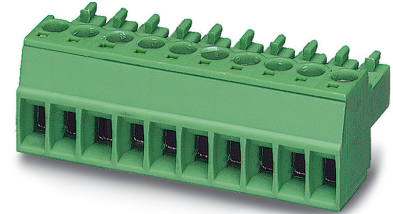


Data sheet

Order No.: 1803594

Type: MC 1,5/ 4-ST-3,81

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 | 8 A |
| • Conductor cross section | 1.5 mm ² | • Nominal voltage | 160 V |
| • Color | green (6021) | • Connection direction | 0 ° |
| • Pitch | 3.81 mm | • Type of packaging | packed in cardboard |
| • Connection method | Screw connection with tension sleeve | | |

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.

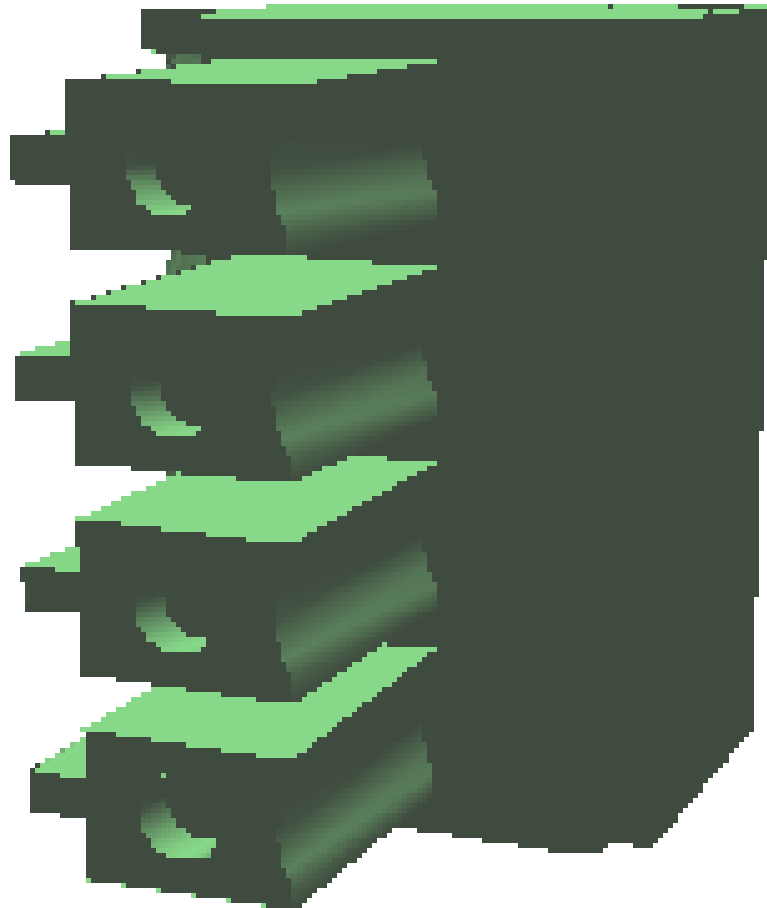
It can be downloaded at: phoenixcontact.net/product/1803594

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1803594 MC 1,5/ 4-ST-3,81

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



1803594 MC 1,5/ 4-ST-3,81**5 General Technical Data****5.1 item properties**

Order No.	1803594
Type	MC 1,5/ 4-ST-3,81
Connector system	MINI COMBICON
Product type	PCB connector
Type of contact	Female connector
Range of articles	MC 1,5/...-ST
Pitch	3.81 mm
Number of positions	4
Number of levels	1
Number of connections	4
Number of potentials	4
Connection method	Screw connection with tension sleeve
Screw thread	M2
Drive form screw head	Slotted (L)
Connection direction of the conductor to plug-in direction	0 °
Solder pins per potential	1
Type	Standard
Side guide rails	yes

