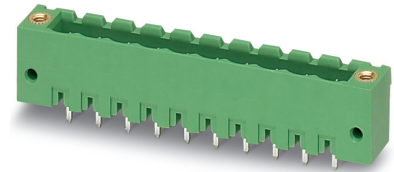


# Data sheet

**Order No.: 1776883**

**Type: MSTBV 2,5/ 2-GF**

**PCB header**



The figure shows a 10-position version of the product

## 1 Main features



- |                         |                     |                        |                     |
|-------------------------|---------------------|------------------------|---------------------|
| • No. of pos.           | 2                   | • Nominal current      | 12 A                |
| • Nominal cross section | 2.5 mm <sup>2</sup> | • Nominal voltage      | 320 V               |
| • Color                 | green (6021)        | • Connection direction | 90 °                |
| • Pitch                 | 5 mm                | • Type of packaging    | packed in cardboard |
| • Mounting type         | Wave soldering      |                        |                     |

## 2 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



Make sure you always use the latest documentation.

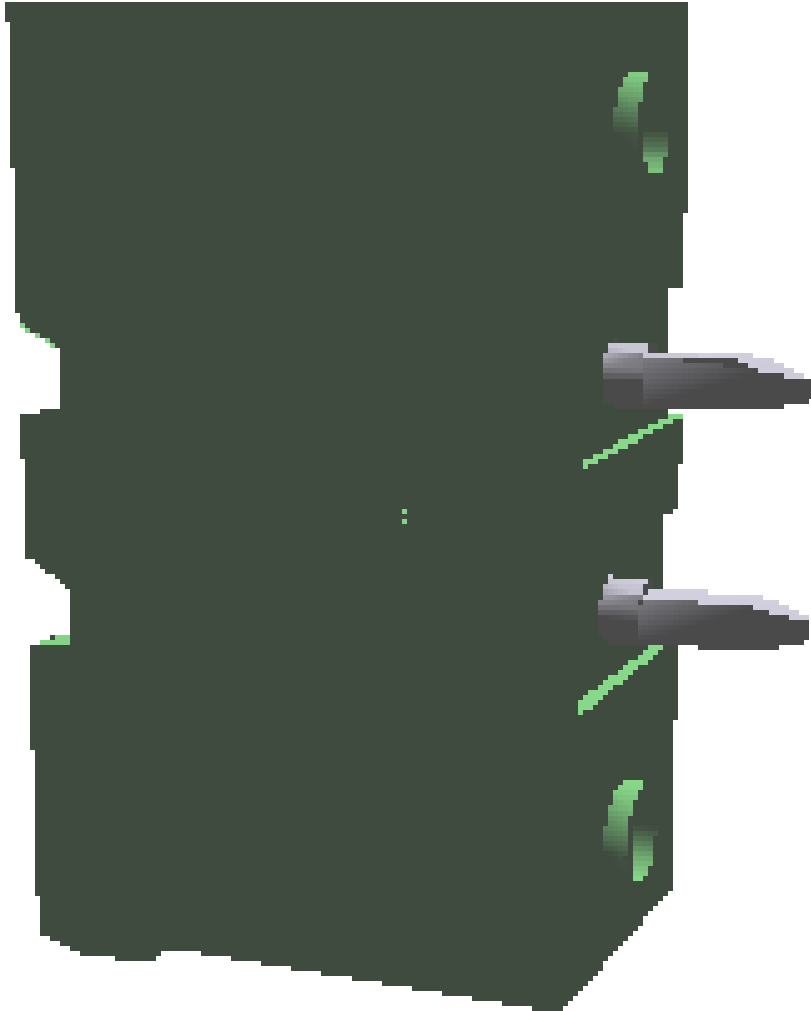
It can be downloaded at: [phoenixcontact.net/product/1776883](https://phoenixcontact.net/product/1776883)

**1776883 MSTBV 2,5/ 2-GF****3 Table of contents**

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1776883 MSTBV 2,5/ 2-GF

4 3D model in PDF can be activated (Acrobat Reader only)



**1776883 MSTBV 2,5/ 2-GF****5 General Technical Data****5.1 item properties**

Order No.	1776883
Type	MSTBV 2,5/ 2-GF
Plug-in system	CLASSIC COMBICON
Product type	PCB header
Type of contact	Male connector
Range of articles	MSTBV 2,5/..-GF
Pitch	5 mm
Number of positions	2
Number of levels	1
Number of connections	2
Number of potentials	2
Mounting type	Wave soldering
Connection direction of the connector to the PCB	90 °
Pin layout	Linear pinning
Solder pins per potential	1
Type	Standard

**1776883 MSTBV 2,5/ 2-GF****6 Mounting****6.1 Flange mounting**

Type of locking	Screw locking
Mounting flange	Threaded flange
Torque	0.3 Nm

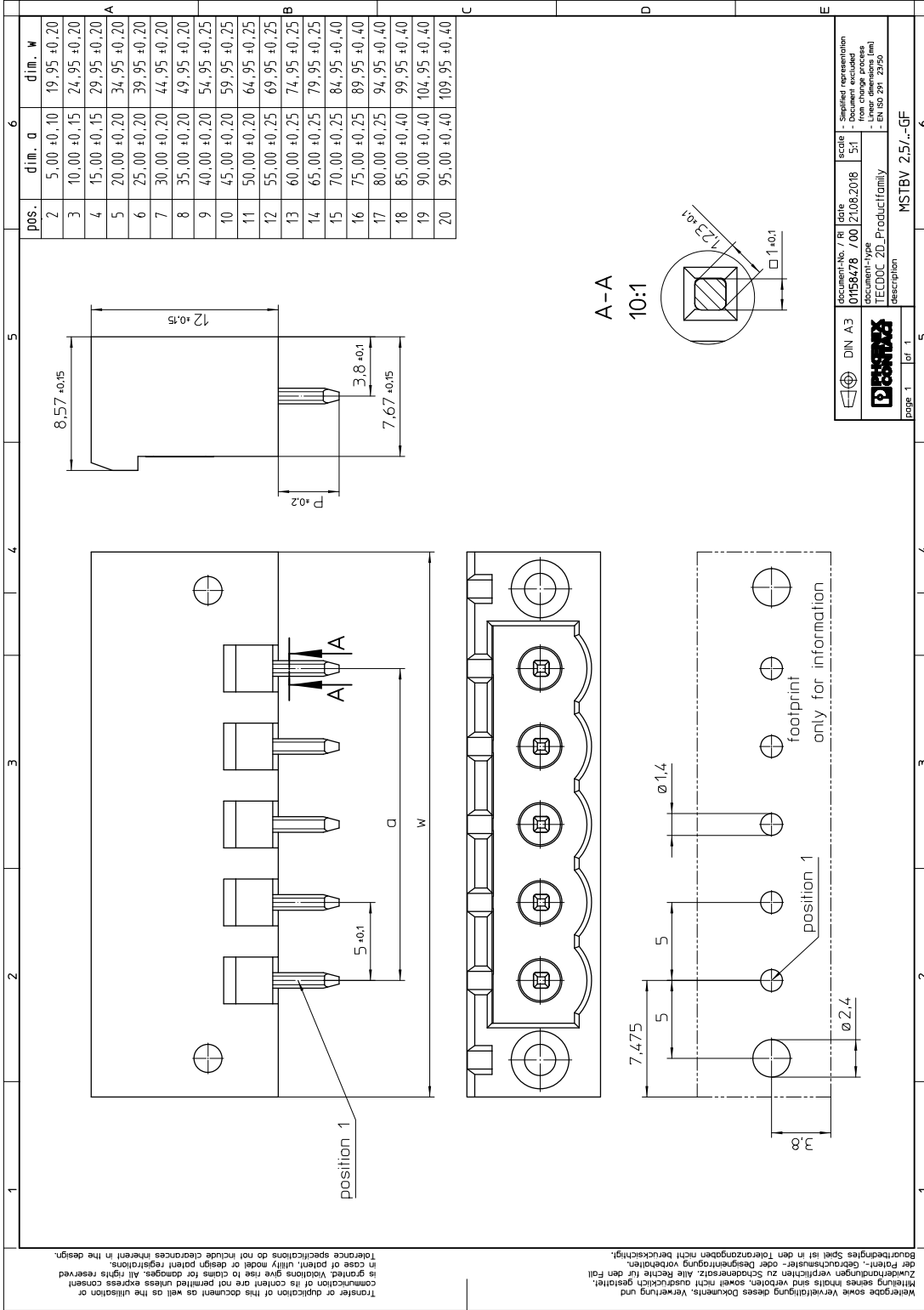
**7 Material properties****7.1 Material of metal parts**

Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface contact area	Nickel (1.3 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Soldering area surface	Nickel (1.3 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Surface characteristics	Tin-plated
Insulating material data	Housing
Color	green (6021)
Insulating material	PBT
Insulating material group	IIIa
CTI according to IEC 60112	225
Flammability rating according to UL 94	V0

**1776883 MSTBV 2,5/ 2-GF****8 Dimensions****8.1 Dimensions for the product**

Length	8.6 mm
Width	20 mm
Height (without solder pin)	12 mm
Total height	15.9 mm
Solder pin [P]	3.9 mm

# 9 Series drawing



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document-No. / R / date: 01156478 / 700 / 21.08.2018  
 scale: S1  
 document-type: TECDOC 2D\_Productfamily  
 description: MSTBV 2,5/-GF  
 page 1 of 1

Simplified representation  
 from change process  
 Linear dimensions (mm)  
 EN ISO 291 2950

**1776883 MSTBV 2,5/ 2-GF****10 Product notes****10.1 General information**

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.

**11 Application****12 Packaging information**

Type of packaging	packed in cardboard
-------------------	---------------------

Pieces per package	250
--------------------	-----

**12.1 Temperature limit values**

Ambient temperature (storage/transport)	-40 °C ... 70 °C
---	------------------

Ambient temperature (assembly)	-5 °C ... 100 °C
--------------------------------	------------------

Ambient temperature (operation)	-40 °C ... 100 °C (dependent on the derating curve)
---------------------------------	---



**1776883 MSTBV 2,5/ 2-GF****13 Mechanical tests****13.1 Visual examination**

Specification	IEC 61984:2008-10
Visual examination	Test passed
Specification	IEC 60512-1-1:2002-02

**13.2 Dimensional test**

Dimensional test	Test passed
Specification	IEC 60512-1-2:2002-02

**13.3 Resistance of marking**

Resistance of marking	Test passed
Specification	IEC 60068-2-70:1995-12

**13.4 Polarization and coding**

Polarization and coding	Test passed
Specification	IEC 60512-13-5:2006-02
Test force	20 N

**13.5 Contact retention in insert**

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

**1776883 MSTBV 2,5/ 2-GF****14 Insertion and withdrawal forces**

Insertion and withdrawal force	
Specification	Test passed
No. of cycles	25
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	6 N

**1776883 MSTBV 2,5/ 2-GF****15 Electrical tests**

Rated current / conductor cross section	12 A / 2.5 mm <sup>2</sup>
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Contact resistance	2.4 mΩ
Degree of pollution	2

**15.1 Air and creepage distances**

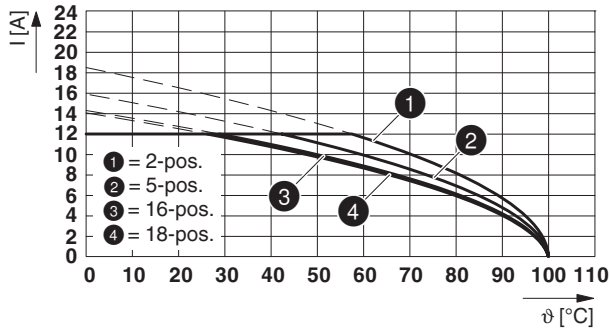
Component	PCB header		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	IIIa		
Comparative tracking index (IEC 60112:2003-01)	CTI 225		
Rated insulation voltage	250 V	320 V	400 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	3 mm	3 mm	3 mm
Minimum value of the creepage path requirement in acc. with table	4 mm	3.2 mm	4 mm

