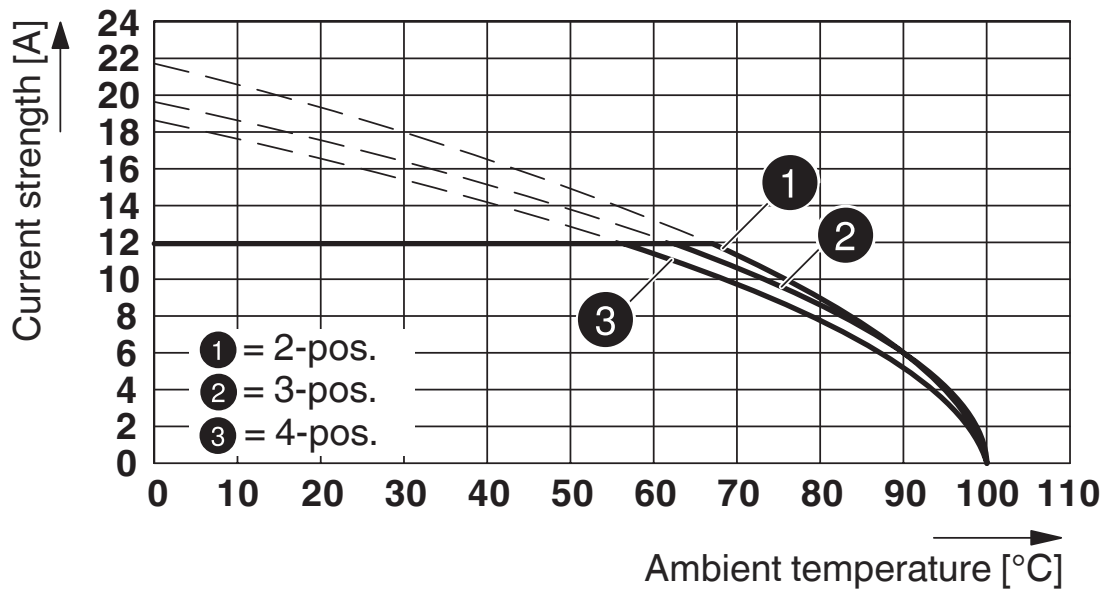
<https://www.phoenixcontact.com/us/products/2909646>

Diagram



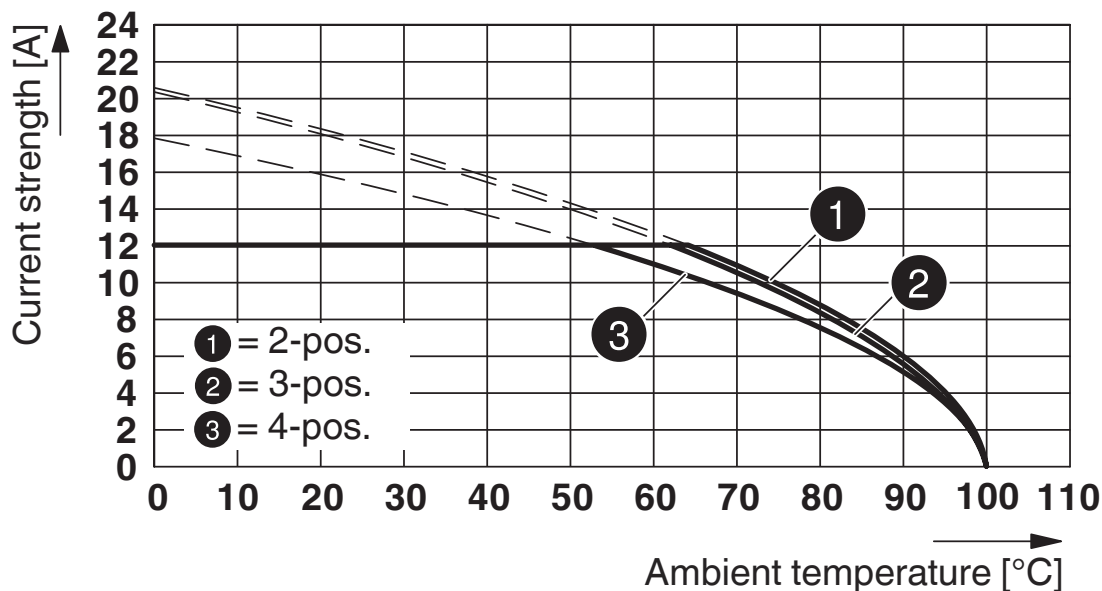
Type: MSTBP 2,5/...-ST with MSTBO 2,5/...-G1L

