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2021-04-15
Product version 04
Document revision 00

Data sheet

Order No.: 1714971

Type: MKDS 5/ 2-9,5

PCB terminal block, Wave soldering, Screw connection with tension sleeve



1 Main features



- No. of pos. 2
- Conductor cross section 4 mm²
- Color green (6021)
- Pitch 9.52 mm
- Connection method Screw connection with tension sleeve
- Nominal current 32 A
- Nominal voltage 1000 V
- Connection direction 0 °
- Type of packaging packed in cardboard

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/1714971

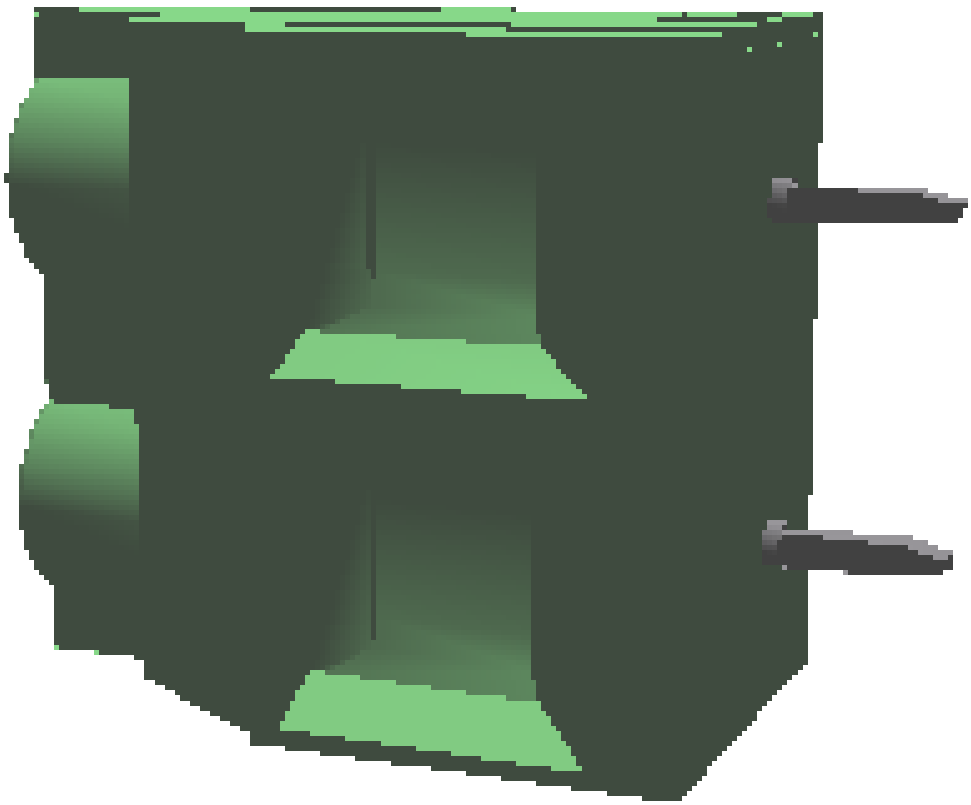
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3 Table of contents

1 Main features ... 1
2 Your advantages ... 1
3 Table of contents ... 2
4 3D model in PDF can be activated (Acrobat Reader only) ... 3
5 General Technical Data ... 4
6 Conductor connection ... 5
7 Material properties ... 5
8 Dimensions ... 6
9 Series drawing ... 7
10 Product drawing ... 8
11 Product notes ... 9
12 Application ... 9
13 Packaging information ... 9
14 Mechanical tests ... 10
15 Electrical tests ... 11
16 Current carrying capacity/derating curves ... 13
17 Environmental and durability tests ... 14
18 Approvals / Certificates ... 15
19 Commercial Data ... 16
20 Accessories ... 16

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



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5 General Technical Data

5.1 item properties

Order No.	1714971
Type	MKDS 5/ 2-9,5
Product type	PCB terminal block
Range of articles	MKDS 5
Pitch	9.52 mm
Number of positions	2
Number of levels	1
Number of connections	2
Number of potentials	2
Connection method	Screw connection with tension sleeve
Screw thread	M3
Drive form screw head	Slotted (L)
Mounting type	Wave soldering
Connection direction of the conductor to the PCB	0 °
Pin layout	Linear pinning
Solder pins per potential	1
Product note	The article can be aligned to create different nos. of positions!
Type	PC terminal block can be aligned

