

# PCB terminal block - SPT-THR 1,5/ 5-V-3,5 P20 R44



1823227

<https://www.phoenixcontact.com/pc/products/1823227>

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PCB terminal block, nominal current: 13.5 A, rated voltage (III/2): 160 V, nominal cross section: 1.5 mm<sup>2</sup>, number of potentials: 5, number of rows: 1, number of positions per row: 5, product range: SPT 1,5/..-V-THR, pitch: 3.5 mm, connection method: Push-in spring connection, mounting: THR soldering, conductor/PCB connection direction: 90 °, color: black, Pin layout: Linear pinning, Solder pin [P]: 2 mm, number of solder pins per potential: 2, type of packaging: 44 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 use through colour coded actuation lever
- 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 solder pins reduce the mechanical strain on the soldering spots

## Commercial Data

Item number	1823227
Packing unit	200 pc
Minimum order quantity	200 pc
Note	Made to Order (non-returnable)
Product Key	AALCCG
Catalog Page	Page 11 (NTK-2014)
GTIN	4046356814980
Weight per Piece (including packing)	4.666 g
Weight per Piece (excluding packing)	4.04 g
Customs tariff number	85369010
Country of origin	PL

# PCB terminal block - SPT-THR 1,5/ 5-V-3,5 P20 R44



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## Technical Data

### Product properties

Product line	COMBICON Terminals S
Product type	Printed circuit board terminal
Number of positions	5
Pitch	3.5 mm
Number of connections	5
Number of rows	1
Number of potentials	5
Pin layout	Linear pinning
Solder pins per potential	2

### Electrical properties

Nominal current $I_N$	13.5 A
Nominal voltage $U_N$	160 V
Degree of pollution	3
Rated voltage (III/3)	160 V
Rated surge voltage (III/3)	2.5 kV
Rated voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 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 solid	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	THR soldering
Pin layout	Linear pinning

#### Processing notes

Process	Reflow/wave soldering
Moisture Sensitive Level	MSL 1
Classification temperature $T_c$	260 °C

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Solder cycles in the reflow	3
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## 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 - 8 $\mu\text{m}$ Sn)
Metal surface soldering area (top layer)	Tin (4 - 8 $\mu\text{m}$ 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 ( )	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 instruction:	This item is not suitable for PCB cleaning with liquids.
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## Dimensions

Dimensional drawing	
Pitch	3.5 mm
Width [w]	18 mm
Height [h]	15.6 mm
Length [l]	7.7 mm
Installed height	13.6 mm
Solder pin length [P]	2 mm

### PCB design

Pin spacing	5.5 mm
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## Mechanical tests

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## 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 60998-2-1:2002-12
Requirement temperature-rise test	Increase in temperature ≤ 45 K

### Insulation resistance

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

### Air clearances and creepage distances |

Specification	IEC 60947-7-4:2013-08
Insulating material group	IIIa
Comparative tracking index (IEC 60112)	CTI 175
Rated insulation voltage (III/3)	160 V
Rated surge voltage (III/3)	2.5 kV
minimum clearance value - non-homogenous field (III/3)	1.5 mm
minimum creepage distance (III/3)	2.5 mm
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
minimum clearance value - non-homogenous field (III/2)	1.5 mm
minimum creepage distance (III/2)	1.6 mm
Rated insulation voltage (II/2)	320 V
Rated surge voltage (II/2)	2.5 kV
minimum clearance value - non-homogenous field (II/2)	1.5 mm
minimum creepage distance (II/2)	3.2 mm

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## 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)
Sweep speed	5g (60.1 Hz ... 150 Hz)
Test duration per axis	2.5 h

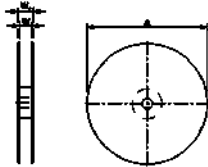
### Glow-wire test

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

### Ambient conditions

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

## Packaging specifications

Dimensional drawing	
Type of packaging	44 mm wide tape
[W] tape width	44 mm
[W2] coil overall dimension	50.4 mm
[A] coil diameter	330 mm
Outer packaging type	Transparent-Bag
ESD level	(D) electrostatically conductive
Specification	DIN EN 61340-5-1 (VDE 0300-5-1): 2008-07

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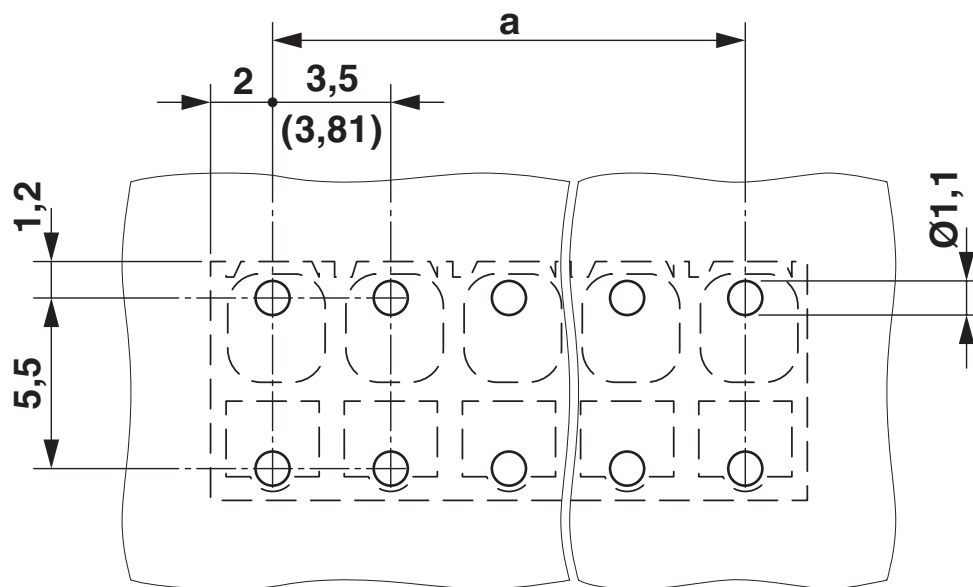


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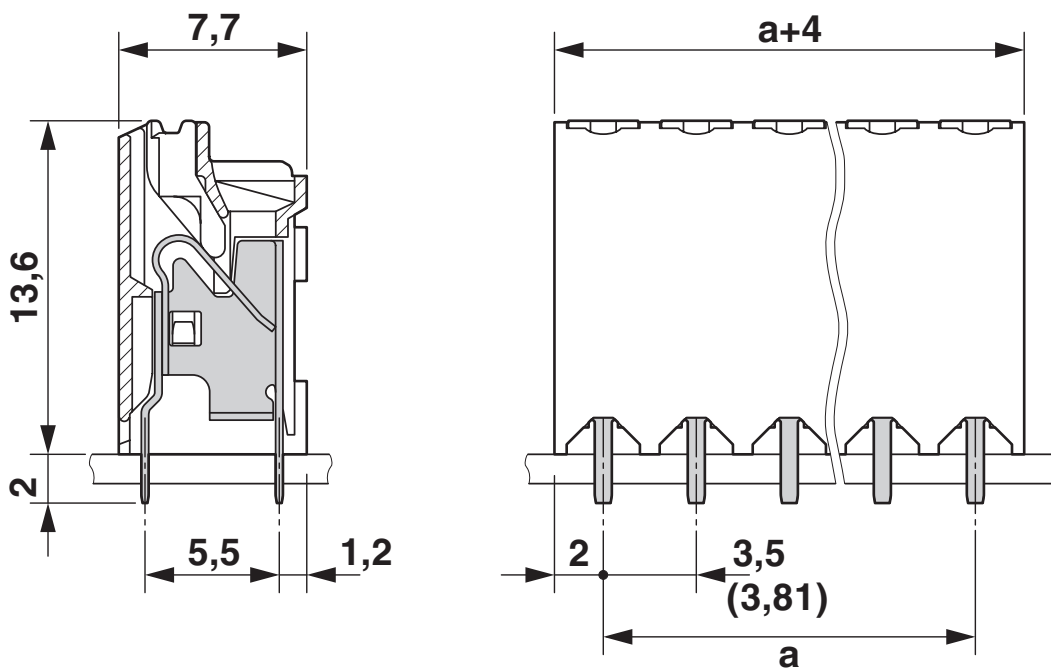
<https://www.phoenixcontact.com/pc/products/1823227>

## Drawings

Drilling plan/solder pad geometry



Dimensional drawing

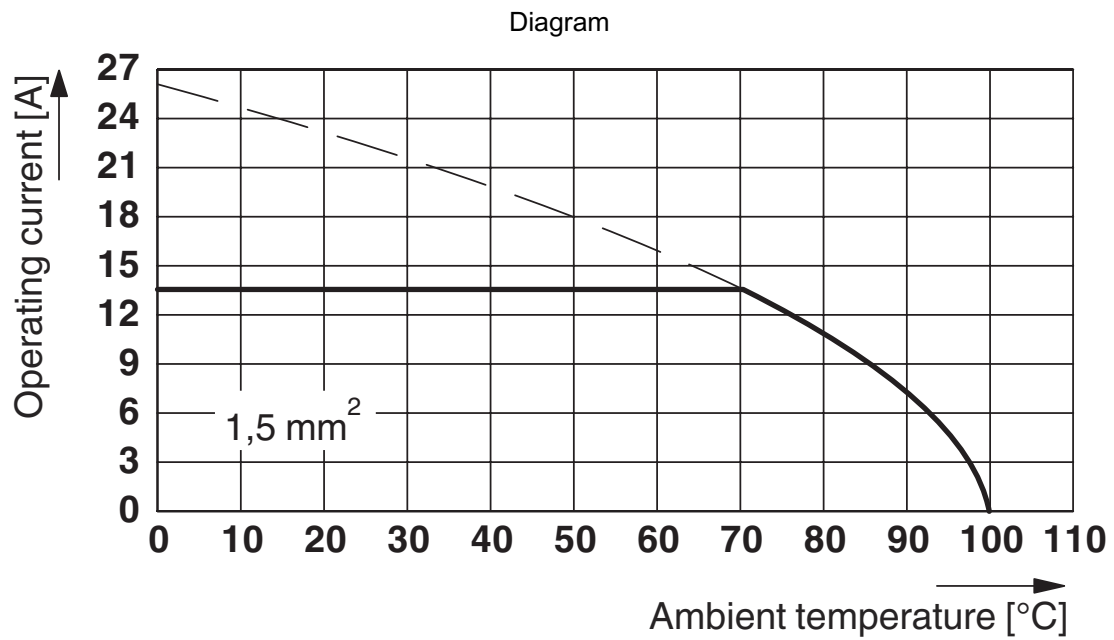


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Type: SPT-THR 1,5/ 5-V-3,5(3,81) P26

Tested according to DIN EN 60512-5-2:2003-01

Reduction factor = 1

Number of positions: 5

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## Approvals



**EAC**

Approval ID: B.01687



**cULus Recognized**

Approval ID: E60425-20061129

	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
Use group B				
	300 V	10 A	24 - 16	-
Use group D				
	300 V	10 A	24 - 16	-



**VDE Zeichengenehmigung**

Approval ID: 40046113

	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	160 V	13.5 A	-	0.2 - 1.5

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## Classifications

### ECLASS

ECLASS-9.0	27440401
ECLASS-10.0.1	27440401
ECLASS-11.0	27460101

### ETIM

ETIM 8.0	EC002643
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### UNSPSC

UNSPSC 21.0	39121400
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## Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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## Accessories

### Screwdriver

Screwdriver - SZS 0,4X2,5 VDE - 1205037

<https://www.phoenixcontact.com/pc/products/1205037>



Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

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### Ferrule

Ferrule - A 0,5 - 8 - 3202481

<https://www.phoenixcontact.com/pc/products/3202481>



Ferrule, length: 8 mm, color: silver

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## Ferrule

Ferrule - A 0,75- 8 - 3202504

<https://www.phoenixcontact.com/pc/products/3202504>



Ferrule, length: 8 mm, color: silver

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## Ferrule

Ferrule - A 1 - 8 - 3202517

<https://www.phoenixcontact.com/pc/products/3202517>



Ferrule, length: 8 mm, color: silver

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## Ferrule

Ferrule - AI 0,25- 8 YE - 3203037

<https://www.phoenixcontact.com/pc/products/3203037>



Ferrule, sleeve length: 8 mm, length: 12.5 mm, color: yellow

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## Ferrule

Ferrule - AI 0,5 - 8 WH - 3200014

<https://www.phoenixcontact.com/pc/products/3200014>



Ferrule, sleeve length: 8 mm, length: 14 mm, color: white

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## Ferrule

Ferrule - AI 0,5 - 8 WH -1000 - 3200881

<https://www.phoenixcontact.com/pc/products/3200881>



Ferrule, sleeve length: 8 mm, length: 14 mm, color: white

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## Ferrule

Ferrule - AI 0,75- 8 GY - 3200519

<https://www.phoenixcontact.com/pc/products/3200519>



Ferrule, sleeve length: 8 mm, length: 14 mm, color: gray

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## Ferrule

Ferrule - Al 0,75- 8 GY -1000 - 3200894

<https://www.phoenixcontact.com/pc/products/3200894>

Ferrule, sleeve length: 8 mm, length: 14 mm, color: gray



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## Crimping pliers

Crimping pliers - CRIMPFOX 6 - 1212034

<https://www.phoenixcontact.com/pc/products/1212034>



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 mm<sup>2</sup> ... 6.0 mm<sup>2</sup>, lateral entry, trapezoidal crimp

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