# SPTAF 1/ 4-3,5-LL - PCB terminal block

1864309

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PCB terminal block, nominal current: 13.5 A, rated voltage (III/2): 160 V, nominal cross section: 1 mm$^2$, number of potentials: 4, number of rows: 1, number of positions per row: 4, product range: SPTAF 1/..-LL, pitch: 3.5 mm, connection method: Push-in spring connection, mounting: Wave soldering, conductor/PCB connection direction: 45 °, color: green, Pin layout: Linear pinning, Solder pin [P]: 2.6 mm, number of solder pins per potential: 2, type of packaging: packed in cardboard

## Your advantages

- Time saving push-in connection, tools not required
- Defined contact force ensures that contact remains stable over the long term
- Finger-operated and fixable release button for very convenient operation
- Small component size for applications where space is at a premium
- Quick and convenient testing using integrated test option

## Commercial data

| | |
|---|---|
| Item number | 1864309 |
| Packing unit | 100 pc |
| Minimum order quantity | 100 pc |
| Note | Made to order (non-returnable) |
| Sales key | AA12 |
| Product key | AALBGL |
| GTIN | 4055626246284 |
| Weight per piece (including packing) | 2.352 g |
| Weight per piece (excluding packing) | 2.332 g |
| Customs tariff number | 85369010 |
| Country of origin | CN |

# Technical data

## Product properties

| | |
|---|---|
| Product type | PCB terminal block |
| Product family | SPTAF 1/..-LL |
| Product line | COMBICON Terminals S |
| Number of positions | 4 |
| Pitch | 3.5 mm |
| Number of connections | 4 |
| Number of rows | 1 |
| Number of potentials | 4 |
| Pin layout | Linear pinning |
| Solder pins per potential | 2 |

### Fitting of components

| | |
|---|---|
| Partial assembly | No |

## Electrical properties

### Properties

| | |
|---|---|
| Nominal current $I_N$ | 13.5 A |
| Nominal voltage $U_N$ | 160 V |
| 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 |
| Rated voltage (II/2) | 320 V |
| Rated surge voltage (II/2) | 2.5 kV |

## Connection data

### Connection technology

| | |
|---|---|
| Nominal cross section | 1 mm² |

### Conductor connection

| | |
|---|---|
| Connection method | Push-in spring connection |
| Conductor cross-section rigid | 0.2 mm² ... 0.75 mm² (When connecting and positioning a rigid 0.75 mm² conductor, the mechanical transverse forces that can act on the terminal block must be absorbed by lateral support.) |
| | 0.34 mm² ... 0.75 mm² (Push-in connection) |
| Conductor cross-section flexible | 0.2 mm² ... 1 mm² |
| Conductor cross-section AWG | 24 ... 18 |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.25 mm² ... 0.5 mm² (Conductor connection with open terminal point) |
| | 0.5 mm² ... 0.5 mm² (Push-in connection) |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve | 0.25 mm² ... 0.5 mm² (Conductor connection with open terminal |

| | |
|---|---|
| | point) |
| | 0.5 mm² ... 0.5 mm² (Push-in connection) |
| Stripping length | 8 mm |

## Mounting

| | |
|---|---|
| Mounting type | Wave soldering |
| Pin layout | Linear pinning |

## 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 (2 µm - 4 µm Sn) |
| Metal surface soldering area (top layer) | Tin (2 µm - 4 µm Sn) |

Material data - housing

| | |
|---|---|
| Color (Housing) | green (6021) |
| Insulating material | PA |
| Insulating material group | I |
| CTI according to IEC 60112 | 600 |
| Flammability rating according to UL 94 | V0 |
| Glow wire flammability index GWFI according to EN 60695-2-12 | 850 |
| Glow wire ignition temperature GWIT according to EN 60695-2-13 | 775 |
| Temperature for the ball pressure test according to EN 60695-10-2 | 125 °C |

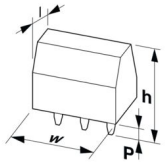
Material data – actuating element

| | |
|---|---|
| Color (Actuating element) | orange (2003) |
| Insulating material | PBT |
| Insulating material group | IIIa |
| CTI according to IEC 60112 | 275 |
| Flammability rating according to UL 94 | V0 |

## Notes

| | |
|---|---|
| Note on application | Maximum permissible outer diameter of the wire insulation ≤ 3 mm |

## Dimensions

| | |
|---|---|
| Dimensional drawing |   |
| Pitch | 3.5 mm |
| Width [w] | 15.5 mm |
| Height [h] | 13.5 mm |
| Length [l] | 11 mm |
| Installed height | 10.9 mm |
| Solder pin length [P] | 2.6 mm |
| Pin dimensions | 0.75 x 0.3 mm |

PCB design

| | |
|---|---|
| Pin spacing | 5 mm |
| Hole diameter | 1.1 mm |

## Mechanical tests

Test for conductor damage and slackening

| | |
|---|---|
| Specification | IEC 60999-1:1999-11 |
| Result | Test passed |

Repeated connection and disconnection

| | |
|---|---|
| Specification | IEC 60999-1:1999-11 |
| Result | Test passed |

Pull-out test

| | |
|---|---|
| Specification | IEC 60999-1:1999-11 |
| Conductor cross-section/conductor type/tractive force setpoint/actual value | 0.2 mm² / solid / > 10 N |
| | 0.25 mm² / flexible / > 10 N |
| | 1.5 mm² / solid / > 40 N |
| | 1.5 mm² / flexible / > 40 N |

