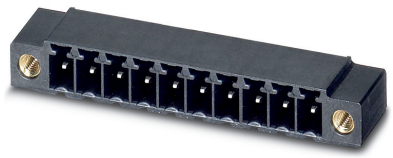
2021-03-08
Product version 01
Document revision 00

Data sheet

Order No.: 1789203

Type: MC 1,5/ 4-GF-3,5 P26 THR

PCB header, Reflow/wave soldering



The figure shows a 10-position version of the product

1 Main features

- No. of pos. 4
- Nominal cross section 1.5 mm²
- Color black (9005)
- Pitch 3.5 mm
- Mounting type THR soldering
- Nominal current 8 A
- Nominal voltage 160 V
- Connection direction 0 °
- Type of packaging packed in cardboard

2 Your advantages

- Designed for integration into the SMT soldering process
- Screwable flange for superior mechanical stability
- 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/1789203

3 Table of contents

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

5 General Technical Data

5.1 item properties

Order No.	1789203
Type	MC 1,5/ 4-GF-3,5 P26 THR
Plug-in system	MINI COMBICON
Product type	PCB header
Type of contact	Male connector
Range of articles	MC 1,5/..-GF-THR
Pitch	3.5 mm
Number of positions	4
Number of levels	1
Number of connections	4
Number of potentials	4
Mounting type	THR soldering
Connection direction of the connector to the PCB	0 °
Pin layout	Linear pinning
Solder pins per potential	1
Type	Component suitable for through hole reflow

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

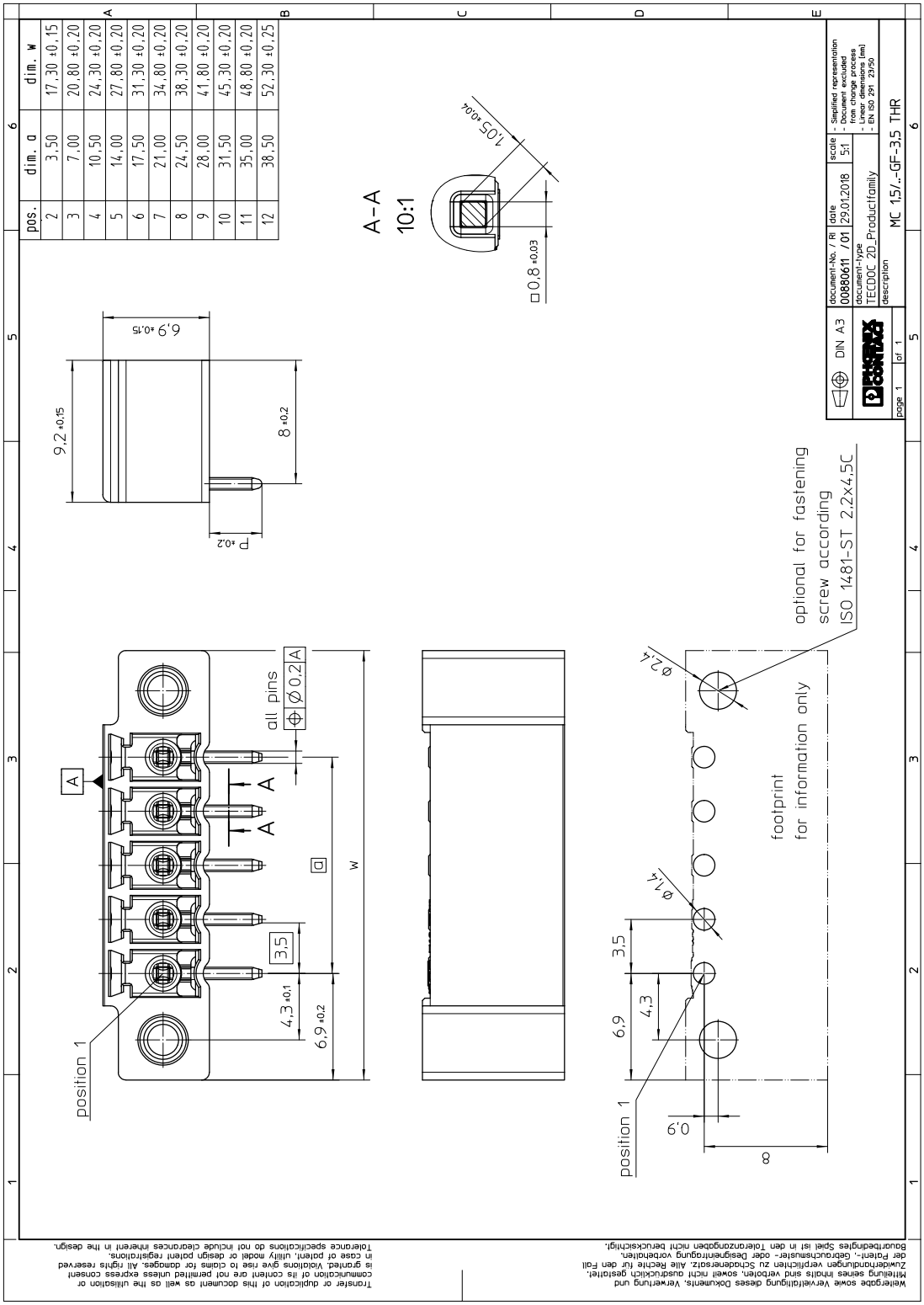
Insulating material data	Housing
Color	black (9005)
Insulating material	LCP
Insulating material group	IIIa
CTI according to IEC 60112	175
Flammability rating according to UL 94	V0

