

Data sheet

Item No.: 1829358

Type: DFK-MC 1,5/ 3-GF-3,81

Feed-through header, Solder/Slip-on connection



The figure shows a 10-position version of the product

1 Main features



• No. of pos.	3	• 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	Direct mounting	• Connection method	Solder/Slip-on connection

2 Your advantages

- ✓ Free choice – permanent solder connection or standardized slip-on connection
- ✓ Cable connection on the inside of the device enables flexible positioning of the panel feed-through



Make sure you always use the latest documentation.

It can be downloaded at: phoenixcontact.net/product/1829358

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



1829358 DFK-MC 1,5/ 3-GF-3,81**5 General Technical Data****5.1 item properties**

Item no.	1829358
Type	DFK-MC 1,5/ 3-GF-3,81
Connector system	COMBICON MC 1,5
Product type	Feed-through header
Type of contact	Male connector
Range of articles	DFK-MC 1,5/..-GF
Pitch	3.81 mm
Number of positions	3
Number of rows	1
Number of connections	3
Number of potentials	3
Connection method	Solder/Slip-on connection
Connection direction of the connector to the PCB	90 °
Pin layout	Linear pinning
Solder pins per potential	1
Type	Feed-through header

1829358 DFK-MC 1,5/ 3-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**

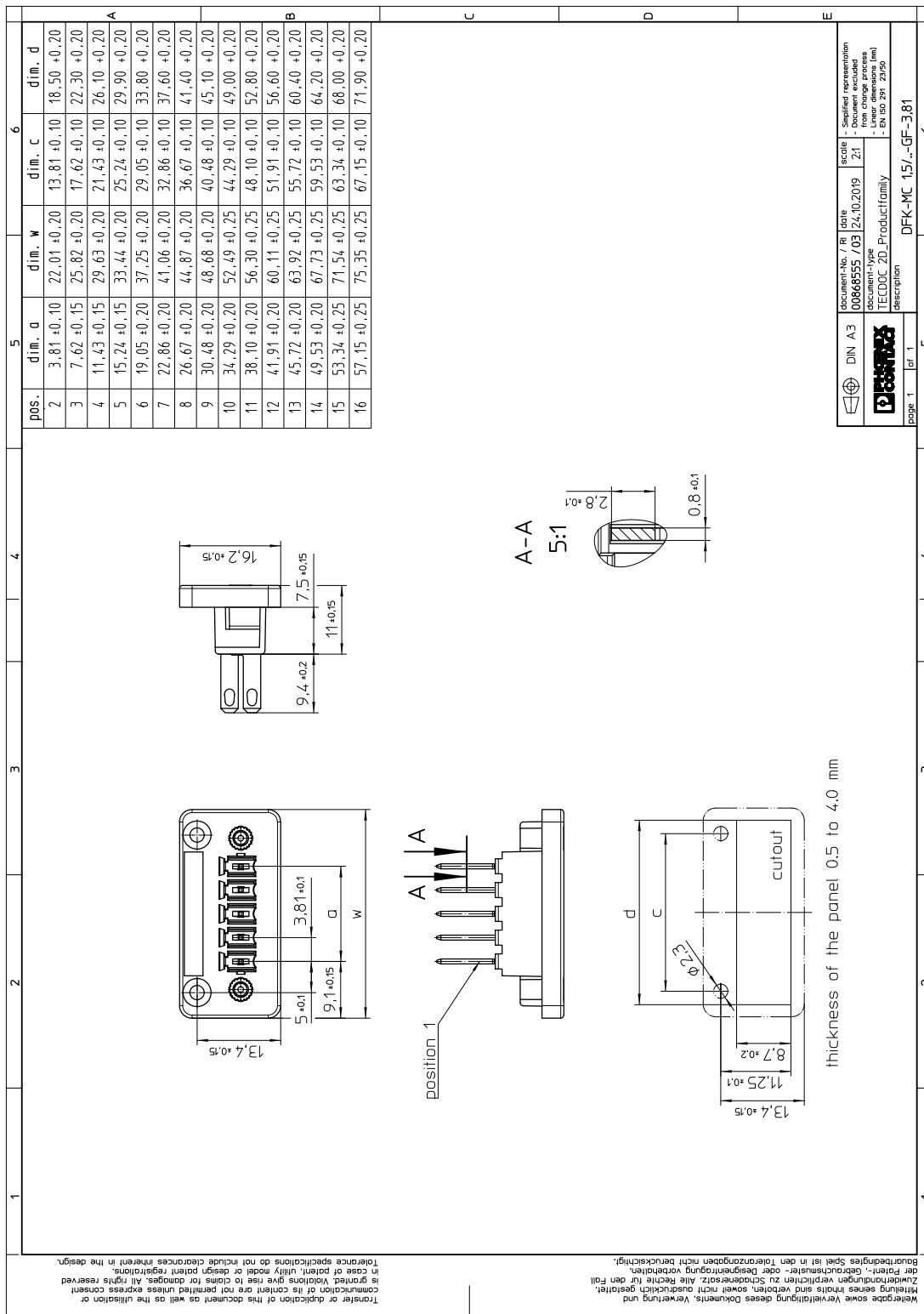
Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface contact area	Nickel (2 - 3 $\mu\text{m Ni}$) , Tin (5 - 7 $\mu\text{m Sn}$)
Soldering area surface	Nickel (2 - 3 $\mu\text{m Ni}$) , Tin (5 - 7 $\mu\text{m Sn}$)
Surface characteristics	Tin-plated
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