1803594 MC 1,5/ 4-ST-3,81

6 Mounting

6.1 Flange mounting

Type of locking	without
Mounting flange	without

1803594 MC 1,5/ 4-ST-3,81**7 Conductor connection****7.1 Connection capacity**

Nominal cross section	1.5 mm ²
Conductor cross section, rigid	0.14 mm ² ... 1.5 mm ²
Conductor cross section, flexible	0.14 mm ² ... 1.5 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm ² ... 1.5 mm ²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm ² ... 0.75 mm ²
2 conductors with same cross section, solid	0.08 mm ² ... 0.5 mm ²
2 conductors with same cross section, stranded	0.08 mm ² ... 0.75 mm ²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.25 mm ² ... 0.34 mm ²
2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve	0.5 mm ² ... 0.5 mm ²
Cylindrical gauge a x b / diameter	2.4 mm x 1.5 mm / 1.6 mm
Stripping length	7 mm
Tightening torque	0.22 Nm ... 0.25 Nm

7.2 Connection capacity AWG

Conductor cross section AWG	28 ... 16
-----------------------------	-----------

1803594 MC 1,5/ 4-ST-3,81**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 (4 - 8 µm Sn)
Surface contact area	Tin (4 - 8 µm Sn)
Surface characteristics	hot-dip tin-plated

8.2 Material of plastic parts

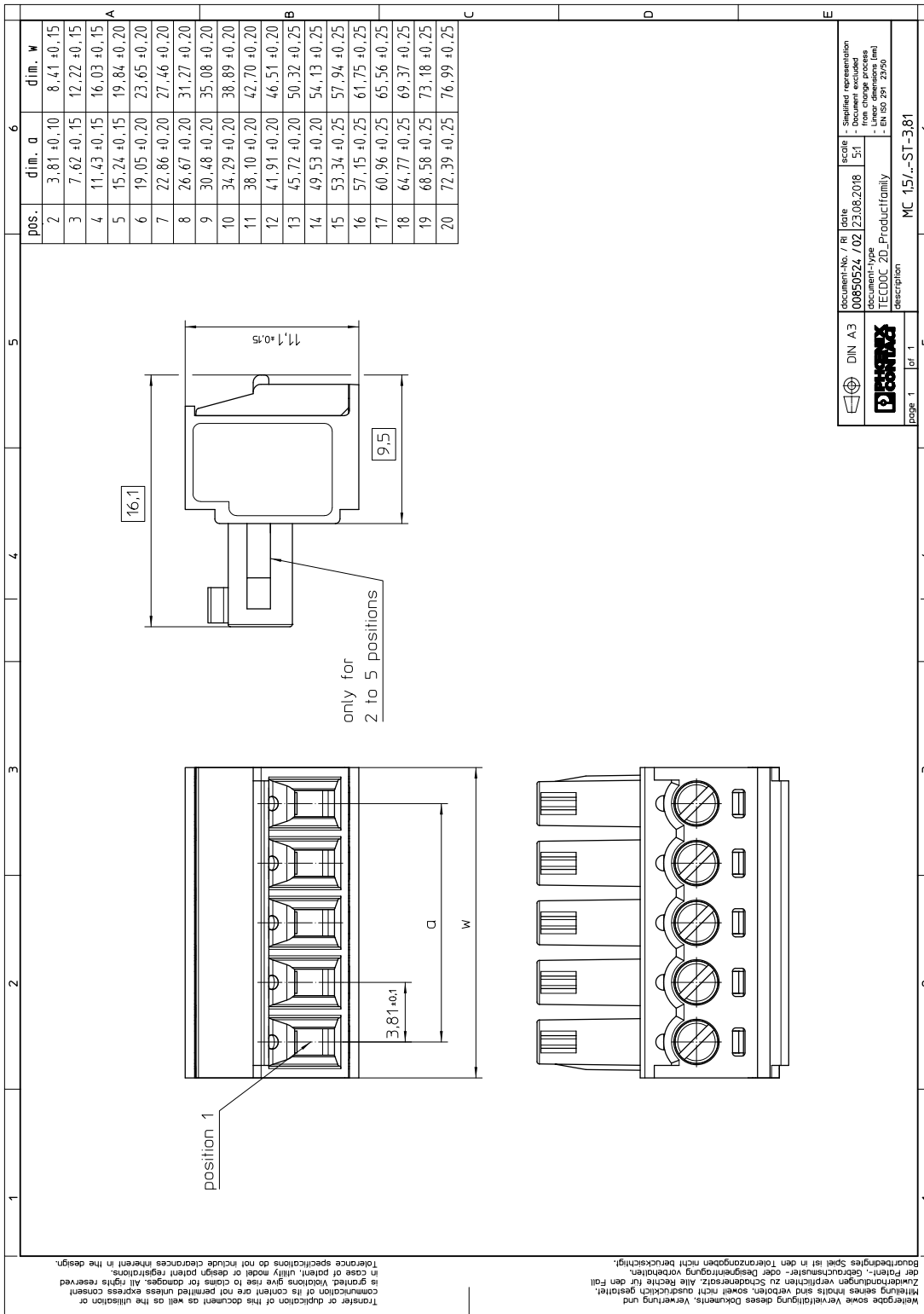
	Housing
Color	green (6021)
Insulating material	PA
Insulating material group	I
CTI according to IEC 60112	600
Flammability rating according to UL 94	V0
Glow wire flammability index GWFI according to EN 60695-2-12	850
Glow wire ignition temperature GWIT according to EN 60695-2-13	775
Temperature for the ball pressure test according to EN 60695-10-2	125 °C

