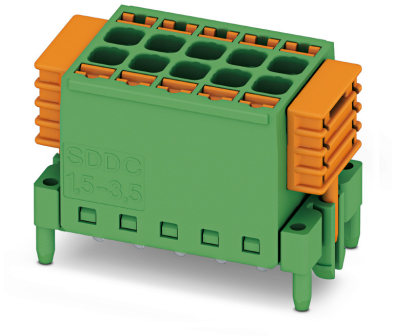
2022-07-05
Product version 01
Document revision 04

Data sheet

Item No.: 1848684

Type: SDDC 1,5/ 6-PV-3,5

PCB direct plug, Push-in spring connection



The figure shows a 5-pos. version with 10 contacts

1 Main features

- No. of pos. 6
- Conductor cross section 1.5 mm²
- Color green (6021)
- Pitch 3.5 mm
- Connection method Push-in spring connection
- Nominal current 8 A
- Nominal voltage 160 V
- Connection direction 90 °
- Type of packaging packed in cardboard

2 Your advantages

- SKEDD direct plug-in technology enables flexible positioning on the PCB
- Reduced component and process costs: simple insertion by hand and vibration-resistant connection
- Contacts arranged in a double row enable high packing density in a compact area
- Wide range of applications, thanks to suitability for PCBs with chemically tin-plated or Hot Air Leveling (HAL) surface
- Time saving push-in connection, tools not required
- Intuitive use through colour coded actuation lever
- Quick and convenient testing using integrated test option

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1848684

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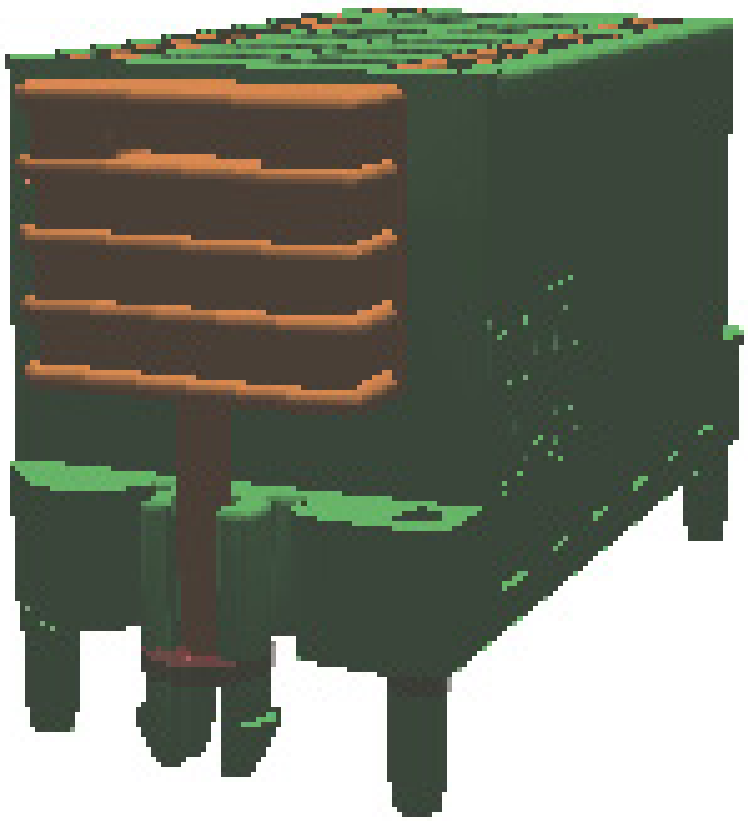
4 3D model in PDF can be activated (Acrobat Reader only)



5 General Technical Data

5.1 item properties

Item no.	1848684
Type	SDDC 1,5/ 6-PV-3,5
Connector system	SKEDD
Product type	PCB direct plug
Range of articles	SDDC 1,5/..-PV
Pitch	3.5 mm
Number of positions	6
Number of rows	2
Number of connections	12
Number of potentials	12
Connection method	Push-in spring connection
Connection direction of the connector to the PCB	90 °
Connection direction of the conductor to plug-in direction	90 °
Pin layout	Linear double pinning
Solder pins per potential	1

