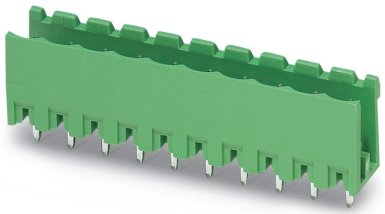
2020-08-03
Product version 04
Document revision 0

Data sheet

Order No.: 1758092

Type: MSTBV 2,5/10-G-5,08

PCB headers



The figure shows a 10-position version of the product

1 Main features

- No. of pos. 10
- Nominal cross section 2.5 mm²
- Color green (6021)
- Pitch 5.08 mm
- Mounting type Wave soldering
- Nominal current 12 A
- Nominal voltage 320 V
- Connection direction 90 °
- Type of packaging packed in cardboard

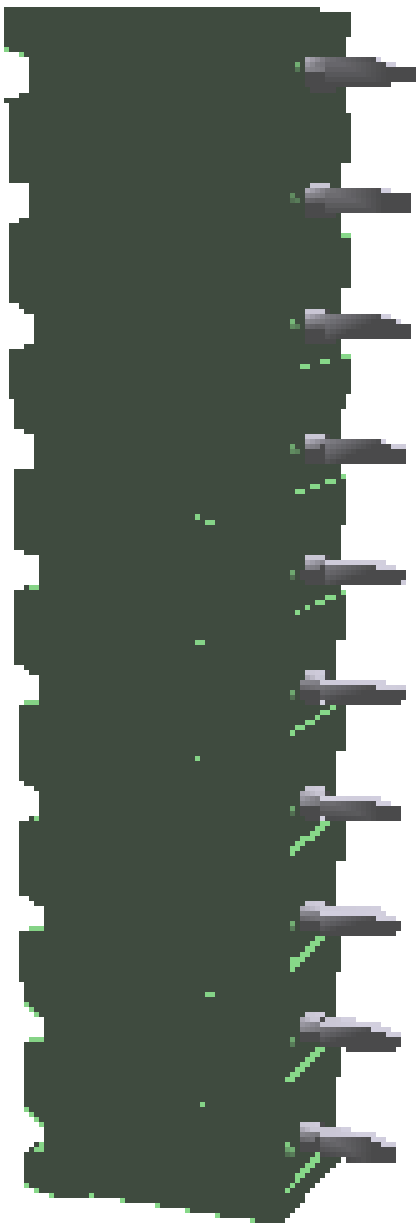
2 Your advantages

- 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
- Items that can be aligned in various pitches support flexible and space-saving PCB assembly
- Easy PCB replacement thanks to plug-in modules

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1758092

3 Table of contents

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



5 General Technical Data

5.1 item properties

Order No.	1758092
Type	MSTBV 2,5/10-G-5,08
Plug-in system	CLASSIC COMBICON
Product type	PCB headers
Type of contact	Male connector
Range of articles	MSTBV 2,5/..-G
Pitch	5.08 mm
Range of positions	2...12
Number of positions	10
Number of levels	1
Number of connections	10
Number of potentials	10
Mounting type	Wave soldering
Connection direction of the connector to the PCB	90 °
Pin layout	Linear pinning
Solder pins per potential	1
Type	Standard

