

# MKDSO 2,5/ 3-L - PCB terminal block



1707221

<https://www.phoenixcontact.com/us/products/1707221>

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Printed circuit board terminal, nominal current: 24 A, rated voltage (III/2): 400 V, nominal cross section: 2.5 mm<sup>2</sup>, number of potentials: 3, number of rows: 1, number of positions per row: 3, product range: MKDSO 2,5/...-L, pitch: 5 mm, connection method: Screw connection with tension sleeve, 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. Product with pin output on left side

## Your advantages

- Maintenance-free and vibration-resistant, thanks to the Reakdyn principle or spring-loaded elements
- PCB terminal block is orthogonal to the PCB
- Internationally recognized and proven screw connection

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1707221       |
| Packing unit                         | 250 pc        |
| Minimum order quantity               | 250 pc        |
| Sales key                            | AC08          |
| Product key                          | ACHADA        |
| GTIN                                 | 4017918136819 |
| Weight per piece (including packing) | 5.7 g         |
| Weight per piece (excluding packing) | 5.6 g         |
| Customs tariff number                | 85369010      |
| Country of origin                    | DE            |

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## Technical data

### Product properties

|                           |                                                |
|---------------------------|------------------------------------------------|
| Product type              | Printed circuit board terminal                 |
| Product family            | MKDSO 2,5/..-L                                 |
| Type                      | PCB termination block perpendicular to the PCB |
| Number of positions       | 3                                              |
| Pitch                     | 5 mm                                           |
| Set comprises             | 2907460 ME 17,5 OT-MKDSO SET                   |
| Number of connections     | 3                                              |
| Number of rows            | 1                                              |
| Number of potentials      | 3                                              |
| Pin layout                | Linear pinning                                 |
| Solder pins per potential | 1                                              |

### Electrical properties

#### Properties

|                             |       |
|-----------------------------|-------|
| Nominal current $I_N$       | 24 A  |
| Nominal voltage $U_N$       | 400 V |
| Rated voltage (III/3)       | 250 V |
| Rated surge voltage (III/3) | 4 kV  |
| Rated voltage (III/2)       | 400 V |
| Rated surge voltage (III/2) | 4 kV  |
| Rated voltage (II/2)        | 630 V |
| Rated surge voltage (II/2)  | 4 kV  |

### Connection data

#### Connection technology

|                       |                     |
|-----------------------|---------------------|
| Nominal cross section | 2.5 mm <sup>2</sup> |
|-----------------------|---------------------|

#### Conductor connection

|                                                                                           |                                               |
|-------------------------------------------------------------------------------------------|-----------------------------------------------|
| Connection method                                                                         | Screw connection with tension sleeve          |
| Conductor cross-section rigid                                                             | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section flexible                                                          | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section AWG                                                               | 26 ... 14                                     |
| Conductor cross-section flexible, with ferrule without plastic sleeve                     | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve                      | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>  |
| 2 conductors with same cross section, solid                                               | 0.14 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| 2 conductors with same cross section, flexible                                            | 0.14 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| 2 conductors with same cross section, flexible, with ferrule without plastic sleeve       | 0.25 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>   |

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|                   |                   |
|-------------------|-------------------|
| Stripping length  | 8 mm              |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

## 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                     | 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)                                                             |

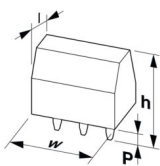
### Material data - housing

|                                                                   |        |
|-------------------------------------------------------------------|--------|
| 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 |

## Notes

|                     |                                                                                                                                                                                                                 |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note on application | For reliable conductor connection, always adhere to a defined tightening torque.<br>During conductor connection (mounting), the terminal blocks must be supported (held with one hand, support on the housing). |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Pitch               | 5 mm                                                                                 |
| Width [w]           | 15.98 mm                                                                             |
| Height [h]          | 18.05 mm                                                                             |
| Length [l]          | 15.3 mm                                                                              |

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|                       |            |
|-----------------------|------------|
| Solder pin length [P] | 3.5 mm     |
| Pin dimensions        | 0.8 x 1 mm |

## PCB design

|               |        |
|---------------|--------|
| Hole diameter | 1.4 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 <sup>2</sup> / solid / > 10 N    |
|                                                                             | 0.14 mm <sup>2</sup> / flexible / > 10 N |
|                                                                             | 2.5 mm <sup>2</sup> / solid / > 50 N     |
|                                                                             | 2.5 mm <sup>2</sup> / flexible / > 50 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 60947-7-4:2019-01 |
| Insulating material group                              | I                     |
| Comparative tracking index (IEC 60112)                 | CTI 600               |
| Rated insulation voltage (III/3)                       | 250 V                 |
| Rated surge voltage (III/3)                            | 4 kV                  |
| minimum clearance value - non-homogenous field (III/3) | 3 mm                  |
| minimum creepage distance (III/3)                      | 3.2 mm                |
| Rated insulation voltage (III/2)                       | 400 V                 |
| Rated surge voltage (III/2)                            | 4 kV                  |
| minimum clearance value - non-homogenous field (III/2) | 3 mm                  |
| minimum creepage distance (III/2)                      | 2 mm                  |
| Rated insulation voltage (II/2)                        | 630 V                 |
| Rated surge voltage (II/2)                             | 4 kV                  |

