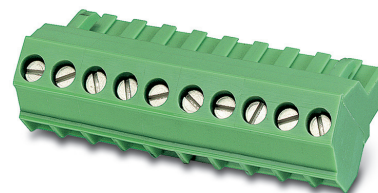


Data sheet

Order No.: 1768781

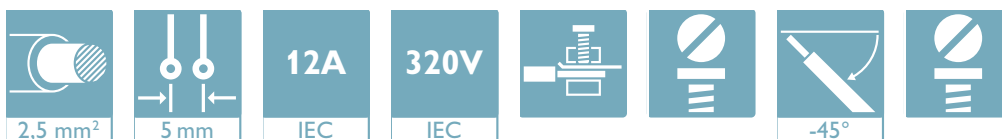
Type: SMSTB 2,5/ 4-ST

PCB connector, Screw connection with tension sleeve



The figure shows a 10-position version of the product

1 Main features



• No. of pos.	4	• Nominal current	12 A
• Conductor cross section	2.5 mm ²	• Nominal voltage	320 V
• Color	green (6021)	• Connection direction	-45 °
• Pitch	5 mm	• Type of packaging	packed in cardboard
• Connection method	Screw connection with tension sleeve		

2 Your advantages

- ✓ Well-known connection principle allows worldwide use
- ✓ Optimized for tight installation situations: operation and conductor connection from one direction
- ✓ Angled conductor connection enables operation and conductor connection from one direction
- ✓ Low temperature rise, thanks to maximum contact force



Make sure you always use the latest documentation.

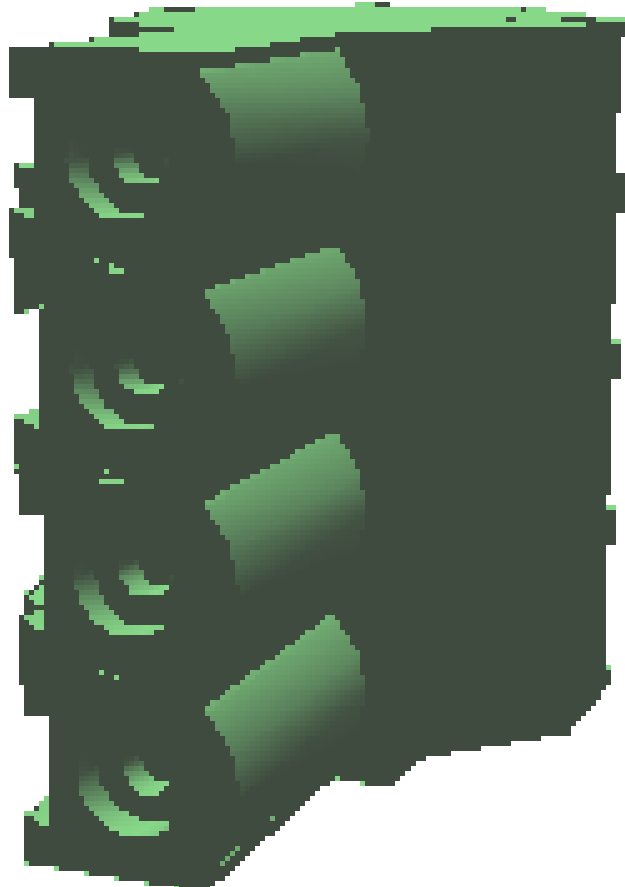
It can be downloaded at: phoenixcontact.net/product/1768781

1768781 SMSTB 2,5/ 4-ST**3 Table of contents**

1	Main features.....	1
2	Your advantages	1
3	Table of contents	2
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1768781 SMSTB 2,5/ 4-ST

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



1768781 SMSTB 2,5/ 4-ST**5 General Technical Data****5.1 item properties**

Order No.	1768781
Type	SMSTB 2,5/ 4-ST
Connector system	CLASSIC COMBICON
Product type	PCB connector
Type of contact	Female connector
Range of articles	SMSTB 2,5/...-ST
Pitch	5 mm
Number of positions	4
Number of rows	1
Number of connections	4
Number of potentials	4
Connection method	Screw connection with tension sleeve
Screw thread	M3
Drive form screw head	Slotted (L)
Connection direction of the conductor to plug-in direction	-45 °
Type	Standard