6 Mounting

6.1 Flange fixing

Type of locking	without
Mounting flange	without

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

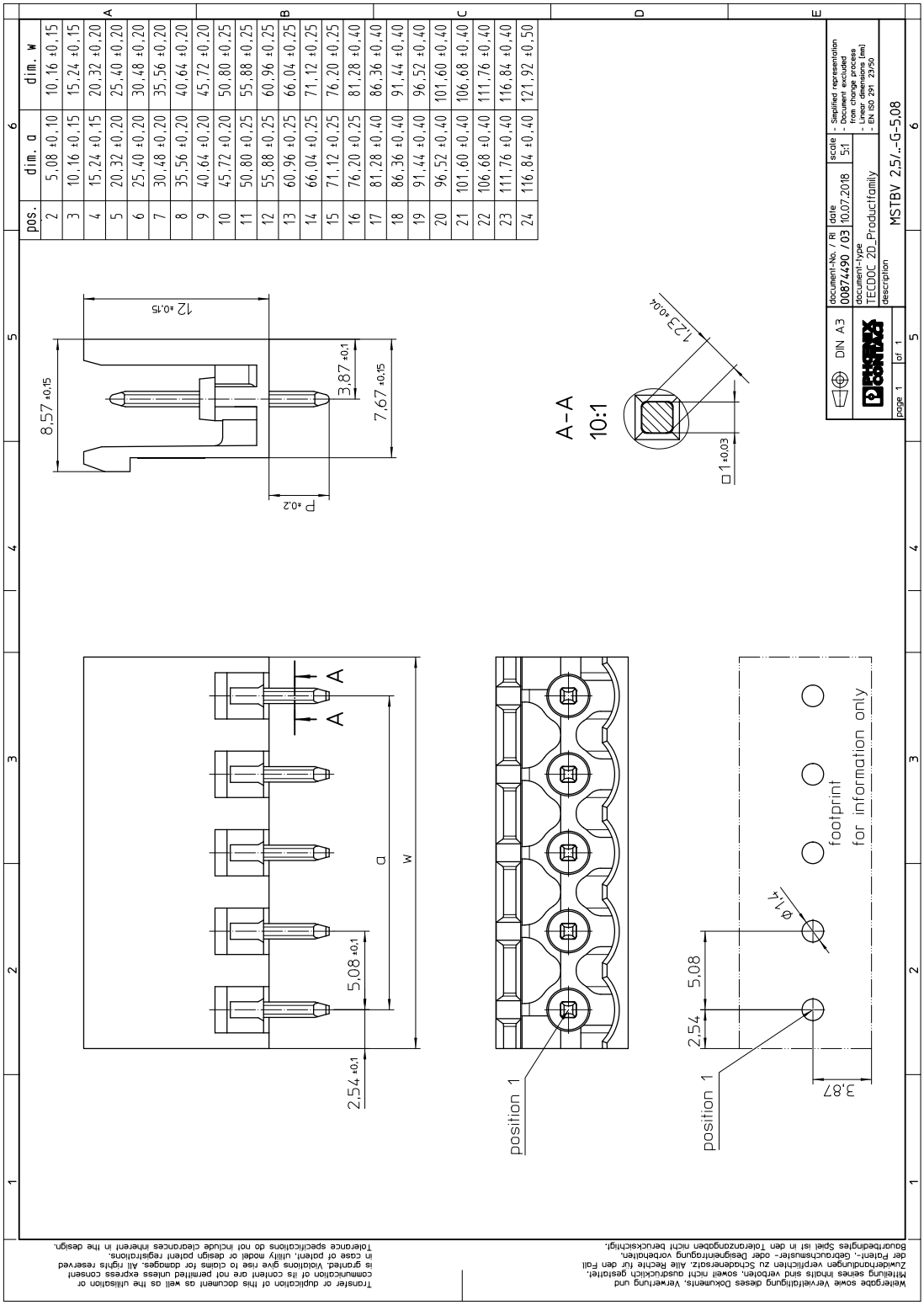
Insulating material data	Housing
Color	green (6021)
Insulating material	PA
Insulating material group	I
CTI according to IEC 60112	600
Flammability rating according to UL 94	V0
Glow wire flammability index GWFI according to EN 60695-2-12	850
Glow wire ignition temperature GWIT according to EN 60695-2-13	775
Temperature for the ball pressure test according to EN 60695-10-2	125 °C

8 Dimensions

8.1 Dimensions for the product

Length	8.57 mm
Width	50.8 mm
Height (without solder pin)	12 mm
Total height	15.9 mm
Solder pin [P]	3.9 mm
Dimension a	45.72 mm

9 Series drawing



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)

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.	32 N

13 Insertion and withdrawal forces

Insertion and withdrawal force	Test passed
Specification	IEC 60512-13-2:2006-02
No. of cycles	25
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	6 N

14 Electrical tests

14.1 Electrical data

Rated current / conductor cross section	12 A / 2.5 mm²
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Contact resistance	2.4 mΩ
Degree of pollution	2