8 Dimensions

8.1 Dimensions for the product

Length	9.2 mm
Width	24.3 mm
Height (without solder pin)	6.9 mm
Total height	9.5 mm
Solder pin [P]	2.6 mm

9 Series drawing



10 Application

11 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

11.1 Processing notes

Process	Reflow/wave soldering
Specification	Following IPC/JEDEC J-STD-020E:2014-12
Specification	Following IEC 61760-1:2006-04
Specification	Follwing IEC 60068-2-58:2015-03
Moisture Sensitive Level	MSL 1
Classification temperature T_c	max. 260 °C
Solder cycles in the reflow	3
swash circumference	see dimensional drawing

11.2 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)

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

13 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.	8 N
Withdraw strength per pos. approx.	5 N

14 Electrical tests

Rated current / conductor cross section	8 A / 1.5 mm²
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	1.3 mΩ
Degree of pollution	2

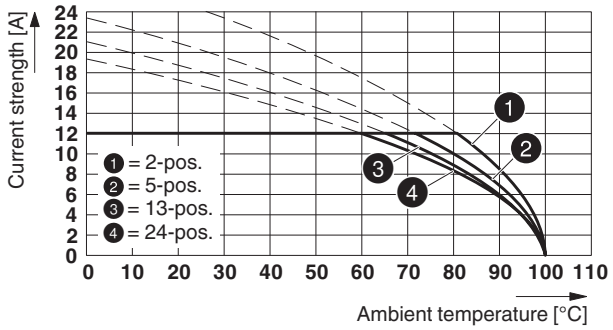
14.1 Air and creepage distances

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

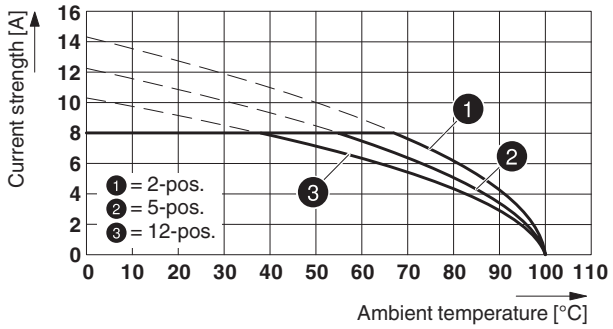
15 Current carrying capacity/derating curves

