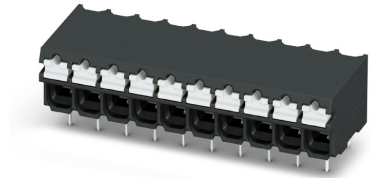


# Data sheet

Item No.: 1823654

Type: SPT-THR 1,5/ 4-H-3,5 P20 R32

PCB terminal block, Reflow/wave soldering, Push-in spring connection



The figure shows the 10-position version

## 1 Main features



• No. of pos.	4	• Nominal current	17.5 A
• Conductor cross section	1.5 mm <sup>2</sup>	• Nominal voltage	160 V
• Color	black (RAL 9005)	• Connection direction	0 °
• Pitch	3.5 mm	• Type of packaging	32 mm wide tape
• Connection method	Push-in spring connection	• Mounting type	THR soldering

## 2 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
- ✓ Quick and convenient testing using integrated test option
- ✓ Operation and conductor connection from one direction enable integration into front of device
- ✓ Two solder pins reduce the mechanical strain on the soldering spots



Make sure you always use the latest documentation.

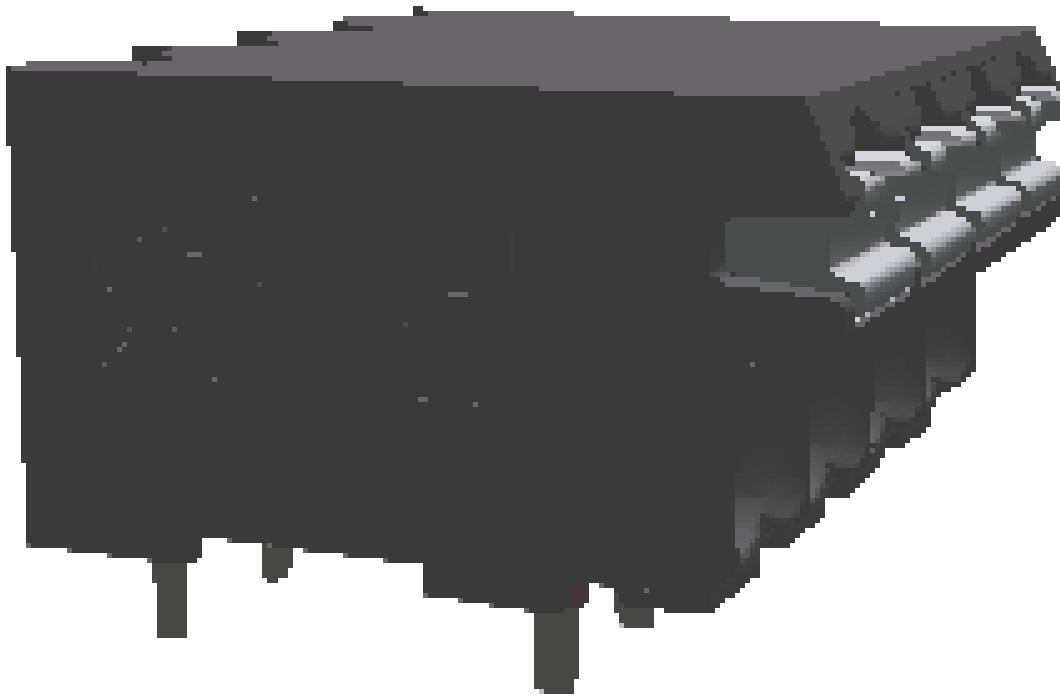
It can be downloaded at: [phoenixcontact.com/product/1823654](https://phoenixcontact.com/product/1823654)

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****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 note .....	8
11	Application.....	8
12	Packaging specifications .....	8
13	Blister drawing .....	9
14	Mechanical tests.....	11
15	Electrical tests .....	12
16	Air and creepage distances .....	13
17	Current carrying capacity/derating curves .....	14
18	Environmental and durability tests .....	15
19	Approvals / Certificates.....	17
20	Commercial Data.....	18
21	Accessories.....	18