1803594 MC 1,5/ 4-ST-3,81**9 Dimensions****9.1 Dimensions for the product**

Length	16.1 mm
Width	16.03 mm
Installed height	11.1 mm
Total height	11.1 mm

1803594 MC 1,5/ 4-ST-3,81

10 Series drawing



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document-No. / Ri	date	scale	Simplified representation
00850524 / 02	23.08.2018	5:1	- according to standards
document-type			- from change process
TECDOC 2D_Productfamily			- Linear dimensions (mm)
description			- EN ISO 291: 2010
page 1	of 1		
MC 1,5/-ST-3,81			

1803594 MC 1,5/ 4-ST-3,81**11 Packaging information**

Type of packaging	packed in cardboard
Pieces per package	250

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)

1803594 MC 1,5/ 4-ST-3,81**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	0.14 mm ² / solid / > 7 N
Conductor cross section/conductor type/tractive force actual value	0.14 mm ² / flexible / > 7 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm ² / solid / > 40 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm ² / flexible / > 40 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

1803594 MC 1,5/ 4-ST-3,81

Polarization when inserted
Requirement >20 N

Test passed

Specification

IEC 60512-13-5:2006-02

1803594 MC 1,5/ 4-ST-3,81**15 Insertion and withdrawal forces**

Insertion and withdrawal force	
Specification	Test passed
No. of cycles	25
Insertion strength per pos. approx.	6 N
Withdraw strength per pos. approx.	4 N

1803594 MC 1,5/ 4-ST-3,81**16 Electrical tests**

Rated current / conductor cross section	8 A / 1.5 mm ²
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	1.3 mΩ
Degree of pollution	2

16.1 Air and creepage distances

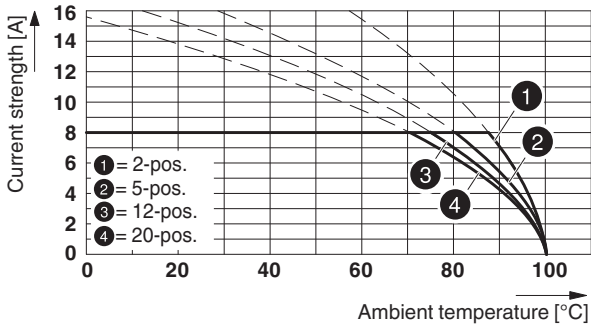
Component	PCB connector		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112:2003-01)	CTI 600		
Rated insulation voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	1.5 mm	1.5 mm	1.5 mm
Minimum value of the creepage path requirement in acc. with table	2 mm	1.5 mm	1.6 mm