6 Mounting

6.1 Flange mounting

Type of locking	Snap-in locking
Mounting flange	Self-locking flange

7 Conductor connection

7.1 Connection capacity

Nominal cross section	1.5 mm²
Conductor cross section, rigid	0.2 mm² ... 1.5 mm²
Conductor cross section, flexible	0.2 mm² ... 1.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm² ... 1.5 mm²
Conductor cross section flexible, with ferrule with plastic sleeve	0.2 mm² ... 1 mm²
Cylindrical gauge a x b / diameter	2.4 mm x 1.5 mm / 1.6 mm
Stripping length	8 mm

7.2 Connection capacity AWG

Conductor cross section AWG	24 ... 16

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

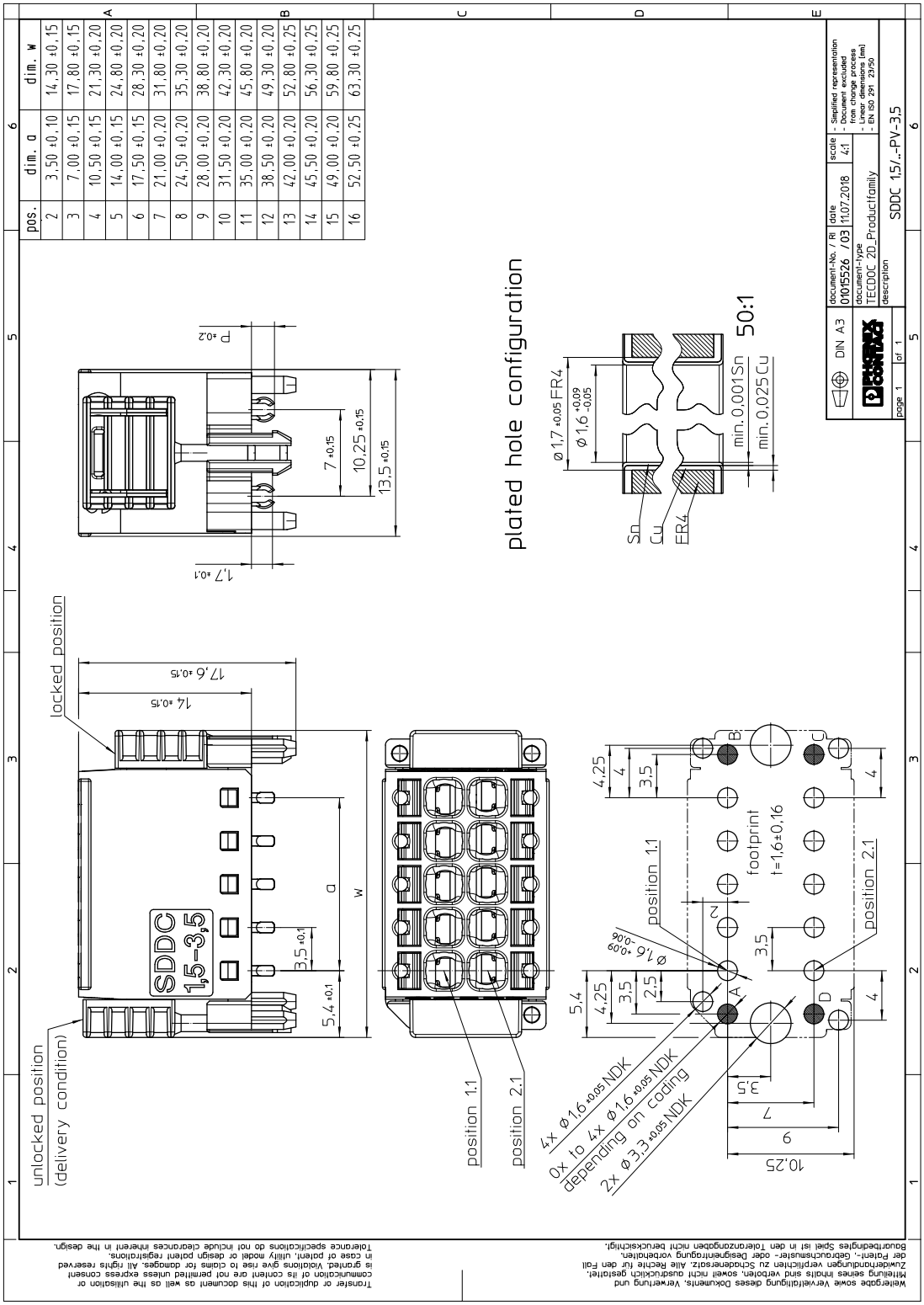
	Housing	Actuation element
Color	green (6021)	
Insulating material	PA	PBT
Insulating material group	I	I
CTI according to IEC 60112	600	600
Flammability rating according to UL 94	V0	V0
Glow wire flammability index GWFI according to EN 60695-2-12	850	
Glow wire ignition temperature GWIT according to EN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