1776883 MSTBV 2,5/ 2-GF

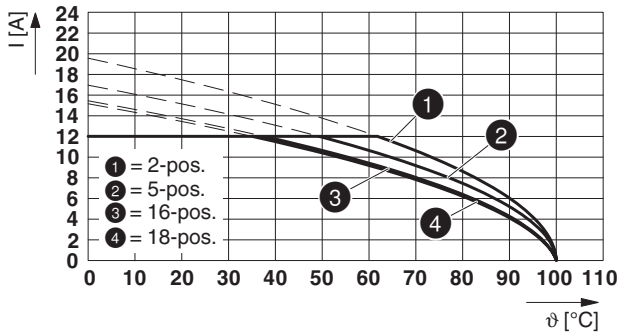
16 Current carrying capacity/derating curves

Specification	IEC 61984:2008-10
Note	Representation based on IEC 60512-5-2:2002-02
Note	For number of positions, see diagram
Reduction factor	0.8
Conductor cross section	2.5 mm <sup>2</sup>

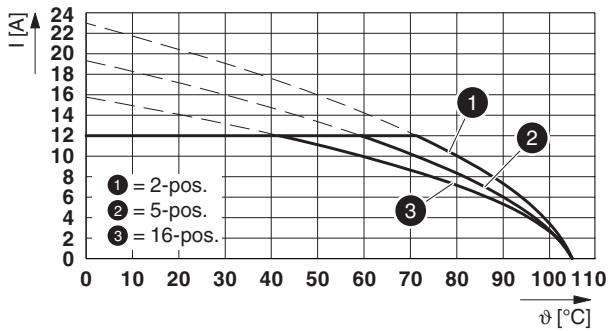
Type: MSTBT 2,5/...-STF with MSTBV 2,5/...-GF



Type: FKCT 2.5/...-STF with MSTBV 2.5/...-GF

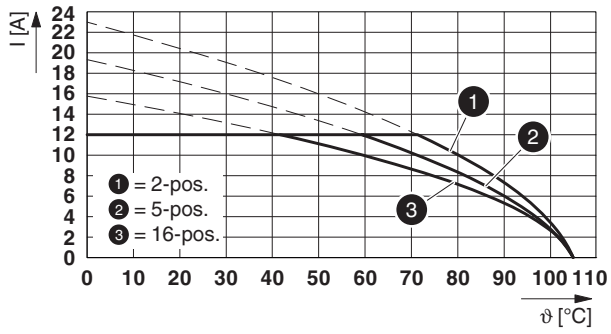


Type: FKCVR 2,5/...-STF with MSTBV 2,5/...-GF



1776883 MSTBV 2,5/ 2-GF

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



**1776883 MSTBV 2,5/ 2-GF****17 Environmental and durability tests****17.1 Vibration test**

Specification	IEC 60068-2-6:2007-12
Result	Test passed
Frequency	10 - 150 - 10 Hz
Sweep speed	1 octave/min
Amplitude	0.35 mm (10 - 60.1 Hz)
Acceleration	5 g (60.1 - 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis
Note	The connected conductor loops were guided to the test sample at a distance of approx. 10 cm.

**17.2 Insulation resistance**

Specification	IEC 60512-3-1:2002-02
Result	Test passed
Insulation resistance, neighboring positions	> 5 MΩ

## 1776883 MSTBV 2,5/ 2-GF

## 18 Approvals / Certificates

CSA 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
<b>Usegroup B</b>				
	300 V	12 A	-	-
<b>Usegroup D</b>				
	300 V	10 A	-	-
IECEE CB Scheme 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
	250 V	12 A	-	-
EAC 				
VDE Zeichengenehmigung 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
	250 V	12 A	-	-
cULus Recognized 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
<b>Usegroup B</b>				
	300 V	12 A	-	-
<b>Usegroup D</b>				
	300 V	10 A	-	-
DNV GL 				
RS 				
VDE Zeichengenehmigung 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
	250 V	12 A	-	-

**1776883 MSTBV 2,5/ 2-GF****19 Commercial Data**

Order No.	1776883
Type	MSTBV 2,5/ 2-GF
Pieces per package	250
Net weight	2.397 g
GTIN	4017918039059
	Information that applies locally, see link on page 1
	Information that applies locally, see link on page 1

