

1800103

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Printed circuit board terminal, nominal current: 13.5 A, rated voltage (III/2): 400 V, nominal cross section: 1.5 mm², number of rows: 2, number of positions per row: 3, product range: MKKDSN 1,5, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, mounting: Wave soldering, conductor/PCB connection direction: 0 °, color: black, 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
- · Conductor connection on several levels enables higher contact density
- The latching on the side enables various numbers of positions to be combined

Commercial data

Item number	1800103
Packing unit	50 pc
Minimum order quantity	50 pc
Note	Made to order (non-returnable)
Sales key	AA12
Product key	AALFJL
GTIN	4046356736763
Weight per piece (including packing)	6.974 g
Weight per piece (excluding packing)	6.471 g
Customs tariff number	85369010
Country of origin	CN



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Technical data

Product properties

Product type	Printed circuit board terminal
Product family	MKKDSN 1,5
Product line	COMBICON Terminals S
Туре	PC terminal block can be aligned
Number of positions	3
Pitch	5.08 mm
Number of rows	2
Pin layout	Linear pinning
Solder pins per potential	1

Electrical properties

Properties

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Nominal current I _N	13.5 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

Туре	PC terminal block can be aligned
Nominal cross section	1.5 mm²
Conductor connection	
Connection method	Screw connection with tension sleeve
Conductor cross-section rigid	0.14 mm² 1.5 mm²
Conductor cross-section flexible	0.14 mm² 1.5 mm²
Conductor cross-section AWG	26 16

0.25 mm² ... 1 mm² Conductor cross-section flexible, with ferrule without plastic sleeve Conductor cross-section, flexible, with ferrule, with plastic sleeve 0.25 mm² ... 1.5 mm² 0.14 mm² ... 0.75 mm² 2 conductors with same cross section, solid 0.14 mm² ... 0.75 mm² 2 conductors with same cross section, flexible 0.25 mm² ... 0.5 mm² 2 conductors with same cross section, flexible, with ferrule without plastic sleeve $0.5~\text{mm}^2\dots 1~\text{mm}^2$ (1st level: $0.5~\text{mm}^2\dots 1~\text{mm}^2$ / 2nd level: 0.2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve 5 mm²) Stripping length 6 mm



