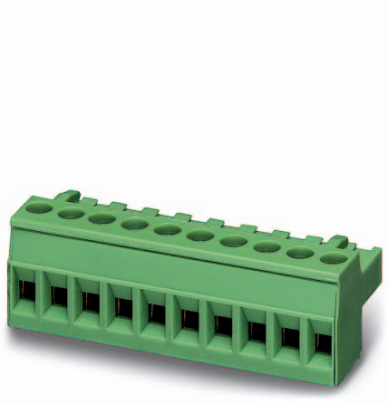
2017-11-15
Product version 03
Document revision 0

Data sheet

Order No.: 1779916

Type: MSTBT 2,5/10-ST

Plug component, Screw connection with tension sleeve



1 Main features

- No. of pos. 10
- Conductor cross section 2.5 mm²
- Color green
- Pitch 5 mm
- Connection method Screw connection with tension sleeve
- Nominal current 12 A
- Nominal voltage 320 V
- Connection direction 0 °
- Type of packaging packed in cardboard

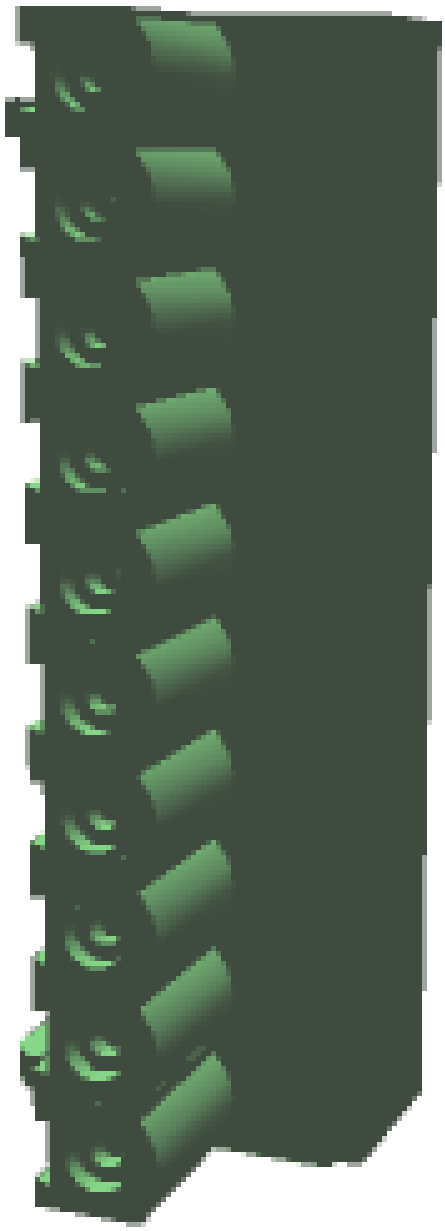
2 Your advantages

- ☑ Well-known connection principle allows worldwide use
- ☑ Low temperature rise, thanks to maximum contact force
- ☑ Allows connection of two conductors

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1779916

3 Table of contents

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



5 item properties

Order No.	1779916
Type	MSTBT 2,5/10-ST
Type of contact	Female connector
Range of articles	MSTBT 2,5/..-ST
Pitch	5 mm
Number of positions	10
Connection method	Screw connection with tension sleeve
Drive form screw head	Slotted (L)
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm
Locking	without
Pin layout	Linear pinning

5.1 Connection capacity

Conductor cross section, solid	0.2 mm² to 2.5 mm²
Conductor cross section, flexible	0.2 mm² to 2.5 mm²
Conductor cross section AWG/kcmil	24 to 12
2 conductors with same cross section, solid	0.2 mm² to 1 mm²
2 conductors with same cross section, stranded	0.2 mm² to 1.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² to 2.5 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm² to 2.5 mm²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.25 mm² to 1 mm²
2 conductors with same cross section, stranded, with TWIN ferrules with plastic sleeve	0.5 mm² to 1.5 mm²
Cylindrical gauge a x b / diameter	2.8 mm x 2.0 mm / 2.4 mm
Stripping length	7 mm