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6 Conductor connection

6.1 Connection capacity

Conductor cross section, rigid	0.2 mm² ... 6 mm²
Conductor cross section, flexible	0.2 mm² ... 4 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² ... 4 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm² ... 4 mm²
2 conductors with same cross section, solid	0.2 mm² ... 1.5 mm²
2 conductors with same cross section, stranded	0.2 mm² ... 1.5 mm²
2 conductors with same cross section, stranded, with ferrule without plastic sleeve	0.25 mm² ... 0.75 mm²
2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve	0.5 mm² ... 2.5 mm²
Stripping length	8 mm
Tightening torque	0.5 Nm ... 0.6 Nm

6.2 Connection capacity AWG

Conductor cross section AWG	24 ... 10

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
Terminal point surface	Tin (4 - 8 µm Sn)
Soldering area surface	Tin (4 - 8 µm Sn)
Surface characteristics	Tin-plated

7.2 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

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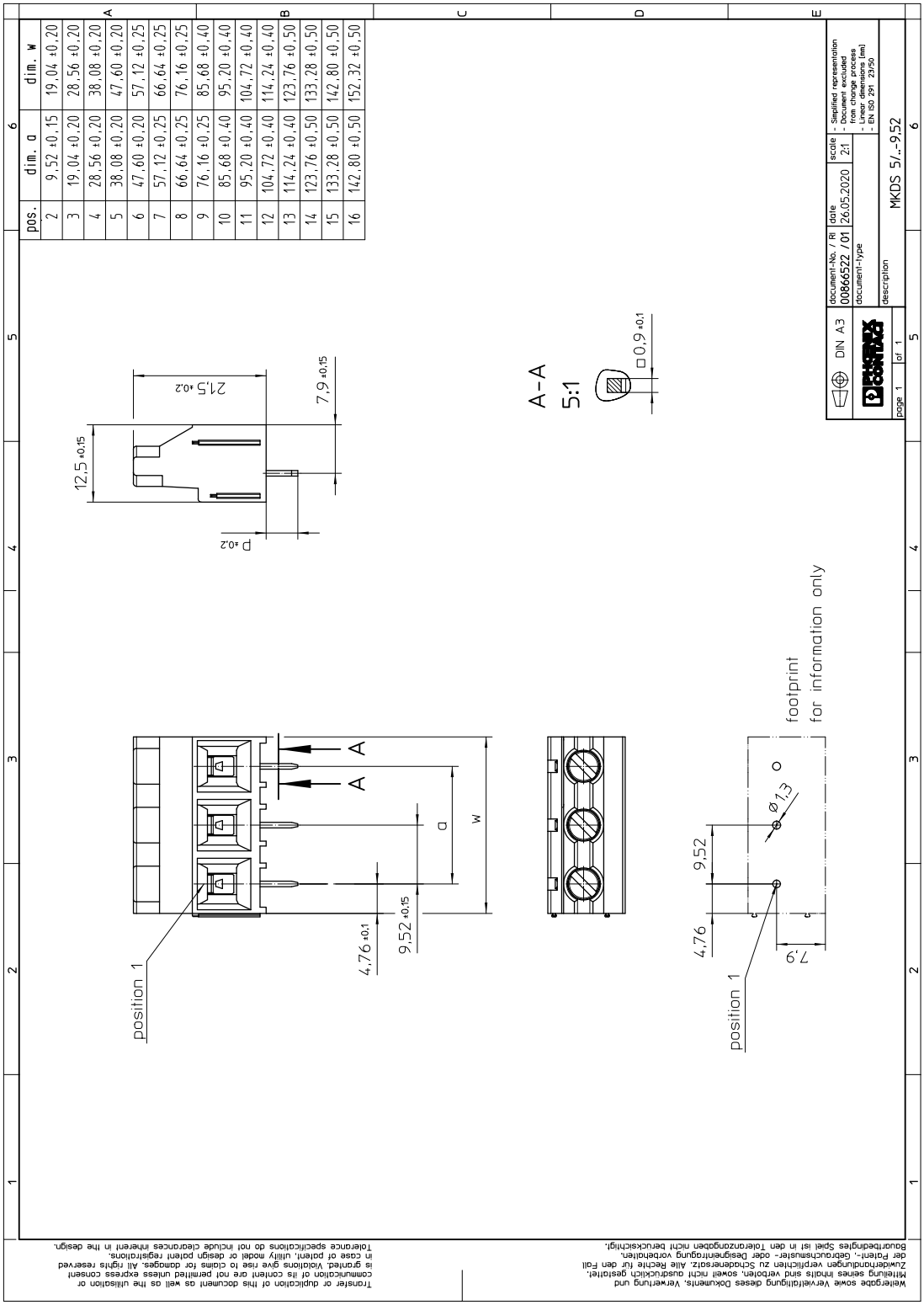
8 Dimensions