1800103

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titing Adounting type Wave soldering Linear pinning Trial specifications Erial data - contact Active the specifications Contact material	Orive form screw head	Slotted (L)
Mounting type Wave soldering Pin layout Linear pinning Pin layout Linear pinning Pin layout Linear pinning Pin layout Linear pinning 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) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Metal surface soldering are	Tightening torque	0.5 Nm 0.6 Nm
Prin layout Linear pinning Prial specifications atterial data - contact Note WEEL/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) Atterial data - housing Color (Housing) black (9005) Insulating material Insulating material group I CTI according to IEC 60112 Flammability rating according to UL 94 Glow wire flammability index GWFI according to EN 60695-2-12 850 Glow wire ignition temperature GWIT according to EN 60695-2-12 Temperature for the ball pressure test according to EN 60695-2-13 Pritch 5.08 mm Width [w] 17.78 mm Height [h] 22.6 mm Length [l] 18.3 mm Installed height 19.1 mm Solder pin length [F] 3.5 mm	nting	
terial specifications faterial data - contact Note	Mounting type	Wave soldering
laterial 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) Metal surface terminal point (middle layer) Metal surface soldering area (top layer) Metal surface soldering area (middle layer) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Metal surface soldering area (middle layer) Nickel (2 - 3 µm Ni) Nickel (2 - 3	Pin layout	Linear pinning
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) aterial data - housing PA Color (Housing) black (9005) 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 60695-2-12 850 Temperature for the ball pressure test according to EN 60695-10-2 125 °C Pitch 5.08 mm Width [w] 17.78 mm Height [h] 22.6 mm Length [I] 18.3 mm Installed height 19.1 mm Solder pin length [P] 3.5 mm	erial specifications	
Contact material Cu alloy Surface characteristics Metal surface terminal point (top layer) Metal surface terminal point (middle layer) Metal surface soldering area (top layer) Metal surface soldering area (middle layer) Mickel (2 - 3 µm Ni) Mickel (2 - 3 µm	Material data - contact	
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Metal surface terminal point (middle layer) Metal surface soldering area (top layer) Metal surface soldering area (middle layer) Metal surface soldering area (middle layer) Material data - housing Color (Housing) Insulating material PA Insulating material group ICTI according to IEC 60112 Flammability rating according to UL 94 Glow wire flammability index GWFI according to EN 60695-2-12 ICTI according to represent the ball pressure test according to EN 60695-2-13 Temperature for the ball pressure test according to EN 60695-10-2 Metal surface soldering area (top layer) This is a surface soldering area (middle layer) This is a surface soldering and Nickel (2 - 3 µm Ni) This is a surface soldering area (middle layer) This is a surface soldering area (midle layer) This is a surface soldering ar	Surface characteristics	Tin-plated
Metal surface soldering area (top layer) Metal surface soldering area (middle layer) Material data - housing Color (Housing) Insulating material Insulating material group CTI according to IEC 60112 Flammability rating according to UL 94 Glow wire flammability index GWFI according to EN 60695-2-12 Glow wire ignition temperature GWIT according to EN 60695-2-13 Temperature for the ball pressure test according to EN 60695-10-2 mensions Pitch Width [w] Height [h] Length [I] Installed height Solder pin length [P] Tin (5 - 7 µm Sn) Nickel (2 - 3 µm Ni) Nickel (2 - 3 µm Nickel (2 - 3 µm Nickel (2 - 4 µm Ni	Metal surface terminal point (top layer)	Tin (5 - 7 µm Sn)
Metal surface soldering area (middle layer) Material data - housing Color (Housing) Insulating material PA Insulating material group CTI according to IEC 60112 Flammability rating according to UL 94 Glow wire flammability index GWFI according to EN 60695-2-12 Glow wire ignition temperature GWIT according to EN 60695-2-13 Temperature for the ball pressure test according to EN 60695-12 Temperature for the ball pressure test according to EN 60695-12 Pitch S.08 mm Width [w] Height [h] Length [l] 18.3 mm Installed height Solder pin length [P] 3.5 mm	Metal surface terminal point (middle layer)	Nickel (2 - 3 µm Ni)
Material data - housing Color (Housing) black (9005) 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- 775 13 Temperature for the ball pressure test according to EN 60695-12 125 °C mensions Pitch 5.08 mm Width [w] 17.78 mm Height [h] 22.6 mm Length [] 18.3 mm Installed height P] 3.5 mm	Metal surface soldering area (top layer)	Tin (5 - 7 µm Sn)
Insulating material Insulating material group Insulating material grou	Metal surface soldering area (middle layer)	Nickel (2 - 3 µm Ni)
Insulating material Insulating material group Insulating material grou	Material data - housing	
Insulating material group CTI according to IEC 60112 Flammability rating according to UL 94 Glow wire flammability index GWFI according to EN 60695-2-12 Glow wire ignition temperature GWIT according to EN 60695-2- 13 Temperature for the ball pressure test according to EN 60695-12 10-2 mensions Pitch 5.08 mm Width [w] 17.78 mm Height [h] Length [l] Installed height Solder pin length [P] I 19.1 mm Solder pin length [P]	Color (Housing)	black (9005)
CTI according to IEC 60112 Flammability rating according to UL 94 Glow wire flammability index GWFI according to EN 60695-2-12 Glow wire ignition temperature GWIT according to EN 60695-2-13 Temperature for the ball pressure test according to EN 60695-10-2 nensions Pitch 5.08 mm Width [w] 17.78 mm Height [h] 22.6 mm Length [l] Installed height Solder pin length [P] 600 V0 1850 1850 175 125 °C	Insulating material	PA
Flammability rating according to UL 94 Glow wire flammability index GWFI according to EN 60695-2-12 Glow wire ignition temperature GWIT according to EN 60695-2-13 Temperature for the ball pressure test according to EN 60695-12 Temperature for the ball pressure test according to EN 60695-10-2 mensions Pitch 5.08 mm Width [w] 17.78 mm Height [h] 22.6 mm Length [l] 18.3 mm Installed height 19.1 mm Solder pin length [P] 3.5 mm	Insulating material group	ı
Glow wire flammability index GWFI according to EN 60695-2-12 Glow wire ignition temperature GWIT according to EN 60695-2- 13 Temperature for the ball pressure test according to EN 60695- 10-2 mensions Pitch 5.08 mm Width [w] 17.78 mm Height [h] 22.6 mm Length [l] Installed height Solder pin length [P] 3.5 mm	CTI according to IEC 60112	600
Glow wire ignition temperature GWIT according to EN 60695-2-13 Temperature for the ball pressure test according to EN 60695-10-2 mensions Pitch 5.08 mm Width [w] 17.78 mm Height [h] 22.6 mm Length [I] 18.3 mm Installed height 19.1 mm Solder pin length [P] 3.5 mm	Flammability rating according to UL 94	V0
Temperature for the ball pressure test according to EN 60695- 10-2 Pitch Solder pin length [P] 125 °C 125	Glow wire flammability index GWFI according to EN 60695-2-12	850
10-2		775
Width [w] 17.78 mm Height [h] 22.6 mm Length [l] 18.3 mm Installed height 19.1 mm Solder pin length [P] 3.5 mm		125 °C
Width [w] 17.78 mm Height [h] 22.6 mm Length [l] 18.3 mm Installed height 19.1 mm Solder pin length [P] 3.5 mm	mensions	
Height [h] 22.6 mm Length [l] 18.3 mm Installed height 19.1 mm Solder pin length [P] 3.5 mm	Pitch	5.08 mm
Height [h] 22.6 mm Length [l] 18.3 mm Installed height 19.1 mm Solder pin length [P] 3.5 mm		
Length [I]18.3 mmInstalled height19.1 mmSolder pin length [P]3.5 mm		22.6 mm
Installed height 19.1 mm Solder pin length [P] 3.5 mm		18.3 mm
Solder pin length [P] 3.5 mm		19.1 mm
Pin dimensions 0.5 x 1 mm		3.5 mm
	Pin dimensions	0.5 x 1 mm
	PCB design Pin spacing	10.16 mm
		.55 (1)