Diagram



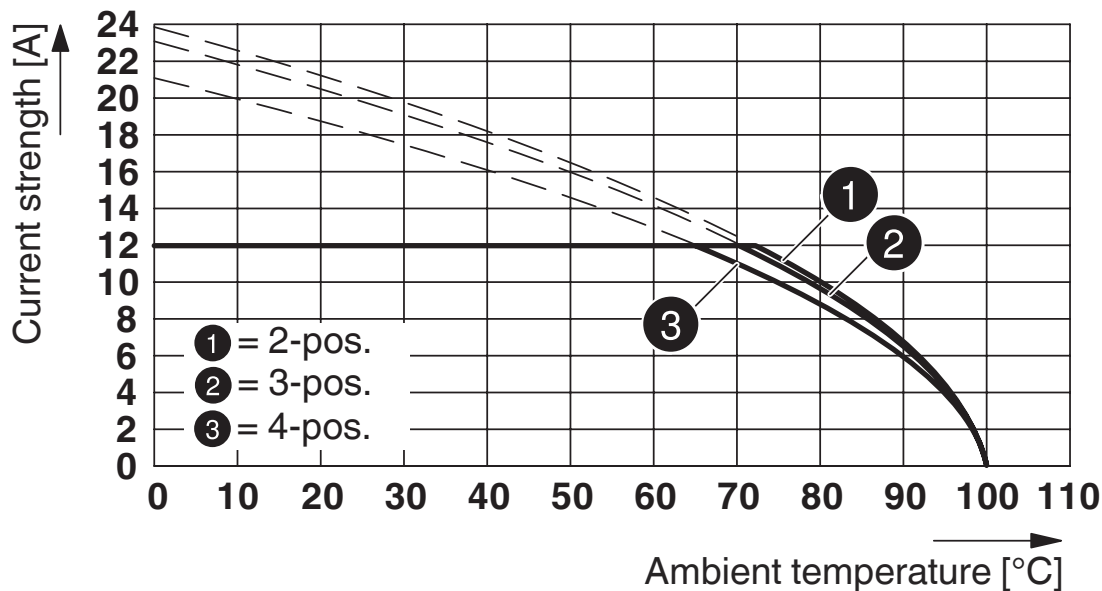
Type: SMSTB 2,5/...-ST with MSTBO 2,5/...-G1L

Diagram



Type: MVSTB(R/W) 2,5/...-ST with MSTBO 2,5/...-G1L

Diagram



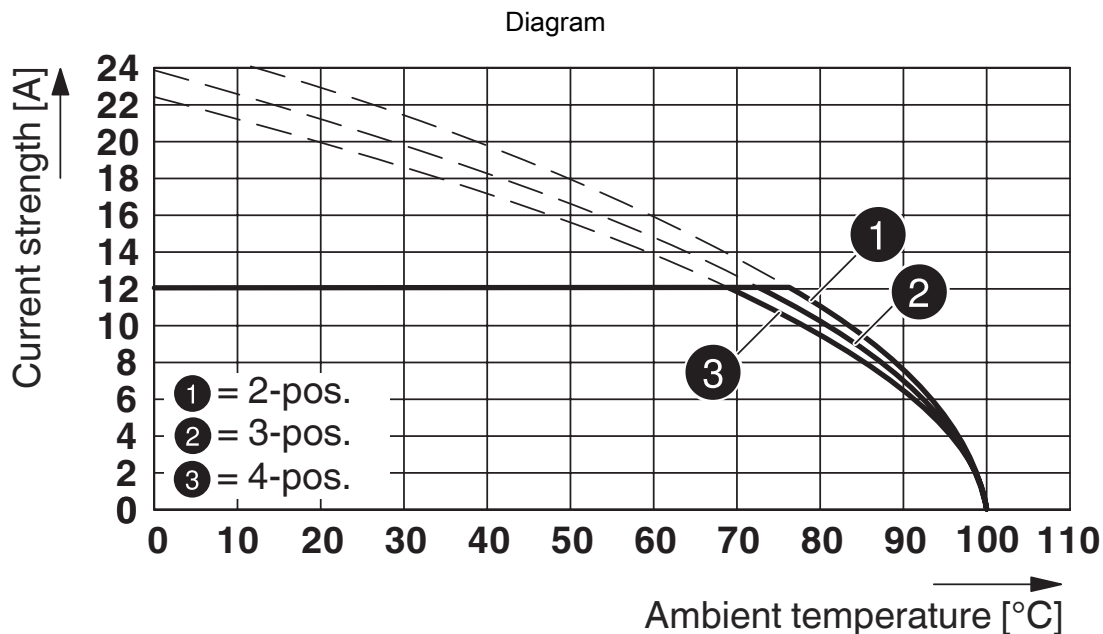
Type: FRONT-MSTB 2,5/...-ST with MSTBO 2,5/...-G1L