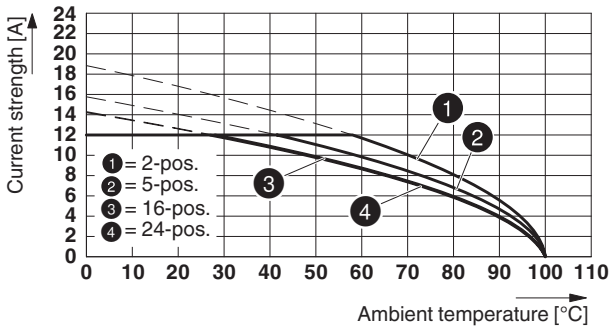
14.2 Air and creepage distances

Component	PCB headers		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112:2003-01)	CTI 600		
Rated insulation voltage	320 V	320 V	630 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 mm	3.2 mm

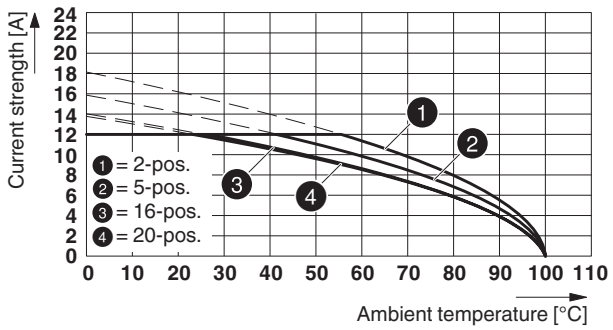
15 Current carrying capacity/derating curves

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 mm²

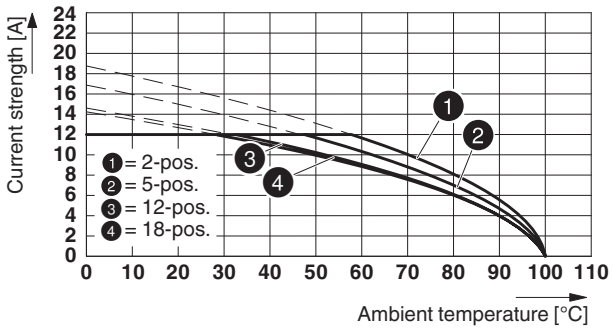
Type: MSTBP 2,5/...-ST-5,08 with MSTBV 2,5/...-G-5,08



