

# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

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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>, pitch: 3.81 mm, number of positions: 7, connection method: Push-in spring connection, mounting: THR soldering, conductor/PCB connection direction: 90 °, color: black, Pin layout: Linear double pinning, Solder pin [P]: 2 mm

The figure shows the 10-position version

## 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



## Key Commercial Data

|                        |               |
|------------------------|---------------|
| Packing unit           | 200 pc        |
| Minimum order quantity | 200 pc        |
| GTIN                   |               |
| GTIN                   | 4046356815178 |

## Technical data

### Item properties

|                           |                           |
|---------------------------|---------------------------|
| Brief article description | PCB terminal block        |
| Range of articles         | SPT 1,5/..-V-THR          |
| Pitch                     | 3.81 mm                   |
| Number of positions       | 7                         |
| Connection method         | Push-in spring connection |
| Mounting type             | THR soldering             |
| Pin layout                | Linear double pinning     |

# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

## Technical data

### Item properties

|                       |   |
|-----------------------|---|
| Number of levels      | 1 |
| Number of connections | 7 |
| Number of potentials  | 7 |

### Electrical parameters

|                             |        |
|-----------------------------|--------|
| Nominal current             | 13.5 A |
| Nom. voltage                | 160 V  |
| Rated voltage               | 160 V  |
| Rated voltage (III/2)       | 160 V  |
| Rated voltage (II/2)        | 320 V  |
| Rated surge voltage (III/3) | 2.5 kV |
| Rated surge voltage (III/2) | 2.5 kV |
| Rated surge voltage (II/2)  | 2.5 kV |

### Connection capacity

|   |  |
|---|--|
| 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 / kcmil                                   | 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   |

### 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 µm Sn)   |
| Metal surface soldering area (top layer) | Tin (4 - 8 µm Sn)   |

### Material data - housing

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

### Dimensions for the product

|                             |          |
|-----------------------------|----------|
| Length [ l ]                | 7.7 mm   |
| Width [ w ]                 | 26.86 mm |
| Height [ h ]                | 15.6 mm  |
| Pitch                       | 3.81 mm  |
| Height (without solder pin) | 13.6 mm  |

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## Technical data

### Dimensions for the product

|                |              |
|----------------|--------------|
| Solder pin [P] | 2 mm         |
| Pin spacing    | 5.5 mm       |
| Pin dimensions | 0.7 x 0.3 mm |

### Dimensions for PCB design

|               |        |
|---------------|--------|
| Hole diameter | 1.1 mm |
| Pin spacing   | 5.5 mm |

### Packaging information

|                             |                 |
|-----------------------------|-----------------|
| Type of packaging           | 44 mm wide tape |
| Pieces per package          | 200             |
| Denomination packing units  | Pcs.            |
| [W] tape width              | 44 mm           |
| [A] coil diameter           | 330 mm          |
| [W2] coil overall dimension | 50.4 mm         |
| Outer packaging type        | Transparent-Bag |

### General product information

|              |  |
|--------------|--|
| Type of note | Assembly instruction:                                    |
| Note         | This item is not suitable for PCB cleaning with liquids. |

### Processing notes

|   |  |
|---|--|
| Process                                   | Reflow/wave soldering                    |
| Specification                             | Following IPC/JEDEC J-STD-020D.1:2008-03 |
|   | Following IEC 61760-1:2006-04            |
|   | Following IEC 60068-2-58:2005-02         |
| Moisture Sensitive Level                  | MSL 1                                    |
| Classification temperature T <sub>c</sub> | 260 °C                                   |
| Solder cycles in the reflow               | 3  |

### Ambient conditions

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

### Termination and connection method

|  |                       |
|--|-----------------------|
| Connection test                          | IEC 60998-2-2:2002-12 |
| Test result                              | Test passed           |
| Test for conductor damage and slackening | IEC 60998-2-2:2002-12 |
|  | Test passed           |

### Pull-out test

|               |                       |
|---------------|-----------------------|
| Pull-out test | IEC 60998-2-2:2002-12 |
|               | Test passed           |

# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

## Technical data

### Pull-out test

|  |   |
|--|---|
| Conductor cross section / conductor type / tensile force | 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 |

### Mechanical tests according to standard

|                    |                          |
|--------------------|--------------------------|
| Test specification | IEC 60998-2-2 (in parts) |
|--------------------|--------------------------|

### Electrical tests

|                             |                     |
|-----------------------------|---------------------|
| Rated current               | 13.5 A              |
| Conductor cross section     | 1.5 mm <sup>2</sup> |
| Rated voltage (III/2)       | 160 V               |
| Rated surge voltage (III/2) | 2.5 kV              |