9 Dimensions

9.1 Dimensions for the product

Length	13.5 mm
Width	28.3 mm
Installed height	14 mm
Total height	17.6 mm

10 Series drawing



11 Product notes

11.1 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.

12 Packaging information

Type of packaging	packed in cardboard
Pieces per package	100

13 Application

Ferrules without insulating collar, according to DIN 46228–1	
Recommended crimping pliers	1212034 CRIMPFOX 6
Ferrules without insulating collar, according to DIN 46228–1	Cross section: 0.5 mm²; Length: 8 mm ... 10 mm Cross section: 0.75 mm²; Length: 8 mm ... 10 mm Cross section: 1 mm²; Length: 8 mm ... 10 mm Cross section: 1.5 mm²; Length: 8 mm

Ferrules with insulating collar, according to DIN 46228–4	
Recommended crimping pliers	1212034 CRIMPFOX 6
Ferrules with insulating collar, according to DIN 46228–4	Cross section: 0.25 mm²; Length: 8 mm ... 10 mm Cross section: 0.5 mm²; Length: 8 mm ... 10 mm Cross section: 0.75 mm²; Length: 10 mm Cross section: 1 mm²; Length: 10 mm

13.1 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)

14 General tests

14.1 Specification

Specification	IEC 61984
Specification	IEC 60999-1
Brief description	Printed-circuit board connector

15 Mechanical tests

15.1 Check for damage to conductor or loosening

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

15.2 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	1.5 mm^2 / solid / > 40 N
Conductor cross section/conductor type/tractive force actual value	1.5 mm^2 / flexible / > 40 N

15.3 Repeated connection and disconnection

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

15.4 Conductor connection

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

15.5 Visual examination

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

15.6 Dimensional test

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

15.7 Resistance of marking

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

15.8 Polarization and coding

Polarization when inserted Requirement >20 N	Test passed
Specification	IEC 60512-13-5:2006-02

16 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.	6 N

17 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	1.4 mΩ
Degree of pollution	2

17.1 Air and creepage distances

Component	PCB direct plug		
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	400 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	2 mm

17.2 Electrical function

Specification	IEC 60999-1:1999-11
Result	Test passed
Voltage drop	Voltage drop (U) after the load ≤ 15 mV
Test current (minimum cross section)	4 A AC
Test current (maximum cross section)	8 A AC
Conductor cross section, flexible	0.2 mm² ... 1.5 mm²
Conductor cross section, rigid	0.2 mm² ... 1.5 mm²

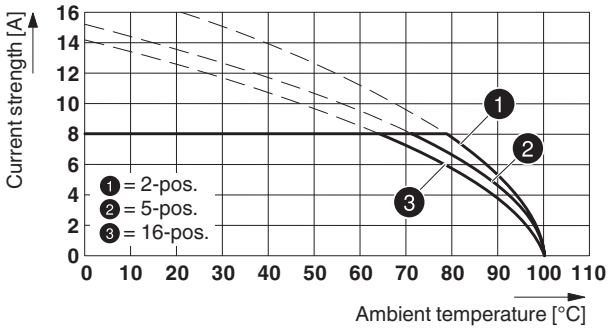
17.3 Temperature cycles

Specification	IEC 60999-1:1999-11
Result	Test passed
Voltage drop	Voltage drop (U) after the load ≤ 22.5 mV or 1.5 x $U_{\text{after 24 h}}$ The small value is to be used.
Test current (minimum cross section)	4 A DC
Test current (maximum cross section)	8 A DC
Temperature cycles	192
Conductor cross section, flexible	0.2 mm² ... 1.5 mm²
Conductor cross section, rigid	0.2 mm² ... 1.5 mm²

18 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: SDDC 1,5/...-PV-3,5



19 Environmental and durability tests

19.1 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 connecting cables must be strain relieved.