1768781 SMSTB 2,5/ 4-ST

6 Mounting

6.1 Flange mounting

Type of locking	without
Mounting flange	without

1768781 SMSTB 2,5/ 4-ST**7 Conductor connection****7.1 Connection capacity**

Nominal cross section	2.5 mm ²
Conductor cross section, rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross section, flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm ² ... 2.5 mm ²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm ² ... 2.5 mm ²
2 conductors with same cross section, solid	0.2 mm ² ... 1 mm ²
2 conductors with same cross section, stranded	0.2 mm ² ... 1.5 mm ²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.25 mm ² ... 1 mm ²
2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve	0.5 mm ² ... 1.5 mm ²
Cylindrical gauge a x b / diameter	2.8 mm x 2.0 mm / 2.4 mm
Stripping length	7 mm
Tightening torque	0.5 Nm ... 0.6 Nm

7.2 Connection capacity AWG

Conductor cross section AWG	24 ... 12
-----------------------------	-----------

1768781 SMSTB 2,5/ 4-ST**8 Material properties****8.1 Material of metal parts**

Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Terminal point surface	Tin (5 - 7 µm Sn)
Surface contact area	Tin (5 - 7 µm Sn)
Surface characteristics	hot-dip tin-plated

8.2 Material of plastic parts

	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

1768781 SMSTB 2,5/ 4-ST**9 Dimensions****9.1 Dimensions for the product**

Length	25.6 mm
Width	20 mm
Installed height	15.5 mm
Total height	15.5 mm

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 Packaging information

Type of packaging	packed in cardboard
Pieces per package	100

12 Application**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)

1768781 SMSTB 2,5/ 4-ST**13 General tests****13.1 Specification**

Specification	IEC 61984
Specification	IEC 60999-1
Brief description	Printed-circuit board connector

14 Mechanical tests**14.1 Check for damage to conductor or loosening**

Result	Test passed
Specification	IEC 60999-1:1999-11

14.2 Pull-out test

Specification	IEC 60999-1:1999-11
Result	Test passed
Conductor cross section/conductor type/tractive force actual value	0.2 mm ² / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.2 mm ² / flexible / > 10 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm ² / solid / > 50 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm ² / flexible / > 50 N

14.3 Torque test

Specification	IEC 60999-1:1999-11
Result	Test passed

14.4 Visual examination

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

14.5 Dimensional test

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

14.6 Resistance of marking

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

14.7 Polarization and coding

1768781 SMSTB 2,5/ 4-ST

Polarization when inserted
Requirement >20 N

Test passed

Specification

IEC 60512-13-5:2006-02

1768781 SMSTB 2,5/ 4-ST**15 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

1768781 SMSTB 2,5/ 4-ST**16 Electrical tests**

Rated current / conductor cross section	12 A / 2.5 mm ²
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Contact resistance	2.3 mΩ
Degree of pollution	2

16.1 Air and creepage distances

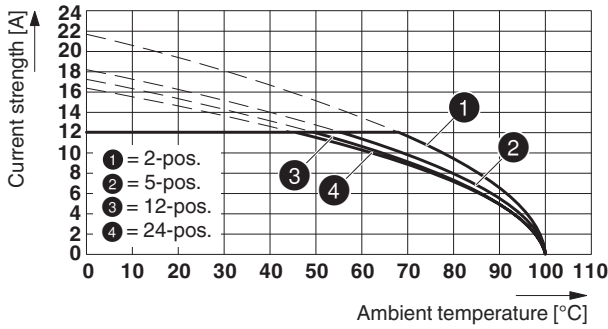
Component	PCB connector		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112:2003-01)	CTI 600		
Rated insulation voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	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	3.2 mm	3 mm	3.2 mm

1768781 SMSTB 2,5/ 4-ST

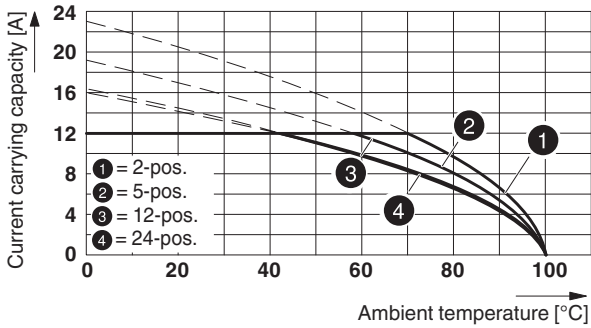
17 Current carrying capacity/derating curves

