

# Printed-circuit board connector - IC 2,5/22-ST-5,08 - 1786378

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PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin




The figure shows a 10-position version of the product

## Your advantages

- Well-known connection principle allows worldwide use
- Easy PCB replacement thanks to plug-in modules
- Inverted connector with pin contacts for touch-proof device outputs or free-hanging cable/cable connections
- Can be combined with the MSTB 2,5 range
- Low temperature rise, thanks to maximum contact force



## Key Commercial Data

Packing unit	50 pc
GTIN	 4 017918 042523
GTIN	4017918042523

## Technical data

### Item properties

Brief article description	Printed-circuit board connector
Plug-in system	CLASSIC COMBICON
Type of contact	Male connector
Range of articles	IC 2,5/..-ST
Pitch	5.08 mm
Number of positions	22
Connection method	Screw connection with tension sleeve
Drive form screw head	Slotted (L)
Screw thread	M3
Locking	without

# Printed-circuit board connector - IC 2,5/22-ST-5,08 - 1786378

## Technical data

### Item properties

Number of levels	1
Number of connections	22
Number of potentials	22

### Electrical parameters

Nominal current	12 A
Nom. voltage	320 V
Rated voltage	250 V
Rated voltage (III/2)	320 V
Rated voltage (II/2)	630 V
Rated surge voltage (III/3)	4 kV
Rated surge voltage (III/2)	4 kV
Rated surge voltage (II/2)	4 kV

### Connection capacity

Connection method	Screw connection with tension sleeve
pluggable	Yes
Conductor cross section solid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG / kcmil	24 ... 12
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	0.2 mm <sup>2</sup> ... 1 mm <sup>2</sup>
2 conductors with same cross section, flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
2 conductors with same cross section, flexible, with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 1 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	7 mm
Torque	0.5 Nm ... 0.6 Nm

### 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 contact area (top layer)	Tin (5 - 7 µm Sn)
Metal surface contact area (middle layer)	Nickel (2 - 3 µm Ni),

### Material data - housing

Housing color	green (6021)
Insulating material	PA

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## Technical data

### Material data - housing

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

### Dimensions for the product

Length [ l ]	19.2 mm
Width [ w ]	113.26 mm
Height [ h ]	15 mm
Pitch	5.08 mm
Height (without solder pin)	15 mm

### Packaging information

Type of packaging	packed in cardboard
Pieces per package	50
Denomination packing units	Pcs.

### Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (assembly)	-5 °C ... 100 °C
Ambient temperature (operation)	-40 °C ... 100 °C (dependent on the derating curve)

### Termination and connection method

Test for conductor damage and slackening	IEC 60999-1:1999-11
	Test passed

### Pull-out test

Pull-out test	IEC 60999-1:1999-11
	Test passed
Conductor cross section / conductor type / tensile force	0.2 mm <sup>2</sup> / solid / > 10 N
	0.2 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

### Mechanical tests according to standard

Test specification	IEC 61984
Visual inspection	IEC 60512-1-1:2002-02
Dimension check	IEC 60512-1-2:2002-02
Resistance of inscriptions	IEC 60068-2-70:1995-12
Insertion and withdrawal force	IEC 60512-13-2:2006-02
No. of cycles	25
Insertion strength per pos. approx.	8 N

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## Technical data

### Mechanical tests according to standard

Withdraw strength per pos. approx.	7 N
Polarization and coding	IEC 60512-13-5:2006-02

### Air clearances and creepage distances

Clearances and creepage distances	IEC 60664-1:2007-04
Specification	IEC 60664-1:2007-04
Minimum clearance - inhomogeneous field (III/3)	3 mm
Minimum clearance - inhomogeneous field (III/2)	3 mm
Minimum clearance - inhomogeneous field (II/2)	3 mm
Minimum creepage distance value (III/3)	3.2 mm
Minimum creepage distance value (III/2)	1.6 mm
Minimum creepage distance value (II/2)	3.2 mm