1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32

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



**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****5 General Technical Data****5.1 item properties**

Item no.	1823654
Type	SPT-THR 1,5/ 4-H-3,5 P20 R32
Product line	COMBICON Terminals S
Product type	PCB terminal block
Range of articles	SPT 1,5/..-H-THR
Pitch	3.5 mm
Number of positions	4
Number of rows	1
Number of connections	4
Number of potentials	4
Connection method	Push-in spring connection
Connection direction of the conductor to the PCB	0 °
Pin layout	Linear pinning
Solder pins per potential	2
Product note	Suitable for CAT5

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****6 Conductor connection****6.1 Connection capacity**

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 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

**6.2 Connection capacity AWG**

Conductor cross section AWG	24 ... 16
-----------------------------	-----------

**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	hot-dip tin-plated	

**7.2 Material of plastic parts**

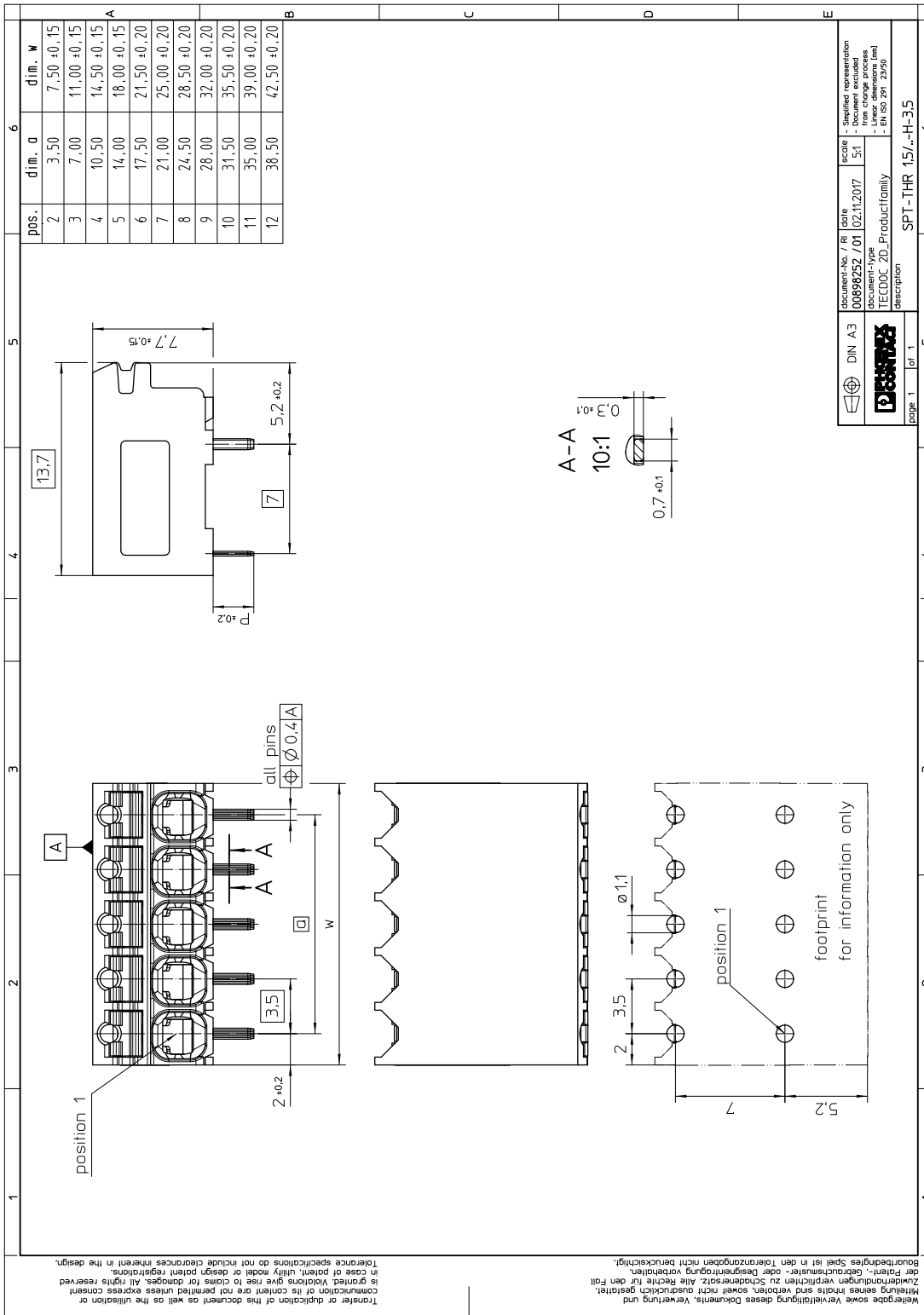
	Housing	Actuation element
Color	black (RAL 9005)	white (RAL 9010)
Insulating material	LCP	PA GF
Insulating material group	IIIa	I
CTI according to IEC 60112	175	600
Flammability rating according to UL 94	V0	V0

