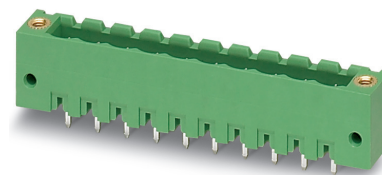


Order No.: 1777138

Type: MSTBV 2,5/ 8-GF-5,08

## PCB headers



The figure shows a 10-position version of the product

## 1 Main features



- |                         |                     |                        |                     |
|-------------------------|---------------------|------------------------|---------------------|
| • No. of pos.           | 8                   | • Nominal current      | 12 A                |
| • Nominal cross section | 2.5 mm <sup>2</sup> | • Nominal voltage      | 320 V               |
| • Color                 | green (6021)        | • Connection direction | 90 °                |
| • Pitch                 | 5.08 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
- ✓ Screwable flange for superior mechanical stability



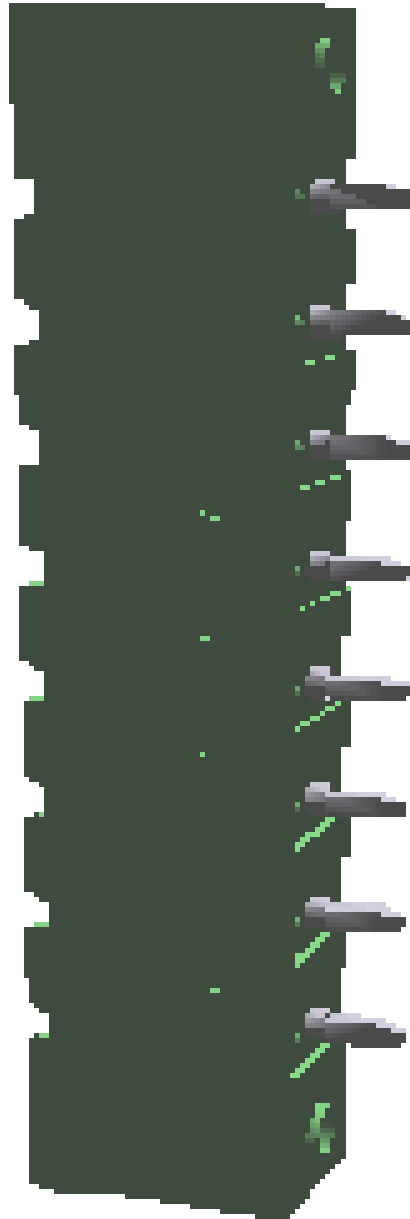
Make sure you always use the latest documentation.  
It can be downloaded at: [phoenixcontact.net/product/1777138](https://phoenixcontact.net/product/1777138)

**1777138 MSTBV 2,5/ 8-GF-5,08****3 Table of contents**

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1777138 MSTBV 2,5/ 8-GF-5,08

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



**1777138 MSTBV 2,5/ 8-GF-5,08****5 General Technical Data****5.1 item properties**

Order No.	1777138
Type	MSTBV 2,5/ 8-GF-5,08
Plug-in system	CLASSIC COMBICON
Product type	PCB headers
Type of contact	Male connector
Range of articles	MSTBV 2,5/...-GF
Pitch	5.08 mm
Range of positions	2...24
Number of positions	8
Number of levels	1
Number of connections	8
Number of potentials	8
Mounting type	Wave soldering
Connection direction of the connector to the PCB	90 °
Pin layout	Linear pinning
Solder pins per potential	1
Type	Standard