Type: MSTB 2,5/...-ST-5,08 with MSTBV 2,5/...-G-5,08

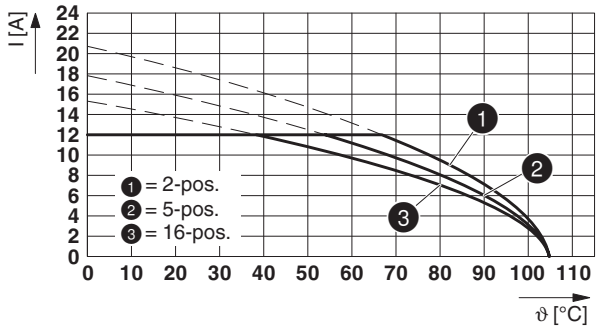


Type: MSTBT 2,5/...-ST-5,08 with MSTBV 2,5/...-G-5,08-5,08

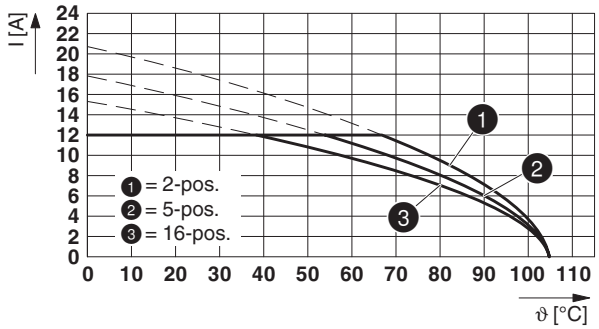


1758092 MSTBV 2,5/10-G-5,08

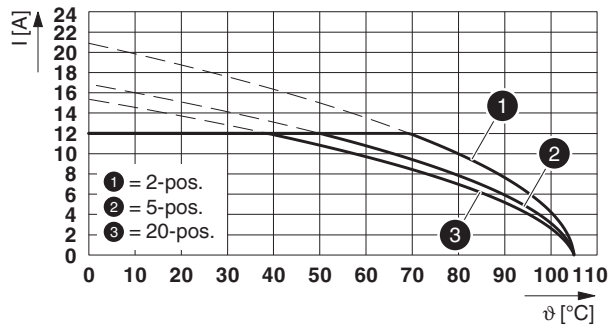
Type: FKCVR 2,5/...-ST-5,08 with MSTBV 2,5/...-G-5,08



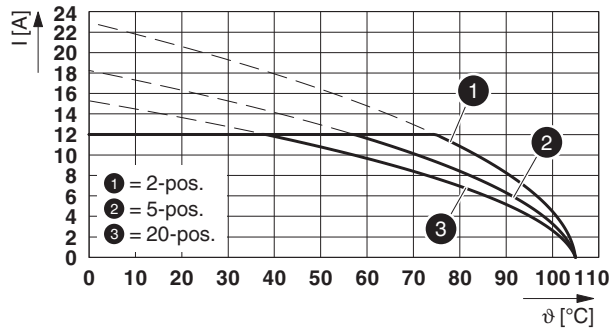
Type: FKCVW 2,5/...-ST-5,08 with MSTBV 2,5/...-G-5,08



Type: FKCT 2,5/...-ST-5,08 with MSTBV 2,5/...-G-5,08

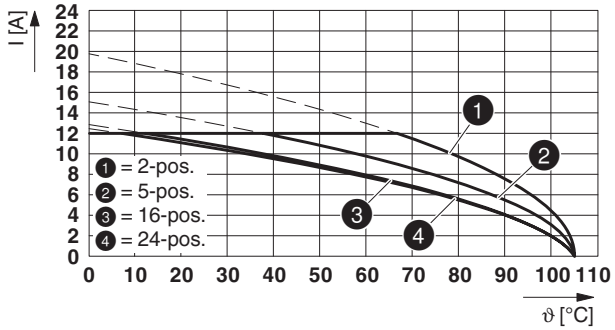


Type: FKCS 2,5/...-ST-5,08 with MSTBV 2,5/...-G-5,08

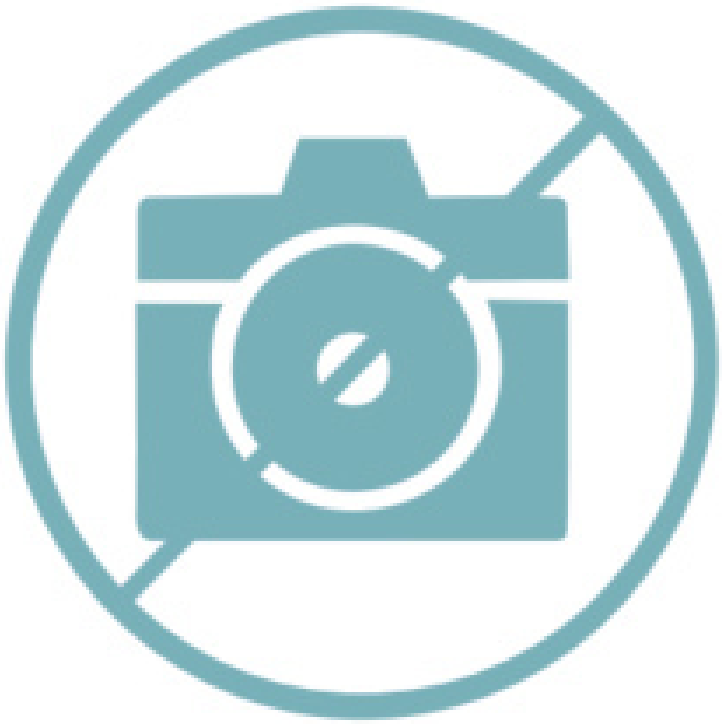


1758092 MSTBV 2,5/10-G-5,08

Type: IC 2,5/...-G-5,08 with MSTBV 2,5/...-G-5,08



Type: ICV 2,5/...-G-5,08 with MSTBV 2,5/...-G-5,08



15.1 Insulation resistance

Specification	IEC 60512-3-1:2002-02
Result	Test passed
Insulation resistance, neighboring positions	> 0.2 TΩ

15.2 Vibration test

1758092 MSTBV 2,5/10-G-5,08

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.