1803594 MC 1,5/ 4-ST-3,81

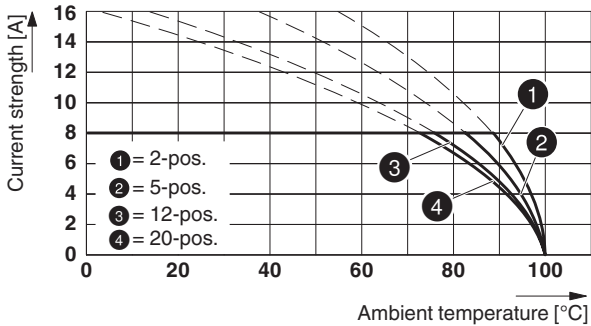
17 Current carrying capacity/derating curves

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	1.5 mm ²

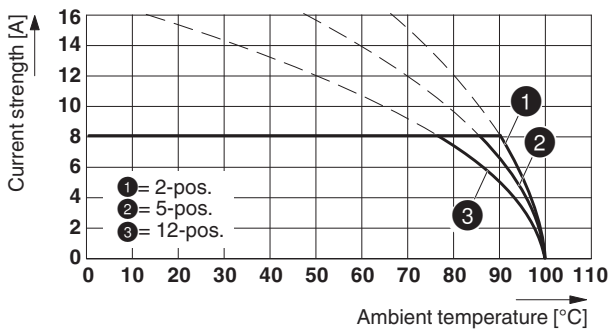
Type: MC 1,5/...-ST-3,81 with MC 1,5/...-G-3,81



Type: MC 1,5/...-ST-3,81 with MCV 1,5/...-G-3,81

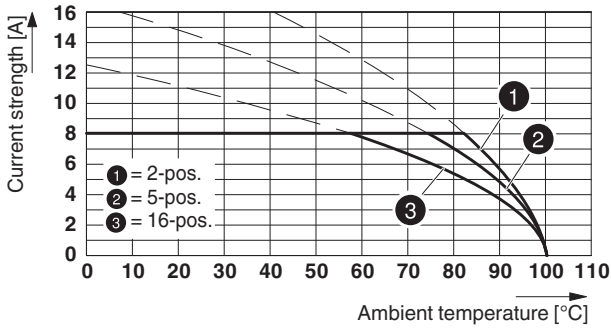


Type: MC 1,5/...-ST-3,81 with MCV 1,5/...-G-3,81 P26 THR

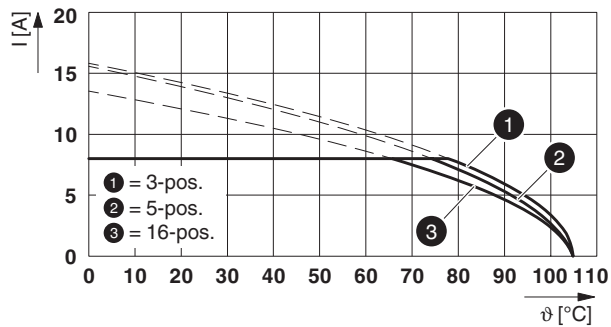


1803594 MC 1,5/ 4-ST-3,81

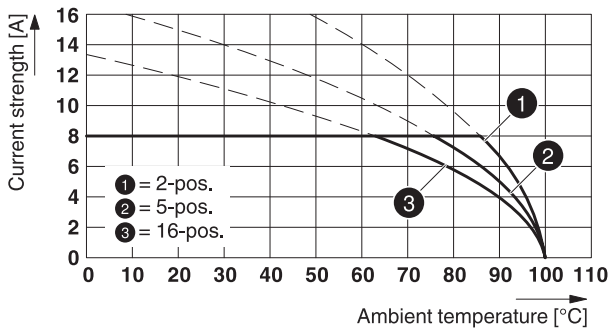
Type: MC 1,5/...-ST-3,81 with MCD 1,5/...-G1-3,81



