

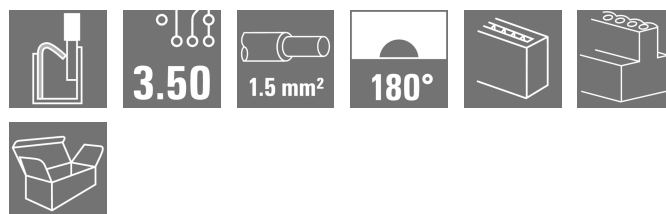
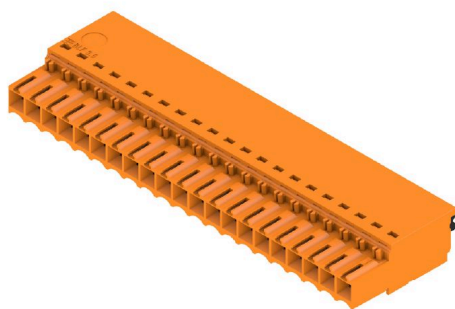
**BLF 3.50/21/180 SN OR BX****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image**

Connect efficiently - in a small space: female header with spring connection (PUSH IN) as a plug-in connection level; used together with male headers in 3.50 mm pitch.

**General ordering data**

Version	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 21, 180°, PUSH IN with actuator, Clamping range, max. : 1.5 mm², Box
Order No.	<a href="#">2459240000</a>
Type	BLF 3.50/21/180 SN OR BX
GTIN (EAN)	4050118474596
Qty.	24 items
Product data	IEC: 320 V / 17.5 A / 0.14 - 1.5 mm² UL: 300 V / 10 A / AWG 26 - AWG 16
Packaging	Box

## BLF 3.50/21/180 SN OR BX

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## Technical data

## Approvals

Approvals



ROHS Conform

UL File Number Search [UL Website](#)

Certificate No. (cURus) E60693

## Dimensions and weights

Depth	22.7 mm	Depth (inches)	0.8937 inch
Height	9 mm	Height (inches)	0.3543 inch
Width	73.5 mm	Width (inches)	2.8937 inch
Net weight	17.17 g		

## Environmental Product Compliance

RoHS Compliance Status Compliant without exemption

REACH SVHC No SVHC above 0.1 wt%

## System Parameters

Product family OMNIMATE Signal - series BL/SL 3.50

Type of connection Field connection

Wire connection method PUSH IN with actuator

Pitch in mm (P) 3.50 mm

Pitch in inches (P) 0.138 "

Conductor outlet direction 180°

Number of poles 21

L1 in mm 70.00 mm

L1 in inches 2.756 "

Number of rows 1

Pin series quantity 1

Rated cross-section 1.5 mm<sup>2</sup>

Touch-safe protection acc. to DIN VDE 57 106 Safe from finger touch

Touch-safe protection acc. to DIN VDE 0470 IP20 plugged/ IP10 unplugged

Protection degree IP20, when fully mounted

Volume resistance ≤5 mΩ

Can be coded Yes

Stripping length 8 mm

Stripping length tolerance	min.	0 mm
	max.	1 mm

Screwdriver blade 0.4 x 2.5

Screwdriver blade standard DIN 5264-A

Plugging cycles 25

Plugging force/pole, max. 6 N

Pulling force/pole, max. 6 N

## Material data

Insulating material	PA GF	Colour	orange
Colour chart (similar)	RAL 2000	Insulating material group	II
Comparative Tracking Index (CTI)	≥ 400, ≤ 600	Moisture Level (MSL)	
UL 94 flammability rating	V-0	Contact material	Cu-alloy

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## Technical data

Contact surface	tinned	Storage temperature, min.	-40 °C
Storage temperature, max.	70 °C	Operating temperature, min.	-50 °C
Operating temperature, max.	120 °C	Temperature range, installation, min.	-30 °C
Temperature range, installation, max.	100 °C		