1.3 mm

Mechanical tests

Hole diameter

Test for conductor damage and slackening



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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 mm² / solid / > 10 N
	0.14 mm² / flexible / > 10 N
	1.5 mm² / solid / > 40 N
	1.5 mm² / flexible / > 40 N

Electrical tests

Temperature-rise test		
Specification IEC 60947-7-4:2019-01		
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)	250 V	
Rated surge voltage (III/3)	4 kV	

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
Note on connection cross section	With connected conductor 1.5 mm² (solid).
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)	3 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
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



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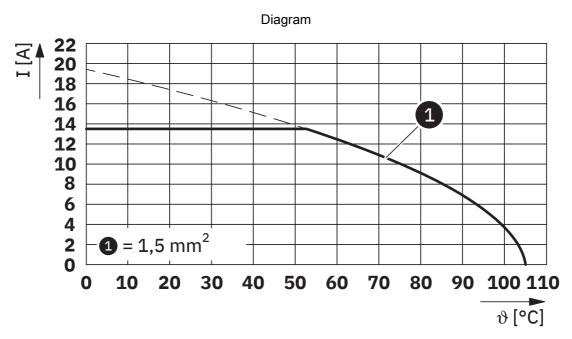
Sweep speed	1 octave/min
Amplitude	0.35 mm (10 Hz 60.1 Hz)
Acceleration	5g (60.1 Hz 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis
Glow-wire test	
Specification	IEC 60695-2-10:2013-04
Temperature	850 °C
Time of exposure	5 s
Aging	
Specification	IEC 60947-7-4:2019-01
Ambient conditions	
Ambient temperature (operation)	-40 °C 105 °C (Depending on the current carrying capacity/derating curve)
Ambient temperature (storage/transport)	-40 °C 70 °C
Relative humidity (storage/transport)	30 % 70 %
Ambient temperature (assembly)	-5 °C 100 °C
ackaging specifications	
Type of packaging	packed in cardboard



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Drawings



Type: MKKDSN 1,5/...-5,08



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Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1800103

© CSA Approv	val ID: 13631			
	Nominal voltage U_N	Nominal current I _N	Cross section AWG	Cross section mm ²
В				
	150 V	10 A	28 - 14	-
D				
	300 V	10 A	28 - 14	-

cULus Recogniz Approval ID: E60425				
	Nominal voltage U _N	Nominal current I _N	Cross section AWG	Cross section mm ²
В				
Screw connection	300 V	10 A	30 - 14	-
2 conductors with the same cross-section	300 V	10 A	- 18	-
D				
Screw connection	300 V	10 A	30 - 14	-
2 conductors with the same cross-section	300 V	10 A	- 18	-

	VDE approval of drawings Approval ID: 40055535				
		Nominal voltage U _N	Nominal current I _N	Cross section AWG	Cross section mm ²
keine					
		400 V	17.5 A	-	0.2 - 1.5



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Classifications

ECLASS

	ECLASS-13.0	27460101		
	ECLASS-15.0	Leiterplattenklemme		
	ECLASS-15.0	Leiterplattenklemme		
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-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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