19.2 Railway application, vibration test

Specification	IEC 61373:2010-05
Result	Test passed
Testing	Vibration, broadband noise
Frequency	5 - 150 Hz
Test directions	X-, Y- and Z-axis (pos. and neg.)
Spectrum	Service life test category 1, class B, body mounted

19.3 Insulation resistance

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

19.4 Insulation resistance

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

20 Type approval and special tests

21 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
Locking	no
Connection method	Screwless terminal points

22 Approvals / Certificates

IECEE CB Scheme				

cULus Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup B				
	300 V	8 A	24 - 16	-
Usegroup D				
	300 V	8 A	24 - 16	-

EAC				

VDE Zeichengenehmigung	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
	160 V	8 A	-	0.2 - 1.5

UL Recognized	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm²]
Usegroup F				
	250 V	8 A	24 - 16	-

23 Commercial Data

Item no.	1848684
Type	SDDC 1,5/ 6-PV-3,5
Pieces per package	100
Net weight	5.82 g
GTIN	4055626307152
	Information that applies locally, see link on page 1

24 Accessories

Description	Item No.	Type
Coding profile, inserted into the hole on the plug, made from red insulating material, diameter: 1.35 mm	1985564	CP-PT 1,5
	0804073	SK 3,5/2,8:FORTL.ZAHLEN
	0825121	SK 2,8 REEL P3,5 WH CUS
	0803883	SK U/2,8 WH:UNBEDRUCKT
	0805205	SK 2,8 WH:REEL
Test plug, consisting of 1.0 mm Ø test pin and 2.0 mm Ø socket	1944372	MPS-MT 1-S
	1982800	MPS-MT 1-S4-B RD
Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm² ... 6.0 mm², lateral entry, trapezoidal crimp	1212034	CRIMPFOX 6
	3203037	AI 0,25- 8 YE
	3200014	AI 0,5 - 8 WH
	3200881	AI 0,5 - 8 WH -1000
	3201288	AI 0,75-10 GY
	3200182	AI 1 -10 RD
Ferrules, 1.0 mm², taped, sleeve length: 8 mm, with plastic collar, galvanically tin-plated, color: red, color range according to DIN 46228-4, CSA-certified	3201385	AI 1 - 8 RD-B
	3202481	A 0,5 - 8
	3202504	A 0,75- 8
	3200234	A 0,75-10
	3202517	A 1 - 8
	3200250	A 1 -10
	3200276	A 1,5 -10

25 Combination tests

SDDC 1,5/..-PV

IEC 61984	IEC 61984			
Mechanical tests (A)				
Insertion/withdrawal force per position	approx. 8 N / 6 N			
Polarization when inserted Requirement >20 N	Test passed			
Contact holder in insert Requirements >20 N	Test passed			
Durability tests (B)				
Contact resistance R_1 1st level	1.4 mΩ			
Contact resistance R_1 2nd level				
Insertion/withdrawal cycles	25			
Contact resistance R_2	1.5 mΩ			
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	2.95 kV			
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	1.39 kV			
Insulation resistance Requirements > 5 MΩ	> 5 MΩ			
Thermal tests (C)				
Tested number of positions	16			
Tested conductor cross section	1.5 mm^2			
Test current	8 A			
Upper limiting temperature Requirements < 100°C	Test passed			
Climatic tests (D)				
Test sequence 1: low temperature storage	-40 °C/2 h			
Test sequence 2: heat storage	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			
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	2.95 kV			
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	1.39 kV			
Environmental and endurance tests (E)				
Specification	IEC 61984:2008-10			
Degree of protection	Finger safety above the PCB.			