### Air clearances and creepage distances

|   |                       |
|---|-----------------------|
| Clearances and creepage distances               | IEC 60947-7-4:2013-08 |
| Specification                                   | IEC 60947-7-4:2013-08 |
| Minimum clearance - inhomogeneous field (III/3) | 1.5 mm                |
| Minimum clearance - inhomogeneous field (III/2) | 1.5 mm                |
| Minimum clearance - inhomogeneous field (II/2)  | 1.5 mm                |
| Minimum creepage distance value (III/3)         | 2.5 mm                |
| Minimum creepage distance value (III/2)         | 1.6 mm                |
| Minimum creepage distance value (II/2)          | 3.2 mm                |

### Temperature-rise test

|                                   |                                |
|-----------------------------------|--------------------------------|
| Specification                     | IEC 60998-2-1:2002-12          |
| Result                            | Test passed                    |
| Requirement temperature-rise test | Increase in temperature ≤ 45 K |

### Current carrying capacity / derating curves

|                     |  |
|---------------------|--|
| Caption             | Type: SPT-THR 1,5/ 5-V-3,5(3,81) P26<br>Tested according to DIN EN 60512-5-2:2003-01<br>Reduction factor = 1<br>Number of positions: 5 |
| Specification       | Following IEC 60512-5-2:2002-02  |
| Number of positions | 5  |
| Reduction factor    | 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  | 5 g (60.1 - 150 Hz)    |

# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

## Technical data

### Vibration test

|                        |       |
|------------------------|-------|
| Test duration per axis | 2.5 h |
|------------------------|-------|

### Resistance to ageing, humidity and penetration of solids

|            |                 |
|------------|-----------------|
| Dry heat   | 168 h/100°C     |
| Humid heat | 48 h/30 °C/92 % |

### Insulation resistance

|  |                     |
|--|---------------------|
| Specification                                | IEC 60998-1:2002-12 |
| Result                                       | Test passed         |
| Insulation resistance, neighboring positions | 1 TΩ                |

### Glow-wire test

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

### Mechanical strength/tumbling barrel test

|                       |                     |
|-----------------------|---------------------|
| Specification         | IEC 60998-1:2002-12 |
| Height of fall        | 50 cm               |
| Number of drop cycles | 50                  |
| Rotation speed        | 5 rpm               |

### Standards and Regulations

|  |        |
|--|--------|
| Connection in acc. with standard       | EN-VDE |
| Flammability rating according to UL 94 | V0     |