5.2 Material data

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	Sn 5 µm ... 7 µm	
Surface contact area	Sn 5 µm ... 7 µm	
Surface characteristics	hot-dip tin-plated	

Insulating material data	Housing	Housing
Insulating material	PA	
CTI according to IEC 60112	600	
Flammability rating according to UL 94	V0	
Color	green (6021)	
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	

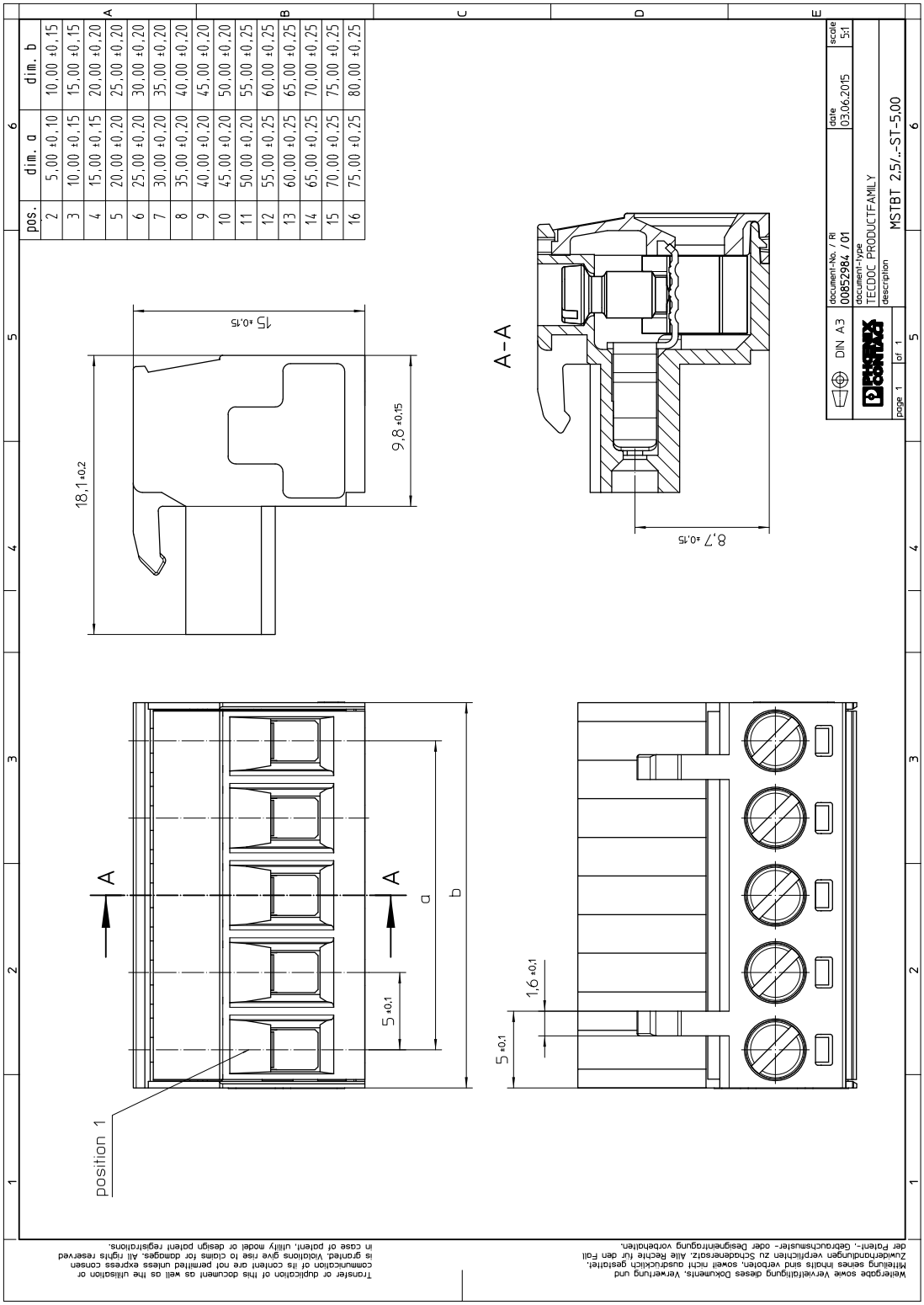
6 Dimensions

6.1 Dimensions for the product

Length	18.1 mm
Width	50 mm
Total height	15 mm
Dimension a	45 mm

1779916 MSTBT 2,5/10-ST

7 Series drawing



8 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

9 Application

9.1 Temperature limit values

Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (assembly)	-5 °C ... 100 °C
Ambient temperature (operation)	-40 °C (dependent on the derating curve)

10 Mechanical tests

Mechanical test group A	
Specification	IEC 61984:2008-10
Visual test	Test passed
Specification	IEC 60512-1-1:2002-02
Dimensional test	Test passed
Specification	IEC 60512-1-2:2002-02
Resistance of marking	Test passed
Specification	IEC 60068-2-70:1995-12
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
Polarization and coding	Test passed
Specification	IEC 60512-13-5:2006-02
Test force	20 N