1829358 DFK-MC 1,5/ 3-GF-3,81**8 Dimensions****8.1 Dimensions for the product**

Length	16.2 mm
Width	25.82 mm
Height (without solder pin)	11 mm
Total height	20.4 mm
Solder pin [P]	9.4 mm

1829358 DFK-MC 1,5/ 3-GF-3,81

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
Relative humidity (storage/transport)	30 % ... 70 %
Ambient temperature (assembly)	-5 °C ... 100 °C
Ambient temperature (operation)	-40 °C ... 100 °C (dependent on the derating curve)

1829358 DFK-MC 1,5/ 3-GF-3,81**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

1829358 DFK-MC 1,5/ 3-GF-3,81**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.	7 N
Withdraw strength per pos. approx.	4 N

1829358 DFK-MC 1,5/ 3-GF-3,81**15 Electrical tests**

Rated current / conductor cross section	8 A / 1.5 mm ²
Max. current slip-on connection	8 A
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	2.2 mΩ
Degree of pollution	2

15.1 Air and creepage distances

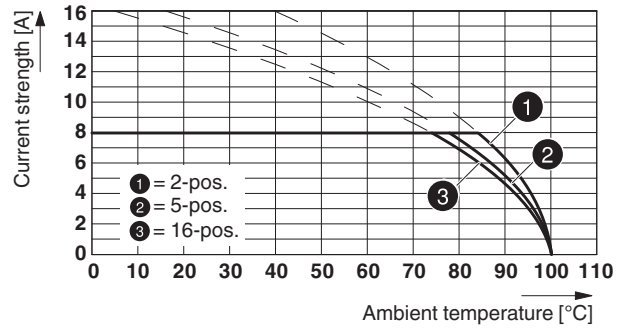
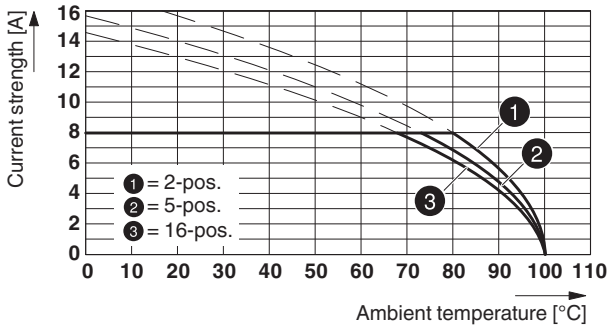
Component	Feed-through header		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112)	CTI 600		
Rated insulation voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage category	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

1829358 DFK-MC 1,5/ 3-GF-3,81

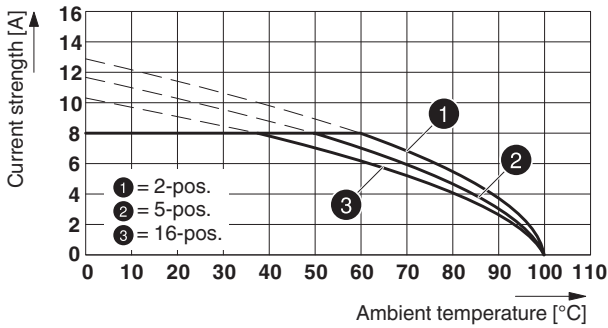
16 Current carrying capacity/derating curves

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	1.5 mm ²

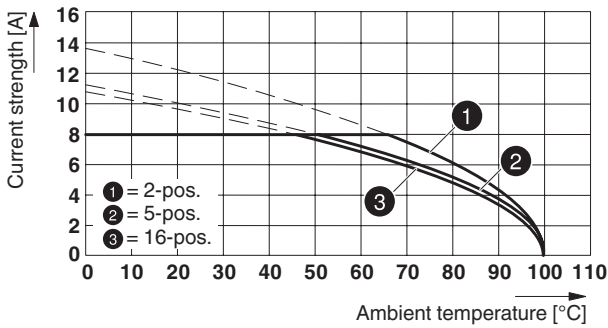
Type: MC 1,5/...-STF-3,81 with DFK-MC 1,5/...-GF-3,81 (with flat plug)