### Conductors suitable for connection

Clamping range, min.	0.14 mm <sup>2</sup>
Clamping range, max.	1.5 mm <sup>2</sup>
Wire connection cross section AWG, min.	AWG 26
Wire connection cross section AWG, max.	AWG 16
Solid, min. H05(07) V-U	0.14 mm <sup>2</sup>
Solid, max. H05(07) V-U	1.5 mm <sup>2</sup>
Flexible, min. H05(07) V-K	0.14 mm <sup>2</sup>
Flexible, max. H05(07) V-K	1.5 mm <sup>2</sup>
w. plastic collar ferrule, DIN 46228 pt 4, min.	0.28 mm <sup>2</sup>
w. plastic collar ferrule, DIN 46228 pt 4, max.	1 mm <sup>2</sup>
w. wire end ferrule, DIN 46228 pt 1, min.	0.25 mm <sup>2</sup>
w. wire end ferrule, DIN 46228 pt 1, max.	1 mm <sup>2</sup>
Plug gauge in accordance with EN 60999 a x b; ø	2.4 mm x 1.5 mm

Clampable conductor	Cross-section for conductor connection	Type	fine-wired
		nominal	0.25 mm <sup>2</sup>
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0.25/12 HBL</a>
	Cross-section for conductor connection	Type	fine-wired
		nominal	0.34 mm <sup>2</sup>
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0.34/12 TK</a>
	Cross-section for conductor connection	Type	fine-wired
		nominal	0.5 mm <sup>2</sup>
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0.5/14 OR</a>
	Cross-section for conductor connection	Type	fine-wired
		nominal	0.75 mm <sup>2</sup>
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0.75/14T HBL</a>
	Cross-section for conductor connection	Type	fine-wired
		nominal	1 mm <sup>2</sup>
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H1.0/14 GE</a>

**Reference text** The outside diameter of the plastic collar should not be larger than the pitch (P). Length of ferrules is to be chosen depending on the product and the rated voltage.

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## Technical data

## Rated data acc. to IEC

tested acc. to standard	IEC 60664-1, IEC 61984	Rated current, min. number of poles (Tu=20°C)	17.5 A
Rated current, max. number of poles (Tu=20°C)	14.7 A	Rated current, min. number of poles (Tu=40°C)	17.1 A
Rated current, max. number of poles (Tu=40°C)	13.1 A	Rated voltage for surge voltage class / pollution degree II/2	320 V
Rated voltage for surge voltage class / pollution degree III/2	160 V	Rated voltage for surge voltage class / pollution degree III/3	160 V
Rated impulse voltage for surge voltage class/ pollution degree II/2	2.5 kV	Rated impulse voltage for surge voltage class/ pollution degree III/2	2.5 kV
Rated impulse voltage for surge voltage class/ contamination degree III/3	2.5 kV	Short-time withstand current resistance	1 x 1s with 120 A

## Rated data acc. to CSA

Rated voltage (Use group B / CSA)	300 V	Rated voltage (Use group C / CSA)	50 V
Rated voltage (Use group D / CSA)	300 V	Rated current (Use group B / CSA)	10 A
Rated current (Use group D / CSA)	10 A	Wire cross-section, AWG, min.	AWG 16
Wire cross-section, AWG, max.	AWG 26		

## Rated data acc. to UL 1059

Institute (cURus)	CURUS	Certificate No. (cURus)	E60693
Rated voltage (Use group B / UL 1059)	300 V	Rated voltage (Use group C / UL 1059)	50 V
Rated voltage (Use group D / UL 1059)	300 V	Rated current (Use group B / UL 1059)	10 A
Rated current (Use group D / UL 1059)	10 A	Wire cross-section, AWG, min.	AWG 26
Wire cross-section, AWG, max.	AWG 16	Reference to approval values	Specifications are maximum values, details - see approval certificate.