8.1 Dimensions for the product

Length	12.05 mm
Width	19.04 mm
Height (without solder pin)	21.5 mm
Total height	26.5 mm
Solder pin [P]	5 mm

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9 Series drawing

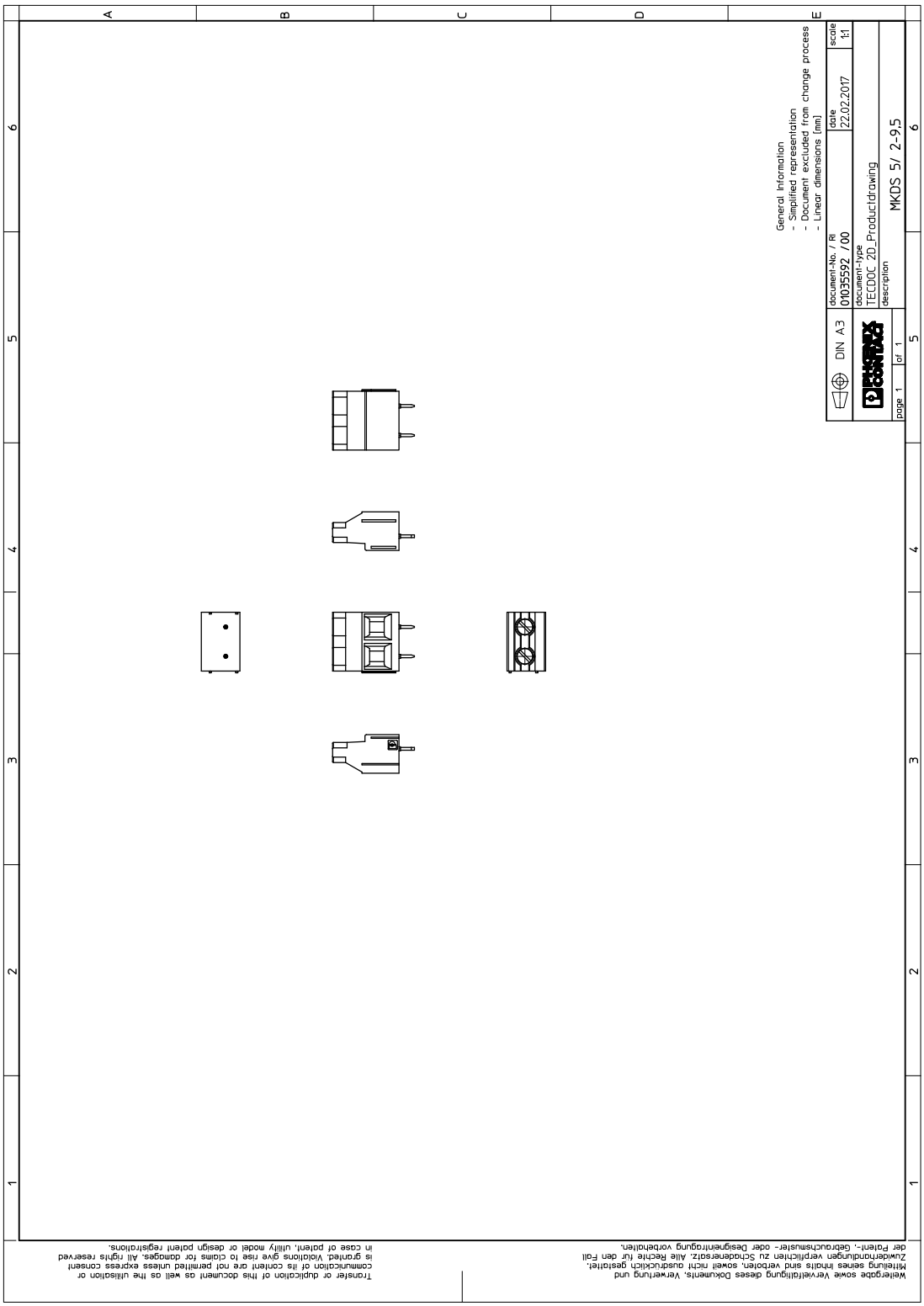


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10 Product drawing



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11 Product notes

11.1 General information

Note on application	For safe conductor connection, always adhere to a defined tightening torque. Particularly in the case of PCB terminal blocks with two or three positions, the individual solder pin for each contact point cannot compensate for this. That is why the terminal blocks must be supported during conductor connection (held with one hand, support on the housing).