### Current carrying capacity / derating curves

Caption	Type: (U)MSTBVK 2,5/...-ST-5,08 with IC 2,5/...-ST-5,08
Specification	IEC 61984:2008-10
Reduction factor	0.8
Note	Representation based on IEC 60512-5-2:2002-02
	For number of positions, see diagram

### Mechanical tests (A)

Test specification	IEC 61984
Insertion strength per pos. approx.	8 N
Withdraw strength per pos. approx.	7 N
Polarization when inserted requirement >20 N	Test passed

### Durability tests (B)

Specification	IEC 60512-9-1:2010-03
Contact resistance R <sub>1</sub>	2.9 mΩ
Insertion/withdrawal cycles	25
Contact resistance R <sub>2</sub>	3 mΩ
Impulse withstand voltage at sea level	4.8 kV
Power-frequency withstand voltage	2.21 kV
Insulation resistance, neighboring positions	2 TΩ

### Thermal tests (C)

Specification	IEC 60512-5-1:2002-02
Number of positions	16
Conductor cross section	2.5 mm <sup>2</sup>
Test current	12 A DC
Upper limiting temperature requirements <100 °C	Test passed

### Climatic tests (D)

Specification	ISO 6988:1985-02
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## Technical data

### Climatic tests (D)

Cold stress	-40 °C/2 h
Thermal stress	100 °C/168 h
Corrosive stress	0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle
Impulse withstand voltage at sea level	4.8 kV
Power-frequency withstand voltage	2.21 kV

### Environmental and durability tests (E)

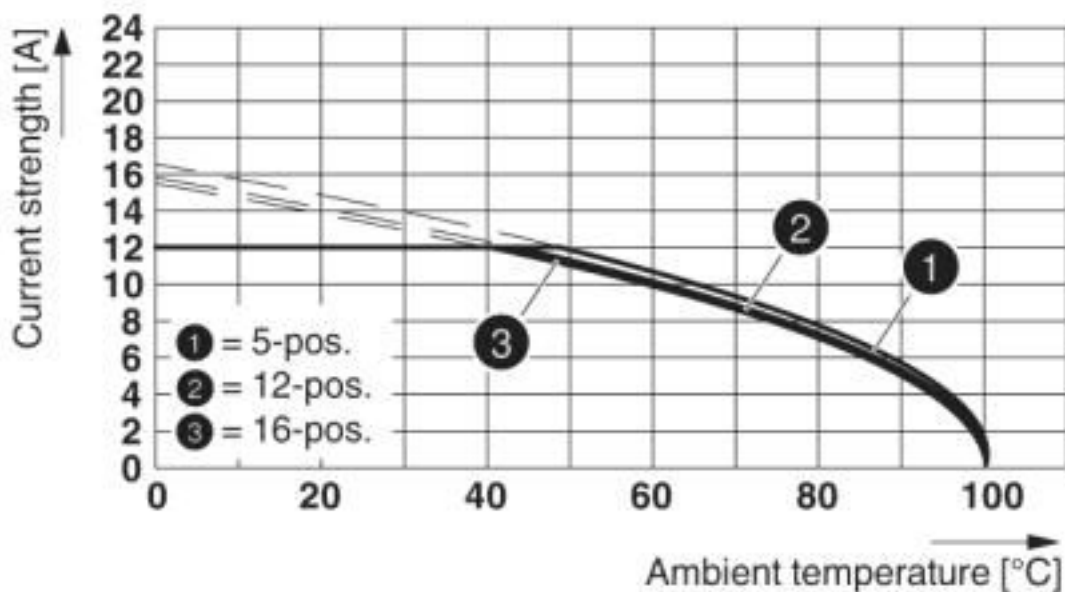
Specification	IEC 61984:2008-10
Result, degree of protection, IP code	Finger safety with IP20 test finger

### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

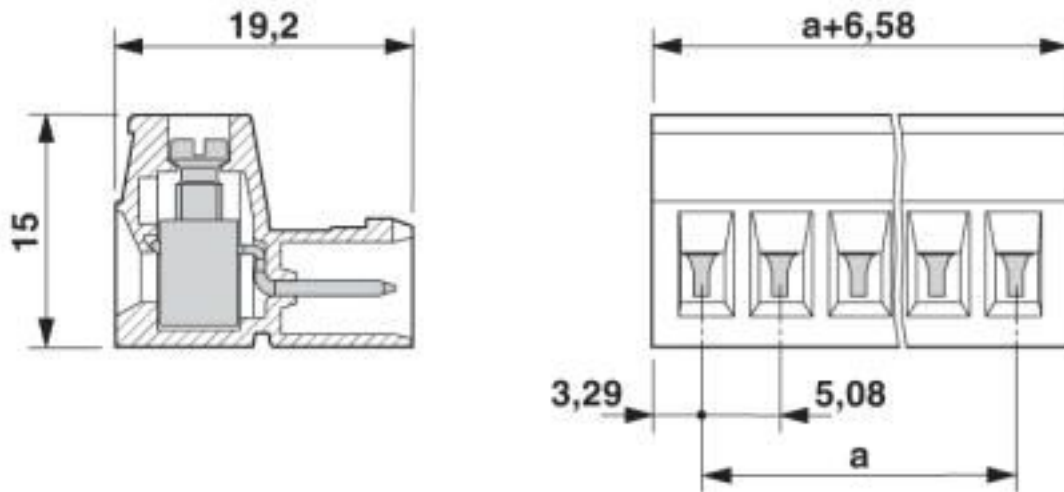
Diagram



Type: (U)MSTBVK 2,5/...-ST-5,08 with IC 2,5/...-ST-5,08

# Printed-circuit board connector - IC 2,5/22-ST-5,08 - 1786378

Dimensional drawing



## Classifications

eCl@ss

eCl@ss 10.0.1	27440309
eCl@ss 4.0	27260700
eCl@ss 4.1	27260700
eCl@ss 5.0	27260700
eCl@ss 5.1	27260700
eCl@ss 6.0	27260700
eCl@ss 7.0	27440309
eCl@ss 8.0	27440309
eCl@ss 9.0	27440309

ETIM

ETIM 3.0	EC001121
ETIM 4.0	EC002638
ETIM 5.0	EC002638
ETIM 6.0	EC002638
ETIM 7.0	EC002638

UNSPSC

UNSPSC 6.01	30211810
UNSPSC 7.0901	39121409
UNSPSC 11	39121409
UNSPSC 12.01	39121409
UNSPSC 13.2	39121409
UNSPSC 18.0	39121409
UNSPSC 19.0	39121409
UNSPSC 20.0	39121409

# Printed-circuit board connector - IC 2,5/22-ST-5,08 - 1786378

## Classifications

### UNSPSC

UNSPSC 21.0	39121409
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## Approvals

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CSA / IECCEB CB Scheme / EAC / cULus Recognized / VDE Zeichengenehmigung

### Ex Approvals

## Approval details

CSA		<a href="http://www.csagroup.org/services-industries/product-listing/">http://www.csagroup.org/services-industries/product-listing/</a>	13631
		B	D
Nominal voltage UN		300 V	300 V
Nominal current IN		10 A	10 A
mm <sup>2</sup> /AWG/kcmil		28-12	28-12


IECEE CB Scheme		<a href="http://www.iecee.org/">http://www.iecee.org/</a>	DE1-60988-B1B2
Nominal voltage UN		250 V	
Nominal current IN		12 A	
mm <sup>2</sup> /AWG/kcmil		0.2-2.5	

EAC			B.01687
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cULus Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	E60425-19931014
		B	D
Nominal voltage UN		250 V	300 V
Nominal current IN		12 A	10 A
mm <sup>2</sup> /AWG/kcmil		30-12	30-12

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## Approvals

VDE Zeichengenehmigung		<a href="http://www2.vde.com/de/Institut/Online-Service/VDE-gepruefteProdukte/Seiten/Online-Suche.aspx">http://www2.vde.com/de/Institut/Online-Service/VDE-gepruefteProdukte/Seiten/Online-Suche.aspx</a>	40050694
Nominal voltage UN		250 V	
Nominal current IN		12 A	
mm <sup>2</sup> /AWG/kcmil		0.2-2.5	

