

**Order No.:** 1769298

**Type:** SMSTB 2,5/ 8-G

**Header**



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               | • Connection direction | 45 °                |
| • Pitch                 | 5 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
- ✓ Angled connection enables multi-row arrangement on the PCB

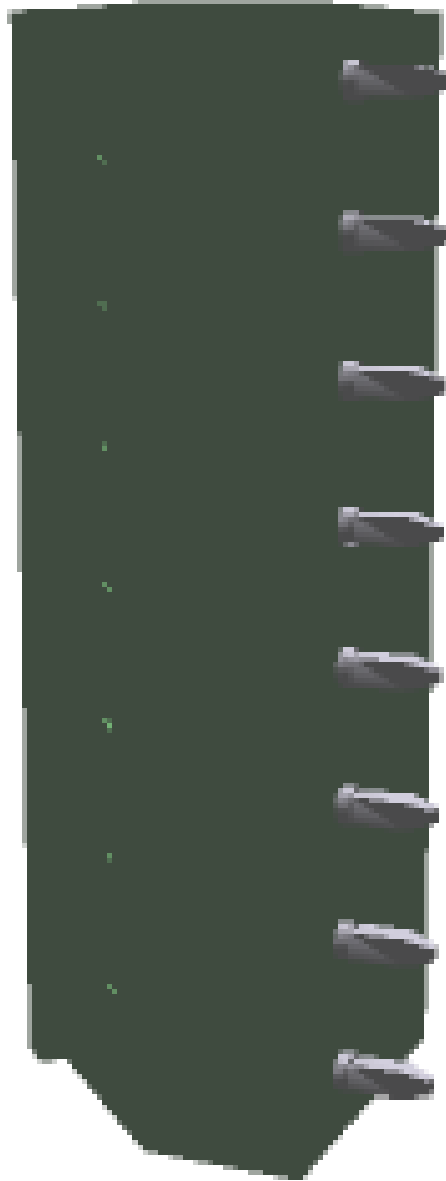


Make sure you always use the latest documentation.  
It can be downloaded at: [phoenixcontact.net/product/1769298](https://phoenixcontact.net/product/1769298)

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



**1769298 SMSTB 2,5/ 8-G****5 item properties**

Order No.	1769298
Type	SMSTB 2,5/ 8-G
Type of contact	Male connector
Range of articles	SMSTB 2,5/...-G
Pitch	5 mm
Number of positions	8
Locking	without
Mounting type	Wave soldering
Pin layout	Linear pinning

**5.1 Material data**

<b>Material of metal parts</b>	
Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface contact area	Ni 2 µm ... 3 µm , Sn 5 µm ... 7 µm
Soldering area surface	Ni 2 µm ... 3 µm , Sn 5 µm ... 7 µm
Surface characteristics	Tin-plated
<b>Insulating material data</b>	
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	16.5 mm
Width	40 mm
Height (without solder pin)	14.8 mm
Total height	18.3 mm
Solder pin [P]	3.5 mm
Dimension a	35 mm

**6.2 Dimensions for PCB design**

Hole diameter	1.4 mm
Pin dimensions	1 x 1 mm

**1769298 SMSTB 2,5/ 8-G****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)

**1769298 SMSTB 2,5/ 8-G****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.	37 N

**1769298 SMSTB 2,5/ 8-G****11 Electrical tests****11.1 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	1 mΩ
Degree of pollution	2

**11.2 Air and creepage distances**

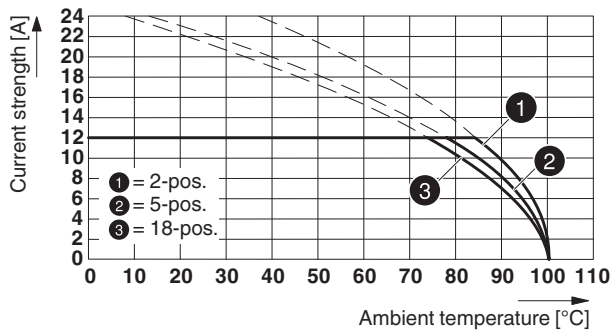
Component	Header		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112:2003-01)	CTI 325		
Rated insulation voltage	250 V	320 V	400 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	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

## 1769298 SMSTB 2,5/ 8-G

## 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 mm <sup>2</sup>
Note	

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



## Type: MVSTB(R/W) 2,5/...-ST with SMSTB 2,5/...-G

87104\_1000\_en

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

87137\_1000\_en

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

87303\_1000\_en


**1769298 SMSTB 2,5/ 8-G****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
Protection against electric shock	Not encapsulated - touch-proof when inserted
Protection class	
Protective conductor	without PE
Lock	no