Contact retention in insert	Test passed
Specification	IEC 60512-15-1:2008-05
Test force per pos.	36 N

10.1 Termination and connection method

Specification	IEC 60999-1:1999-11
Check for damage to conductor or loosening	Test passed

10.2 Pull-out test

Termination and connection method: pull-out test	
Specification	IEC 60999-1:1999-11
Result	Test passed
Conductor cross section/conductor type/tractive force actual value	0.2 mm² / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.2 mm² / stranded / > 10 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm² / solid / > 50 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm² / stranded / > 50 N

11 Electrical tests

11.1 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	1.2 mΩ
Degree of pollution	2

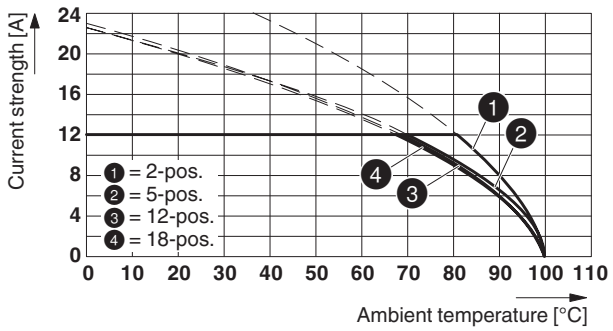
11.2 Air and creepage distances

Component	Plug component		
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
Note on connection cross section	With connected conductor 2,5 mm².		

12 Current carrying capacity/derating curves

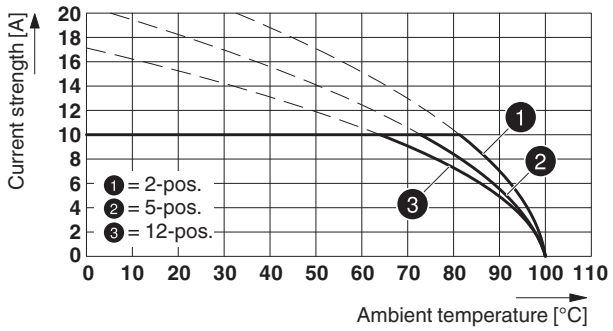
Specification	IEC 61984:2008-10
Note	Representation based on IEC 60512-5-2:2002-02
Reduction factor	0.8
Number of positions	See diagram
Conductor cross section	2.5 mm²

