

OMNIMATE Signal - series BL/SL 3.50 SL-SMT 3.50/14/90RF 1.5SN BK BX

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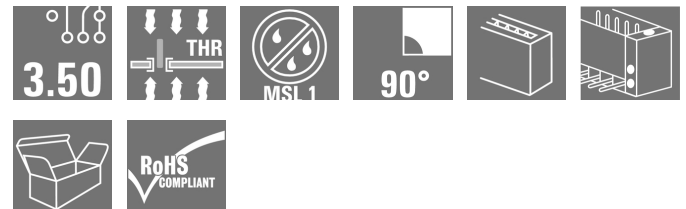
Product image



Similar to illustration

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 3.50/14/90RF 1.5SN BK BX
Order No.	1000690000
Version	PCB plug-in connector, male header, Clip-on flange, THT/THR solder connection, 3.50 mm, Number of poles: 14, 90°, Solder pin length (l): 1.5 mm, tinned, black, Box
GTIN (EAN)	4032248822201
Qty.	50 pc(s).
Product data	IEC: 320 V / 15 A UL: 300 V / 10 A
Packaging	Box

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Technical data**Dimensions and weights**

Width	55.86 mm	Width (inches)	2.199 inch
Height	9 mm	Height (inches)	0.354 inch
Height of lowest version	7.5 mm	Depth	11.1 mm
Depth (inches)	0.437 inch	Net weight	4.04 g

System specifications

Product family	OMNIMATE Signal - series BL/SL 3.50	Type of connection	Board connection
Mounting onto the PCB	THT/THR solder connection	Pitch in mm (P)	3.5 mm
Pitch in inches (P)	0.138 inch	Outgoing elbow	90°
Number of poles	14	Number of solder pins per pole	1
Solder pin length (l)	1.5 mm	Solder pin length tolerance	0 / -0.3 mm
Tolerance of solder pin position	± 0.20 mm	Solder pin dimensions	d = 1.2 mm, Octagonal
Solder pin dimensions = d tolerance	0 / -0,03 mm	Solder eyelet hole diameter (D)	1.4 mm
Solder eyelet hole diameter tolerance (D)+	0,1 mm	Outside diameter of solder pad	2.3 mm
Template aperture diameter	2.1 mm	L1 in mm	45.5 mm
L1 in inches	1.791 inch	Number of rows	1
Pin series quantity	1	Touch-safe protection acc. to DIN VDE 57 106	Safe from back-of-hand touch
Touch-safe protection acc. to DIN VDE 0470	IP 10	Volume resistance	≤ 5mΩ
Can be coded	Yes	Plugging cycles	25
Plugging force/pole, max.	6 N	Pulling force/pole, max.	6 N

Material data

Insulating material	LCP GF	Colour	black
Colour chart (similar)	RAL 9011	Insulating material group	IIIa
Comparative Tracking Index (CTI)	≥ 175	Insulation strength	≥ 10 ⁸ Ω
Moisture Level (MSL)	1	UL 94 flammability rating	V-0
GWIT	930 °C	GWFI	960 °C
Contact material	Copper alloy	Contact surface	tinned
Layer structure of solder connection	2-3 μm Ni / 5-7 μm Sn	Layer structure of plug contact	2-3 μm Ni / 5-7 μm Sn
Storage temperature, min.	-25 °C	Storage temperature, max.	50 °C
Max. relative humidity during storage	70 %	Operating temperature, min.	-50 °C
Operating temperature, max.	100 °C	Temperature range, installation, min.	-30 °C
Temperature range, installation, max.	100 °C		

Rated data acc. to IEC

tested acc. to standard	IEC 60664-1, IEC 61984	Rated current, min. number of poles (Tu=20°C)	15 A
Rated current, max. number of poles (Tu=20°C)	12 A	Rated current, min. number of poles (Tu=40°C)	13 A
Rated current, max. number of poles (Tu=40°C)	10 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	3 x 1s with 100 A

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Technical data

Rated data acc. to CSA

Rated voltage (Use group B / CSA)	300 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

Rated data acc. to UL 1059

Institute (UR)		Certificate No. (UR)	E60693
Rated voltage (Use group B / UL 1059)	300 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
Reference to approval values	Specifications are maximum values, details - see approval certificate.		

