

MKDS 1/ 2-3,81 - PCB terminal block



1727010

<https://www.phoenixcontact.com/in/products/1727010>

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PCB terminal block, nominal current: 13.5 A, rated voltage (III/2): 200 V, nominal cross section: 1.5 mm², number of potentials: 2, number of rows: 1, number of positions per row: 2, product range: MKDS 1, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, mounting: Wave soldering, conductor/PCB connection direction: 0 °, color: green, Pin layout: Linear pinning, Solder pin [P]: 3.5 mm, number of solder pins per potential: 1, type of packaging: packed in cardboard

Your advantages

- Well-known connection principle allows worldwide use
- Low temperature rise, thanks to maximum contact force
- Allows connection of two conductors
- Extremely small design for the respective conductor cross section

Commercial Data

| | |
|--------------------------------------|--------------------|
| Item number | 1727010 |
| Packing unit | 250 pc |
| Minimum order quantity | 250 pc |
| Sales Key | AAL |
| Product Key | AALFFC |
| Catalog Page | Page 85 (C-1-2013) |
| GTIN | 4017918025489 |
| Weight per Piece (including packing) | 1.03 g |
| Weight per Piece (excluding packing) | 0.958 g |
| Customs tariff number | 85369010 |
| Country of origin | DE |

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Technical Data

Product properties

| | |
|---------------------------|--------------------------------|
| Type | PC termination block |
| Product line | COMBICON Terminals S |
| Product type | Printed circuit board terminal |
| Product family | MKDS 1 |
| Number of positions | 2 |
| Pitch | 3.81 mm |
| Number of connections | 2 |
| Number of rows | 1 |
| Number of potentials | 2 |
| Pin layout | Linear pinning |
| Solder pins per potential | 1 |

Electrical properties

| | |
|-----------------------------|--------|
| Nominal current I_N | 13.5 A |
| Nominal voltage U_N | 200 V |
| Degree of pollution | 3 |
| Rated voltage (III/3) | 160 V |
| Rated surge voltage (III/3) | 2.5 kV |
| Rated voltage (III/2) | 200 V |
| Rated surge voltage (III/2) | 2.5 kV |
| Rated voltage (II/2) | 400 V |
| Rated surge voltage (II/2) | 2.5 kV |

Connection data

Connection technology

| | |
|-----------------------|----------------------|
| Type | PC termination block |
| Nominal cross section | 1.5 mm ² |

Conductor connection

| | |
|---|---|
| Connection method | Screw connection with tension sleeve |
| Conductor cross section rigid | 0.14 mm ² ... 1.5 mm ² |
| Conductor cross section flexible | 0.14 mm ² ... 1.5 mm ² |
| Conductor cross section AWG | 26 ... 16 |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm ² ... 0.5 mm ² |
| Conductor cross section, flexible, with ferrule, with plastic sleeve | 0.25 mm ² ... 0.5 mm ² |
| 2 conductors with same cross section, solid | 0.14 mm ² ... 0.5 mm ² |
| 2 conductors with same cross section, flexible | 0.14 mm ² ... 0.34 mm ² |
| Stripping length | 5 mm |
| Tightening torque | 0.22 Nm ... 0.25 Nm |

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1727010

<https://www.phoenixcontact.com/in/products/1727010>

Mounting

| | |
|-----------------------|----------------|
| Mounting type | Wave soldering |
| Pin layout | Linear pinning |
| Drive form screw head | Slotted (L) |
| Drive form screw head | Slotted (L) |

Processing notes

| | |
|---------|----------------|
| Process | Wave soldering |
|---------|----------------|

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 | Tin-plated |
| Metal surface terminal point (top layer) | Tin (5 - 7 μm Sn) |
| Metal surface terminal point (middle layer) | Nickel (2 - 3 μm Ni) |
| Metal surface soldering area (top layer) | Tin (5 - 7 μm Sn) |
| Metal surface soldering area (middle layer) | Nickel (2 - 3 μm Ni) |

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 () | () |
|----------|----|

Notes

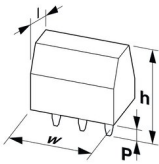
| | |
|---------------------|--|
| Note on application | For safe conductor connection, always adhere to a defined tightening torque. Particularly in the case of PCB terminal blocks with two or three positions, the individual solder pin for each contact point cannot compensate for this. That is why the terminal blocks must be supported during conductor connection (held with one hand, support on the housing). |
|---------------------|--|

Dimensions

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1727010

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| | |
|-----------------------|--|
| Dimensional drawing |  |
| Pitch | 3.81 mm |
| Width [w] | 7.61 mm |
| Height [h] | 12 mm |
| Length [l] | 7.3 mm |
| Installed height | 8.5 mm |
| Solder pin length [P] | 3.5 mm |

