

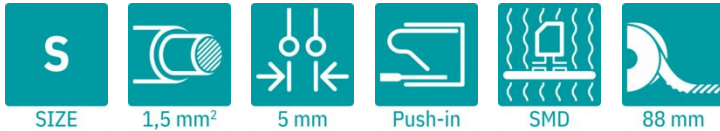
# SPT-SMD 1,5/ 9-V-5,0 R88 - PCB terminal block



1824378

<https://www.phoenixcontact.com/us/products/1824378>

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The figure shows the 10-position version

Printed circuit board terminal, nominal current: 17.5 A, rated voltage (III/2): 320 V, nominal cross section: 1.5 mm<sup>2</sup>, number of potentials: 9, number of rows: 1, number of positions per row: 9, product range: SPT 1,5/..-V-SMD, pitch: 5 mm, connection method: Push-in spring connection, mounting: SMD soldering, conductor/PCB connection direction: 90 °, color: black, Pin layout: Linear pad geometry, number of solder pins per potential: 2, type of packaging: 88 mm wide tape

## Your advantages

- Time saving push-in connection, tools not required
- Defined contact force ensures that contact remains stable over the long term
- Intuitive operation due to color-coded actuating push button
- Designed for integration into the SMT soldering process
- Operation and conductor connection from one direction enable integration into front of device
- Quick and convenient testing using integrated test option
- Two soldering spots per position reduce the mechanical strain on the soldering spots

## Commercial data

Item number	1824378
Packing unit	200 pc
Minimum order quantity	200 pc
Note	Made to order (non-returnable)
Sales key	AA12
Product key	AALDAG
GTIN	4046356816472
Weight per piece (including packing)	8.295 g
Weight per piece (excluding packing)	8.295 g
Customs tariff number	85369010
Country of origin	PL

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## Technical data

### Product properties

Product type	Printed circuit board terminal
Product family	SPT 1,5/...-V-SMD
Product line	COMBICON Terminals S
Number of positions	9
Pitch	5 mm
Number of connections	9
Number of rows	1
Number of potentials	9
Pin layout	Linear pad geometry
Solder pins per potential	2

### Electrical properties

#### Properties

Nominal current $I_N$	17.5 A
Nominal voltage $U_N$	320 V
Rated voltage (III/3)	250 V
Rated surge voltage (III/3)	4 kV
Rated voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Rated voltage (II/2)	500 V
Rated surge voltage (II/2)	4 kV

### Connection data

#### Connection technology

Nominal cross section	1.5 mm <sup>2</sup>
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#### Conductor connection

Connection method	Push-in spring connection
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 16
Conductor cross-section, flexible, with ferrule, without plastic sleeve	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section, flexible, with ferrule, with plastic sleeve	0.2 mm <sup>2</sup> ... 0.75 mm <sup>2</sup>
Stripping length	8 mm

### Mounting

Mounting type	SMD soldering
Pin layout	Linear pad geometry

#### Processing notes

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Process	Reflow soldering
Moisture Sensitive Level	MSL 1
Classification temperature $T_c$	260 °C
Solder cycles in the reflow	3

## Material specifications

### Material data - contact

Note	WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface characteristics	hot-dip tin-plated
Metal surface terminal point (top layer)	Tin (4 $\mu$ m - 8 $\mu$ m Sn)
Metal surface soldering area (top layer)	Tin (4 $\mu$ m - 8 $\mu$ m Sn)

### Material data - housing

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

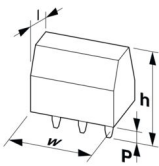
### Material data – actuating element

Color (Actuating element)	white (9010)
Insulating material	PA GF
Insulating material group	I
CTI according to IEC 60112	600
Flammability rating according to UL 94	V0

## Notes

Assembly note	This item is not suitable for PCB cleaning with liquids.
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## Dimensions

Dimensional drawing	
Pitch	5 mm
Width [w]	44 mm
Height [h]	7.7 mm
Length [l]	13.6 mm
Pin dimensions	0.7 x 0.3 mm

### PCB design

Pad geometry	1.6 x 4 mm
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Pin spacing	7 mm
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## Mechanical tests

### Connection test

Specification	IEC 60998-2-2:2002-12
Result	Test passed

### Test for conductor damage and slackening

Specification	IEC 60998-2-2:2002-12
Result	Test passed

### Pull-out test

Specification	IEC 60998-2-2:2002-12
Conductor cross-section/conductor type/tractive force setpoint/actual value	0.2 mm <sup>2</sup> / solid / > 10 N
	0.2 mm <sup>2</sup> / flexible / > 10 N
	1.5 mm <sup>2</sup> / solid / > 40 N
	1.5 mm <sup>2</sup> / flexible / > 40 N

### Flexion test

Specification	IEC 60998-2-2:2002-12
Result	Test passed

## Electrical tests

### Temperature-rise test

Specification	IEC 60947-7-4:2019-01
Requirement temperature-rise test	The sum of ambient temperature and temperature rise of the PCB terminal block shall not exceed the upper limiting temperature.