**1777138 MSTBV 2,5/ 8-GF-5,08****6 Mounting****6.1 Flange fixing**

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

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

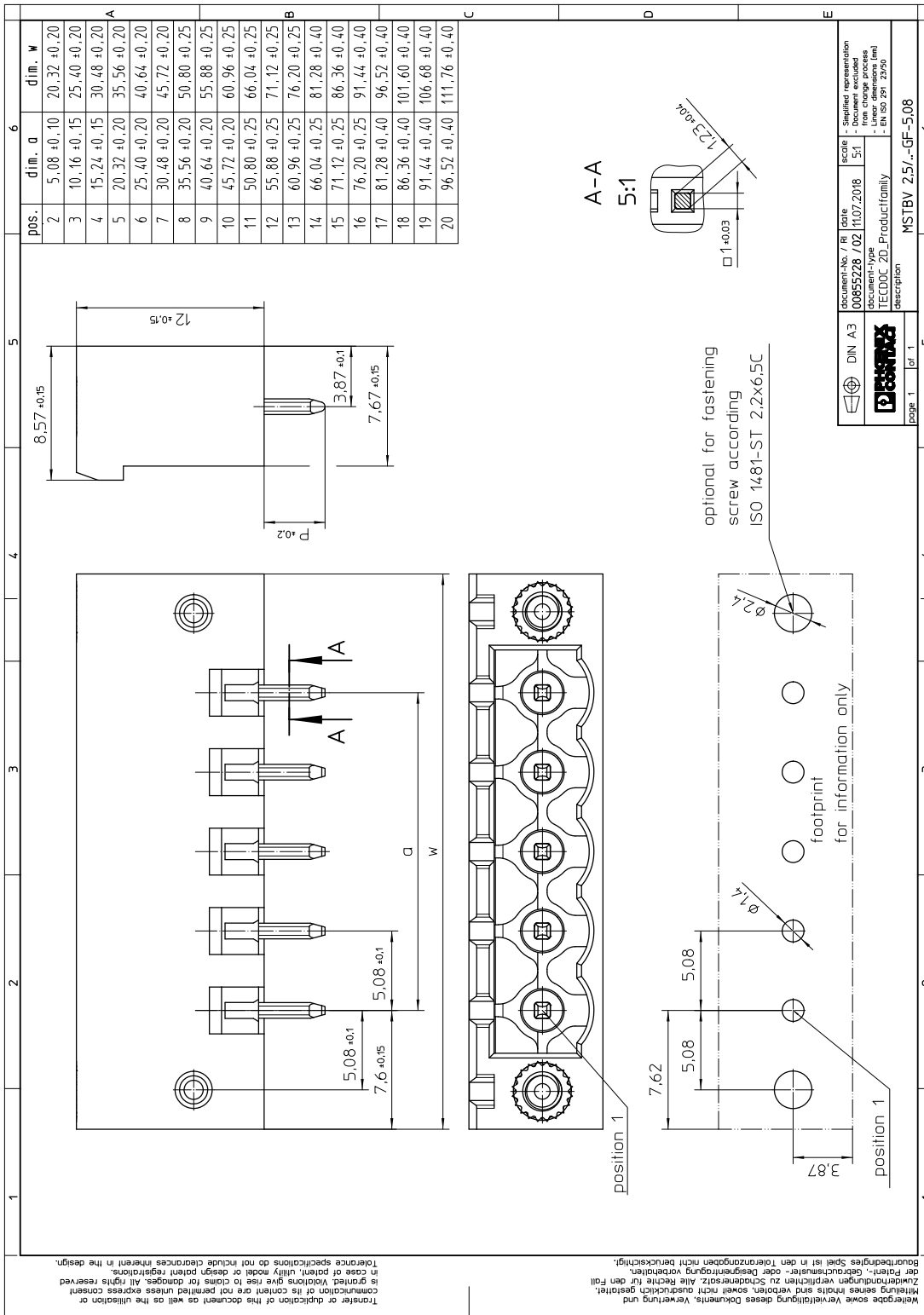
Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface contact area	Nickel (1.3 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Soldering area surface	Nickel (1.3 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Surface characteristics	Tin-plated
Insulating material data	Housing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

**1777138 MSTBV 2,5/ 8-GF-5,08****8 Dimensions****8.1 Dimensions for the product**

Length	8.6 mm
Width	50.8 mm
Height (without solder pin)	12 mm
Total height	15.9 mm
Solder pin [P]	3.9 mm
Dimension a	35.56 mm

1777138 MSTBV 2,5/ 8-GF-5,08

9 Series drawing



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document-type	TECDOC 2D_Productfamily	document-No. / R / title	0085528 / 02 / 11.07.2018
description	MSTBV 2,5/ 8-GF-5,08	document-type	TECDOC 2D_Productfamily
page 1	of 1	document-No. / R / title	0085528 / 02 / 11.07.2018
		document-type	TECDOC 2D_Productfamily
		description	MSTBV 2,5/ 8-GF-5,08

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**1777138 MSTBV 2,5/ 8-GF-5,08****10 Application****11 Packaging information**