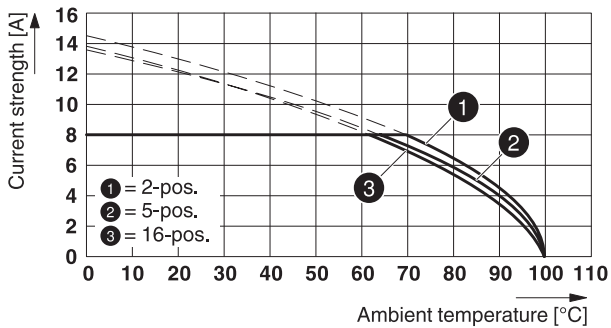
Type: MC 1,5/...-ST-3,81 with MCVK 1,5/...-G-3,81



Type: MC 1,5/...-ST-3,81 with MCDV 1,5/...-G1-3,81

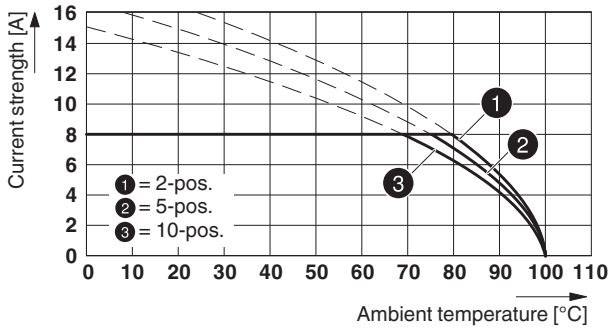


Type: MC 1,5/...-ST-3,81 with MCVU 1,5/...-GFD-3,81

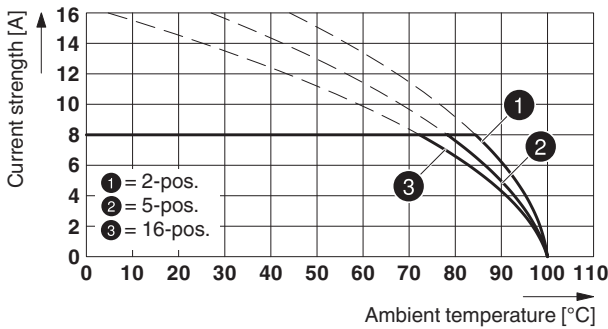


1803594 MC 1,5/ 4-ST-3,81

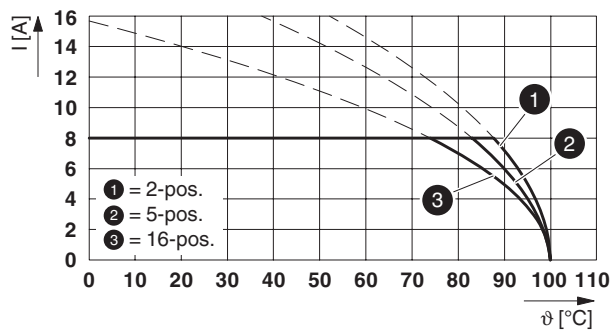
Type: MC 1,5/...-ST-3,81 with MCO 1,5/...-GR-3,81



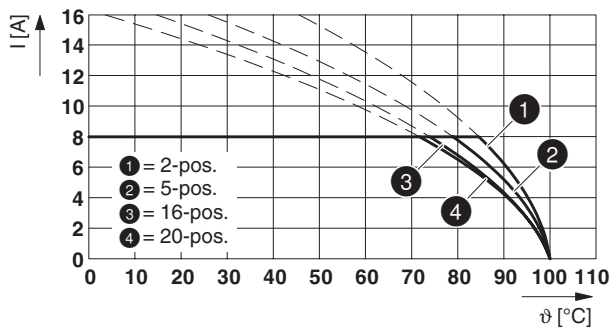
Type: MC 1,5/...-ST-3,81 with IMC 1,5/...-ST-3,81



