

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



2901505

<https://www.phoenixcontact.com/us/products/2901505>

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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: 2, number of rows: 1, number of positions per row: 2, 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: blue, 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                          | 2901505                        |
| Packing unit                         | 200 pc                         |
| Minimum order quantity               | 50 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AC08                           |
| Product key                          | ACHADA                         |
| GTIN                                 | 4046356143998                  |
| Weight per piece (including packing) | 3.95 g                         |
| Weight per piece (excluding packing) | 3.55 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       | 2  |
| Pitch                     | 5 mm   |
| Number of connections     | 2  |
| Number of rows            | 1  |
| Number of potentials      | 2  |
| 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, rigid   | 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>   |
| Stripping length  | 8 mm  |

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|                   |                   |
|-------------------|-------------------|
| 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 µm - 7 µm Sn)   |
| Metal surface terminal point (middle layer) | Nickel (2 µm - 3 µm Ni)  |
| Metal surface soldering area (top layer)    | Tin (5 µm - 7 µm Sn)   |
| Metal surface soldering area (middle layer) | Nickel (2 µm - 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]             | 10.95 mm |
| Height [h]            | 18.05 mm |
| Length [l]            | 15.3 mm  |
| Solder pin length [P] | 3.5 mm   |

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|                |            |
|----------------|------------|
| 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                  |
| minimum clearance value - non-homogenous field (II/2)  | 3 mm                  |

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|                                  |        |
|----------------------------------|--------|
| 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 (storage/transport) | -40 °C ... 55 °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) |

## Packaging specifications

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

## Drawings

Diagram



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

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2901505>

|  <b>CSA</b><br>Approval ID: 2406780 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| 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 $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B   | 300 V                 | 20 A                  | 30 - 12           | -                           |

|  <b>VDE Gutachten mit Fertigungsüberwachung</b><br>Approval ID: 40023968 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| 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 10.0 | 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-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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