Packing

Packaging	Box	VPE length	0 m
VPE width	0 m	VPE height	0 m

Classifications

ETIM 6.0	EC002637	ETIM 7.0	EC002637
eClass 9.0	27-44-04-02	eClass 9.1	27-44-04-02
eClass 10.0	27-44-04-02		

Notes

Notes	<ul style="list-style-type: none"> • Gold-plated contact surfaces on request • Rated current related to rated cross-section & min. No. of poles. • Diameter of solder eyelet D = 1.4+0.1mm • Solder eyelet diameter D = 1.5 + 0.1 mm, from 9 poles • P on drawing = pitch • 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.
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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.
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Approvals

Approvals	
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ROHS	Conform
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Data sheet**OMNIMATE Signal - series BL/SL 3.50
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Technical data**Downloads**

Approval/Certificate/Document of Conformity	Declaration of the Manufacturer
Brochure/Catalogue	FL DRIVES EN MB SMT EN FL DRIVES DE MB DEVICE MANUF. EN CAT 2 PORTFOLIOGUIDE EN FL BUILDING SAFETY EN FL APPL LED LIGHTING EN FLIndustr.CONTROLS EN FL MACHINE SAFETY EN FL HEATING ELECTR EN FL APPL INVERTER EN FL_BASE_STATION_EN FL ELEVATOR EN FL POWER SUPPLY EN FL 72H SAMPLE SER EN PO OMNIMATE EN
Engineering Data	STEP
White paper surface mount technology	Download Whitepaper

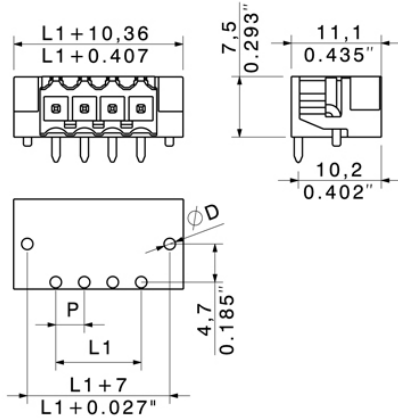
Data sheet

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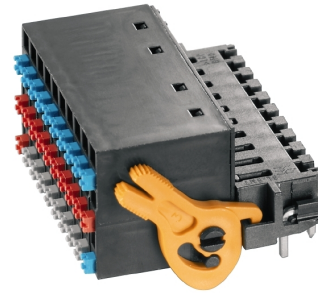
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Drawings

Dimensional drawing



Example of use



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Mating connector (fully pluggable)
BLZF 3.5/180LR


Female connectors with tension clamp system for connecting cables in 3.50 pitch. They provide space for labelling and can be coded.

General ordering data

Type	BLZF 3.50/14/180LR SN O ...	Version	Product data	Packaging
Order No.	1531360000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 14.5 A / 0.2 - 1.5 mm ²	Box
GTIN (EAN)	4050118336450	180°, Tension-clamp connection, Clamping range, max.: 1.5 mm ² ,	UL: 300 V / 10 A / AWG 26 - AWG 14	
Qty.	50 pc(s).	Box		
Type	BLZF 3.50/14/180LR SN O ...	Version	Product data	Packaging
Order No.	1134570000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 14.5 A / 0.2 - 1.5 mm ²	Box
GTIN (EAN)	4032248914746	180°, Tension-clamp connection, Clamping range, max.: 1.5 mm ² ,	UL: 300 V / 10 A / AWG 26 - AWG 14	
Qty.	50 pc(s).	Box		