16 Approvals / Certificates

CSA	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	12 A	-	-
Usegroup D				
	300 V	10 A	-	-

IECEE CB Scheme	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	250 V	12 A	-	-

EAC				

VDE Zeichengenehmigung	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	250 V	12 A	-	-

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	12 A	-	-
Usegroup D				
	300 V	10 A	-	-

17 Commercial Data

Order No.	1758092
Type	MSTBV 2,5/10-G-5,08
Pieces per package	100
Net weight	3.462 g
GTIN	4017918030308
	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
1719082	TVMSTB 2,5/10-ST-5,08
1754649	FKCN 2,5/10-ST-5,08
1757093	MSTB 2,5/10-ST-5,08
1764303	MSTB 2,5/10-STZ-5,08
1769094	MSTBP 2,5/10-ST-5,08
1777361	FRONT-MSTB 2,5/10-ST-5,08
1781069	MSTBT 2,5/10-ST-5,08
1792320	MVSTBR 2,5/10-ST-5,08
1792838	MVSTBW 2,5/10-ST-5,08
1808890	MSTBC 2,5/10-ST-5,08
1809585	MSTBC 2,5/10-STZ-5,08
1824201	MSTBU 2,5/10-STD-5,08
1824434	MSTBU 2,5/10-ST-5,08-FL
1826364	SMSTB 2,5/10-ST-5,08
1831391	MSTBVK 2,5/10-ST-5,08
1833894	UMSTBVK 2,5/10-ST-5,08
1853094	TMSTBP 2,5/10-ST-5,08
1873139	FKC 2,5/10-ST-5,08
1873731	FKCVW 2,5/10-ST-5,08
1874031	FKCVR 2,5/10-ST-5,08
1883336	QC 1/10-ST-5,08
1902194	FKCT 2,5/10-ST-5,08
1962684	TFKC 2,5/10-ST-5,08
1975150	FKCS 2,5/10-ST-5,08

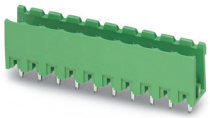
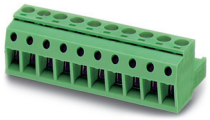
19 Accessories

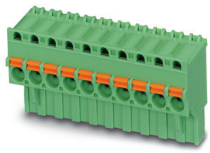
Description	Order No.	**Type**
Coding section, inserted into the recess in the header or the inverted plug, red insulating material	1734401	CR-MSTB
	0804293	SK 5,08/3,8:FORTL.ZAHLEN
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL
	0805412	SK 5,08/3,8:UNBEDRUCKT
	0805085	SK 5,08/3,8:SO
Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm	1051993	B-STIFT
	1719082	TVMSTB 2,5/10-ST-5,08
	1754649	FKCN 2,5/10-ST-5,08

1758092 MSTBV 2,5/10-G-5,08

Description	Order No.	**Type**
	1757093	MSTB 2,5/10-ST-5,08
	1764303	MSTB 2,5/10-STZ-5,08
	1769094	MSTBP 2,5/10-ST-5,08
	1777361	FRONT-MSTB 2,5/10-ST-5,08
	1781069	MSTBT 2,5/10-ST-5,08
	1792320	MVSTBR 2,5/10-ST-5,08
	1792838	MVSTBW 2,5/10-ST-5,08
	1808890	MSTBC 2,5/10-ST-5,08
	1809585	MSTBC 2,5/10-STZ-5,08
	1824201	MSTBU 2,5/10-STD-5,08
	1824434	MSTBU 2,5/10-ST-5,08-FL
	1826364	SMSTB 2,5/10-ST-5,08
	1831391	MSTBVK 2,5/10-ST-5,08
	1833894	UMSTBVK 2,5/10-ST-5,08
	1853094	TMSTBP 2,5/10-ST-5,08
	1873139	FKC 2,5/10-ST-5,08
	1873731	FKCVW 2,5/10-ST-5,08
	1874031	FKCVR 2,5/10-ST-5,08
	1883336	QC 1/10-ST-5,08
	1902194	FKCT 2,5/10-ST-5,08
	1962684	TFKC 2,5/10-ST-5,08
	1975150	FKCS 2,5/10-ST-5,08

