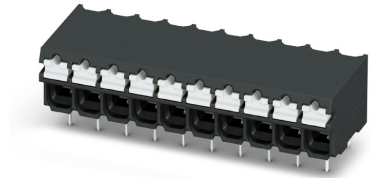


Data sheet

Item No.: 1823638

Type: SPT-THR 1,5/ 2-H-3,5 P20 R24

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



The figure shows the 10-position version

1 Main features



• No. of pos.	2	• Nominal current	17.5 A
• Conductor cross section	1.5 mm ²	• Nominal voltage	160 V
• Color	black (RAL 9005)	• Connection direction	0 °
• Pitch	3.5 mm	• Type of packaging	24 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.

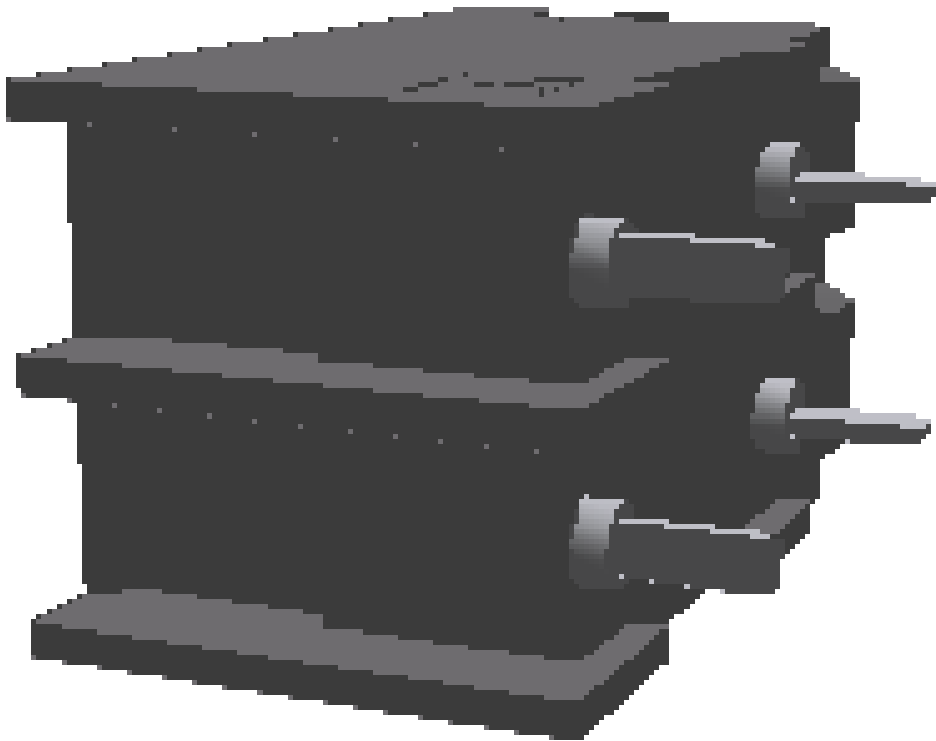
It can be downloaded at: phoenixcontact.com/product/1823638

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**3 Table of contents**

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1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24

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



1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**5 General Technical Data****5.1 item properties**

Item no.	1823638
Type	SPT-THR 1,5/ 2-H-3,5 P20 R24
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	2
Number of rows	1
Number of connections	2
Number of potentials	2
Connection method	Push-in spring connection
Connection direction of the conductor to the PCB	0 °
Pin layout	Linear pinning
Solder pins per potential	2

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**6 Conductor connection****6.1 Connection capacity**

Conductor cross section, rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross section, flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible, with ferrule without plastic sleeve	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible, with ferrule with plastic sleeve	0.2 mm ² ... 0.75 mm ²
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