Type: MC 1,5/...-ST-3,81 with SMC 1,5/...-G-3,81



Type: MC 1,5/...-ST-3,81 with MC 1,5/...-G-3,81 P...THR



1803594 MC 1,5/ 4-ST-3,81**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

1803594 MC 1,5/ 4-ST-3,81**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

1803594 MC 1,5/ 4-ST-3,81

21 Approvals / Certificates

CSA 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
Usegroup B				
	300 V	8 A	28 - 16	-
Usegroup D				
	300 V	8 A	28 - 16	-
IECEE CB Scheme 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	160 V	8 A	-	0.2 - 1.5
EAC 				
VDE Gutachten mit Fertigungsüberwachung 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	160 V	8 A	-	0.2 - 1.5
cULus Recognized 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
Usegroup B				
	300 V	8 A	30 - 14	-
Usegroup D				
	300 V	8 A	30 - 14	-
VDE Gutachten mit Fertigungsüberwachung 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	160 V	8 A	-	0.2 - 1.5

1803594 MC 1,5/ 4-ST-3,81**22 Commercial Data**

Order No.	1803594
Type	MC 1,5/ 4-ST-3,81
Pieces per package	250
Net weight	2.874 g
GTIN	4017918045906
	Information that applies locally, see link on page 1
	Information that applies locally, see link on page 1

23 corresponding headers

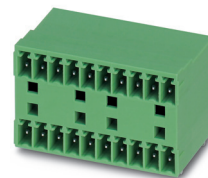
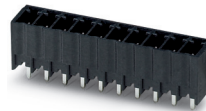
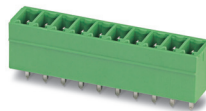
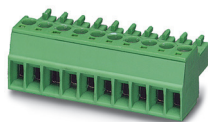
Order No.	Type
1707023	MCV 1,5/ 4-G-3,81 P14 THR
1707447	MCV 1,5/ 4-G-3,81 P26 THR
1712872	MCV 1,5/ 4-G-3,81 P26 THRR32
1782598	MC 1,5/ 4-G-3,81 P20 THRR32
1803293	MC 1,5/ 4-G-3,81
1803442	MCV 1,5/ 4-G-3,81
1827295	SMC 1,5/ 4-G-3,81
1829976	MCD 1,5/ 4-G-3,81
1830428	MCDV 1,5/ 4-G-3,81
1837120	MCVDU 1,5/ 4-G-3,81
1843091	MCD 1,5/ 4-G1-3,81
1847741	MCDV 1,5/ 4-G1-3,81
1860663	EMCV 1,5/ 4-G-3,81
1861662	MCO 1,5/ 4-GR-3,81
1861743	MCO 1,5/ 4-GL-3,81
1897827	EMC 1,5/ 4-G-3,81
1908787	MC 1,5/ 4-G-3,81 THT
1943771	MC 1,5/ 4-G-3,81 THT-R56

24 Accessories

Description	Order No.	Type
	0804109	SK 3,81/2,8:FORTL.ZAHLEN
Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip	1205037	SZS 0,4X2,5 VDE
	1834369	KGK-MC 1,5/ 4
Insertion bridge for plugs featuring a screw connection with a 3.81 mm pitch	1733495	EBPL 2-3,81
Insertion bridge for plugs featuring a screw connection with a 3.81 mm pitch	1733505	EBPL 3-3,81
Insertion bridge for plugs featuring a screw connection with a 3.81 mm pitch	1733518	EBPL 4-3,81