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****8 Dimensions****8.1 Dimensions for the product**

Length	13.6 mm
Width	14.5 mm
Height (without solder pin)	7.7 mm
Total height	9.7 mm
Solder pin [P]	2 mm

1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32

9 Series drawing



**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****10 Product note****10.1 General information**

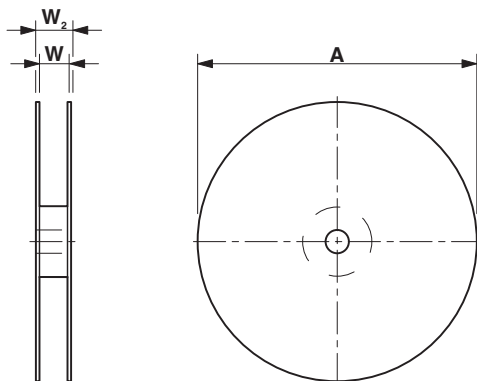
Assembly instruction:	This item is not suitable for PCB cleaning with liquids.
Note on application	The item is qualified for CAT5 Ethernet applications. For this reason, it is suited for use in IoT devices.
Assembly instruction:	This item is not suitable for PCB cleaning with liquids.

**10.2 Dimensions for PCB design**

Hole diameter	1.1 mm
Pin dimensions	0.7 x 0.3 mm
Pin spacing	7 mm

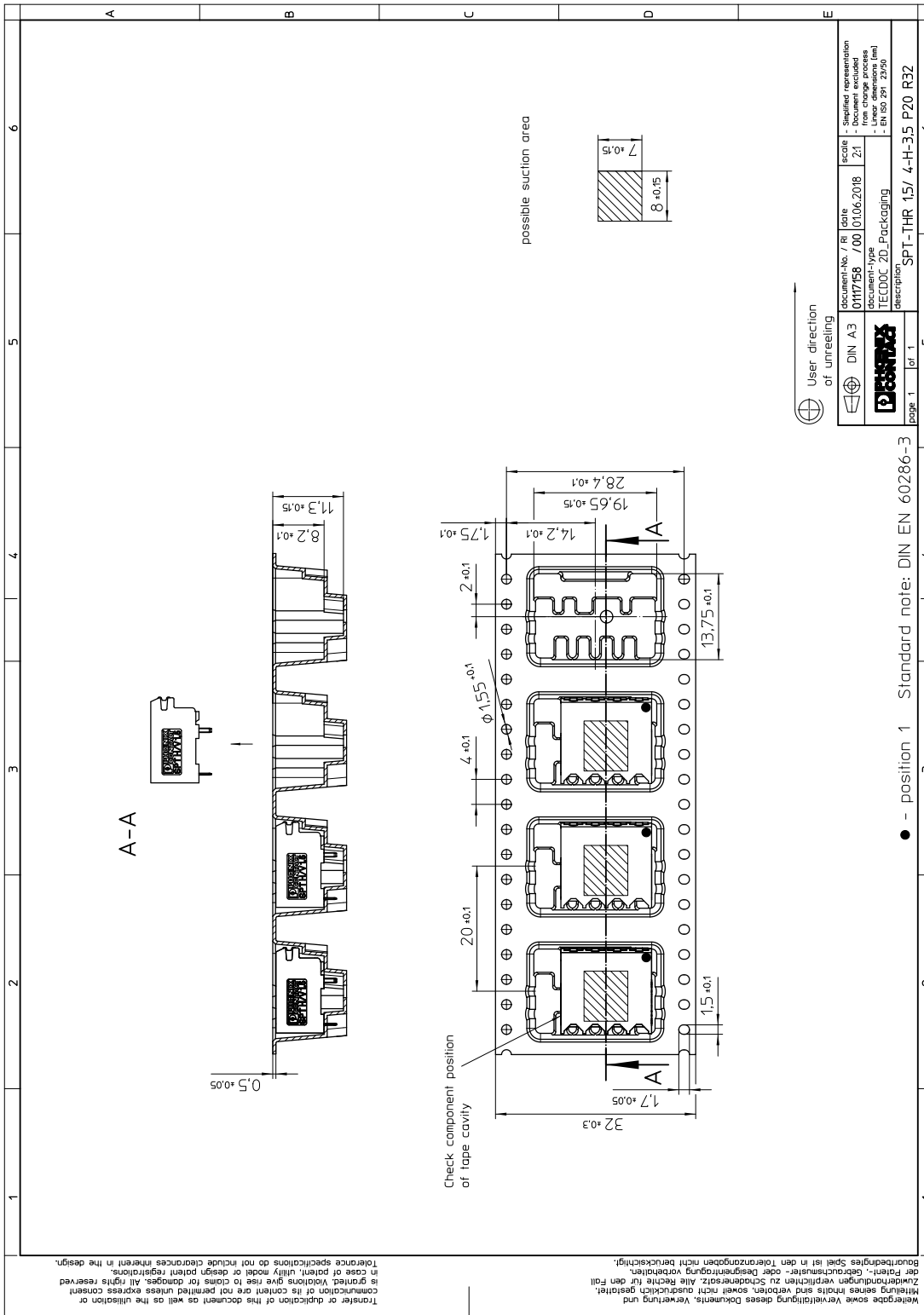
**11 Application****12 Packaging specifications**

Type of packaging	32 mm wide tape
Packing unit	250
Outer packaging type	Transparent-Bag
ESD level	(D) electrostatically conductive
Specification	DIN EN 61340-5-1 (VDE 0300-5-1): 2008-07
[W] tape width	32 mm
[A] coil diameter	330 mm
[W2] coil overall dimension	38.4 mm
Number of products per coil	250



# 1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32

## 13 Blister drawing



**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****13.1 Processing notes**

Process	Reflow/wave soldering
Specification	IPC/JEDEC J-STD-020D.1:2008-03 (following)
Specification	IEC 61760-1:2006-04 (following)
Specification	IEC 60068-2-58:2005-02 (following)
Moisture Sensitive Level	MSL 1
Classification temperature $T_c$	max. 260 °C
Solder cycles in the reflow	3
swash circumference	see dimensional drawing

**13.2 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 ... 105 °C (Depending on the current carrying capacity/derating curve)

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****14 Mechanical tests****14.1 Pull-out test**

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

**14.2 Bending test**

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

**14.3 Check for damage to conductor or loosening**

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

**14.4 Electrical performance test**

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

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****15 Electrical tests**

Rated current / conductor cross section	17.5 A / 1.5 mm <sup>2</sup>
Rated insulation voltage (III/2)	160 V
Rated surge voltage (III/2)	2.5 kV
Contact resistance	0.7 mΩ
Degree of pollution	2