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

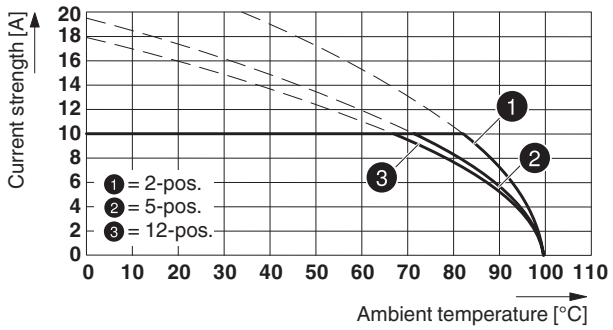


Type: MSTBT 2,5/...-ST with MSTBVA 2,5/...-G

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



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



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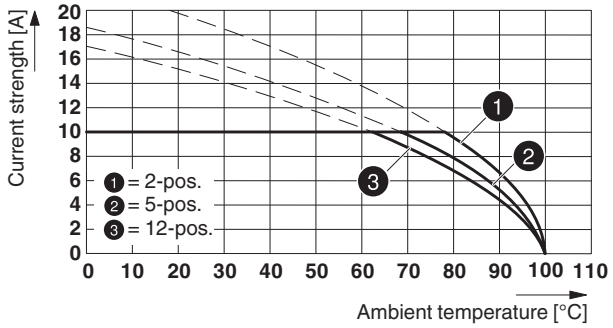
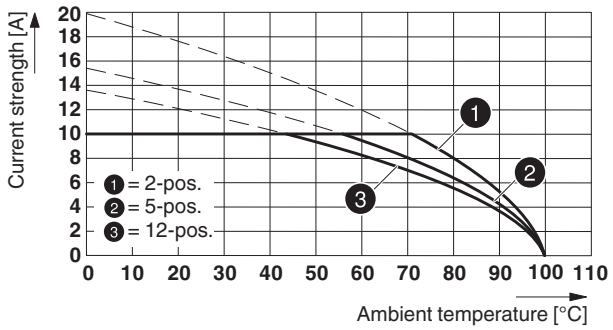
Type: MSTBT 2,5/...-ST with MDSTBW 2,5/...-G



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



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

86527_1000_en

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

86542_2000_en

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

86667_1000_en

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

86978_1000_en

13 Environmental and durability tests

13.1 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

14 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

15 Approvals

CSA				
Use group	B	D		
mm²/AWG/kcmil	28-12	28-12		
Voltage	300 V	300 V		
Current	10 A	10 A		

VDE Gutachten mit Fertigungsüberwachung				
mm²/AWG/kcmil	0.2-2.5			
Voltage	250 V			
Current	12 A			

IECEE CB Scheme				
mm²/AWG/kcmil	0.2-2.5			
Voltage	250 V			
Current	12 A			

cULus Recognized				
Use group	B	D		
mm²/AWG/kcmil	30-12	30-12		
Voltage	300 V	300 V		
Current	15 A	10 A		

1779916 MSTBT 2,5/10-ST

EAC

16 Commercial Data

Order No.	1779916
Type	MSTBT 2,5/10-ST
Pieces per package	50
Net weight	16.504 g
GTIN	4017918040604
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

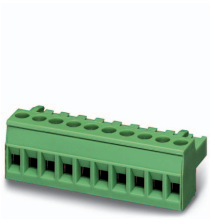
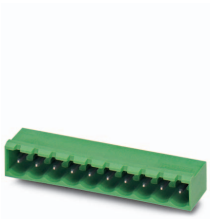
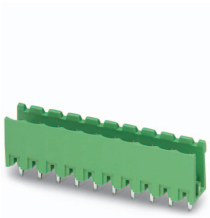
17 corresponding headers

Order No.	Type
1736030	MSTBW 2,5/10-G
1753592	MSTBV 2,5/10-G
1754591	MSTB 2,5/10-G
1755503	MSTBVA 2,5/10-G
1757543	MSTBA 2,5/10-G
1762923	MDSTBV 2,5/10-G1
1768260	MSTB 2,5/10-G-LA
1769311	SMSTB 2,5/10-G
1769887	SMSTBA 2,5/10-G
1770562	MSTBA 2,5/10-G-LA
1845866	MDSTBVA 2,5/10-G
1846014	MDSTBV 2,5/10-G
1846593	MDSTBA 2,5/10-G
1846894	MDSTBW 2,5/10-G
1899922	EMSTBA 2,5/10-G
1914933	EMSTBVA 2,5/10-G