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 ²

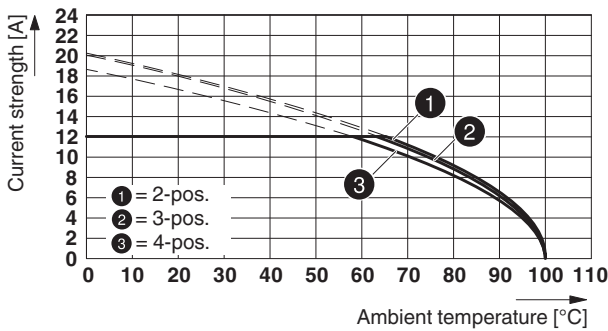
Type: SMSTB 2,5/...-ST with MSTB 2,5/...-G



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

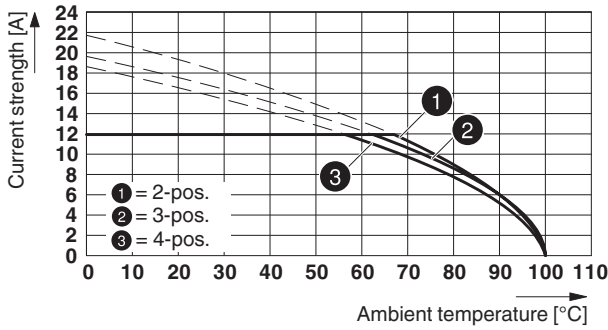


Type: SMSTB 2,5/...-ST with MSTBO 2,5/...-G1R

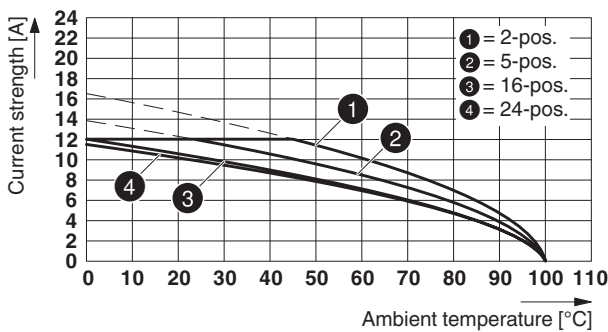


1768781 SMSTB 2,5/ 4-ST

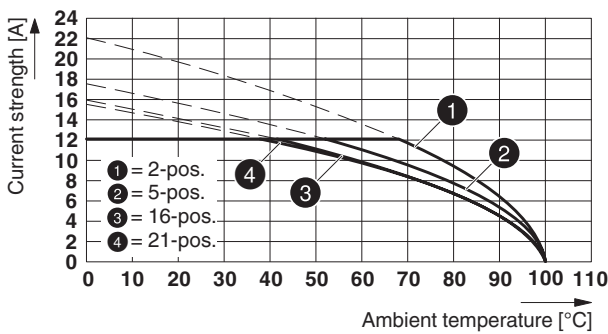
Type: SMSTB 2,5/...-ST with MSTBO 2,5/...-G1L



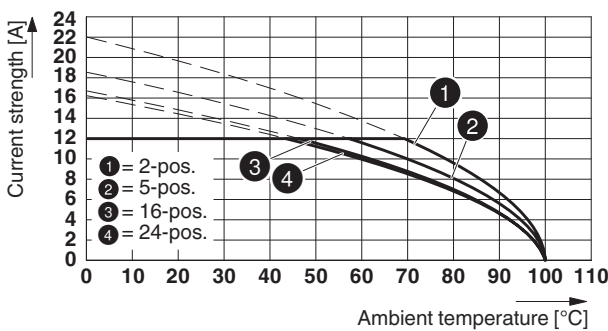
Type: SMSTB 2,5/...-ST with MSTBV 2,5/...-G