## Packing

Packaging	Box	VPE length	350.00 mm
VPE width	140.00 mm	VPE height	30.00 mm

## Type tests

Visual and dimensional test	Standard	IEC 60512-1-1:2002-02
	Test	dimensional inspection
	Evaluation	passed
	Standard	IEC 60512-1-2:2002-02
	Test	weight check
	Evaluation	passed
	Standard	IEC 61984:2001-10 section 6.2
	Test	visual examination
Test: Durability of markings	Evaluation	passed
	Standard	IEC 60068-2-70:1995-12 test Xb
	Test	mark of origin, type identification, pitch, type of material, date clock, approval marking UL, approval marking CSA, durability
Test: Misengagement (Non-interchangeability)	Evaluation	available
	Standard	IEC 60512-13-5:2006-02
	Test	intentional plugging
	Evaluation	passed
	Test	180° turned without coding elements
	Evaluation	passed
	Test	180° turned with coding elements

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## Technical data

Test: Clampable cross section	Evaluation	passed	
	Test	visual examination	
	Evaluation	passed	
	Standard	IEC 60999-1:1999-11 section 9.1, IEC 60947-1:2011-03 section 8.2.4.5.1	
	Conductor type	Type of conductor and conductor cross-section	solid 0.14 mm <sup>2</sup>
		Type of conductor and conductor cross-section	stranded 0.14 mm <sup>2</sup>
		Type of conductor and conductor cross-section	solid 1.5 mm <sup>2</sup>
		Type of conductor and conductor cross-section	stranded 1.5 mm <sup>2</sup>
		Type of conductor and conductor cross-section	AWG 26/1
		Type of conductor and conductor cross-section	AWG 26/19
		Type of conductor and conductor cross-section	AWG 16/1
		Type of conductor and conductor cross-section	AWG 16/19
Test for damage to and accidental loosening of conductors	Evaluation	passed	
	Standard	IEC 60999-1:1999-11 section 9.4 bzw. section 8.10	
	Requirement	0.3 kg	
	Conductor type	Type of conductor and conductor cross-section	H05V-U0.5
		Type of conductor and conductor cross-section	H05V-K0.5
	Evaluation	passed	
	Requirement	0.4 kg	
	Conductor type	Type of conductor and conductor cross-section	H07V-U1.5
		Type of conductor and conductor cross-section	H07V-K1.5
		Type of conductor and conductor cross-section	AWG 16/1
		Type of conductor and conductor cross-section	AWG 16/19
	Evaluation	passed	
	Requirement	0.2 kg	
	Conductor type	Type of conductor and conductor cross-section	AWG 26/1
		Type of conductor and conductor cross-section	AWG 26/19
Pull-out test	Evaluation	passed	
	Standard	IEC 60999-1:1999-11 section 9.5	

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## Technical data

Requirement	≥20 N	
Conductor type	Type of conductor and conductor cross-section	H05V-U0.5
	Type of conductor and conductor cross-section	H05V-K0.5
Evaluation	passed	
Requirement	≥40 N	
Conductor type	Type of conductor and conductor cross-section	H07V-U1.5
	Type of conductor and conductor cross-section	H07V-K1.5
	Type of conductor and conductor cross-section	AWG 16/1
	Type of conductor and conductor cross-section	AWG 16/19
Evaluation	passed	
Requirement	≥10 N	
Conductor type	Type of conductor and conductor cross-section	AWG 26/1
	Type of conductor and conductor cross-section	AWG 26/19
Evaluation	passed	