1803594 MC 1,5/ 4-ST-3,81

25 Combination tests

**MC 1,5/...-ST**

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

approx. 6 N / 4 N

approx. 8 N / 6 N

approx. 8 N / 6 N

approx. 8 N / 5 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

1.3 mΩ

1.2 mΩ

1.1 mΩ

1.2 mΩ

Contact resistance R₁ 2nd level

2.2 mΩ

Insertion/withdrawal cycles

25

25

25

25

Contact resistance R₂

1.5 mΩ

1.2 mΩ

1.2 mΩ

1.3 mΩ

Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)

2.95 kV

2.95 kV

2.95 kV

2.95 kV

Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)

1.39 kV

1.39 kV

1.39 kV

1.39 kV

Thermal tests (C)

Tested number of positions

20

20

12

16

Tested conductor cross section

1.5 mm²1.5 mm²1.5 mm²1.5 mm²

Test current

8 A DC

8 A DC

8 A

8 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)

2.95 kV

2.95 kV

2.95 kV

2.95 kV

Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)

1.39 kV

1.39 kV

1.39 kV

1.39 kV

Environmental and endurance tests (E)

Specification

IEC 61984:2008-10

IEC 61984:2008-10

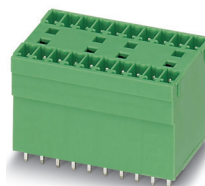
IEC 61984:2008-10

IEC 61984:2008-10

Degree of protection

Finger safety with IP20
test fingerFinger safety with IP20
test fingerFinger safety with IP20
test fingerFinger safety with IP20
test finger

1803594 MC 1,5/ 4-ST-3,81

**MC 1,5/...-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

MCVK 1,5/...-G

IEC 61984

approx. 8 N / 4 N

Test passed

Test passed

3.3 mΩ

25

3.3 mΩ

2.95 kV

1.39 kV

16

1.5 mm²

8 A

Test passed

-40 °C/2 h

105 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

2.95 kV

1.39 kV

IEC 61984:2008-10

Finger safety with IP20
test finger**MCDV 1,5/...-G1**

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

1.7 mΩ

1.7 mΩ

25

2 mΩ

2.95 kV

1.39 kV

16

1.5 mm²

8 A

Test passed

-40 °C/2 h

100 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

2.95 kV

1.39 kV

IEC 61984:2008-10

Finger safety with IP20
test finger**MCVU 1,5/...-GFD**

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

3.4 mΩ

25

3.4 mΩ

2.95 kV

1.39 kV

16

1.5 mm²

8 A

Test passed

-40 °C/2 h

100 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

2.95 kV

1.39 kV

IEC 61984:2008-10

Finger safety with IP20
test finger**MCO 1,5/...-GR**

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

2.6 mΩ

25

2.7 mΩ

2.95 kV

1.39 kV

10

1.5 mm²

8 A

Test passed

-40 °C/2 h

100 °C/168 h

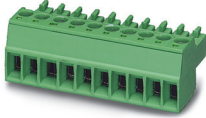
0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

2.95 kV

1.39 kV

IEC 61984:2008-10

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

1803594 MC 1,5/ 4-ST-3,81**MC 1,5/...-ST**

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

approx. 8 N / 6 N

approx. 7 N / 4 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 R₁ 1st level

1.9 mΩ

1.3 mΩ

1.3 mΩ

Contact resistance R₁ 2nd level

Insertion/withdrawal cycles

25

25

25

Contact resistance R₂

2 mΩ

1.5 mΩ

1.6 mΩ

Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)

2.95 kV

2.95 kV

2.95 kV

Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)

1.39 kV

1.39 kV

1.39 kV

Thermal tests (C)

Tested number of positions

16

16

20

Tested conductor cross section

1.5 mm²1.5 mm²1.5 mm²

Test current

8 A

8 A

8 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 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)

2.95 kV

2.95 kV

2.95 kV

Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)

1.39 kV

1.39 kV

1.39 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 fingerFinger safety with IP20
test fingerFinger safety with IP20
test finger