# MSTBO 2,5/ 3-G1L BK - PCB header

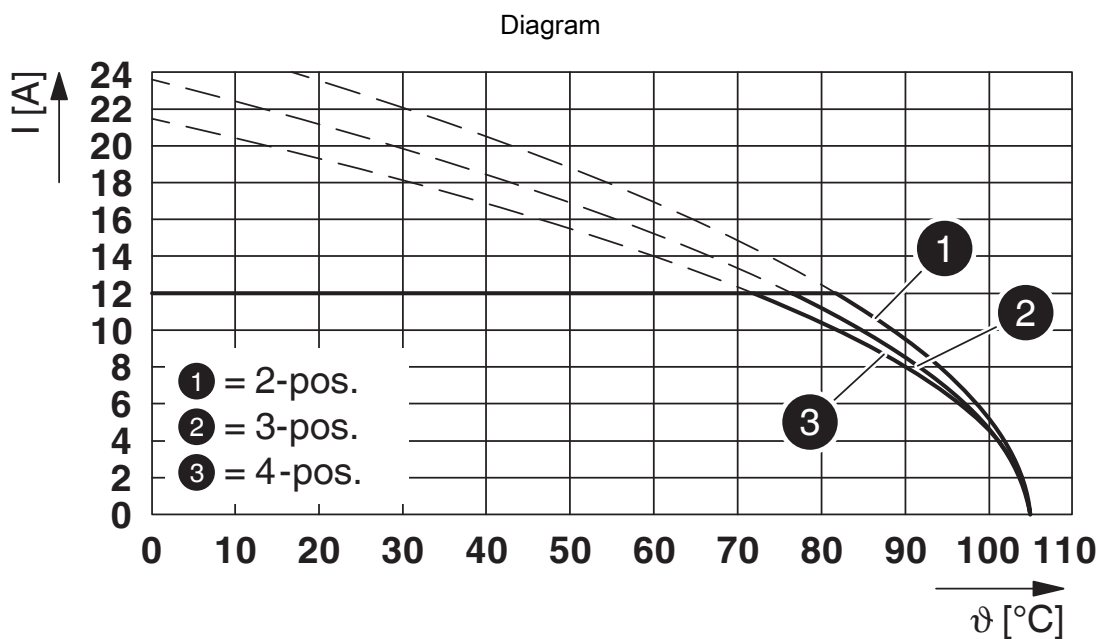


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Type: MSTBTP 2,5/...-ST with MSTBO 2,5/...-G1L