**15 Approvals**

CSA 				
Use group	B	D		
mm <sup>2</sup> /AWG/kcmil				
Voltage	300 V	300 V		
Current	15 A	10 A		

VDE Gutachten mit Fertigungsüberwachung 				
mm <sup>2</sup> /AWG/kcmil				
Voltage	250 V			
Current	12 A			

IECEE CB Scheme 				
mm <sup>2</sup> /AWG/kcmil				
Voltage	250 V			
Current	12 A			

cULus Recognized 				
Use group	B	D		
mm <sup>2</sup> /AWG/kcmil				
Voltage	300 V	300 V		
Current	15 A	10 A		

EAC 				
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**1769298 SMSTB 2,5/ 8-G****16 Commercial Data**

Order No.	1769298
Type	SMSTB 2,5/ 8-G
Pieces per package	50
Net weight	3.974 g
GTIN	4017918034610
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

**17 corresponding plugs**

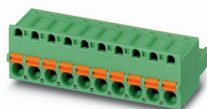
Order No.	Type
1713897	TVFKC 1,5/ 8-ST
1715989	TVFKCL 1,5/ 8-ST
1718025	QC 1,5/ 8-ST
1732807	FKCN 2,5/ 8-ST
1754562	MSTB 2,5/ 8-ST
1758982	MSTB 2,5/ 8-STZ
1765836	MSTBP 2,5/ 8-ST
1768448	SMSTB 2,5/ 8-ST
1779479	FRONT-MSTB 2,5/ 8-ST
1779893	MSTBT 2,5/ 8-ST
1784309	MVSTBW 2,5/ 8-STEH
1792074	MVSTBR 2,5/ 8-ST
1792582	MVSTBW 2,5/ 8-ST
1909278	FKCT 2,5/ 8-ST
1909773	FKCVR 2,5/ 8-ST
1910092	FKCVW 2,5/ 8-ST
1910416	FKC 2,5/ 8-ST
1974795	FKCS 2,5/ 8-ST

**18 Accessories**

Description	Order No.	Type
Coding section, inserted into the recess in the header or the inverted plug, red insulating material	1734401	CR-MSTB
	0804183	SK 5/3,8:FORTL.ZAHLEN
Keying cap, for forming sections, plugs onto header pin, green insulating material	1755477	MSTB-BL

## 1769298 SMSTB 2,5/ 8-G

## 19 Combination tests

**SMSTB 2,5/...-G****FKC 2,5/...-ST****MSTB 2,5/...-ST****MSTBP 2,5/...-ST****MSTBT 2,5/...-ST**

Specification

IEC 61984

IEC 61984

IEC 61984

IEC 61984

**Mechanical tests (A)**

Insertion/withdrawal force per position

approx. 8 N / 6 N

Polarization when inserted

Test passed

Requirement &gt;20 N

Contact holder in insert

Test passed

Requirements &gt;20 N

**Durability tests (B)**Contact resistance  $R_1$ 1 m $\Omega$ 

Insertion/withdrawal cycles

25

Contact resistance  $R_2$ 1.2 m $\Omega$ Rated impulse voltage at sea level  
Voltage waveform  $\geq (1.2/50 \mu\text{s})$ 

4.8 kV

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

2.21 kV

Insulation resistance  
Requirements > 5 M $\Omega$ > 10 G $\Omega$ **Thermal tests (C)**

Tested number of positions

18

Tested conductor cross section

2.5 mm<sup>2</sup>

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

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 cycleRated impulse voltage at sea level  
Voltage waveform  $\geq (1.2/50 \mu\text{s})$ 

4.8 kV

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

2.21 kV

**Environmental and endurance tests (E)**

Specification

IEC 61984:2008-10

Degree of protection

Finger safety with IP20  
test finger

## 1769298 SMSTB 2,5/ 8-G



SMSTB 2,5/..-G



MVSTBR 2,5/..-ST

FRONT-MSTB 2,5/  
..-ST

SMSTB 2,5/..-ST

Specification	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
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
<b>Durability tests (B)</b>			
Contact resistance R <sub>1</sub>	2.4 mΩ	1.6 mΩ	2.2 mΩ
Insertion/withdrawal cycles	25	25	25
Contact resistance R <sub>2</sub>	2.5 mΩ	1.6 mΩ	2.2 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	> 0.2 TΩ	> 0.1 TΩ	> 0.4 TΩ
<b>Thermal tests (C)</b>			
Tested number of positions	24	24	24
Tested conductor cross section	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
Test current			
Upper limiting temperature Requirements < 100°C	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
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 <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
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	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
Degree of protection	Finger safety with IP20 test finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger