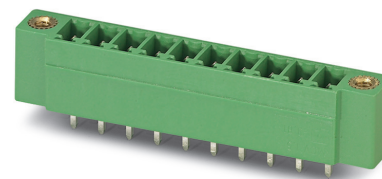


Data sheet

Order No.: 1830693

Type: MCV 1,5/12-GF-3,81

PCB header



The figure shows a 10-position version of the product

1 Main features



- | | | | |
|-------------------------|---------------------|------------------------|---------------------|
| • No. of pos. | 12 | • Nominal current | 8 A |
| • Nominal cross section | 1.5 mm ² | • Nominal voltage | 160 V |
| • Color | green (6021) | • Connection direction | 90 ° |
| • Pitch | 3.81 mm | • Type of packaging | packed in cardboard |
| • Mounting type | Wave soldering | | |

2 Your advantages

- ✓ Well-known mounting principle allows worldwide use
- ✓ Screwable flange for superior mechanical stability
- ✓ Vertical connection enables multi-row arrangement on the PCB
- ✓ Maximum flexibility when it comes to device design – one header for connectors with different connection technologies



Make sure you always use the latest documentation.

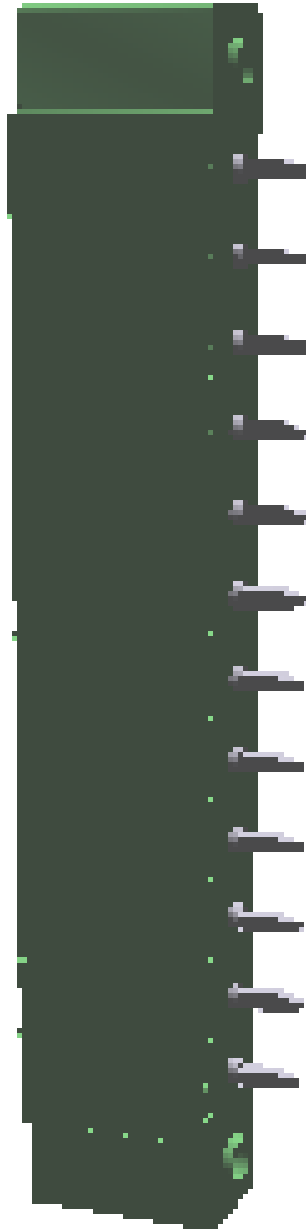
It can be downloaded at: phoenixcontact.net/product/1830693

3 Table of contents

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1830693 MCV 1,5/12-GF-3,81

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



1830693 MCV 1,5/12-GF-3,81**5 General Technical Data****5.1 item properties**

Order No.	1830693
Type	MCV 1,5/12-GF-3,81
Plug-in system	MINI COMBICON
Product type	PCB header
Type of contact	Male connector
Range of articles	MCV 1,5/..-GF
Pitch	3.81 mm
Number of positions	12
Number of levels	1
Number of connections	12
Number of potentials	12
Mounting type	Wave soldering
Connection direction of the connector to the PCB	90 °
Pin layout	Linear pinning
Solder pins per potential	1
Type	Standard