BLF 3.50/180LH


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

Type	BLF 3.50/14/180LH SN BK ...	Version	Product data	Packaging
Order No.	2538130000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 17.5 A / 0.14 - 1.5 mm ²	Box
GTIN (EAN)	4050118549850	180°, PUSH IN, Spring connection, Clamping range, max.: 1.5 mm ² ,	UL: 300 V / AWG 26 - AWG 16	
Qty.	30 pc(s).	Box		
Type	BLF 3.50/14/180LH SN OR ...	Version	Product data	Packaging
Order No.	2460070000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 17.5 A / 0.14 - 1.5 mm ²	Box
GTIN (EAN)	4050118475487	180°, PUSH IN, Spring connection, Clamping range, max.: 1.5 mm ² ,	UL: 300 V / AWG 26 - AWG 16	
Qty.	30 pc(s).	Box		

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Mating connector (fully pluggable)
BLF 3.50/180LR


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

Type	BLF 3.50/14/180LR SN BK ...	Version	Product data	Packaging
Order No.	2538210000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 17.5 A / 0.14 - 1.5 mm ²	Box
GTIN (EAN)	4050118549935	180°, PUSH IN, Spring connection, Clamping range, max. : 1.5 mm ² ,	UL: 300 V / AWG 26 - AWG 16	
Qty.	30 pc(s).	Box		
Type	BLF 3.50/14/180LR SN OR ...	Version	Product data	Packaging
Order No.	2459800000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 17.5 A / 0.14 - 1.5 mm ²	Box
GTIN (EAN)	4050118475210	180°, PUSH IN, Spring connection, Clamping range, max. : 1.5 mm ² ,	UL: 300 V / AWG 26 - AWG 16	
Qty.	30 pc(s).	Box		

BL 3.50/180LR


Female connectors with clamping yoke screw system for connecting conductors at 3.50 mm pitch. They provide space for labelling and can be coded.

General ordering data

Type	BL 3.50/15/180LR SN OR ...	Version	Product data	Packaging
Order No.	1531130000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 15,	IEC: 320 V / 17 A / 0.2 - 1.5 mm ²	Box
GTIN (EAN)	4050118336047	180°, Clamping yoke connection, Clamping range, max. : 1.5 mm ² ,	UL: 300 V / 10 A / AWG 28 - AWG 14	
Qty.	30 pc(s).	Box		
Type	BL 3.50/14/180LR SN OR ...	Version	Product data	Packaging
Order No.	1531120000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 17 A / 0.2 - 1.5 mm ²	Box
GTIN (EAN)	4050118336108	180°, Clamping yoke connection, Clamping range, max. : 1.5 mm ² ,	UL: 300 V / 10 A / AWG 28 - AWG 14	
Qty.	30 pc(s).	Box		
Type	BL 3.50/14/180LR SN OR ...	Version	Product data	Packaging
Order No.	1134420000	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 14,	IEC: 320 V / 17 A / 0.2 - 1.5 mm ²	Box
GTIN (EAN)	4032248914524	180°, Clamping yoke connection, Clamping range, max. : 1.5 mm ² ,	UL: 300 V / 10 A / AWG 28 - AWG 14	
Qty.	50 pc(s).	Box		

Recommended wave soldering profiles

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Single Wave:



Double Wave:



Wave soldering profiles

Wired connection elements should be processed in accordance with the DIN EN 61760-1 standard. We have included two recommendations for practical wave soldering profiles, with which Weidmüller PCB terminals and connectors are qualified.