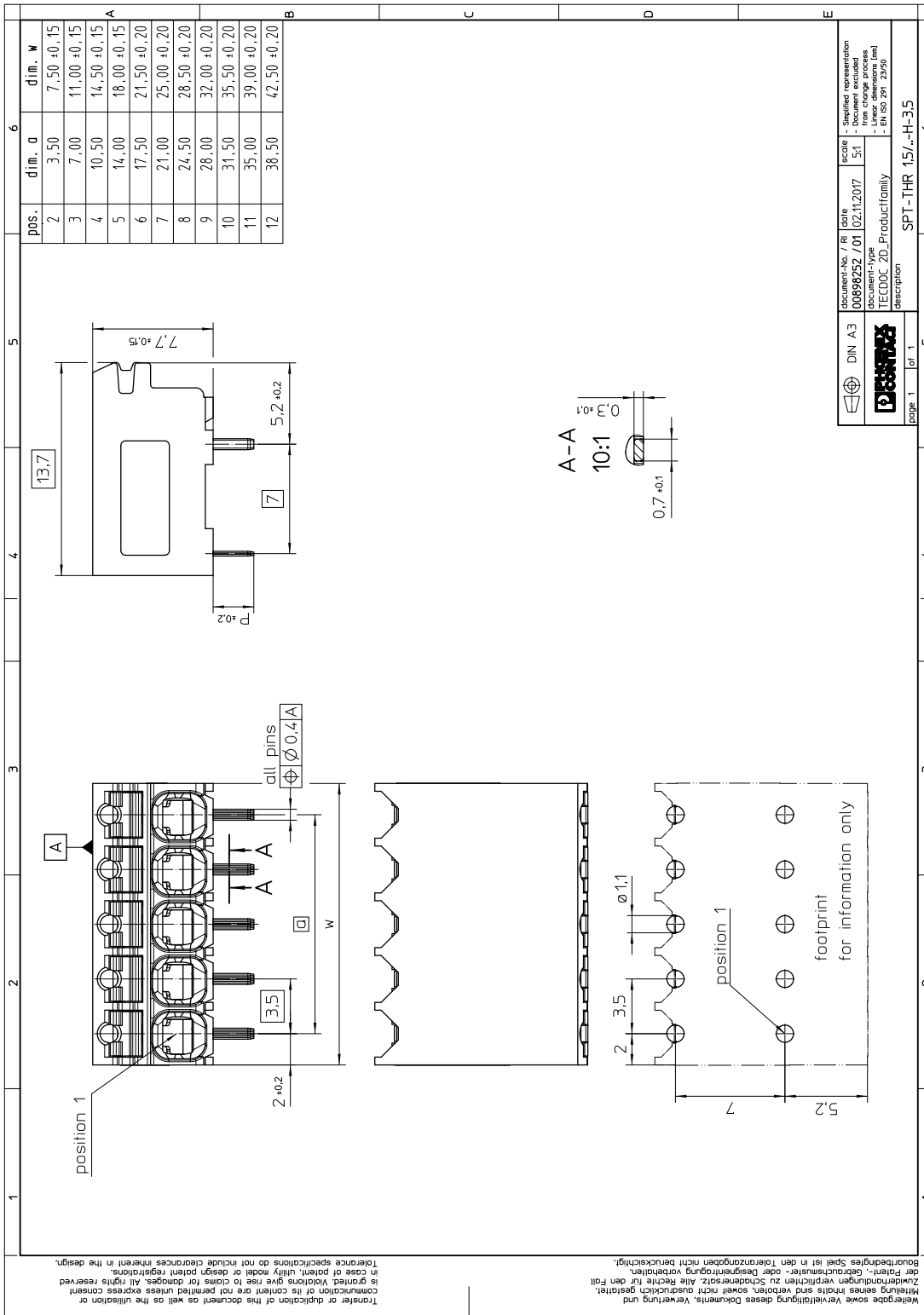
	Housing	Actuation element
Color	black (RAL 9005)	white (RAL 9010)
Insulating material	LCP	PA GF
Insulating material group	IIIa	I
CTI according to IEC 60112	175	600
Flammability rating according to UL 94	V0	V0

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**8 Dimensions****8.1 Dimensions for the product**

Length	13.6 mm
Width	7.5 mm
Height (without solder pin)	7.7 mm
Total height	9.7 mm
Solder pin [P]	2 mm

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24

9 Series drawing



1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**10 Product note****10.1 General information**

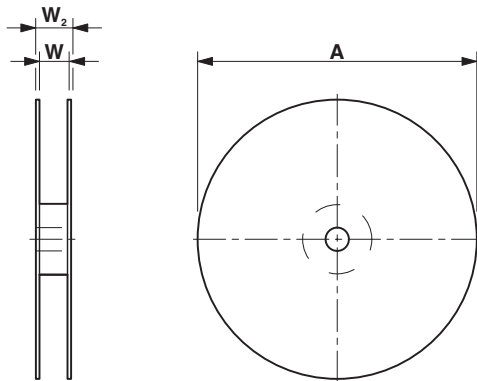
Assembly instruction:	This item is not suitable for PCB cleaning with liquids.
Assembly instruction:	This item is not suitable for PCB cleaning with liquids.

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	24 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	24 mm
[A] coil diameter	330 mm
[W2] coil overall dimension	30.4 mm
Number of products per coil	250



1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**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)

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**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 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

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

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**15 Electrical tests**

Rated current / conductor cross section	17.5 A / 1.5 mm ²
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 ² / 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

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**16 Air and creepage distances**

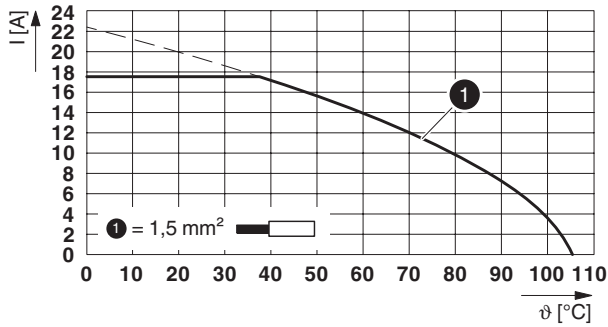
Component	PCB terminal block		
Specification	IEC 60947-7-4:2013-08		
Mains type	unearthed mains		
Insulating material group	IIIa		
Comparative tracking index (IEC 60112)	CTI 175		
Rated insulation voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Degree of pollution	3	2	2
Overvoltage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

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24

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 ²

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



1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**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



1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24

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 ² to 1.5 mm ²

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**19 Approvals / Certificates**

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

1823638 SPT-THR 1,5/ 2-H-3,5 P20 R24**20 Commercial Data**

Item no.	1823638
Type	SPT-THR 1,5/ 2-H-3,5 P20 R24
Packing unit	250
Net weight	2.43 g
GTIN	4046356814287
	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	Al 0,25- 8 YE
	3200014	Al 0,5 - 8 WH
	3200881	Al 0,5 - 8 WH -1000
	3200519	Al 0,75- 8 GY
	3200894	Al 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 ² ... 6.0 mm ² , lateral entry, trapezoidal crimp	1212034	CRIMPFOX 6