1830693 MCV 1,5/12-GF-3,81**6 Mounting****6.1 Flange mounting**

Type of locking	Screw locking
Mounting flange	Threaded flange
Torque	0.3 Nm

7 Material properties**7.1 Material of metal parts**

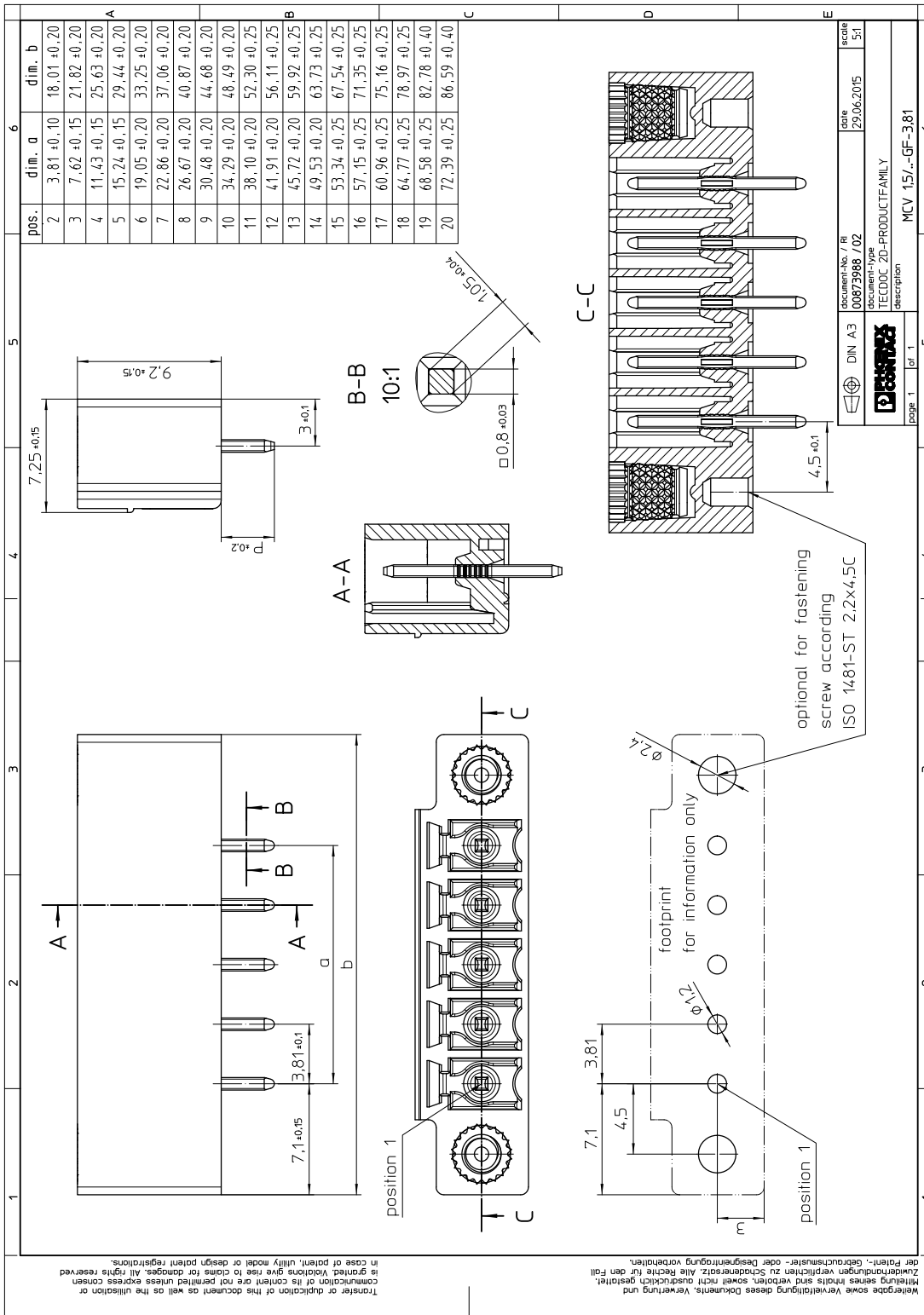
Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface contact area	Nickel (1 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Soldering area surface	Nickel (1 - 3 µm Ni) , Tin (3 - 5 µm Sn)
Surface characteristics	Tin-plated
Insulating material data	Housing
Color	green (6021)
Insulating material	PBT
Insulating material group	IIIa
CTI according to IEC 60112	225
Flammability rating according to UL 94	V0

1830693 MCV 1,5/12-GF-3,81**8 Dimensions****8.1 Dimensions for the product**

Length	7.25 mm
Width	56.11 mm
Height (without solder pin)	9.2 mm
Total height	12.6 mm
Solder pin [P]	3.4 mm