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

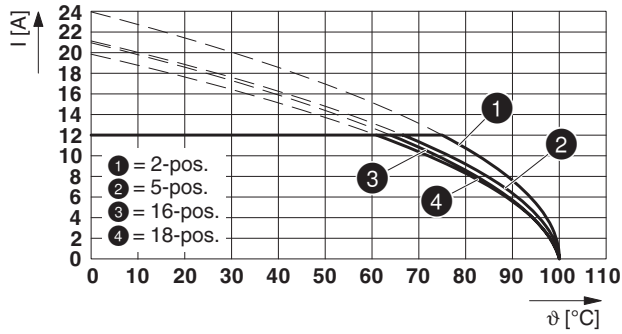


Type: SMSTB 2,5/...-ST with SMSTB 2,5/...-G

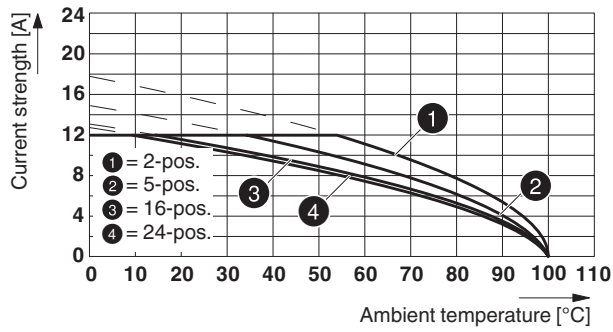


1768781 SMSTB 2,5/ 4-ST

Type: SMSTB 2,5/...-ST with FKIC 2,5/...-ST



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



1768781 SMSTB 2,5/ 4-ST**18 Environmental and durability tests****18.1 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	5g (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.

18.2 Insulation resistance






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

1768781 SMSTB 2,5/ 4-ST**19 Type approval and special tests****20 Classification for connectors**

Specification	IEC 61984:2008-10
Main features	Connectors without switching capacity (COC)
Construction form	Fixed connectors
Strain relief elements	without strain relief
Connection method	Can be reconnected
Protection against electric shock	Not encapsulated - touch-proof when inserted
Protective conductor	without PE
Lock	no
Connection method	Screw terminal points

1768781 SMSTB 2,5/ 4-ST

21 Approvals / Certificates

CSA 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
Usegroup B				
	300 V	15 A	28 - 12	-
Usegroup D				
	300 V	10 A	28 - 12	-
EAC 				
cULus Recognized 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
Usegroup B				
	300 V	15 A	30 - 12	-
Usegroup D				
	300 V	10 A	30 - 12	-
IECEE CB Scheme 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	250 V	12 A	-	0.2 - 2.5
VDE Zeichengenehmigung 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	250 V	12 A	-	0.2 - 2.5

1768781 SMSTB 2,5/ 4-ST**22 Commercial Data**

Order No.	1768781
Type	SMSTB 2,5/ 4-ST
Pieces per package	100
Net weight	7.314 g
GTIN	4017918034146
	Information that applies locally, see link on page 1

23 corresponding headers

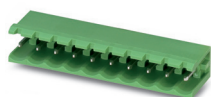
Order No.	Type
1736098	MSTBW 2,5/ 4-G
1736690	MDSTB 2,5/ 4-G1
1899867	EMSTBA 2,5/ 4-G
1914878	EMSTBVA 2,5/ 4-G
1927519	MSTBA 2,5/ 4-G THT
1941029	MSTBVA 2,5/ 4-G THT
1963890	MSTB 2,5/ 4-G THT
1963968	MSTBV 2,5/ 4-G THT
2697194	MSTBO 2,5/ 4-G1L THRR44 BK
2697204	MSTBO 2,5/ 4-G1R THRR44 BK
2907774	MSTBO 2,5/ 4-G1L KMGY
2907787	MSTBO 2,5/ 4-G1R KMGY

24 Accessories

Description	Order No.	Type
Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip	1205053	SZS 0,6X3,5

1768781 SMSTB 2,5/ 4-ST

25 Combination tests

**SMSTB 2,5/..-ST**

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

MSTB 2,5/..-G

IEC 61984

approx. 8 N / 6 N

SMSTBA 2,5/..-G

IEC 61984

approx. 11 N / 6 N

MSTBO 2,5/..-G1R

IEC 61984

approx. 8 N / 6 N

MSTBO 2,5/..-G1L

IEC 61984

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 R₁ 1st level

2.3 mΩ

2.3 mΩ

2.4 mΩ

2.4 mΩ

Contact resistance R₁ 2nd level

Insertion/withdrawal cycles

25

25

25

25

Contact resistance R₂

2.3 mΩ

2.4 mΩ

2.4 mΩ

2.4 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

24

4

4

Tested conductor cross section

2.5 mm²2.5 mm²2.5 mm²2.5 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

100 °C/168 h

Test sequence 3: noxious gas storage
(ISO 6988)0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle0.2 dm³ SO₂ on 300 dm³/
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

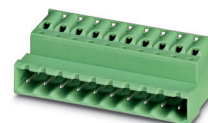
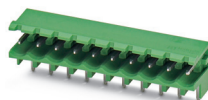
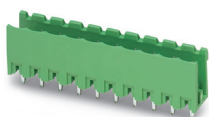
IEC 61984:2008-10

IEC 61984:2008-10

Degree of protection

Finger safety with IP20
test fingerFinger safety with IP20
test fingerNo contact safety (IP00)
in acc. with IEC
60529:1989-11 + AMD
1:1999-11 + AMD
2:2013-08No contact safety (IP00)
in acc. with IEC
60529:1989-11 + AMD
1:1999-11 + AMD
2:2013-08

1768781 SMSTB 2,5/ 4-ST

**SMSTB 2,5/..-ST**

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

Polarization when inserted
Requirement >20 NContact holder in insert
Requirements >20 N**Durability tests (B)**Contact resistance R₁ 1st levelContact resistance R₁ 2nd level

Insertion/withdrawal cycles

Contact resistance R₂Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)**Thermal tests (C)**

Tested number of positions

Tested conductor cross section

Test current

Upper limiting temperature
Requirements < 100°C**Climatic tests (D)**

Test sequence 1: low temperature storage

Test sequence 2: heat storage

Test sequence 3: noxious gas storage
(ISO 6988)Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)**Environmental and endurance tests (E)**

Specification

Degree of protection

MSTBV 2,5/..-G

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

3.4 mΩ

25

3.5 mΩ

4.8 kV

2.21 kV

24

2.5 mm²

12 A

Test passed

-40 °C/2 h

100 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

4.8 kV

2.21 kV

IEC 61984:2008-10

Finger safety with IP20
test finger**MSTBW 2,5/..-G**

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

2.3 mΩ

25

2.3 mΩ

4.8 kV

2.21 kV

21

2.5 mm²

12 A

Test passed

-40 °C/2 h

100 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

4.8 kV

2.21 kV

IEC 61984:2008-10

Finger safety with IP20
test finger**SMSTB 2,5/..-G**

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

2.2 mΩ

25

2.2 mΩ

4.8 kV

2.21 kV

24

2.5 mm²

12 A

Test passed

-40 °C/2 h

100 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

4.8 kV

2.21 kV

IEC 61984:2008-10

Finger safety with IP20
test finger**FKIC 2,5/..-ST**

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

2.1 mΩ

25

2.2 mΩ

4.8 kV

2.21 kV

18

2.5 mm²

12 A

Test passed

-40 °C/2 h

100 °C/168 h

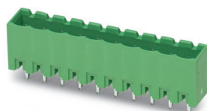
0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

4.8 kV

2.21 kV

IEC 61984:2008-10

Finger safety with IP20
test finger

1768781 SMSTB 2,5/ 4-ST**SMSTB 2,5/..-ST**

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

Polarization when inserted
Requirement >20 NContact holder in insert
Requirements >20 N**Durability tests (B)**Contact resistance R₁ 1st levelContact resistance R₁ 2nd level

Insertion/withdrawal cycles

Contact resistance R₂Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)**Thermal tests (C)**

Tested number of positions

Tested conductor cross section

Test current

Upper limiting temperature
Requirements < 100°C**Climatic tests (D)**

Test sequence 1: low temperature storage

Test sequence 2: heat storage

Test sequence 3: noxious gas storage
(ISO 6988)Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)**Environmental and endurance tests (E)**

Specification

Degree of protection

MSTBVA 2,5/..-G

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

3.5 mΩ

25

3.5 mΩ

4.8 kV

2.21 kV

24

2.5 mm²

12 A

Test passed

-40 °C/2 h

100 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

4.8 kV

2.21 kV

IEC 61984:2008-10

Finger safety with IP20
test finger