Mechanical tests

Test for conductor damage and slackening

| | |
|---------------|---------------------|
| 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 | 0.14 mm ² / solid / > 10 N |
| | 0.14 mm ² / flexible / > 10 N |
| | 1.5 mm ² / solid / > 40 N |
| | 1.5 mm ² / flexible / > 40 N |

Electrical tests

Temperature-rise test

| | |
|-----------------------------------|--|
| Specification | IEC 60947-7-4:2019-01 |
| 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 60947-7-4:2019-01 |
|---------------|-----------------------|

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 + A2:2014-09 |
| 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 |

MKDS 1/ 2-3,81 - PCB terminal block



1727010

<https://www.phoenixcontact.com/in/products/1727010>

| | |
|--|--|
| minimum creepage distance (III/3) | 2 mm |
| Note on connection cross section | With connected conductor 1.5 mm ² (stranded). |
| Rated insulation voltage (III/2) | 200 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) | 1.5 mm |
| Rated insulation voltage (II/2) | 400 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) | 2 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) |
| Sweep speed | 5g (60.1 Hz ... 150 Hz) |
| Test duration per axis | 2.5 h |

Glow-wire test

| | |
|------------------|------------------------|
| Specification | IEC 60695-2-10:2013-04 |
| Temperature | 850 °C |
| Time of exposure | 5 s |

Aging

| | |
|---------------|-----------------------|
| Specification | IEC 60947-7-4:2019-01 |
|---------------|-----------------------|

Ambient conditions

| | |
|---|---|
| Ambient temperature (operation) | -40 °C ... 105 °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

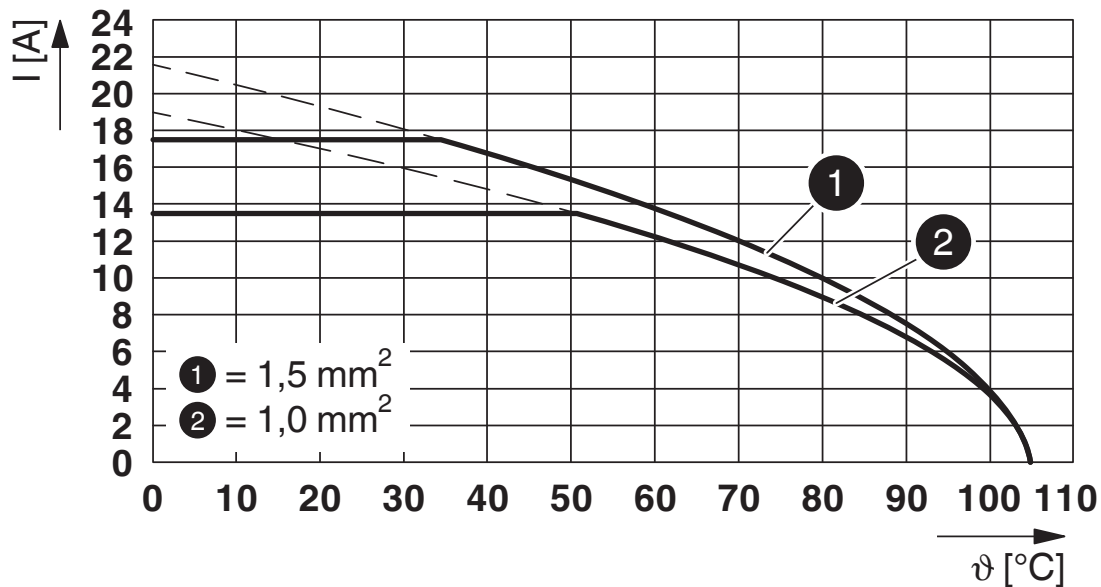
| | |
|-------------------|---------------------|
| Type of packaging | packed in cardboard |
|-------------------|---------------------|