Type of packaging	packed in cardboard
Pieces per package	100

**11.1 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)



**1777138 MSTBV 2,5/ 8-GF-5,08****12 Mechanical tests****12.1 Visual examination**

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

**12.2 Dimensional test**

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

**12.3 Resistance of marking**

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

**12.4 Polarization and coding**

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

**12.5 Contact retention in insert**

Contact retention in insert	Test passed
Specification	IEC 60512-15-1:2008-05
Test force per pos.	40 N

**1777138 MSTBV 2,5/ 8-GF-5,08****13 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

**1777138 MSTBV 2,5/ 8-GF-5,08****14 Electrical tests****14.1 Electrical data**

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	2.5 mΩ
Degree of pollution	2

**14.2 Air and creepage distances**

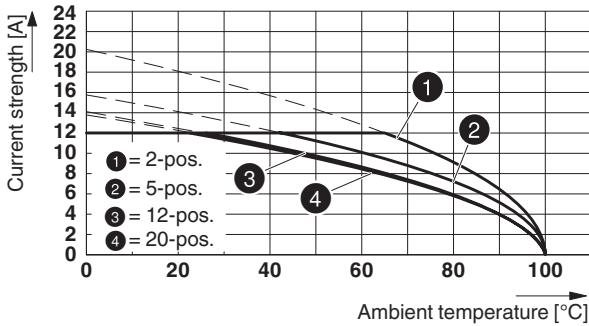
Component	PCB headers		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	IIIa		
Comparative tracking index (IEC 60112:2003-01)	CTI 225		
Rated insulation voltage	250 V	320 V	400 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	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

1777138 MSTBV 2,5/ 8-GF-5,08

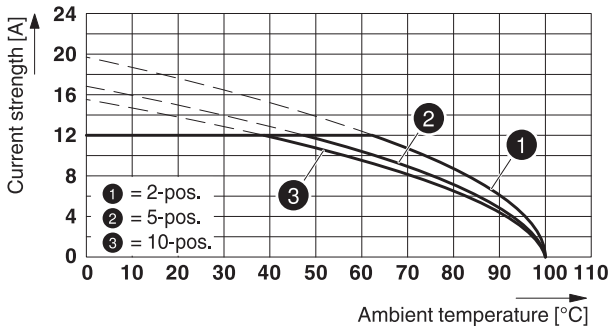
15 Current carrying capacity/derating curves

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>

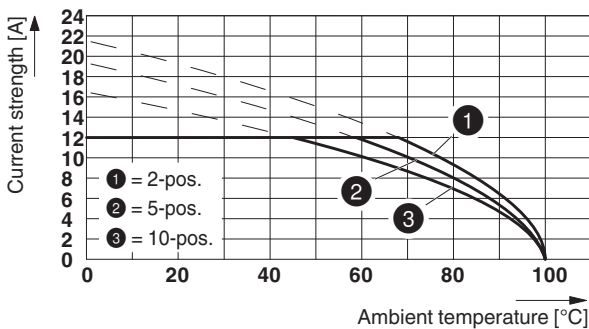
Type: MSTB 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08



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

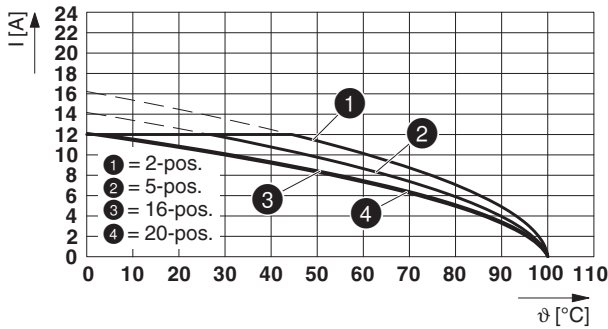


Type: TFKC 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

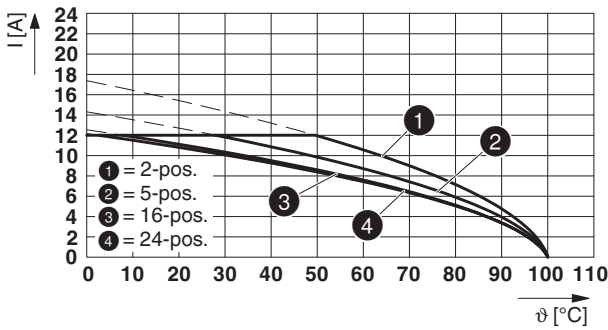


**1777138 MSTBV 2,5/ 8-GF-5,08**

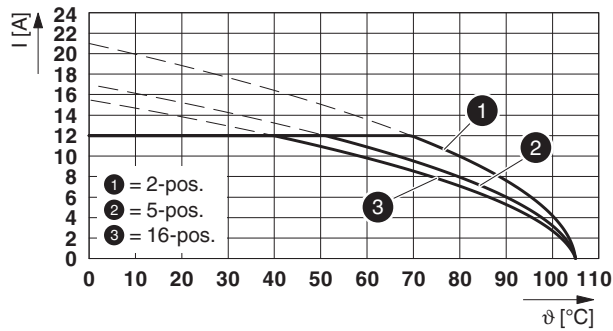
Type: MVSTB(R/W) 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08