## Electrical tests

Temperature-rise test

| | |
|---|---|
| Specification | IEC 60947-7-4:2013-08 |
| Requirement temperature-rise test | The sum of ambient temperature and temperature rise of the PCB terminal block shall not exceed the upper limiting temperature. |

Short-time withstand current

| | |
|---|---|
| Specification | IEC 60947-7-4:2013-08 |

Insulation resistance

| | |
|---|---|
| Specification | IEC 60512-3-1:2002-02 |

| | |
|---|---|
| Insulation resistance, neighboring positions | > 5 MΩ |

Air clearances and creepage distances |

| | |
|---|---|
| Specification | IEC 60947-1:2007-06 + A1:2010-12 |
| Insulating material group | I |
| Comparative tracking index (IEC 60112) | CTI 600 |
| 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 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) | 0.8 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) | 1.6 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 60695-2-10:2013-04 |
| Temperature | 850 °C |
| Time of exposure | 5 s |

Aging

| | |
|---|---|
| Specification | IEC 60947-7-4:2013-08 |

Ambient conditions

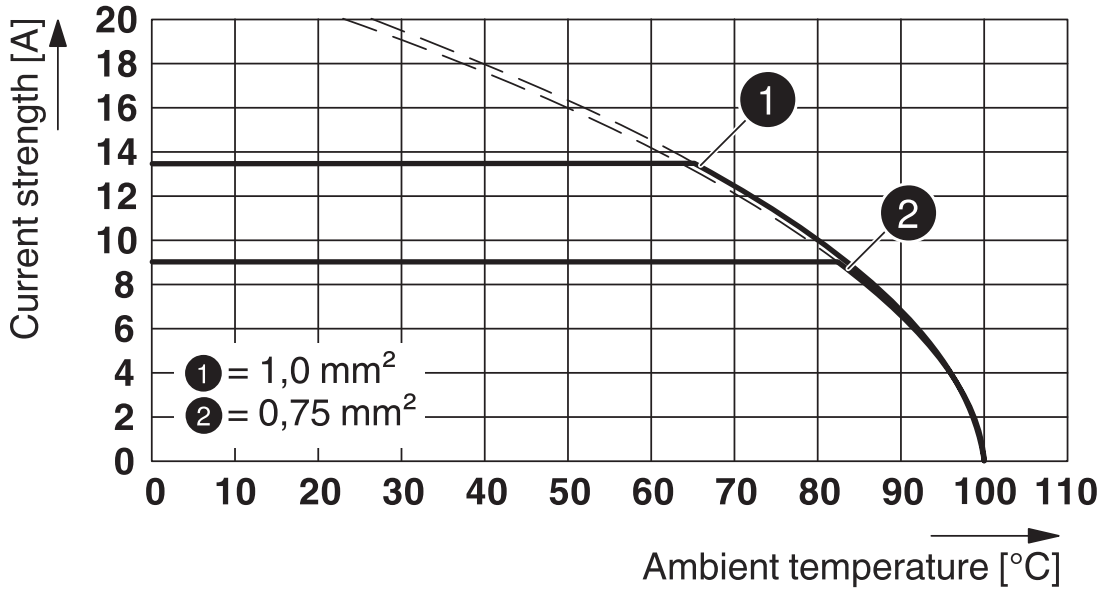
| | |
|---|---|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Relative humidity (storage/transport) | 30 % ... 70 % |
| Ambient temperature (assembly) | -5 °C ... 100 °C |
| Ambient temperature (operation) | -40 °C ... 100 °C (Depending on the current carrying capacity/derating curve)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

## Packaging specifications

| | |
|---|---|
| Type of packaging | packed in cardboard |

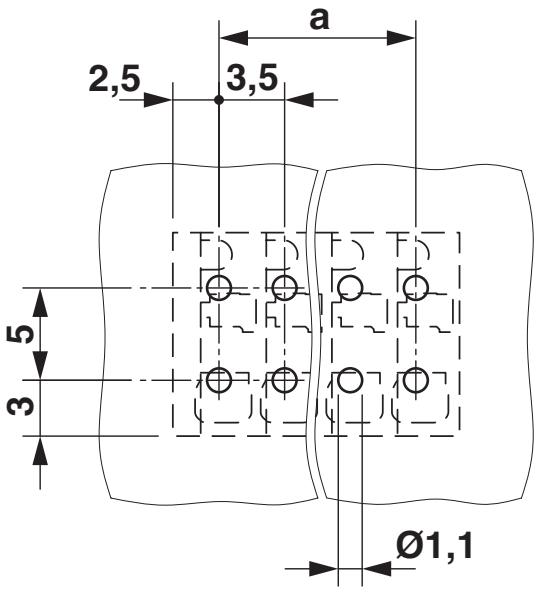
## Drawings

Diagram




Type: SPTAF 1/...-3,5-LL

Drilling plan/solder pad geometry



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1864309

**cULus Recognized**
Approval ID: E60425-20061129

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| B | | | | |
| Field wiring | 300 V | 7 A | 24 - 18 | - |
| D | | | | |
| Field wiring | 300 V | 7 A | 24 - 18 | - |

**VDE approval of drawings**
Approval ID: 40047107

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| keine | | | | |
| | 160 V | 13.5 A | - | 0.2 - 1 |

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27460101 |
| ECLASS-15.0 | 27460101 |

### ETIM

| | |
|---|---|
| ETIM 10.0 | EC002643 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 39121400 |

## Environmental product compliance

EU RoHS

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|---|---|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |

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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