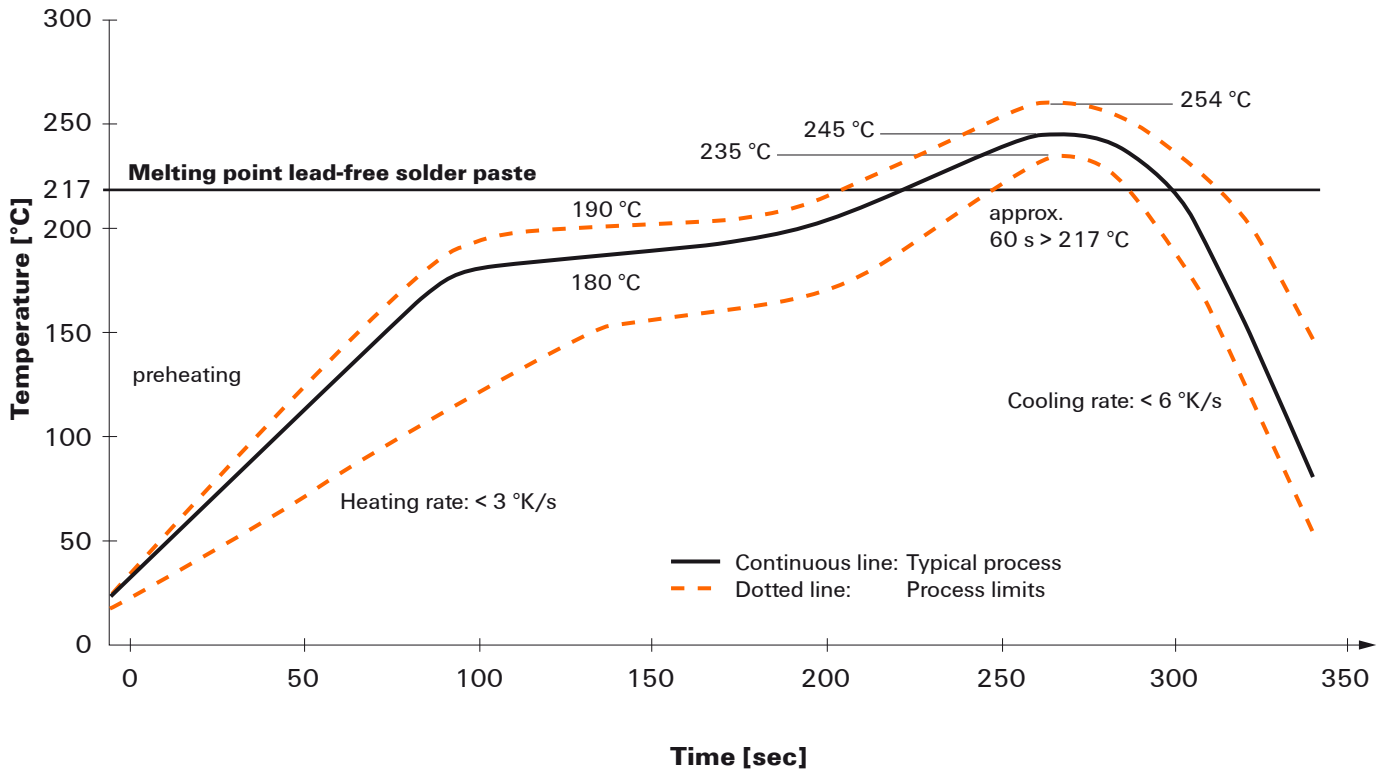
When choosing a suitable profile for your application, the following factors also need to be considered:

- PCB thickness
- Proportion of Cu in the layers
- Single/double-sided assembly
- Product range
- Heating and cooling rates

The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of 260°C. In practice, the maximum soldering temperature is quite often well below the above maximum profile.

Recommended reflow soldering profile

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Reflow soldering profile

The perfect soldering profile for SMT Surface Mount Technology is one the most exiting question in SMT production. But there are more than one correct answer: The diagram of temperature-on-time is related to processing features of solder paste and to maximum load of components.

We have to consider the following parameters:

- Time for pre heating
- Maximum temperature
- Time above melting point
- Time for cooling
- Maximum heating rate
- Maximum cooling rate

We recommend a typical solder profile with associated process limits. With preheating components and board are prepared smoothly for the solder phase. Heating rate is typically $\leq +3\text{K/s}$. In parallel the solder paste is ‚activated‘. The time above melting point of 217°C the paste gets liquid and components and boards begin to connect. The maximum temperature of 245°C to 254°C should stay between 10 and 40 seconds. In the cooling phase at $\geq -6\text{K/s}$ solder is cured. Board and components cool down while avoiding cold cracks.