## Important note

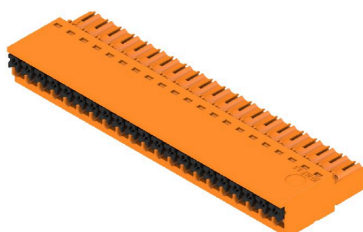
IPC conformity	Conformity: The products are developed, manufactured and delivered according international recognized standards and norms and comply with the assured properties in the data sheet resp. fulfill decorative properties in accordance with IPC-A-610 "Class 2". Further claims on the products can be evaluated on request.
Notes	<ul style="list-style-type: none"> <li>• Additional variants on request</li> <li>• Gold-plated contact surfaces on request</li> <li>• Rated current related to rated cross-section &amp; min. No. of poles.</li> <li>• Wire end ferrule without plastic collar to DIN 46228/1</li> <li>• Wire end ferrule with plastic collar to DIN 46228/4</li> <li>• P on drawing = pitch</li> <li>• Rated data refer only to the component itself. Clearance and creepage distances to other components are to be designed in accordance with the relevant application standards.</li> <li>• The test point can only be used as potential-pickup point.</li> <li>• In accordance with IEC 61984, OMNIMATE-connectors are connectors without breaking capacity (COC). During designated use, connectors are not allowed to be engaged or disengaged when live or under load</li> <li>• Long term storage of the product with average temperature of 50 °C and maximum humidity 70%, 36 months</li> </ul>

## Classifications

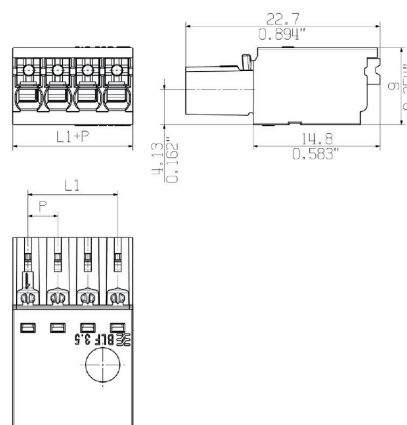
ETIM 6.0	EC002638	ETIM 7.0	EC002638
ETIM 8.0	EC002638	ETIM 9.0	EC002638
ETIM 10.0	EC002638	ECLASS 9.0	27-44-03-09
ECLASS 9.1	27-44-03-09	ECLASS 10.0	27-44-03-09
ECLASS 11.0	27-46-02-02	ECLASS 12.0	27-46-02-02
ECLASS 13.0	27-46-02-02	ECLASS 14.0	27-46-02-02
ECLASS 15.0	27-46-02-02		

## Drawings

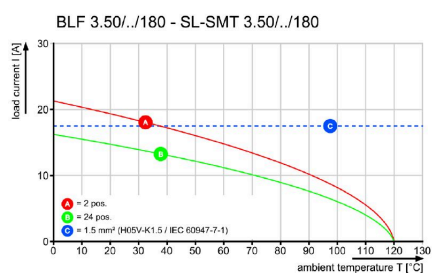
### Product image



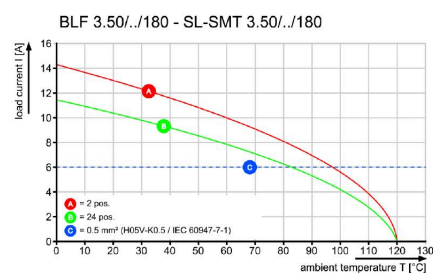
### Dimensional drawing



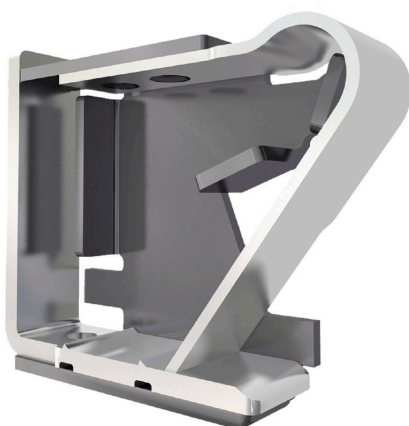
### Derating curve



### Derating curve



### Product benefits



Solid PUSH IN contact Safe and durable

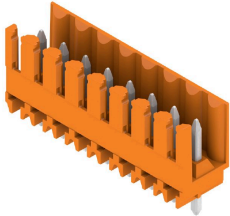
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## Counterpart

## SL 3.50/180



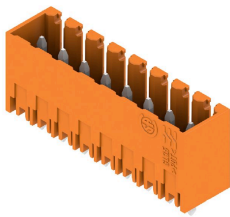
Pin headers for wave soldering in 3.50 mm pitch

- Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB
- Housing variant: screw flange (F)
- Packed in a cardboard box (BX)
- Pin header can be coded

## General ordering data

Type	SL 3.50/21/180 3.2SN OR...	Version
Order No.	<a href="#">1621440000</a>	PCB plug-in connector, male header, open side, THT solder
GTIN (EAN)	4008190172657	connection, 3.50 mm, Number of poles: 21, 180°, Solder pin length
Qty.	20 ST	(I): 3.2 mm, tinned, orange, Box

## SL 3.50/180G



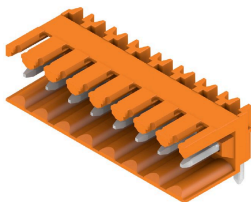
Pin headers for wave soldering in 3.50 mm pitch

- Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB
- Housing variant: screw flange (F)
- Packed in a cardboard box (BX)
- Pin header can be coded

## General ordering data

Type	SL 3.50/21/180G 3.2SN O...	Version
Order No.	<a href="#">1621830000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4008190181239	connection, 3.50 mm, Number of poles: 21, 180°, Solder pin length
Qty.	20 ST	(I): 3.2 mm, tinned, orange, Box

## SL 3.50/90



Pin headers for wave soldering in 3.50 mm pitch

- Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB
- Housing variant: screw flange (F)
- Packed in a cardboard box (BX)
- Pin header can be coded

## General ordering data

Type	SL 3.50/21/90 3.2SN OR ...	Version
Order No.	<a href="#">1619030000</a>	PCB plug-in connector, male header, open side, THT solder
GTIN (EAN)	4008190132651	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (I):
Qty.	20 ST	3.2 mm, tinned, orange, Box



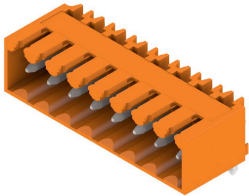
## BLF 3.50/21/180 SN OR BX

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## Counterpart

## SL 3.50/90G

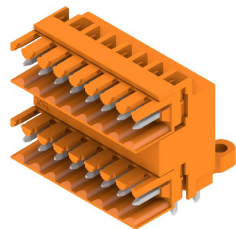


- Pin headers for wave soldering in 3.50 mm pitch
- Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB
  - Housing variant: screw flange (F)
  - Packed in a cardboard box (BX)
  - Pin header can be coded

## General ordering data

Type	SL 3.50/21/90G 3.2SN OR...	Version
Order No.	<a href="#">1619420000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4008190139674	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (l):
Qty.	20 ST	3.2 mm, tinned, orange, Box

## SLD 3.50/90

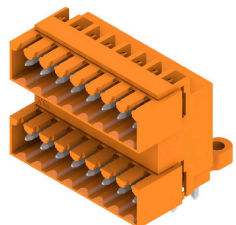


Two-tier pin header for wave soldering in 3.50 mm pitch. The connector is available in open, closed and flange versions. The male connectors provide space for labelling and can be coded. Packed in a cardboard box.

## General ordering data

Type	SLD 3.50/42/90 3.2SN OR...	Version
Order No.	<a href="#">1633540000</a>	PCB plug-in connector, male header, open side, THT solder
GTIN (EAN)	4008190257996	connection, 3.50 mm, Number of poles: 42, 90°, Solder pin length (l):
Qty.	10 ST	3.2 mm, tinned, orange, Box

## SLD 3.50/90G



Two-tier pin header for wave soldering in 3.50 mm pitch. The connector is available in open, closed and flange versions. The male connectors provide space for labelling and can be coded. Packed in a cardboard box.