1830693 MCV 1,5/12-GF-3,81

9 Series drawing



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optional for fastening screw according ISO 1481-ST 2.2x4.5C

footprint for information only

DIN A3	document-No. / Ri	date	scale
00879988 / 02	79.06.2015	1:5:1	
TECDOC 2D-PRODUCTFAMILY	description		
page 1	of 1		
MCV 1,5/12-GF-3,81			

1830693 MCV 1,5/12-GF-3,81

10 Application

11 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

11.1 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)

1830693 MCV 1,5/12-GF-3,81**12 Mechanical tests****12.1 Visual examination**

Specification	IEC 61984:2008-10
Visual examination	Test passed
Specification	IEC 60512-1-1:2002-02

12.2 Dimensional test

Dimensional test	Test passed
Specification	IEC 60512-1-2:2002-02

12.3 Resistance of marking

Resistance of marking	Test passed
Specification	IEC 60068-2-70:1995-12

12.4 Polarization and coding

Polarization and coding	Test passed
Specification	IEC 60512-13-5:2006-02
Test force	20 N

12.5 Contact retention in insert

Contact holder in insert Requirements >20 N	Test passed
Specification	IEC 60512-15-1:2008-05

1830693 MCV 1,5/12-GF-3,81**13 Insertion and withdrawal forces**

Insertion and withdrawal force	
Specification	Test passed
No. of cycles	25
Insertion strength per pos. approx.	7 N
Withdraw strength per pos. approx.	5 N

1830693 MCV 1,5/12-GF-3,81**14 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	1.6 mΩ
Degree of pollution	2

14.1 Air and creepage distances

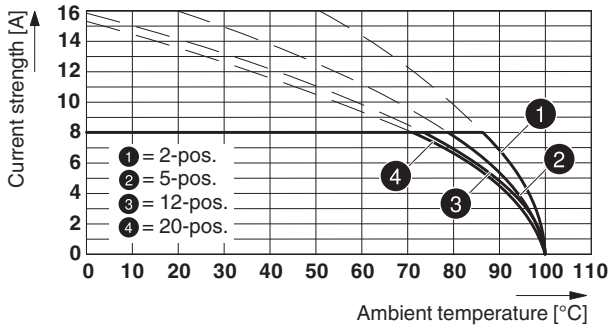
Component	PCB header		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	IIIa		
Comparative tracking index (IEC 60112:2003-01)	CTI 225		
Rated insulation voltage	160 V	160 V	250 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage category	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	2.5 mm	1.6 mm	2.5 mm

1830693 MCV 1,5/12-GF-3,81

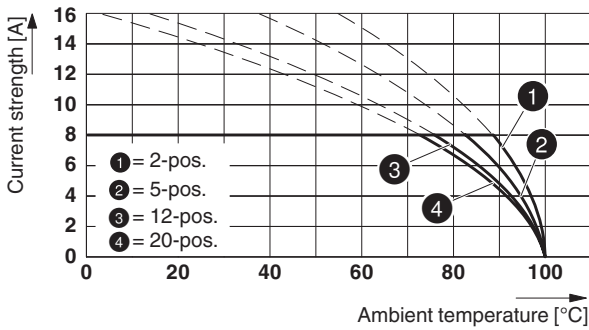
15 Current carrying capacity/derating curves

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

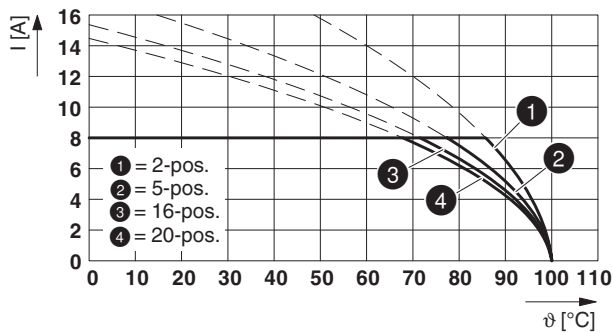
Type: FRONT-MC 1,5/...-STF-3,81 with MCV 1,5/...-GF-3,81