18 Accessories

Description	Order No.	Type
	0804183	SK 5/3,8:FORTL.ZAHLEN
	1803934	KGG-MSTB 2,5/ 2
	1783779	KGS-MSTB 2,5/ 8
Coding profile, is inserted into the slot on the plug or inverted header, red insulating material	1734634	CP-MSTB
Insertion bridge, fully insulated, for connectors with 5.0 or 5.08 mm pitch, no. of positions: 2	1733169	EBP 2- 5
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

19 Combination tests

	MSTBT 2,5/..-ST	MSTBA 2,5/..-G	MSTBV 2,5/..-G	MSTBVA 2,5/..-G	SMSTB 2,5/..-G
Specification		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	
Polarization when inserted Requirement >20 N		Test passed	Test passed	Test passed	
Contact holder in insert Requirements >20 N		Test passed	Test passed	Test passed	
Durability tests (B)					
Contact resistance R_1		1.2 mΩ	2.5 mΩ	2.4 mΩ	
Insertion/withdrawal cycles		25	25	25	
Contact resistance R_2		1.3 mΩ	2.6 mΩ	2.5 mΩ	
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)		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	
Insulation resistance Requirements > 5 MΩ		> 0.4 TΩ	> 0.3 TΩ	> 66 TΩ	
Thermal tests (C)					
Tested number of positions		18	18	16	
Tested conductor cross section		2.5 mm²	2.5 mm²	2.5 mm²	
Test current		12 A	12 A AC	12 A DC	
Upper limiting temperature Requirements < 100°C		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	
Test sequence 2: heat storage		100 °C/168 h	100 °C/168 h	100 °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	
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)		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	
Environmental and endurance tests (E)					
Specification		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	

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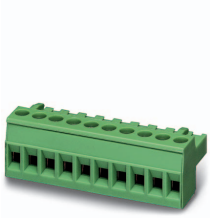
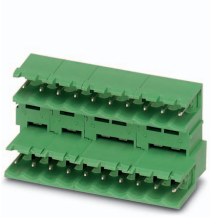
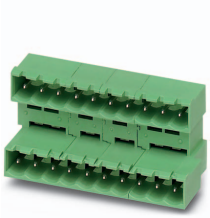
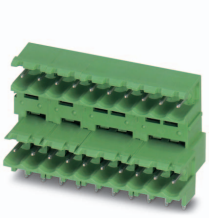


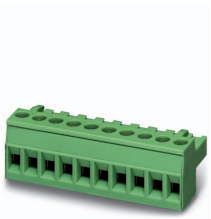




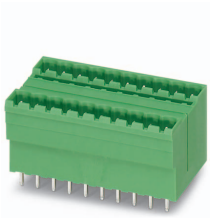


MSTBT 2,5/..-ST	MDSTB 2,5/..-G	MDSTBA 2,5/..-G	MDSTBW 2,5/..-G	MDSTB 2,5/..-G1
Specification	IEC 61984	IEC 61984	IEC 61984	IEC 61984
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 8 N / 6 N	
Polarization when inserted Requirement >20 N	Test passed	Test passed	Test passed	
Contact holder in insert Requirements >20 N	Test passed	Test passed	Test passed	
Durability tests (B)				
Contact resistance R_1	1.6 mΩ	1.7 mΩ	1.7 mΩ	
Insertion/withdrawal cycles	25	25	25	
Contact resistance R_2	1.6 mΩ	1.7 mΩ	1.7 mΩ	
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	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	
Insulation resistance Requirements > 5 MΩ	> 50 GΩ	> 50 GΩ	> 430 GΩ	
Thermal tests (C)				
Tested number of positions	12	12	12	
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	
Test current	10 A	10 A	10 A	
Upper limiting temperature Requirements < 100°C	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	
Test sequence 2: heat storage	100 °C/168 h	100 °C/168 h	100 °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	
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	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	
Environmental and endurance tests (E)				
Specification	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	

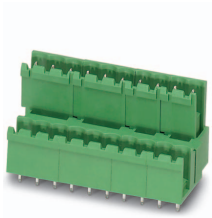
1779916 MSTBT 2,5/10-ST



MSTBT 2,5/..-ST

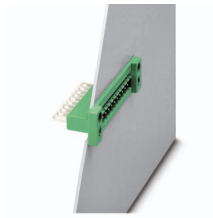


MDSTBV 2,5/..-G1



MDSTBV 2,5/..-G

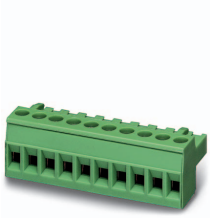
MDSTBVA 2,5/..-G

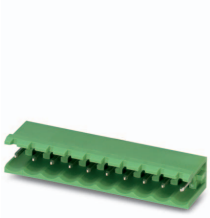


DFK-MSTB 2,5/..-G

Specification	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	
Polarization when inserted Requirement >20 N		Test passed	Test passed	
Contact holder in insert Requirements >20 N		Test passed	Test passed	
Durability tests (B)				
Insertion/withdrawal cycles		25	25	
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)		4.8 kV	4.8 kV	
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)		2.21 kV	2.21 kV	
Insulation resistance Requirements > 5 MΩ		> 0.2 TΩ	> 50 GΩ	
Thermal tests (C)				
Tested number of positions		12	12	
Tested conductor cross section		2.5 mm^2	2.5 mm^2	
Test current		10 A	10 A	
Upper limiting temperature Requirements < 100°C		Test passed	Test passed	
Climatic tests (D)				
Test sequence 1: low temperature storage		-40 °C/2 h	-40 °C/2 h	
Test sequence 2: heat storage		100 °C/168 h	100 °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	
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)		4.8 kV	4.8 kV	
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)		2.21 kV	2.21 kV	
Environmental and endurance tests (E)				
Specification		IEC 61984:2008-10	IEC 61984:2008-10	
Degree of protection		Finger safety with IP20 test finger	Finger safety with IP20 test finger	

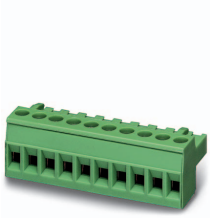
1779916 MSTBT 2,5/10-ST

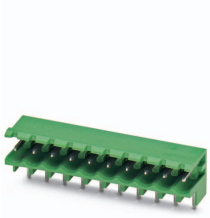




	MSTBT 2,5/..-ST	MSTB 2,5/..-G	SMSTBA 2,5/..-G	MSTBO 2,5/..-G1L	MSTBO 2,5/..-G1R
Specification	IEC 61984	IEC 61984	IEC 61984	IEC 61984	IEC 61984
Mechanical tests (A)					
Insertion/withdrawal force per position	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 8 N / 6 N	approx. 8 N / 6 N
Polarization when inserted Requirement >20 N	Test passed	Test passed	Test passed	Test passed	Test passed
Contact holder in insert Requirements >20 N	Test passed	Test passed	Test passed	Test passed	Test passed
Durability tests (B)					
Contact resistance R_1	1.2 mΩ	1.3 mΩ	1.5 mΩ	1.4 mΩ	
Insertion/withdrawal cycles	25	25	25	25	
Contact resistance R_2	1.3 mΩ	1.3 mΩ	1.5 mΩ	1.4 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	
Insulation resistance Requirements > 5 MΩ	> 1 TΩ	> 0.7 TΩ	> 0.4 TΩ	> 0.1 TΩ	
Thermal tests (C)					
Tested number of positions	18	18	4	4	
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²	
Test current	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^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	Finger safety with IP20 test finger	

1779916 MSTBT 2,5/10-ST





MSTBT 2,5/..-ST	MSTBW 2,5/..-G
Specification	IEC 61984
Mechanical tests (A)	
Insertion/withdrawal force per position	approx. 8 N / 6 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	1.4 mΩ
Insertion/withdrawal cycles	25
Contact resistance R_2	1.4 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
Insulation resistance Requirements > 5 MΩ	> 0.3 TΩ
Thermal tests (C)	
Tested number of positions	18
Tested conductor cross section	2.5 mm^2
Test current	
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	100 °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