### Insulation resistance

Specification	IEC 60998-1:2002-12
Insulation resistance, neighboring positions	> 5 MΩ

### Air clearances and creepage distances |

Specification	IEC 60664-1:2007-04
Insulating material group	IIIa
Comparative tracking index (IEC 60112)	CTI 175
Rated insulation voltage (III/3)	250 V
Rated surge voltage (III/3)	4 kV
minimum clearance value - non-homogenous field (III/3)	3 mm
minimum creepage distance (III/3)	4 mm
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
minimum clearance value - non-homogenous field (III/2)	3 mm
minimum creepage distance (III/2)	3.2 mm
Rated insulation voltage (II/2)	500 V

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Rated surge voltage (II/2)	4 kV
minimum clearance value - non-homogenous field (II/2)	3 mm
minimum creepage distance (II/2)	5 mm

## Environmental and real-life conditions

### Vibration test

Specification	IEC 60068-2-6:2007-12
Frequency	10 - 150 - 10 Hz
Sweep speed	1 octave/min
Amplitude	0.35 mm (10 Hz ... 60.1 Hz)
Acceleration	5g (60.1 Hz ... 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis

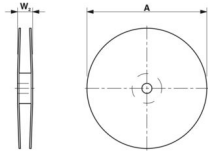
### Glow-wire test

Specification	IEC 60998-1:2002-12
Temperature	850 °C
Time of exposure	5 s

### Ambient conditions

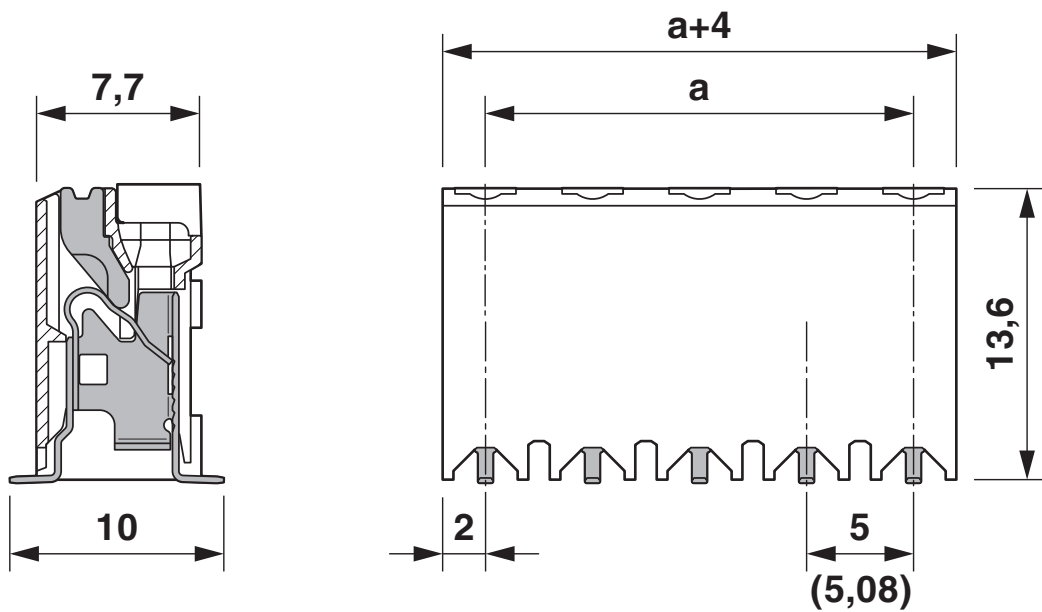
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Relative humidity (storage/transport)	30 % ... 70 %
Ambient temperature (assembly)	-5 °C ... 100 °C
Ambient temperature (operation)	-40 °C ... 105 °C (Depending on the current carrying capacity/derating curve)

## Packaging specifications

Dimensional drawing	
Type of packaging	88 mm wide tape
[W] tape width	88 mm
[W2] coil overall dimension	≤ 94.4 mm
[A] coil diameter	≤ 330 mm
Outer packaging type	Transparent-Bag

Drawings

Dimensional drawing



Diagram



Type: SPT-SMD 1,5/...-V-5,0 R...

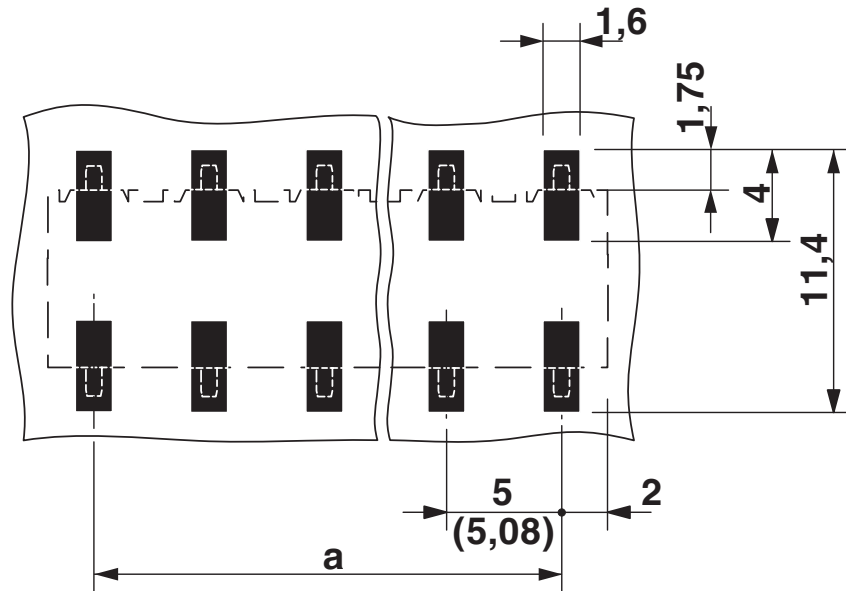
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Drilling plan/solder pad geometry



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1824378>

 <b>cULus Recognized</b> Approval ID: E60425-20061129				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
B	300 V	10 A	24 - 16	-
D	300 V	10 A	24 - 16	-

 <b>VDE approval of drawings</b> Approval ID: 40046113				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
keine	320 V	17.5 A	-	0.2 - 1.5

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## Classifications

### ECLASS

ECLASS-13.0	27460101
ECLASS-15.0	27460101

### ETIM

ETIM 10.0	EC002643
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### UNSPSC

UNSPSC 21.0	39121400
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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