Type: MC 1,5/...-STF-3,81 with MCV 1,5/...-GF-3,81

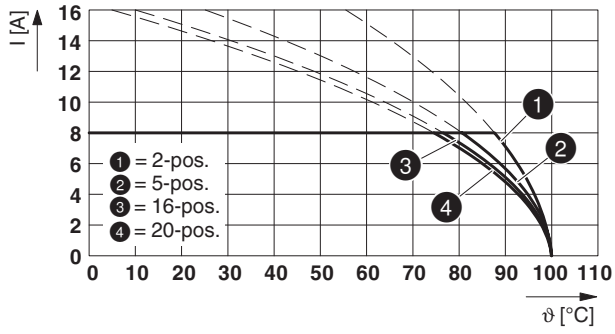


Type: FMC 1,5/...-STF-3,81 with MCV 1,5/...-GF-3,81



1830693 MCV 1,5/12-GF-3,81

Type: FK-MCP 1,5/...-STF-3,81 with MCV 1,5/...-GF-3,81



1830693 MCV 1,5/12-GF-3,81

16 Environmental and durability tests

16.1 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.

16.2 Insulation resistance

Specification	IEC 60512-3-1:2002-02
Result	Test passed
Insulation resistance, neighboring positions	> 5 MΩ

1830693 MCV 1,5/12-GF-3,81

17 Approvals / Certificates

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

1830693 MCV 1,5/12-GF-3,81**18 Commercial Data**

Order No.	1830693
Type	MCV 1,5/12-GF-3,81
Pieces per package	50
Net weight	4.3 g
GTIN	4017918051341
	Information that applies locally, see link on page 1
Country of origin	Information that applies locally, see link on page 1

19 corresponding plugs

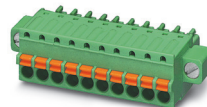
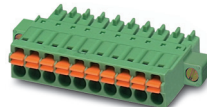
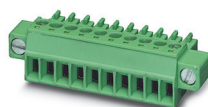
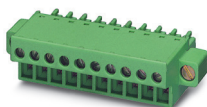
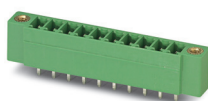
Order No.	Type
1748451	FMC 1,5/12-STF-3,81
1827800	MC 1,5/12-STF-3,81
1828443	MCVR 1,5/12-STF-3,81
1828595	MCVW 1,5/12-STF-3,81
1850958	FRONT-MC 1,5/12-STF-3,81
1851339	FK-MCP 1,5/12-STF-3,81
1852464	MCC 1/12-STZF-3,81
1897649	QC 0,5/12-STF-3,81

20 Accessories

Description	Order No.	Type
	0804109	SK 3,81/2,8:FORTL.ZAHLEN
Coding profile, is inserted into the slot on the plug or inverted header, red insulating material	1734634	CP-MSTB

1830693 MCV 1,5/12-GF-3,81

21 Combination tests

**MCV 1,5/12-GF****FRONT-MC 1,5/12-STF****MC 1,5/12-STF****FMC 1,5/12-STF****FK-MCP 1,5/12-STF**

IEC 61984

IEC 61984

IEC 61984

IEC 61984

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

approx. 7 N / 5 N

approx. 7 N / 5 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 level1.6 m Ω 1.2 m Ω 1.5 m Ω 1.2 m Ω Contact resistance R_1 2nd level

Insertion/withdrawal cycles

25

25

25

25

Contact resistance R_2 1.7 m Ω 1.2 m Ω 1.7 m Ω 1.3 m Ω Rated impulse voltage at sea level
Voltage waveform \geq (1.2/50 μ s)

2.95 kV

2.95 kV

2.95 kV

2.95 kV

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

1.39 kV

1.39 kV

1.39 kV

1.39 kV

Thermal tests (C)

Tested number of positions

20

20

20

20

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 \geq (1.2/50 μ s)

2.95 kV

2.95 kV

2.95 kV

2.95 kV

Power-frequency withstand voltage
Voltage waveform \geq (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