**20 corresponding plugs**

Order No.	Type
1718119	QC 1,5/ 2-STF
1732962	FKCN 2,5/ 2-STF
1779644	FRONT-MSTB 2,5/ 2-STF
1786831	MSTB 2,5/ 2-STF
1835287	MVSTBW 2,5/ 2-STF
1835478	MVSTBR 2,5/ 2-STF
1909401	FKCT 2,5/ 2-STF
1909883	FKCVR 2,5/ 2-STF
1910209	FKCVW 2,5/ 2-STF
1910526	FKC 2,5/ 2-STF
1970870	SMSTB 2,5/ 2-STF
1974928	FKCS 2,5/ 2-STF

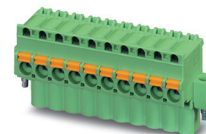
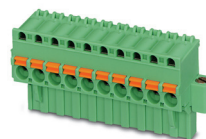
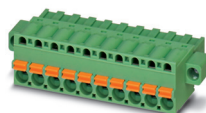
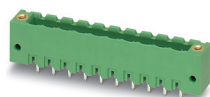
**21 Accessories**

Description	Order No.	Type
Coding section, inserted into the recess in the header or the inverted plug, red insulating material	1734401	CR-MSTB
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL
	0804183	SK 5/3,8:FORTL.ZAHLEN
	0805409	SK 5/3,8:UNBEDRUCKT
	0805072	SK 5/3,8:SO
Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm	1051993	B-STIFT



## 1776883 MSTBV 2,5/ 2-GF

## 22 Combination tests

**MSTBV 2,5/..-GF**

IEC 61984

**Mechanical tests (A)**

Insertion/withdrawal force per position

**MSTBT 2,5/..-STF**

IEC 61984

approx. 8 N / 6 N

**FKCT 2,5/..-STF**

IEC 61984

approx. 8 N / 6 N

**FKCVR 2,5/..-STF**

IEC 61984

approx. 10 N / 7 N

**FKCVW 2,5/..-STF**

IEC 61984

approx. 10 N / 7 N

Polarization when inserted  
Requirement >20 N

Test passed

Test passed

Test passed

Test passed

Contact holder in insert  
Requirements >20 N

Test passed

Test passed

Test passed

Test passed

**Durability tests (B)**Contact resistance R<sub>1</sub> 1st level

2.4 mΩ

2.4 mΩ

2 mΩ

2 mΩ

Contact resistance R<sub>1</sub> 2nd level

Insertion/withdrawal cycles

25

25

25

25

Contact resistance R<sub>2</sub>

2.4 mΩ

2.4 mΩ

2.2 mΩ

2.2 mΩ

Rated impulse voltage at sea level  
Voltage waveform ≥ (1.2/50 μs)

4.8 kV

4.8 kV

4.8 kV

4.8 kV

Power-frequency withstand voltage  
Voltage waveform ≥ (50/60 Hz)

2.21 kV

2.21 kV

2.21 kV

2.21 kV

**Thermal tests (C)**

Tested number of positions

18

18

12

12

Tested conductor cross section

2.5 mm<sup>2</sup>2.5 mm<sup>2</sup>2.5 mm<sup>2</sup>2.5 mm<sup>2</sup>

Test current

12 A

12 A

12 A

12 A

Upper limiting temperature  
Requirements < 100°C

Test passed

Test passed

Test passed

Test passed

**Climatic tests (D)**

Test sequence 1: low temperature storage

-40 °C/2 h

-40 °C/2 h

-40 °C/2 h

-40 °C/2 h

Test sequence 2: heat storage

100 °C/168 h

100 °C/168 h

105 °C/168 h

105 °C/168 h

Test sequence 3: noxious gas storage  
(ISO 6988)0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycle0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycle0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycle0.2 dm<sup>3</sup> SO<sub>2</sub> on 300 dm<sup>3</sup>/  
40 °C/1 cycleRated impulse voltage at sea level  
Voltage waveform ≥ (1.2/50 μs)

4.8 kV

4.8 kV

4.8 kV

4.8 kV

Power-frequency withstand voltage  
Voltage waveform ≥ (50/60 Hz)

2.21 kV

2.21 kV

2.21 kV

2.21 kV

**Environmental and endurance tests (E)**

Specification

IEC 61984:2008-10

IEC 61984:2008-10

IEC 61984:2008-10

IEC 61984:2008-10

Degree of protection

Finger safety with IP20  
test fingerFinger safety with IP20  
test fingerFinger safety with IP20  
test fingerFinger safety with IP20  
test finger