## Accessories

### Accessories

#### Bridge

Insertion bridge - EBP 2- 5 - 1733169



Insertion bridge for connectors with 5.0 mm or 5.08 mm pitch

#### Cable housing

Cable housing - KGS-MSTB 2,5/22 - 1805631



Cable housing, pitch: 0 mm, number of positions: 22, dimension a: 110 mm, color: green

#### Coding element

Coding section - CR-MSTB - 1734401



Coding section, inserted into the recess in the header or the inverted plug, red insulating material

#### Filler plug



## Printed-circuit board connector - IC 2,5/22-ST-5,08 - 1786378

### Accessories

Accessories - MSTB-BL - 1755477



Keying cap, for forming sections, plugs onto header pin, green insulating material

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### Labeled terminal marker

Marker card - SK 5,08/3,8:FORTL.ZAHLEN - 0804293



Marker card, Card, white, labeled, horizontal: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... (99)100, mounting type: adhesive, for terminal block width: 5.08 mm, lettering field size: 5.08 x 3.8 mm

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### Screwdriver tools

Screwdriver - SZS 0,6X3,5 - 1205053



Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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### Additional products

Printed-circuit board connector - MSTB 2,5/22-ST-5,08 - 1757213



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin

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Printed-circuit board connector - MSTBC 2,5/22-STZ-5,08 - 1809705



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Crimp connection, color: green, Corresponding female crimp contacts with current [A] and conductor cross section range [mm<sup>2</sup>] data: 10A/MSTBC-MT 0,5-1,0 (3190564); 10A/MSTBC-MT 0,5-1,0 BA (3190645); 12A/MSTBC-MT 1,5-2,5 (3190551); 12A/MSTBC-MT 1,5-2,5 BA (3190658). BA = Bandkontakte

## Printed-circuit board connector - IC 2,5/22-ST-5,08 - 1786378

### Accessories

#### Printed-circuit board connector - MSTBP 2,5/22-ST-5,08 - 1769214



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin

#### Feed-through header - IC 2,5/22-G-5,08 - 1786608



PCB headers, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, color: green, contact surface: Tin, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 mm

#### Printed-circuit board connector - MVSTBW 2,5/22-ST-5,08 - 1792951



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin

#### Printed-circuit board connector - MVSTBR 2,5/22-ST-5,08 - 1792443



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin

#### Feed-through terminal block - ZFKK 1,5-ICV-5,08 - 1873029



Feed-through terminal block, connection method: Special and hybrid connection, cross section: 0.2 mm<sup>2</sup> - 2.5 mm<sup>2</sup>, AWG: 24 - 16, width: 5.1 mm, color: gray, mounting: NS 35/15, NS 35/7,5

## Printed-circuit board connector - IC 2,5/22-ST-5,08 - 1786378

### Accessories

#### Printed-circuit board connector - MSTBU 2,5/22-STD-5,08 - 1824324



Direct plug-in block, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin, mounting: Direct mounting

#### Printed-circuit board connector - MSTBC 2,5/22-ST-5,08 - 1809019



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Crimp connection, color: green, Corresponding female crimp contacts with current [A] and conductor cross section range [mm<sup>2</sup>] data: 10A/MSTBC-MT 0,5-1,0 (3190564); 10A/MSTBC-MT 0,5-1,0 BA (3190645); 12A/MSTBC-MT 1,5-2,5 (3190551); 12A/MSTBC-MT 1,5-2,5 BA (3190658). BA = Bandkontakte

#### Feed-through header - ICV 2,5/22-G-5,08 - 1786145



PCB headers, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, color: green, contact surface: Tin, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.5 mm

#### Printed-circuit board connector - FRONT-MSTB 2,5/22-ST-5,08 - 1777484



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Front screw connection, color: green, contact surface: Tin

#### Printed-circuit board connector - SMSTB 2,5/22-ST-5,08 - 1850615



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm<sup>2</sup>, number of positions: 22, pitch: 5.08 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin

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