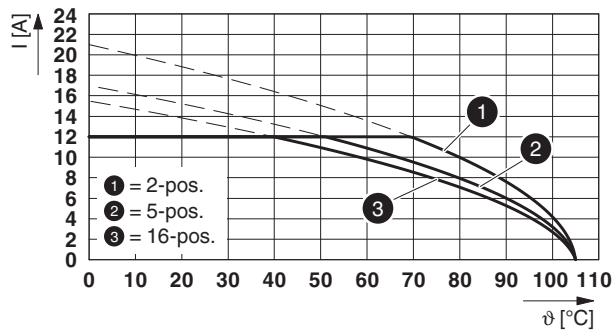
Type: SMSTB 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08

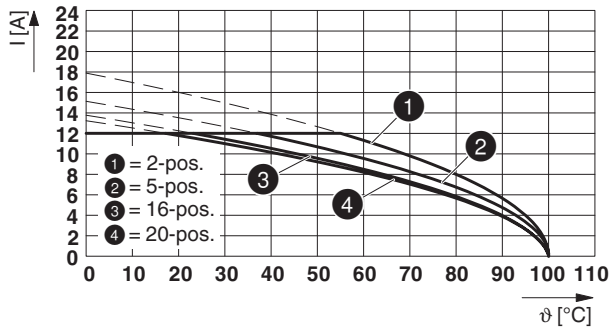


Type: FKCVR 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08



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



**1777138 MSTBV 2,5/ 8-GF-5,08****Type: FRONT-MSTB 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08****15.1 Insulation resistance**








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

**15.2 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.

## 1777138 MSTBV 2,5/ 8-GF-5,08

## 16 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 				

**1777138 MSTBV 2,5/ 8-GF-5,08****17 Commercial Data**

Order No.	1777138
Type	MSTBV 2,5/ 8-GF-5,08
Pieces per package	100
Net weight	4.5 g
GTIN	4017918039301
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

**18 corresponding plugs**

Order No.	Type
1719150	TVMSTB 2,5/ 8-STF-5,08
1754856	FKCN 2,5/ 8-STF-5,08
1777798	FRONT-MSTB 2,5/ 8-STF-5,08
1778043	MSTB 2,5/ 8-STF-5,08
1804661	MSTBT 2,5/ 8-STF-5,08
1809792	MSTBC 2,5/ 8-STZF-5,08
1834961	MVSTBW 2,5/ 8-STF-5,08
1835151	MVSTBR 2,5/ 8-STF-5,08
1853162	TMSTBP 2,5/ 8-STF-5,08
1873265	FKC 2,5/ 8-STF-5,08
1873867	FKCVW 2,5/ 8-STF-5,08
1874167	FKCVR 2,5/ 8-STF-5,08
1883417	QC 1/ 8-STF-5,08
1902369	FKCT 2,5/ 8-STF-5,08
1962752	TFKC 2,5/ 8-STF-5,08
1971125	SMSTB 2,5/ 8-STF-5,08
1975325	FKCS 2,5/ 8-STF-5,08

**19 Accessories**

Description	Order No.	Type
Coding section, inserted into the recess in the header or the inverted plug, red insulating material	1734401	CR-MSTB
	0804293	SK 5,08/3,8:FORTL.ZAHLEN
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL
	1719150	TVMSTB 2,5/ 8-STF-5,08
	1754856	FKCN 2,5/ 8-STF-5,08
	1777798	FRONT-MSTB 2,5/ 8-STF-5,08
	1778043	MSTB 2,5/ 8-STF-5,08
	1804661	MSTBT 2,5/ 8-STF-5,08
	1809792	MSTBC 2,5/ 8-STZF-5,08
	1834961	MVSTBW 2,5/ 8-STF-5,08
	1835151	MVSTBR 2,5/ 8-STF-5,08
	1853162	TMSTBP 2,5/ 8-STF-5,08
	1873265	FKC 2,5/ 8-STF-5,08
	1873867	FKCVW 2,5/ 8-STF-5,08
	1874167	FKCVR 2,5/ 8-STF-5,08