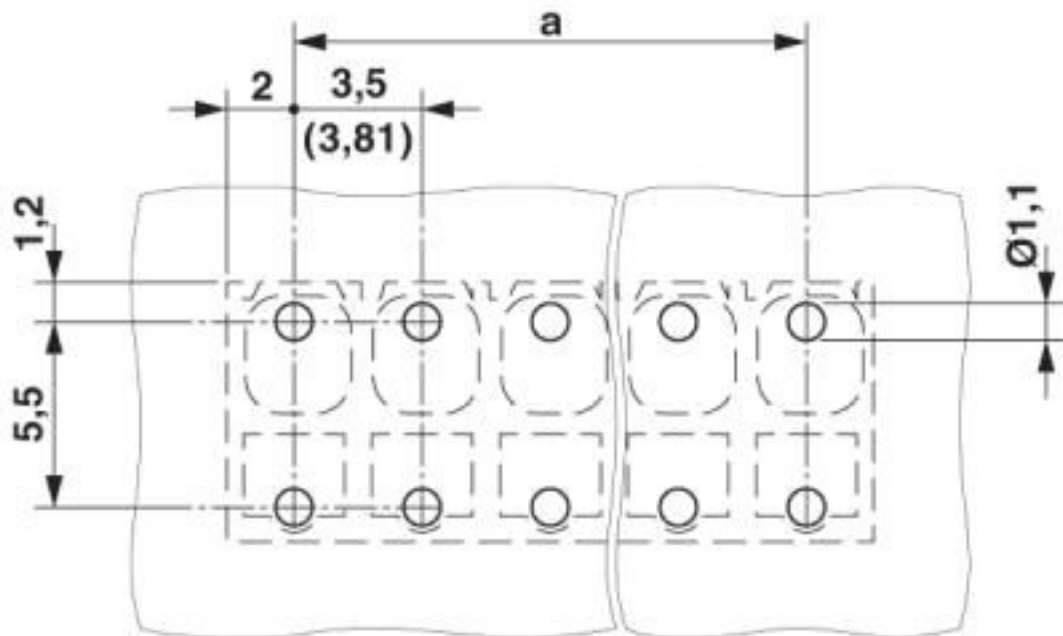
### Environmental Product Compliance

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

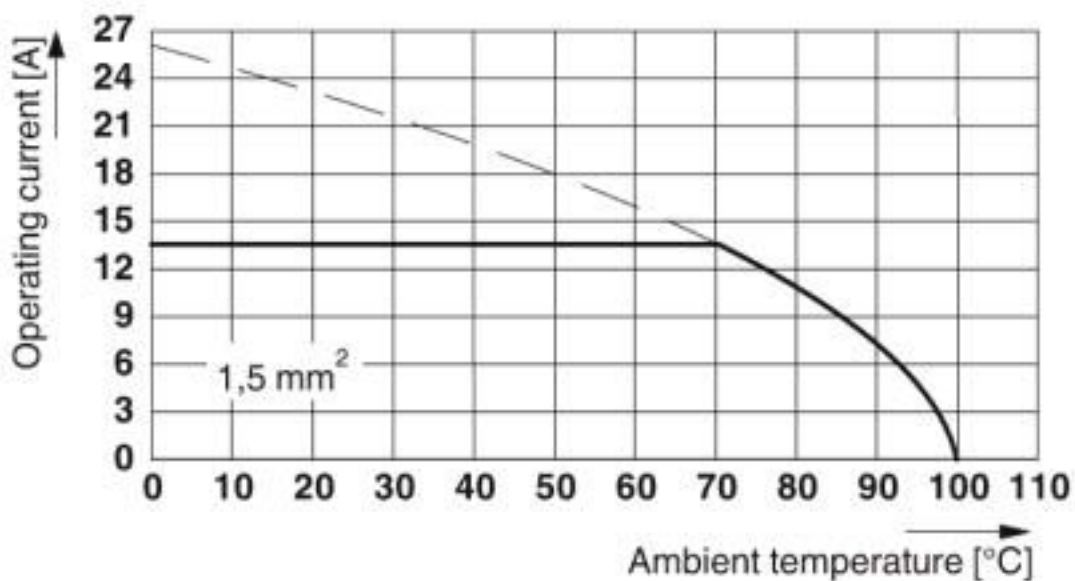
## Drawings

# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

Drilling diagram



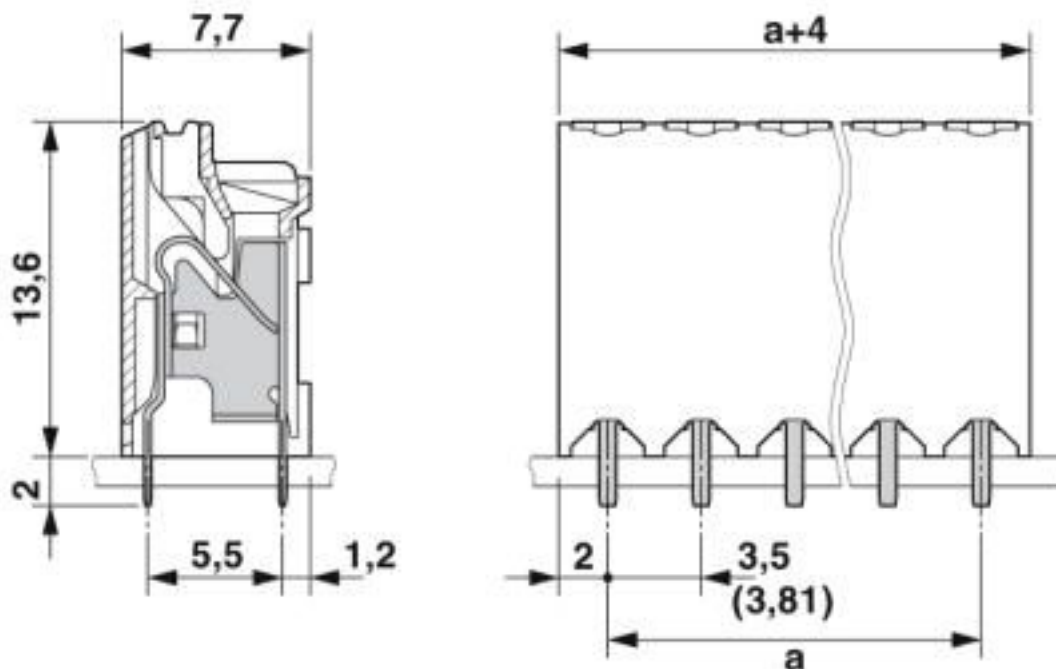
Diagram



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

# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

Dimensional drawing



## Classifications

### eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27440401 |
| eCl@ss 4.0    | 27141100 |
| eCl@ss 4.1    | 27141100 |
| eCl@ss 5.0    | 27141100 |
| eCl@ss 5.1    | 27261100 |
| eCl@ss 6.0    | 27261100 |
| eCl@ss 7.0    | 27440401 |
| eCl@ss 8.0    | 27440401 |
| eCl@ss 9.0    | 27440401 |

### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC001121 |
| ETIM 4.0 | EC002643 |
| ETIM 5.0 | EC002643 |
| ETIM 6.0 | EC002643 |
| ETIM 7.0 | EC002643 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211801 |
| UNSPSC 7.0901 | 39121432 |
| UNSPSC 11     | 39121432 |

# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

## Classifications

### UNSPSC

|              |          |
|--------------|----------|
| UNSPSC 12.01 | 39121432 |
| UNSPSC 13.2  | 39121432 |
| UNSPSC 18.0  | 39121432 |
| UNSPSC 19.0  | 39121432 |
| UNSPSC 20.0  | 39121432 |
| UNSPSC 21.0  | 39121432 |

## Approvals


### Approvals


#### Approvals


IECEE CB Scheme / VDE Zeichengenehmigung / EAC / cULus Recognized

#### Ex Approvals

### Approval details

|                            |   |   |           |
|----------------------------|---|---|-----------|
| IECEE CB Scheme            |  | <a href="http://www.iecee.org/">http://www.iecee.org/</a> | DE1-60621 |
| Nominal voltage UN         | 160 V   |   |           |
| Nominal current IN         | 13.5 A  |   |           |
| mm <sup>2</sup> /AWG/kcmil | 0.2-1.5   |   |           |

|                            |   |   |          |
|----------------------------|---|---|----------|
| VDE Zeichengenehmigung     |  | <a href="http://www2.vde.com/de/Institut/Online-Service/VDE-gepruefteProdukte/Seiten/Online-Suche.aspx">http://www2.vde.com/de/Institut/Online-Service/VDE-gepruefteProdukte/Seiten/Online-Suche.aspx</a> | 40046113 |
| Nominal voltage UN         | 160 V   |   |          |
| Nominal current IN         | 13.5 A  |   |          |
| mm <sup>2</sup> /AWG/kcmil | 0.2-1.5   |   |          |

|     |   |         |
|-----|---|---------|
| EAC |  | B.01687 |
|-----|---|---------|



# PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

## Approvals

|                            |       |   |                 |
|----------------------------|-------|---|-----------------|
| cULus Recognized           |       | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | E60425-20061129 |
|                            | B     | D   |                 |
| Nominal voltage UN         | 300 V | 300 V   |                 |
| Nominal current IN         | 10 A  | 10 A  |                 |
| mm <sup>2</sup> /AWG/kcmil | 24-16 | 24-16   |                 |

## Accessories

### Accessories

#### Cable end sleeve

Ferrule - A 0,5 - 8 - 3202481



Ferrule, length: 8 mm, color: silver

Ferrule - A 0,75- 8 - 3202504



Ferrule, length: 8 mm, color: silver

Ferrule - A 1 - 8 - 3202517



Ferrule, length: 8 mm, color: silver

Ferrule - AI 0,25- 8 YE - 3203037



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

## PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

### Accessories

Ferrule - AI 0,5 - 8 WH - 3200014



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

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



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

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Ferrule - AI 0,75- 8 GY - 3200519



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

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



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

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### Crimping tool

Crimping pliers - CRIMPFOX 6 - 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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### Printed circuit board terminal

## PCB terminal block - SPT-THR 1,5/ 7-V-3,81 P20 R44 - 1823353

### Accessories

Sample set - SAMPLE SPT-THR 1,5/ 7-V-3,81 - 1838005



PCB terminal block, nominal current: 13.5 A, rated voltage (III/2): 160 V, nominal cross section: 1.5 mm<sup>2</sup>, pitch: 3.81 mm, number of positions: 7, connection method: Push-in spring connection, mounting: THR soldering, conductor/PCB connection direction: 90 °, color: black, Pin layout: Linear double pinning, Solder pin [P]: 2 mm. SAMPLE set with 5 items in belt section. When used as part of soldering process, please use items without SAMPLE marking

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### Screwdriver tools

Screwdriver - SZS 0,4X2,5 VDE - 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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