Type: FKCN 2,5/...-ST with MSTBO 2,5/...-G1L

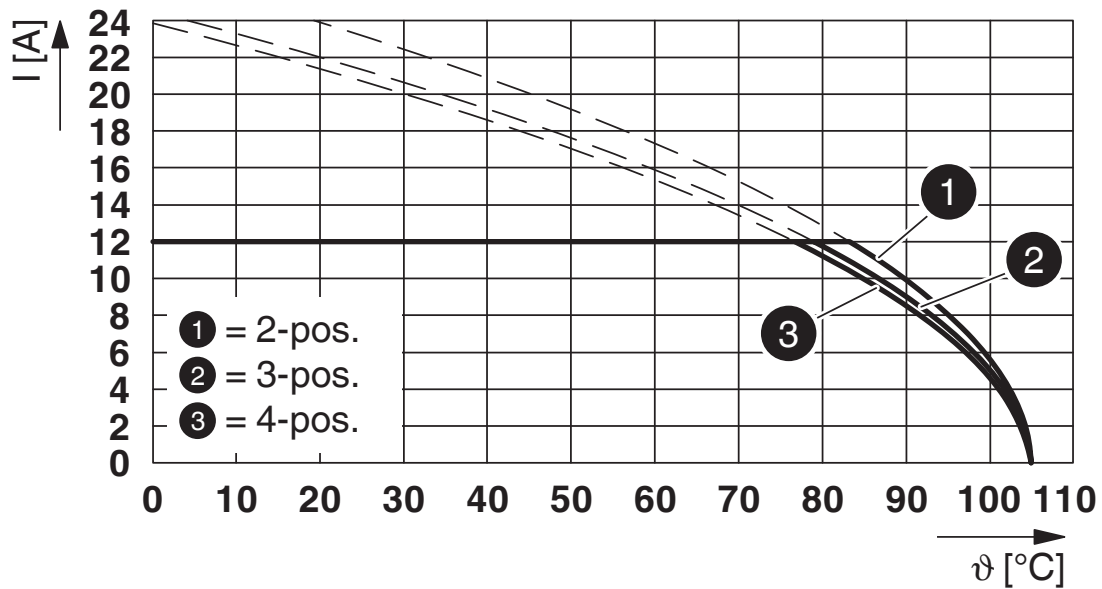
# MSTBO 2,5/ 3-G1L BK - PCB header



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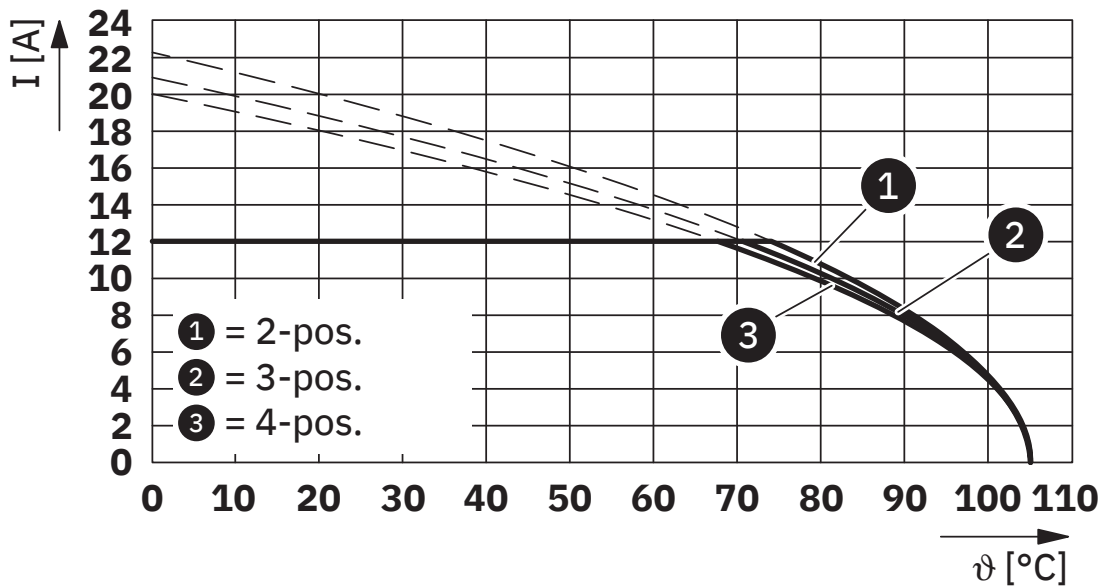
<https://www.phoenixcontact.com/us/products/2909646>

Diagram



Type: FKCT 2,5/...-ST with MSTBO 2,5/...-G1L

Diagram



Type: FKCVR 2,5/...-ST with MSTBO 2,5/...-G1L

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Type: FKCS 2,5/...-ST with MSTBO 2,5/...-G1L



Type: TVFKC 1,5/...-ST with MSTBO 2,5/...-G1(L/R)

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2909646>

 <b>CSA</b> Approval ID: 2406780				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
B	300 V	10 A	-	-
D	300 V	10 A	-	-

 <b>cULus Recognized</b> Approval ID: E60425-20050718				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
B	300 V	16 A	-	-
D	300 V	10 A	-	-

 <b>VDE Zeichengenehmigung</b> Approval ID: 40050648				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
keine	250 V	8 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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