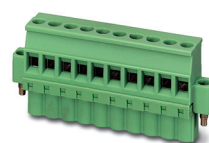
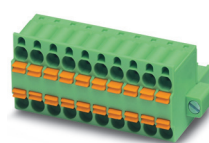
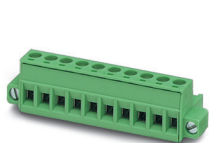
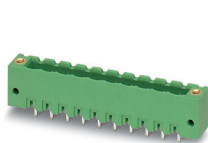


**1777138 MSTBV 2,5/ 8-GF-5,08**

Description	Order No.	Type
	1883417	QC 1/ 8-STF-5,08
	1902369	FKCT 2,5/ 8-STF-5,08
	1962752	TFKC 2,5/ 8-STF-5,08
	1971125	SMSTB 2,5/ 8-STF-5,08
	1975325	FKCS 2,5/ 8-STF-5,08

## 1777138 MSTBV 2,5/ 8-GF-5,08

## 20 Combination tests

**MSTBV 2,5/..-GF****MSTB 2,5/..-STF****TVMSTB 2,5/..-STF****TFKC 2,5/..-STF****MVSTBW 2,5/..-STF**

IEC 61984

IEC 61984

IEC 61984

IEC 61984

IEC 61984

**Mechanical tests (A)**

Insertion/withdrawal force per position

approx. 8 N / 6 N

approx. 8 N / 6 N

approx. 10 N / 9.5 N

approx. 8 N / 6 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  $R_1$ 2.5 m $\Omega$ 2.3 m $\Omega$ 2 m $\Omega$ 3.5 m $\Omega$ 

Insertion/withdrawal cycles

25

25

25

25

Contact resistance  $R_2$ 2.6 m $\Omega$ 2.5 m $\Omega$ 2.2 m $\Omega$ 3.5 m $\Omega$ Rated impulse voltage at sea level  
Voltage waveform  $\geq$  (1.2/50  $\mu$ s)

4.8 kV

4.8 kV

4.8 kV

4.8 kV

Power-frequency withstand voltage  
Voltage waveform  $\geq$  (50/60 Hz)

2.21 kV

2.21 kV

2.21 kV

2.21 kV

**Thermal tests (C)**

Tested number of positions

20

10

10

20

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 DC

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

100 °C/168 h

100 °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  $\geq$  (1.2/50  $\mu$ s)

4.8 kV

4.8 kV

4.8 kV

4.8 kV

Power-frequency withstand voltage  
Voltage waveform  $\geq$  (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

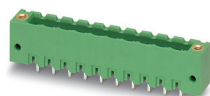
IEC 61984:2008-10

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

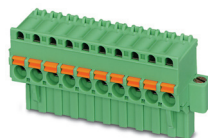
## 1777138 MSTBV 2,5/ 8-GF-5,08



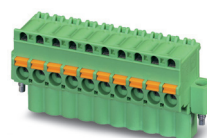
MSTBV 2,5/..-GF



SMSTB 2,5/..-STF



FKCVR 2,5/..-STF



FKCVW 2,5/..-STF

FRONT-MSTB 2,5/  
..-STF

IEC 61984	IEC 61984	IEC 61984	IEC 61984	IEC 61984
<b>Mechanical tests (A)</b>				
Insertion/withdrawal force per position	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 8 N / 6 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
<b>Durability tests (B)</b>				
Contact resistance R <sub>1</sub>	3.4 mΩ	2.2 mΩ	2.2 mΩ	2.4 mΩ
Insertion/withdrawal cycles	25	25	25	25
Contact resistance R <sub>2</sub>	3.5 mΩ	2.3 mΩ	2.3 mΩ	2.6 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
<b>Thermal tests (C)</b>				
Tested number of positions	24	16	16	20
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
<b>Climatic tests (D)</b>				
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	105 °C/168 h	105 °C/168 h	100 °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 cycle	0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> / 40 °C/1 cycle	0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> / 40 °C/1 cycle	0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> / 40 °C/1 cycle
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
<b>Environmental and endurance tests (E)</b>				
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 finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger