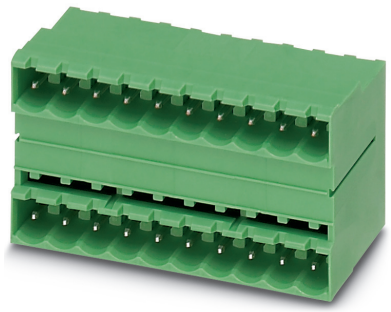
2021-03-13
Product version 01
Document revision 00

Data sheet

Order No.: 1736713

Type: MDSTB 2,5/ 4-G1-5,08

PCB header



The figure shows a 10-pos. version with 20 contacts

1 Main features

- No. of pos. 4
- Nominal cross section 2.5 mm²
- Color green (6021)
- Pitch 5.08 mm
- Mounting type Wave soldering
- Nominal current 10 A
- Nominal voltage 320 V
- Connection direction 0 °
- Type of packaging packed in cardboard

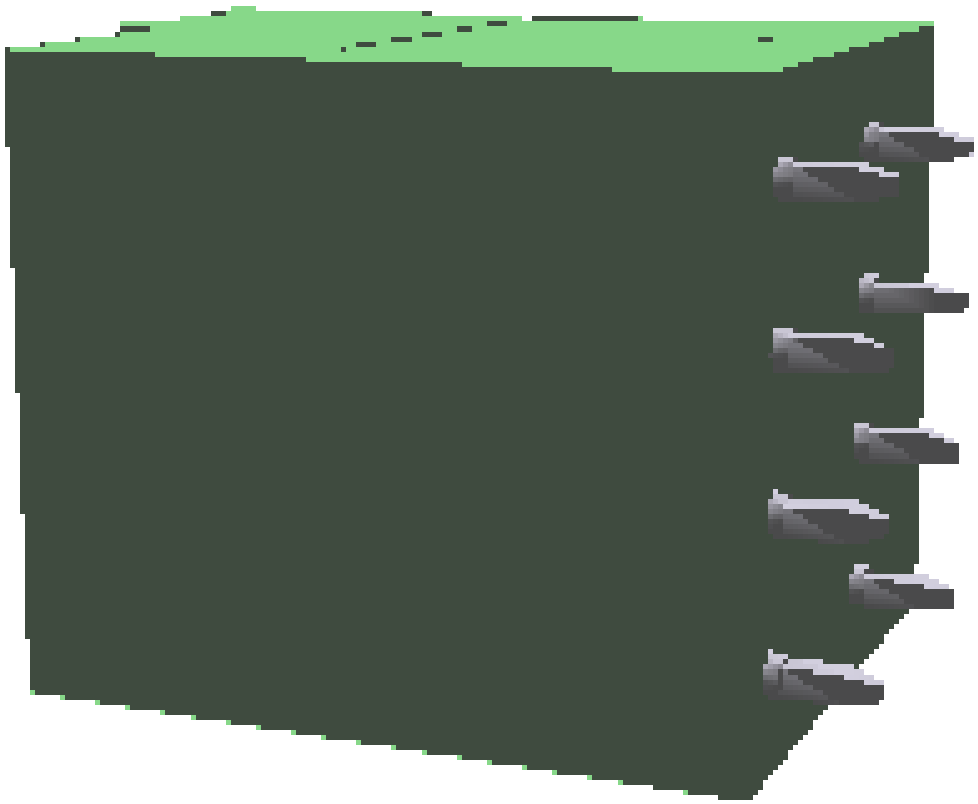
2 Your advantages

- Maximum flexibility when it comes to device design – one header for connectors with different connection technologies
- Easy PCB replacement thanks to plug-in modules
- Well-known mounting principle allows worldwide use
- Conductor connection on several levels enables higher contact density

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1736713

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.	1736713
Type	MDSTB 2,5/ 4-G1-5,08
Plug-in system	CLASSIC COMBICON
Product type	PCB header
Type of contact	Male connector
Range of articles	MDSTB 2,5/..-G1
Pitch	5.08 mm
Number of positions	4
Number of levels	2
Number of connections	8
Number of potentials	8
Mounting type	Wave soldering
Connection direction of the connector to the PCB	0 °
Pin layout	Linear pinning
Solder pins per potential	1
Product note	In combination with MVSTB or FKCV plug components, both an MVSTBW (or FKCVW) and an MVSTBR plug (or FKCVR) must be used. Combination with TMSTBP plug components is not possible!
Type	Standard

6 Mounting

6.1 Flange mounting

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 (2 - 3 µm Ni) , Tin (5 - 7 µm Sn)
Soldering area surface	Nickel (2 - 3 µm Ni) , Tin (5 - 7 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

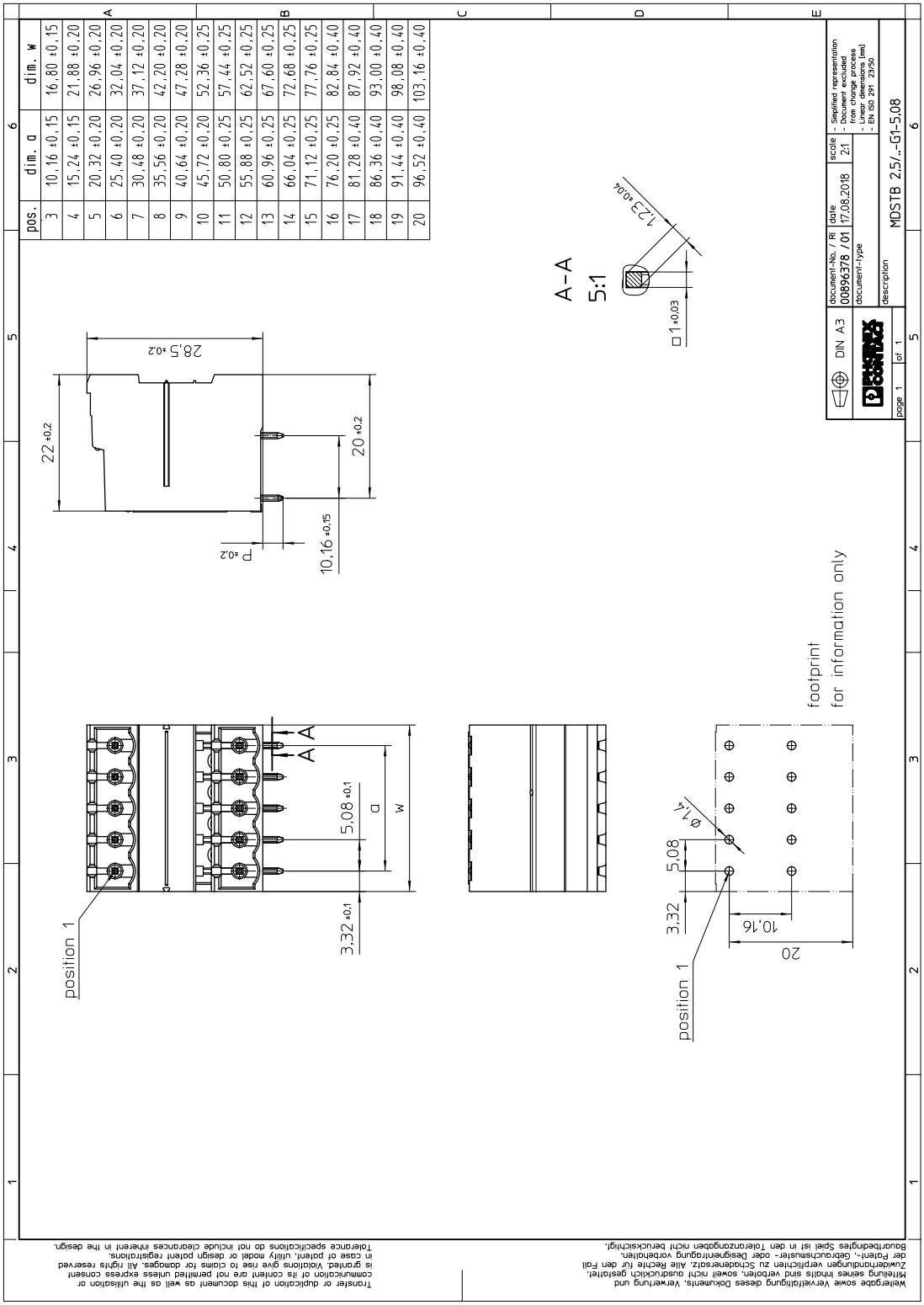
8 Dimensions

8.1 Dimensions for the product

Length	22 mm
Width	21.88 mm
Height (without solder pin)	28.5 mm
Total height	32 mm
Solder pin [P]	3.5 mm

1736713 MDSTB 2,5/ 4-G1-5,08

9 Series drawing



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	50

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)

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

14 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

15 Electrical tests

Rated current / conductor cross section	10 A / 2.5 mm²
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Contact resistance	2 mΩ
Degree of pollution	2

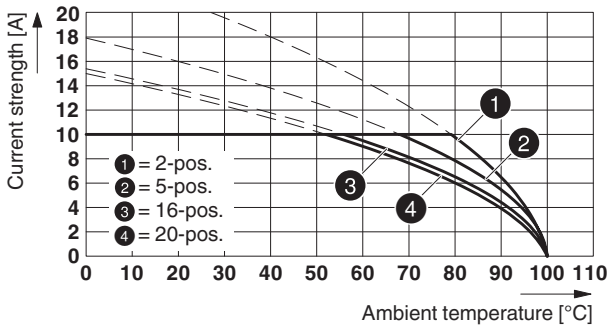
15.1 Air and creepage distances

Component	PCB header		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	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

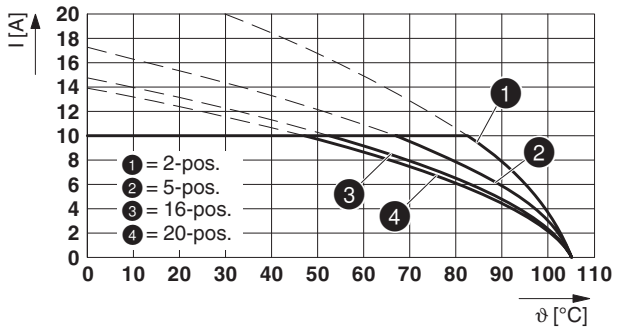
16 Current carrying capacity/derating curves

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 mm²

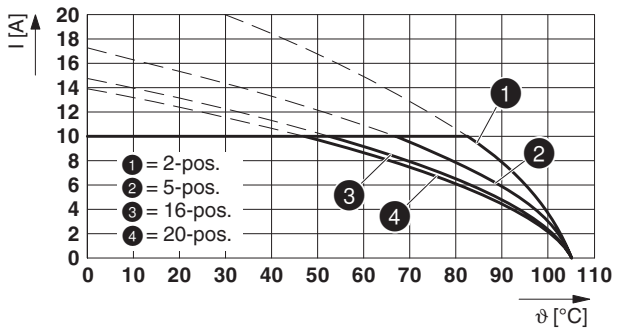
Type: MSTB 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08



Type: MVSTBR 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08

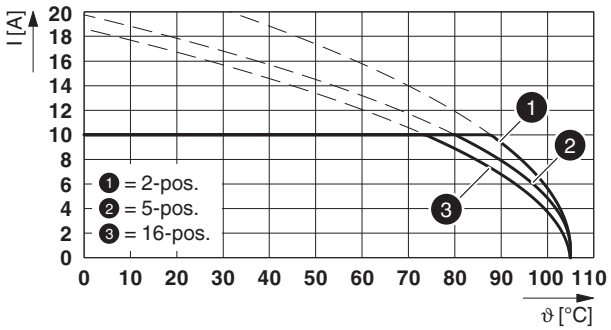


Type: MVSTBW 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08

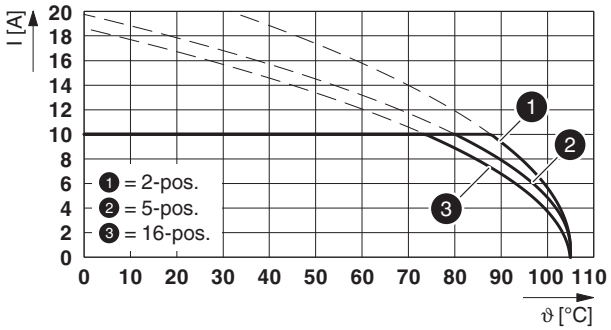


1736713 MDSTB 2,5/ 4-G1-5,08

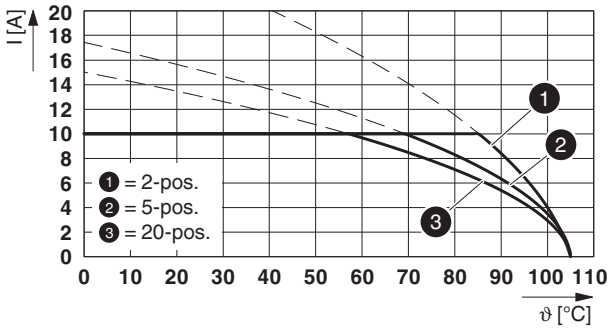
Type: FKCVR 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08



Type: FKCVW 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08

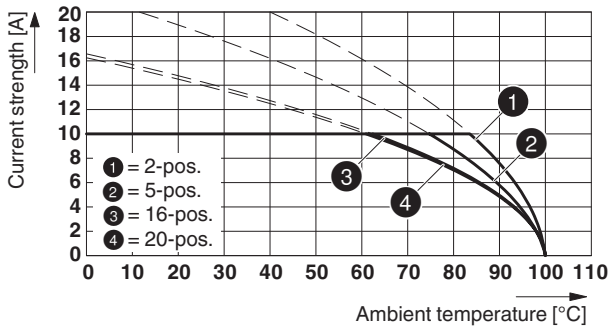


Type: FRONT-MSTB 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08

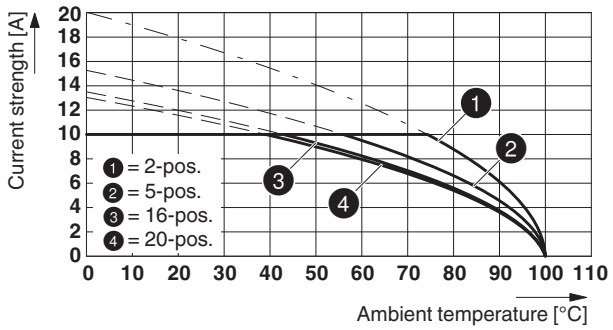


1736713 MDSTB 2,5/ 4-G1-5,08

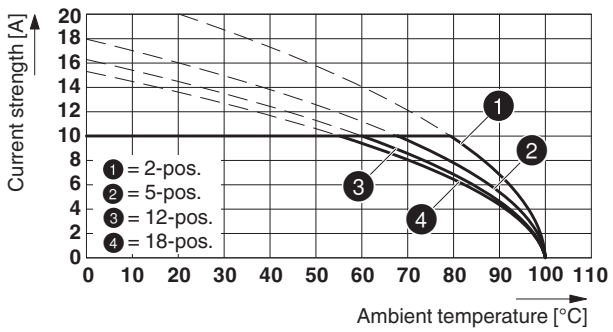
Type: FKCS 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08



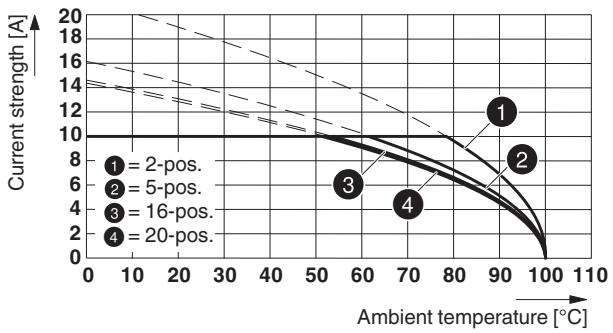
Type: SMSTB 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08



Type: MSTBT 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08

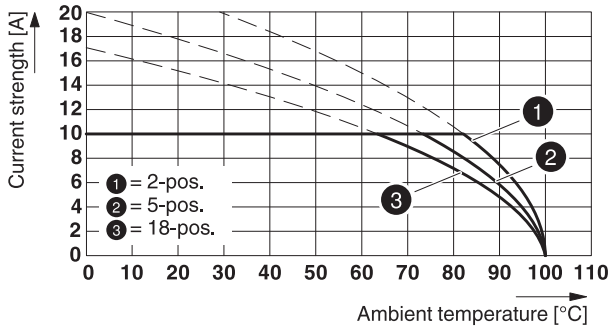


Type: MSTBP 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08



1736713 MDSTB 2,5/ 4-G1-5,08

Type: FKCN 2,5/...-ST-5,08 with MDSTB 2,5/...-G1-5,08



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

18 Approvals / Certificates

IECEE CB Scheme	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	250 V	10 A	-	-

EAC

VDE Zeichengenehmigung	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	250 V	10 A	-	-

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	15 A	-	-
Usegroup D				
	300 V	10 A	-	-

VDE Zeichengenehmigung	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	250 V	10 A	-	-

19 Commercial Data

Order No.	1736713
Type	MDSTB 2,5/ 4-G1-5,08
Pieces per package	50
Net weight	6.986 g
GTIN	4017918027872
	Information that applies locally, see link on page 1
	Information that applies locally, see link on page 1

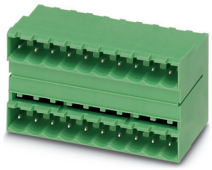
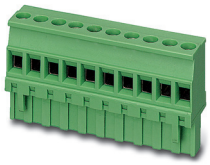
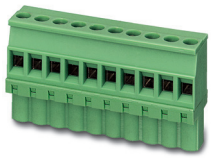
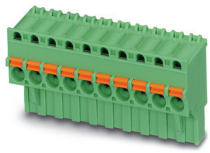
20 corresponding plugs

Order No.	Type
1719024	TVMSTB 2,5/ 4-ST-5,08
1757035	MSTB 2,5/ 4-ST-5,08
1769036	MSTBP 2,5/ 4-ST-5,08
1776155	MSTB 2,5/ 4-STZ-5,08
1777303	FRONT-MSTB 2,5/ 4-ST-5,08
1792265	MVSTBR 2,5/ 4-ST-5,08
1792773	MVSTBW 2,5/ 4-ST-5,08
1808832	MSTBC 2,5/ 4-ST-5,08
1809527	MSTBC 2,5/ 4-STZ-5,08
1824146	MSTBU 2,5/ 4-STD-5,08
1824379	MSTBU 2,5/ 4-ST-5,08-FL
1826306	SMSTB 2,5/ 4-ST-5,08
1853036	TMSTBP 2,5/ 4-ST-5,08
1873074	FKC 2,5/ 4-ST-5,08
1873676	FKCVW 2,5/ 4-ST-5,08
1873977	FKCVR 2,5/ 4-ST-5,08
1883271	QC 1/ 4-ST-5,08
1962626	TFKC 2,5/ 4-ST-5,08
1975095	FKCS 2,5/ 4-ST-5,08

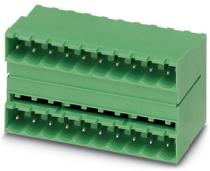
21 Accessories

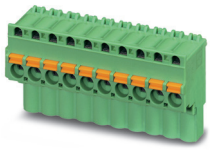
Description	Order No.	Type
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL
Coding section, inserted into the recess in the header or the inverted plug, red insulating material	1734401	CR-MSTB
	0804293	SK 5,08/3,8:FORTL.ZAHLEN

22 Combination tests

					
	MDSTB 2,5/..-G1	**MSTB 2,5/..-ST**	**MVSTBR 2,5/..-ST**	**MVSTBW 2,5/..-ST**	**FKCVR 2,5/..-ST**
IEC 61984	IEC 61984	IEC 61984	IEC 61984	IEC 61984	IEC 61984
Mechanical tests (A)					
Insertion/withdrawal force per position	approx. 8 N / 6 N	approx. 9 N / 8 N	approx. 9 N / 8 N	approx. 10 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 1st level	2 mΩ	2.2 mΩ	2.2 mΩ	1.2 mΩ	
Contact resistance R_1 2nd level		3 mΩ	3 mΩ	1.7 mΩ	
Insertion/withdrawal cycles	25	25	25	25	
Contact resistance R_2	2.1 mΩ	2.2 mΩ	2.2 mΩ	1.3 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	20	20	20	16	
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²	
Test current	10 A	10 A	10 A	10 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	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	Finger safety with IP20 test finger	

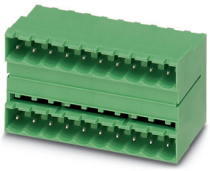
1736713 MDSTB 2,5/ 4-G1-5,08

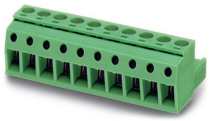


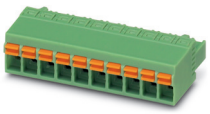


	MDSTB 2,5/..-G1	FKCVW 2,5/..-ST	FRONT-MSTB 2,5/ ..-ST	FKCS 2,5/..-ST	SMSTB 2,5/..-ST
	IEC 61984	IEC 61984	IEC 61984	IEC 61984	IEC 61984
Mechanical tests (A)					
Insertion/withdrawal force per position	approx. 10 N / 8 N	approx. 11 N / 8 N	approx. 8 N / 6 N	approx. 8 N / 6 N	
Polarization when inserted 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	
Durability tests (B)					
Contact resistance R_1 1st level	1.2 mΩ	1.4 mΩ	1.8 mΩ	3 mΩ	
Contact resistance R_1 2nd level	1.7 mΩ	2.1 mΩ			
Insertion/withdrawal cycles	25	25	25	25	
Contact resistance R_2	1.3 mΩ	1.4 mΩ	1.8 mΩ	3.1 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	16	20	20	20	
Tested conductor cross section	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²	
Test current	10 A	10 A	10 A	10 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	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	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	

1736713 MDSTB 2,5/ 4-G1-5,08







MDSTB 2,5/..-G1	MSTBT 2,5/..-ST	MSTBP 2,5/..-ST	FKCN 2,5/..-ST	
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 / 8 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 1st level	2 mΩ	2.1 mΩ	1.7 mΩ	
Contact resistance R_1 2nd level				
Insertion/withdrawal cycles	25	25	25	
Contact resistance R_2	2 mΩ	2.1 mΩ	1.8 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	
Thermal tests (C)				
Tested number of positions	18	20	18	
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 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	
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	