1727010

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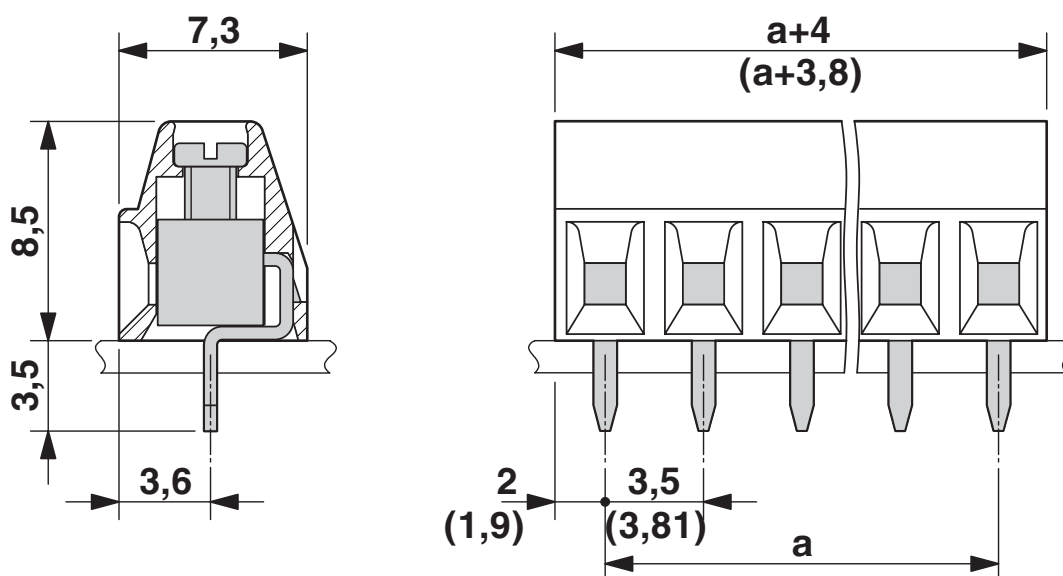
Drawings

Diagram



Type: MKDS 1/...-3,81

Dimensional drawing



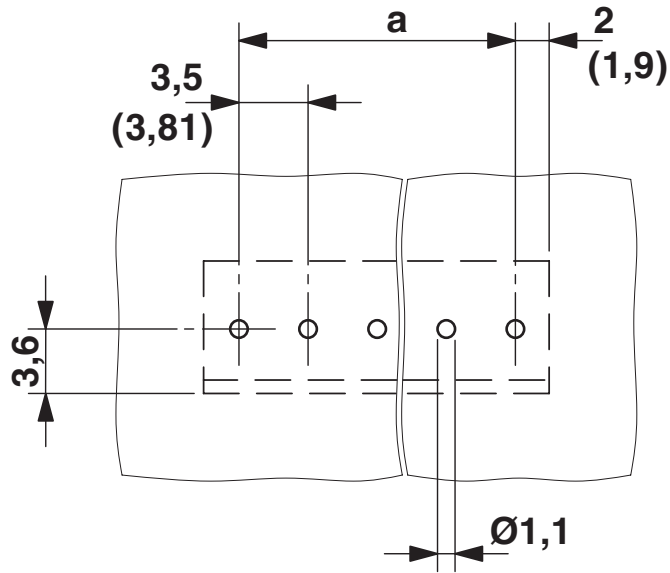
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Drilling plan/solder pad geometry



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Approvals



EAC

Approval ID: B.01687



cULus Recognized

Approval ID: E60425-19770427

| | Nominal Voltage U_N | Nominal Current I_N | Cross Section AWG | Cross Section mm^2 |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | 300 V | 13.5 A | 30 - 16 | - |
| | 300 V | 10 A | 30 - 16 | - |
| | 150 V | 13.5 A | 30 - 16 | - |
| | 300 V | 10 A | 30 - 16 | - |



IECEE CB Scheme

Approval ID: DE1-66542

| | Nominal Voltage U_N | Nominal Current I_N | Cross Section AWG | Cross Section mm^2 |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | 200 V | 13.5 A | - | 0.2 - 1.5 |



VDE Zeichengenehmigung

Approval ID: 40055394

| | Nominal Voltage U_N | Nominal Current I_N | Cross Section AWG | Cross Section mm^2 |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | 200 V | 13.5 A | - | 0.2 - 1.5 |

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27460101 |
| ECLASS-12.0 | 27460101 |
| ECLASS-13.0 | 27460101 |

ETIM

| | |
|----------|----------|
| ETIM 8.0 | EC002643 |
|----------|----------|

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

SZS 0,4X2,5 VDE - Screwdriver

1205037

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

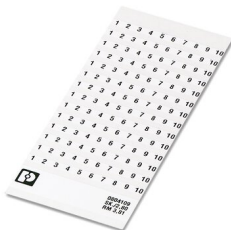


Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

SK 3,81/2,8:FORTL.ZAHLEN - Marker card

0804109

<https://www.phoenixcontact.com/in/products/0804109>



Marker card, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... (99)100, mounting type: adhesive, for terminal block width: 3.81 mm, lettering field size: 3.81 x 2.8 mm

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B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/in/products/1051993>



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

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