

Order No.: 1769256

Type: SMSTB 2,5/ 4-G

Header



The figure shows a 10-position version of the product

1 Main features



- | | | | |
|-------------------------|---------------------|------------------------|---------------------|
| • No. of pos. | 4 | • Nominal current | 12 A |
| • Nominal cross section | 2.5 mm ² | • 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

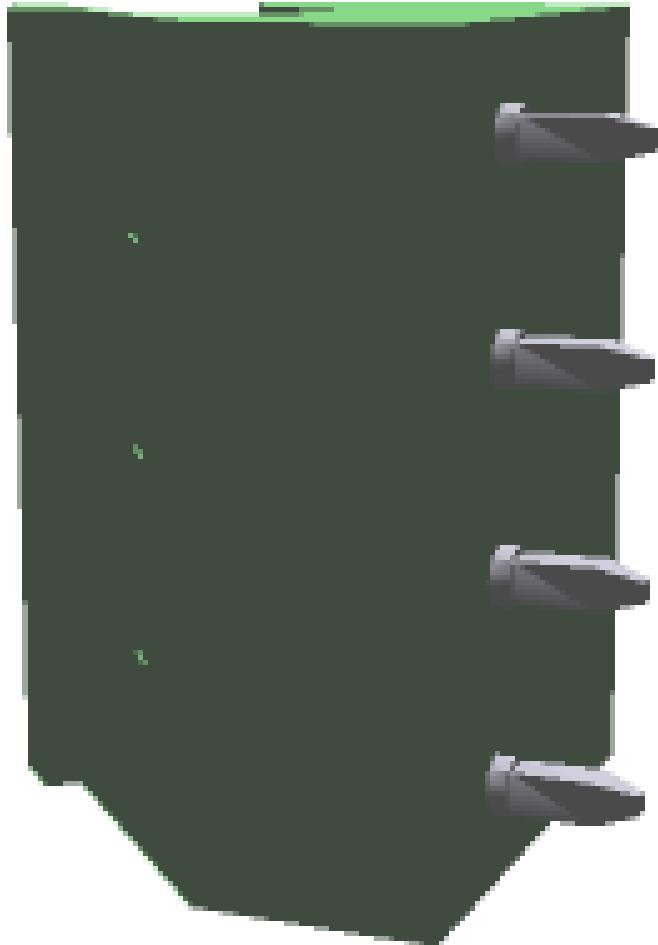


Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1769256

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



1769256 SMSTB 2,5/ 4-G**5 item properties**

Order No.	1769256
Type	SMSTB 2,5/ 4-G
Type of contact	Male connector
Range of articles	SMSTB 2,5/...-G
Pitch	5 mm
Number of positions	4
Locking	without
Mounting type	Wave soldering
Pin layout	Linear pinning

5.1 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
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
Insulating material data	
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	20 mm
Height (without solder pin)	14.8 mm
Total height	18.3 mm
Solder pin [P]	3.5 mm
Dimension a	15 mm

6.2 Dimensions for PCB design

Hole diameter	1.4 mm
Pin dimensions	1 x 1 mm

1769256 SMSTB 2,5/ 4-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)

1769256 SMSTB 2,5/ 4-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

1769256 SMSTB 2,5/ 4-G**11 Electrical tests****11.1 Electrical data**

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	1 mΩ
Degree of pollution	2

11.2 Air and creepage distances

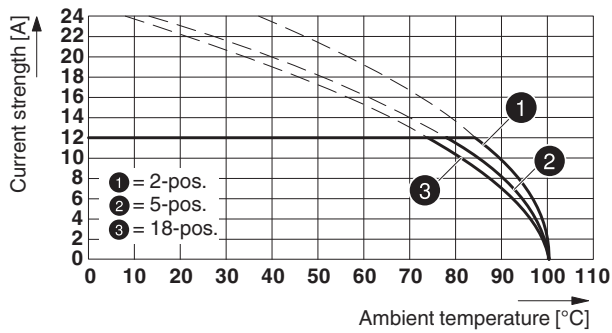
Component	Header		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112:2003-01)	CTI 325		
Rated insulation voltage	250 V	320 V	400 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	III	III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

1769256 SMSTB 2,5/ 4-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 ²
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


1769256 SMSTB 2,5/ 4-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 ² /AWG/kcmil				
Voltage	300 V	300 V		
Current	15 A	10 A		

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

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

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

EAC 				
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1769256 SMSTB 2,5/ 4-G**16 Commercial Data**

Order No.	1769256
Type	SMSTB 2,5/ 4-G
Pieces per package	50
Net weight	2.482 g
GTIN	4017918034573
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

17 corresponding plugs

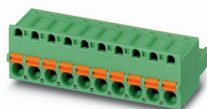
Order No.	Type
1713855	TVFKC 1,5/ 4-ST
1715947	TVFKCL 1,5/ 4-ST
1717987	QC 1,5/ 4-ST
1732768	FKCN 2,5/ 4-ST
1754481	MSTB 2,5/ 4-ST
1765797	MSTBP 2,5/ 4-ST
1768781	SMSTB 2,5/ 4-ST
1779437	FRONT-MSTB 2,5/ 4-ST
1779851	MSTBT 2,5/ 4-ST
1784299	MVSTBW 2,5/ 4-STEH
1792032	MVSTBR 2,5/ 4-ST
1792540	MVSTBW 2,5/ 4-ST
1909236	FKCT 2,5/ 4-ST
1909731	FKCVR 2,5/ 4-ST
1910050	FKCVW 2,5/ 4-ST
1910377	FKC 2,5/ 4-ST
1921696	QC 1/ 4-ST-BUS
1974753	FKCS 2,5/ 4-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

1769256 SMSTB 2,5/ 4-G

19 Combination tests

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

Specification

FKC 2,5/...-ST

IEC 61984

MSTB 2,5/...-ST

IEC 61984

MSTBP 2,5/...-ST

IEC 61984

MSTBT 2,5/...-ST

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 m Ω

Insertion/withdrawal cycles

25

Contact resistance R_2 1.2 m Ω 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 Ω > 10 G Ω **Thermal tests (C)**

Tested number of positions

18

Tested conductor cross section

2.5 mm²

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 dm³ SO₂ on 300 dm³/
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

1769256 SMSTB 2,5/ 4-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
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	2.4 mΩ	1.6 mΩ	2.2 mΩ
Insertion/withdrawal cycles	25	25	25
Contact resistance R ₂	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
Thermal tests (C)			
Tested number of positions	24	24	24
Tested conductor cross section	2.5 mm ²	2.5 mm ²	2.5 mm ²
Test current			
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