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|                                                       |        |
|-------------------------------------------------------|--------|
| minimum clearance value - non-homogenous field (II/2) | 3 mm   |
| minimum creepage distance (II/2)                      | 3.2 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) |
| 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 60947-7-4:2019-01 |
|---------------|-----------------------|

### Ambient conditions

|                                         |                                                                               |
|-----------------------------------------|-------------------------------------------------------------------------------|
| Ambient temperature (operation)         | -40 °C ... 105 °C (Depending on the current carrying capacity/derating curve) |
| Ambient temperature (storage/transport) | -40 °C ... 55 °C                                                              |
| Relative humidity (storage/transport)   | 30 % ... 70 %                                                                 |
| Ambient temperature (assembly)          | -5 °C ... 100 °C                                                              |

## Packaging specifications

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

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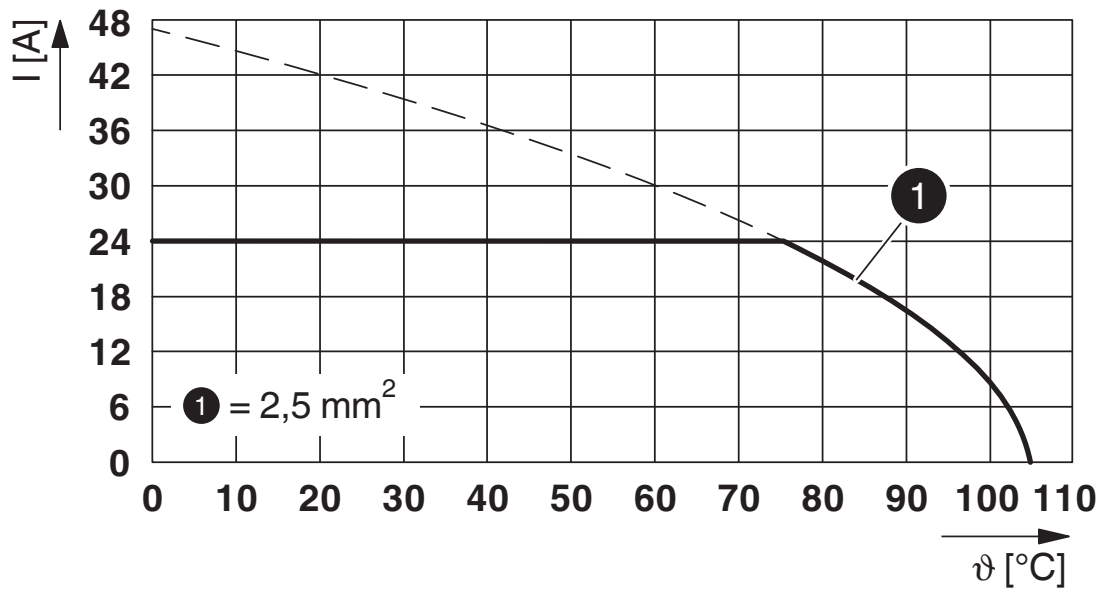


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## Drawings

Diagram



Type: MKDSO 2,5/...-L

# MKDSO 2,5/ 3-L - PCB terminal block



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1707221>

|                                                                                   |                                    |                                |                                |                   |                               |
|-----------------------------------------------------------------------------------|------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <b>CSA</b><br>Approval ID: 2406780 |                                |                                |                   |                               |
|                                                                                   |                                    | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| B                                                                                 |                                    |                                |                                |                   |                               |
|                                                                                   |                                    | 300 V                          | 10 A                           | 28 - 12           | -                             |
| D                                                                                 |                                    |                                |                                |                   |                               |
|                                                                                   |                                    | 300 V                          | 10 A                           | 28 - 12           | -                             |

|                                                                                   |                                                         |                                |                   |                               |
|-----------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <b>cULus Recognized</b><br>Approval ID: E60425-19770427 |                                |                   |                               |
|                                                                                   |                                                         |                                |                   |                               |
|                                                                                   | Nominal voltage U <sub>N</sub>                          | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| B                                                                                 |                                                         |                                |                   |                               |
|                                                                                   | 300 V                                                   | 20 A                           | 30 - 12           | -                             |

|                                                                                     |                                                                         |                                |                   |                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <b>VDE Gutachten mit Fertigungsüberwachung</b><br>Approval ID: 40023968 |                                |                   |                               |
|                                                                                     | Nominal voltage U <sub>N</sub>                                          | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine                                                                               |                                                                         |                                |                   |                               |
|                                                                                     | 450 V                                                                   | 24 A                           | -                 | 0.2 - 2.5                     |

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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002643 |
|----------|----------|

### UNSPSC

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



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## Environmental product compliance

### EU RoHS

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

### China RoHS

|                                        |                                                                                                                                                                                                                                   |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environment friendly use period (EFUP) | EFUP-50                                                                                                                                                                                                                           |
|                                        | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

### EU REACH SVHC

|                                     |                            |
|-------------------------------------|----------------------------|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

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