**15.1 Insulation resistance**

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

**15.2 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	1.5 mm <sup>2</sup> / 17.5 A / 66.6 K

**15.3 Impulse withstand voltage test**

Result	Test passed
Specification	IEC 60664-1:2007-04
Rated surge voltage	2.5 kV
Surge voltage between neighboring positions	2.95 kV

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****16 Air and creepage distances**

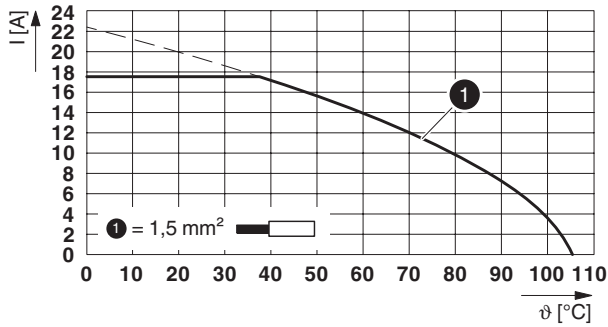
Component	PCB terminal block		
Specification	IEC 60947-7-4:2013-08		
Mains type	unearthed mains		
Insulating material group	IIIa		
Comparative tracking index (IEC 60112)	CTI 175		
Rated insulation voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage 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	3.2 mm

## 1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32

## 17 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	1.5 mm <sup>2</sup>

Type: SPT-THR 1,5/...-H-3,5 P...



**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****18 Environmental and durability tests****18.1 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 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
Note	

**18.2 Assessment of fire risk (glow wire test)**

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

**Protection against electric shock**

Specification	IEC 60998-1:2002-12
Result	Test passed

**18.3 Shock protection**

Specification	IEC 61032:1997-12
Back of the hand protection (Ball ø 50)	guaranteed
Finger protection (movable test finger)	guaranteed
Note	unenclosed basic insulation - protected against finger contact with IP20 test finger in acc. with IEC 60529 when connected, above the PCB

**18.4 Mechanical strength/tumbling barrel**

Specification	IEC 60998-1:2002-12
Result	Test passed
Height of fall	50 cm
Number of drop cycles	50

**18.5 Resistance to ageing, humidity and penetration of solids**

Specification	IEC 60998-1:2002-12
Result	Test passed
Dry heat	168 h/100 °C
Damp heat	48 h/30 °C/92 %

**18.6 Test of the power frequency electric strength**



**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32**

Specification	IEC 60998-1:2002-12
Result	Test passed
Test voltage between neighboring positions	2 kV

**18.7 Testing in a saturated atmosphere in the presence of sulfur dioxide**

Specification	DIN 50018:2013-05
Result	Test passed
Corrosive stress	AHT 1.0 S/1 cycle
Conductor cross section	0.2 mm <sup>2</sup> to 1.5 mm <sup>2</sup>

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****19 Approvals / Certificates**

cULus Recognized 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
<b>Usegroup B</b>				
	300 V	10 A	24 - 16	-
<b>Usegroup D</b>				
	300 V	10 A	24 - 16	-
VDE Zeichengenehmigung 	Voltage [V]	Current [A]	Cross section [AWG]	Cross section [mm <sup>2</sup> ]
	160 V	17.5 A	-	0.2 - 1.5

**1823654 SPT-THR 1,5/ 4-H-3,5 P20 R32****20 Commercial Data**

Item no.	1823654
Type	SPT-THR 1,5/ 4-H-3,5 P20 R32
Packing unit	250
Net weight	3.4 g
GTIN	4046356814300
	Information that applies locally, see link on page 1

**21 Accessories**

Description	Item No.	Type
Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip	1205037	SZS 0,4X2,5 VDE
	3202481	A 0,5 - 8
	3202504	A 0,75- 8
	3202517	A 1 - 8
	3203037	AI 0,25- 8 YE
	3200014	AI 0,5 - 8 WH
	3200881	AI 0,5 - 8 WH -1000
	3200519	AI 0,75- 8 GY
	3200894	AI 0,75- 8 GY -1000
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	1212034	CRIMPFOX 6
	1322664	SH-PCB 6