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

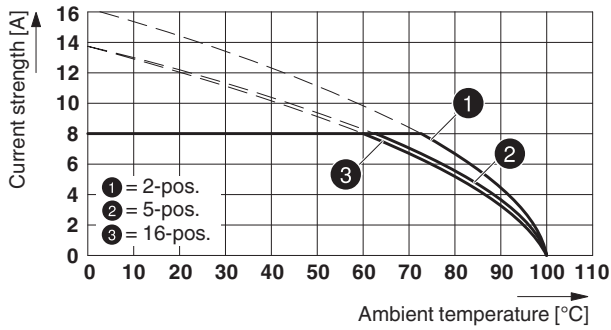


Type: FFRONT-MC 1,5/...-STF-3,81 with DFK-MC 1,5/...-GF-3,81

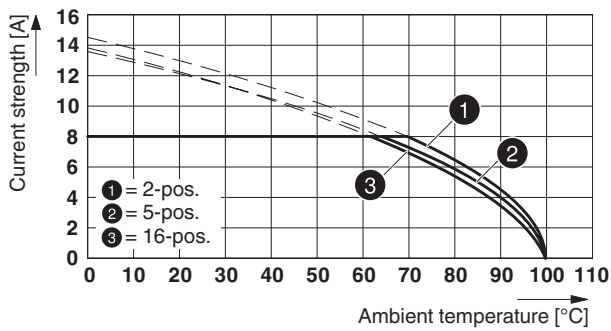


1829358 DFK-MC 1,5/ 3-GF-3,81

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



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



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	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.

17.2 Insulation resistance

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

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18 Approvals / Certificates

CSA 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	150 V	8 A	-	-
IECEE CB Scheme 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	160 V	8 A	-	0.2 - 1.5
EAC 				
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 report with production monitoring 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm ²]
	160 V	8 A	-	0.2 - 1.5

1829358 DFK-MC 1,5/ 3-GF-3,81**19 Commercial Data**

Item no.	1829358
Type	DFK-MC 1,5/ 3-GF-3,81
Pieces per package	50
Net weight	2.883 g
GTIN	4017918051037
	Information that applies locally, see link on page 1

20 corresponding plugs

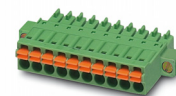
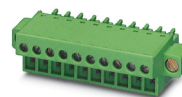
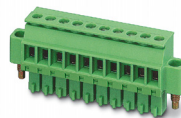
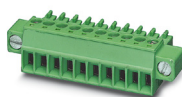
Item no.	Type
1828359	MCVR 1,5/ 3-STF-3,81
1850864	FRONT-MC 1,5/ 3-STF-3,81
1827716	MC 1,5/ 3-STF-3,81
1851245	FK-MCP 1,5/ 3-STF-3,81
1897555	QC 0,5/ 3-STF-3,81
1828508	MCVW 1,5/ 3-STF-3,81
1852370	MCC 1/ 3-STZF-3,81

21 Accessories

Description	Item No.	Type
Screw set, for securing the header to the housing wall, consists of M2 x 8 screw, spring washer and nut, 1 piece each	0710015	DFK-MC SS
Coding profile, is inserted into the slot on the plug or inverted header, red insulating material	1734634	CP-MSTB
	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

1829358 DFK-MC 1,5/ 3-GF-3,81

22 Combination tests

**DFK-MC 1,5/..-GF****MC 1,5/..-STF****MCVR 1,5/..-STF****FRONT-MC 1,5/..-STF****FMC 1,5/..-STF**

IEC 61984

IEC 61984

IEC 61984

IEC 61984

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

approx. 7 N / 4 N

approx. 8 N / 3 N

approx. 8 N / 6 N

approx. 7 N / 4 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

2.2 mΩ

4.1 mΩ

2.7 mΩ

2.5 mΩ

Contact resistance R₁ 2nd level

Insertion/withdrawal cycles

25

25

25

25

Contact resistance R₂

2.2 mΩ

4.3 mΩ

2.9 mΩ

2.6 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

Insulation resistance
Requirements > 5 MΩ

> 5 MΩ

> 5 MΩ

> 5 MΩ

> 5 MΩ

Thermal tests (C)

Tested number of positions

16

16

16

16

Tested conductor cross section

1.5 mm²1.5 mm²1.5 mm²1.5 mm²

Test current

8 A DC

8 A

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

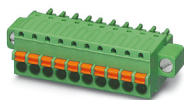
IEC 61984:2008-10

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

1829358 DFK-MC 1,5/ 3-GF-3,81**DFK-MC 1,5/..-GF**

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)Insulation resistance
Requirements > 5 MΩ**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

FK-MCP 1,5/..-STF

IEC 61984

approx. 8 N / 5 N

Test passed

Test passed

2.2 mΩ

25

2.4 mΩ

2.95 kV

1.39 kV

> 5 MΩ

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