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 mm²

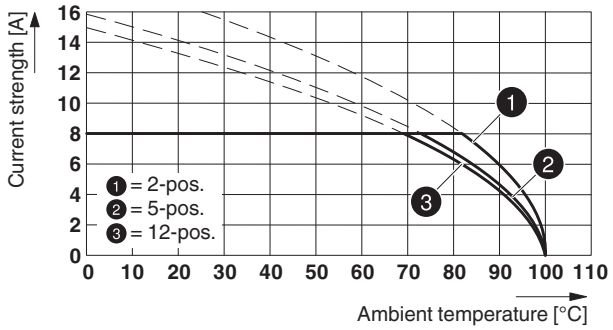
Type: MC 1,5/...-ST(F)-3,5 with MC 1,5/...-G(F)-3,5 P... THR



Type: MCV(W/R) 2,5/...-STF-3,5 with MC 1,5/...-GF-3,5 P...THR



Type: FMC 1,5/...-STF-3,5 with MC 1,5/...-GF-3,5 P.. THR



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

17 Approvals / Certificates

IECEE CB Scheme	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	160 V	8 A	-	-

EAC

VDE Gutachten mit Fertigungsüberwachung	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	160 V	8 A	-	-

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
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 [mm²]
	160 V	8 A	-	-

18 Commercial Data

Order No.	1789203
Type	MC 1,5/ 4-GF-3,5 P26 THR
Pieces per package	50
Net weight	2.2 g
GTIN	4046356611442
	Information that applies locally, see link on page 1
	Information that applies locally, see link on page 1

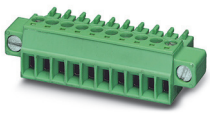
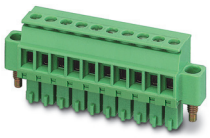
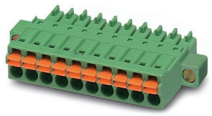
19 corresponding plugs

Order No.	Type
1772728	TFMC 1,5/ 4-STF-3,5
1847071	MC 1,5/ 4-STF-3,5
1863026	MCVW 1,5/ 4-STF-3,5
1863327	MCVR 1,5/ 4-STF-3,5
1940114	FK-MCP 1,5/ 4-STF-3,5
1966114	FMC 1,5/ 4-STF-3,5

20 Accessories

Description	Order No.	Type
MINI COMBICON fiber optics, 3.5 mm pitch, 10-pos., separable for other numbers of positions (minimum: 2-pos.), inserts into the back of the MC header, color: transparent, dimension a: 1.5 mm	1841161	MC 1,5/10-LWL 1,5-3,5
MINI COMBICON fiber optics, 3.5 mm pitch, 10-pos., separable for other numbers of positions (minimum: 2-pos.), inserts into the back of the MC header, color: transparent, dimension a: 2.3 mm	1841187	MC 1,5/10-LWL 2,3-3,5
MINI COMBICON fiber optics, 3.5 mm pitch, 10-pos., separable for other numbers of positions (minimum: 2-pos.), inserts into the back of the MC header, color: transparent, dimension a: 4 mm	1841200	MC 1,5/10-LWL 4-3,5

21 Combination tests

	MC 1,5/..-GF-THR	MC 1,5/..-STF	MCVR 1,5/..-STF	FMC 1,5/..-STF	
	IEC 61984	IEC 61984	IEC 61984	IEC 61984	
Mechanical tests (A)					
Insertion/withdrawal force per position		approx. 8 N / 5 N	approx. 7 N / 8 N	approx. 6 N / 8 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 1st level		1.3 mΩ	3.5 mΩ	1.6 mΩ	
Contact resistance R_1 2nd level					
Insertion/withdrawal cycles		25	25	25	
Contact resistance R_2		1.3 mΩ	3.6 mΩ	1.9 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		20	12	12	
Tested conductor cross section		1.5 mm²	1.5 mm²	1.5 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 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)		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 finger	Finger safety with IP20 test finger	Finger safety with IP20 test finger	