11.2 Dimensions for PCB design

Hole diameter	1.3 mm
Pin dimensions	0.9 x 0.9 mm

12 Application

13 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

13.1 Processing notes

Process	Wave soldering
Specification	Following IEC 61760-1:2006-04
Specification	Following IEC 60068-2-54:2006-04

13.2 Temperature limit values

Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (assembly)	-40 °C ... 100 °C
Ambient temperature (operation)	-40 °C ... 105 °C (Depending on the current carrying capacity/derating curve)

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14 Mechanical tests

14.1 Pull-out test

Specification	IEC 60999-1:1999-11
Result	Test passed
Conductor cross section/conductor type/tractive force actual value	0.2 mm^2 / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.2 mm^2 / flexible / > 10 N
Conductor cross section/conductor type/tractive force actual value	6 mm^2 / solid / > 80 N
Conductor cross section/conductor type/tractive force actual value	4 mm^2 / flexible / > 60 N

14.2 Check for damage to conductor or loosening

Specification	IEC 60999-1:1999-11
Result	Test passed

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15 Electrical tests

Rated current / conductor cross section	32 A / 4 mm²
Rated insulation voltage (III/2)	1000 V
Rated surge voltage (III/2)	8 kV
Contact resistance	0.36 mΩ
Degree of pollution	2

15.1 Air and creepage distances

Component	PCB terminal block		
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	690 V	1000 V	1000 V
Rated surge voltage	8 kV	8 kV	6 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	8 mm	8 mm	5.5 mm
Minimum value of the creepage path requirement in acc. with table	8 mm	8 mm	5.5 mm

15.2 Short-time withstand current test

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Conductor cross section/short-time current	6 mm² / 97 A

15.3 Aging test (climatic impact and corrosion testing)

Specification	IEC 60947-7-4:2019-01
Result	Test passed
Contact resistance R_1	0.36 mΩ / 6 mm²
Test sequence 1: low temperature storage	-40 °C / 2 h
Test sequence 2: heat storage	168 h/105 °C
Test sequence 3: noxious gas storage (ISO 6988)	KFW 0.2 S/1 cycle
Contact resistance R_2	0.31 mΩ / 6 mm²
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	7.3 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	4.2 kV

15.4 Insulation resistance

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

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15.5 Mechanical connection test for the PCB terminal block

Specification	IEC 60947-7-4:2019-01
Result	Test passed

15.6 Temperature rise test

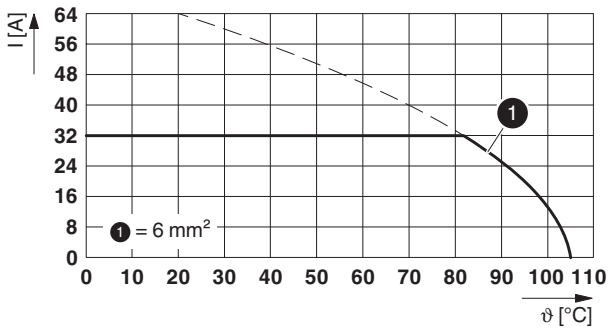
Specification	IEC 60947-7-4:2019-01
Result	Test passed
Requirement temperature-rise test	The sum of ambient temperature and temperature rise of the PCB terminal block shall not exceed the upper limiting temperature.
Conductor cross section/test current/temperature rise	6 mm² / 32 A / 23.1 K

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16 Current carrying capacity/derating curves

Specification	IEC 60947-7-4:2019-01
Note	Representation based on IEC 60512-5-2:2002-02
Reduction factor	1
Number of positions	4
Conductor cross section	4 mm²

Type: MKDS 5/...-9,5



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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	5 g (60.1 - 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis
Note	

17.2 Assessment of fire risk (glow wire test)

Specification	IEC 60695-2-10:2013-04		
Result	Test passed		
Temperature	850 °C		
Time of exposure	5 s		

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18 Approvals / Certificates

CSA	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	30 A	28 - 10	-
Usegroup C				
	300 V	30 A	28 - 10	-

EAC

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	30 A	30 - 10	-
Usegroup C				
	300 V	30 A	30 - 10	-
Usegroup D				
	600 V	5 A	30 - 10	-

CCA	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	690 V	-	-	6

DNV GL

RS

SEV	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	690 V	32 A	-	6

IECEE CB Scheme	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	690 V	32 A	-	6

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19 Commercial Data

Order No.	1714971
Type	MKDS 5/ 2-9,5
Pieces per package	50
Net weight	5.921 g
GTIN	4017918024116
	Information that applies locally, see link on page 1
	Information that applies locally, see link on page 1

20 Accessories

Description	Order No.	Type
Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip	1205053	SZS 0,6X3,5
	0804633	SK 9,5/3,8:FORTL.ZAHLEN
	0805920	SK 9,5/3,8:UNBEDRUCKT

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