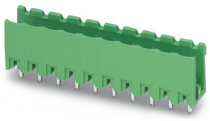
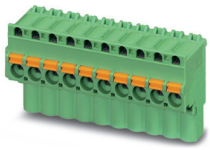
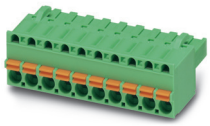
20 Combination tests

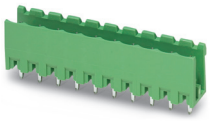
MSTBV 2,5/..-G	**MSTBP 2,5/..-ST**	**MSTB 2,5/..-ST**	**MSTBT 2,5/..-ST**	**FKCVR 2,5/..-ST**
IEC 61984	IEC 61984	IEC 61984	IEC 61984	IEC 61984
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 9 N / 8 N
Polarization when inserted 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	2.4 mΩ	2.4 mΩ	2.4 mΩ	2.1 mΩ
Insertion/withdrawal cycles	25	25	25	25
Contact resistance R_2	2.5 mΩ	2.4 mΩ	2.5 mΩ	2.3 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	24	20	18	12
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²
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	100 °C/168 h	105 °C/168 h
Test sequence 3: noxious gas storage (ISO 6988)	0.2 dm³ SO_2 on 300 dm³/ 40 °C/1 cycle	0.2 dm³ SO_2 on 300 dm³/ 40 °C/1 cycle	0.2 dm³ SO_2 on 300 dm³/ 40 °C/1 cycle	0.2 dm³ SO_2 on 300 dm³/ 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
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 finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger

1758092 MSTBV 2,5/10-G-5,08

MSTBV 2,5/..-G	FKCVW 2,5/..-ST	FKCT 2,5/..-ST	FKCS 2,5/..-ST	IC 2,5/..-G
IEC 61984	IEC 61984	IEC 61984	IEC 61984	IEC 61984
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 9 N / 8 N	approx. 10 N / 8 N	approx. 8 N / 6 N	approx. 9 N / 8 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	2.1 mΩ	2.5 mΩ	2.4 mΩ	2.3 mΩ
Insertion/withdrawal cycles	25	25	25	25
Contact resistance R_2	2.3 mΩ	2.9 mΩ	2.5 mΩ	2.3 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	12	20	20	24
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²
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	105 °C/168 h	105 °C/168 h	105 °C/168 h	105 °C/168 h
Test sequence 3: noxious gas storage (ISO 6988)	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle	0.2 dm^3 SO_2 on 300 dm^3/ 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
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 finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger	Back of hand safety with IP10 access probe

1758092 MSTBV 2,5/10-G-5,08



MSTBV 2,5/..-G	ICV 2,5/..-G
IEC 61984	IEC 61984
Mechanical tests (A)	
Insertion/withdrawal force per position	approx. 10 N / 8 N
Polarization when inserted Requirement >20 N	Test passed
Contact holder in insert Requirements >20 N	Test passed
Durability tests (B)	
Contact resistance R_1	2.3 mΩ
Insertion/withdrawal cycles	25
Contact resistance R_2	2.4 mΩ
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV
Thermal tests (C)	
Tested number of positions	24
Tested conductor cross section	2.5 mm^2
Test current	12 A
Upper limiting temperature Requirements < 100°C	Test passed
Climatic tests (D)	
Test sequence 1: low temperature storage	-40 °C/2 h
Test sequence 2: heat storage	105 °C/168 h
Test sequence 3: noxious gas storage (ISO 6988)	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV
Environmental and endurance tests (E)	
Specification	IEC 61984:2008-10
Degree of protection	Finger safety with IP20 test finger