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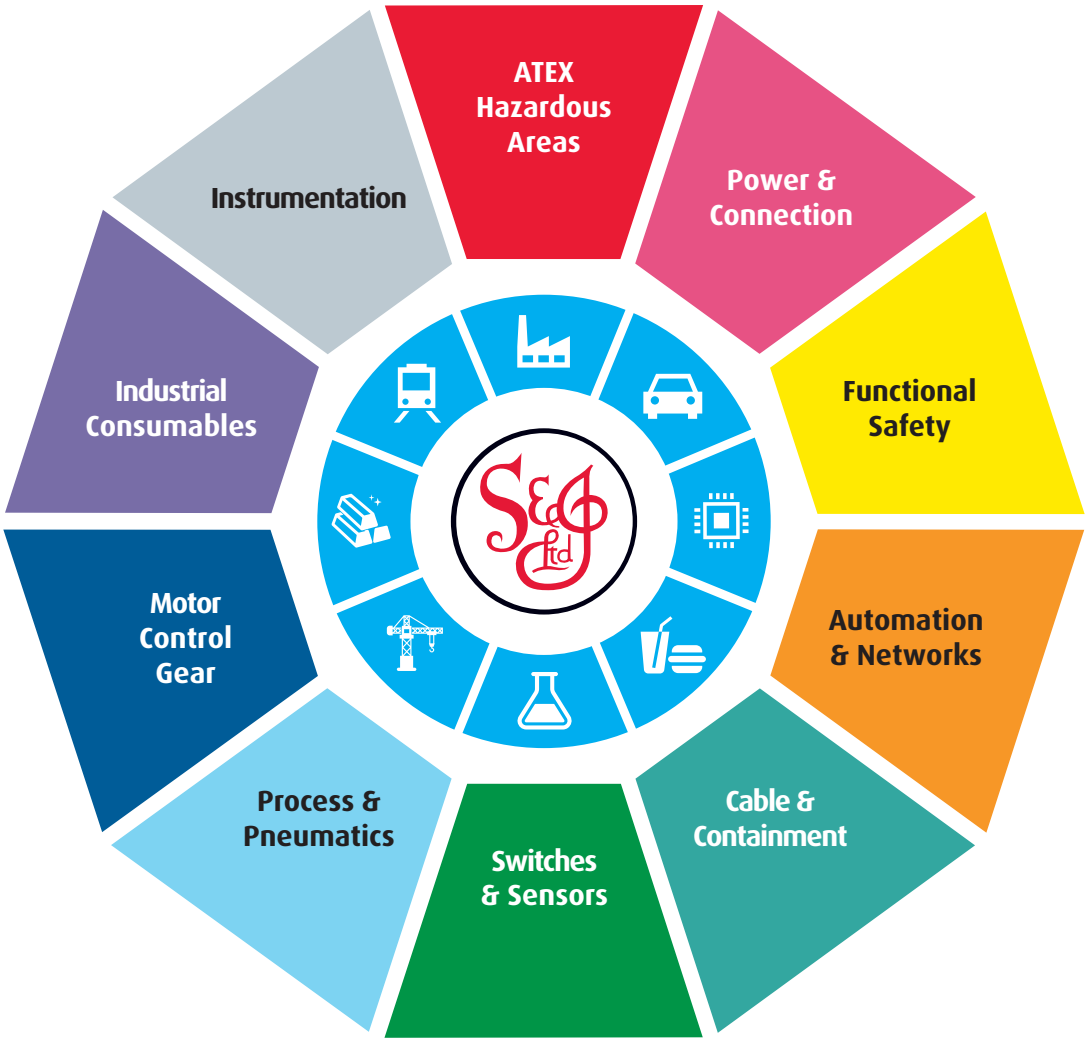

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