## General ordering data

Type	SLD 3.50/42/90G 3.2SN O...	Version
Order No.	<a href="#">1633770000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4008190258221	connection, 3.50 mm, Number of poles: 42, 90°, Solder pin length (l):
Qty.	10 ST	3.2 mm, tinned, orange, Box

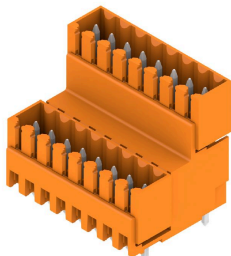
## BLF 3.50/21/180 SN OR BX

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## Counterpart

## SLD 3.50V/180G

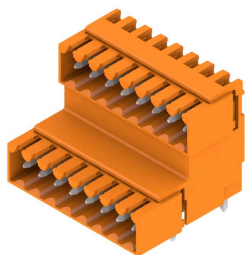


Double-level, staggered pin header for wave soldering at 3.50 mm pitch. They are available in closed and flanged versions. The male connectors provide space for labelling and can be coded.

## General ordering data

Type	SLD 3.50V/42/180G 3.2SN...	Version
Order No.	<a href="#">1891280000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4032248500826	connection, 3.50 mm, Number of poles: 42, 180°, Solder pin length
Qty.	10 ST	(l): 3.2 mm, tinned, orange, Box

## SLD 3.50V/90G

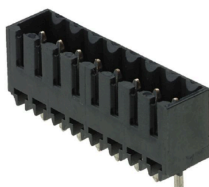


Double-level, staggered pin header for wave soldering at 3.50 mm pitch. They are available in closed and flanged versions. The male connectors provide space for labelling and can be coded.

## General ordering data

Type	SLD 3.50V/42/90G 3.2SN ...	Version
Order No.	<a href="#">1890670000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4032248499694	connection, 3.50 mm, Number of poles: 42, 90°, Solder pin length (l):
Qty.	10 ST	3.2 mm, tinned, orange, Box

## SL-SMT 3.5/180G Box



High-temperature-resistant male header, 3.50 mm pitch.

- Plugging direction parallel (90°), straight 180° or angled (135°) to PCB
- Housing variants: closed side (G), screw flange (F), solder flange (LF) or snap-on solder flange (RF)
- Optimised for the SMT process
- Pin length 3.2 mm universal for all soldering methods
- Pin length 1.5 mm optimised for reflow soldering methods
- Packed either in a box (BX) or tape-on-reel (RL)
- Male header can be coded

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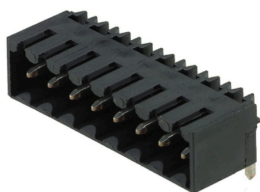
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## Counterpart

## General ordering data

Type	SL-SMT 3.50/21/180G 3.2...	Version
Order No.	<a href="#">1842500000</a>	PCB plug-in connector, male header, closed side, THT/THR solder
GTIN (EAN)	4032248353866	connection, 3.50 mm, Number of poles: 21, 180°, Solder pin length
Qty.	20 ST	(I): 3.2 mm, tinned, black, Box

## SL-SMT 3.5/90G Box



High-temperature-resistant male header, 3.50 mm pitch.

- Plugging direction parallel (90°), straight 180° or angled (135°) to PCB
- Housing variants: closed side (G), screw flange (F), solder flange (LF) or snap-on solder flange (RF)
- Optimised for the SMT process
- Pin length 3.2 mm universal for all soldering methods
- Pin length 1.5 mm optimised for reflow soldering methods
- Packed either in a box (BX) or tape-on-reel (RL)
- Male header can be coded

## General ordering data

Type	SL-SMT 3.50/21/90G 1.5S...	Version
Order No.	<a href="#">1761732001</a>	PCB plug-in connector, male header, closed side, THT/THR solder
GTIN (EAN)	4032248132324	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (I):
Qty.	20 ST	1.5 mm, tinned, black, Box
Type	SL-SMT 3.50/21/90G 3.2S...	Version
Order No.	<a href="#">1841820000</a>	PCB plug-in connector, male header, closed side, THT/THR solder
GTIN (EAN)	4032248353170	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (I):
Qty.	20 ST	3.2 mm, tinned, black, Box