

LSF-SMT 3.50/19/90 3.5SN BK TU**Weidmüller Interfaces GmbH & Co. KG**

Postfach 3030

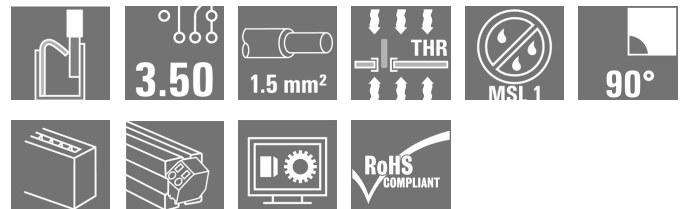
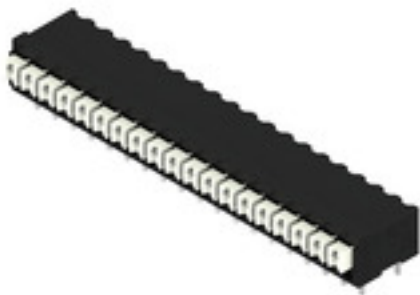
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Product image

PCB terminal for fully automatic assembly in reflow soldering (SMT), with PUSH IN conductor connection system. Conductor inserted and slider operated in same direction (TOP). Packed in box or as tape on reel. Pin lengths optimised at 1.5 mm or 3.5 mm.

General ordering data

Version	Printed circuit board terminals, 3.50 mm, Number of poles: 19, 90°, Solder pin length (l): 3.5 mm, black, PUSH IN with actuator, Clamping range, max.: 1.5 mm², Tube
Order No.	1870440000
Type	LSF-SMT 3.50/19/90 3.5SN BK TU
GTIN (EAN)	4032248447794
Qty.	8 pc(s).
Product data	IEC: 320 V / 17.5 A / 0.2 - 1.5 mm² UL: 300 V / 12 A / AWG 28 - AWG 14
Packaging	Tube

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Technical data

Dimensions and weights

Depth	14.75 mm	Depth (inches)	0.581 inch
Height	12 mm	Height (inches)	0.472 inch
Height of lowest version	8.5 mm	Width	67.2 mm
Width (inches)	2.646 inch	Net weight	13.875 g

Temperatures

Continuous operating temp., max.	120 °C
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System parameters

Product family	OMNIMATE Signal - series LSF	Wire connection method	PUSH IN with actuator
Mounting onto the PCB	THT/THR solder connection	Conductor outlet direction	90°
Pitch in mm (P)	3.5 mm	Pitch in inches (P)	0.138 inch
Number of poles	19	Pin series quantity	1
Fitted by customer	No	Solder pin length (l)	3.5 mm
Solder pin length tolerance	0 / -0.3 mm	Solder pin dimensions	0.35 x 0.8 mm
Solder pin dimensions = d tolerance	0 / -0.1 mm	Solder eyelet hole diameter (D)	1.1 mm
Solder eyelet hole diameter tolerance (D)	+ 0.1 mm	Number of solder pins per pole	2
Stripping length	8 mm	L1 in mm	63 mm
L1 in inches	2.48 inch	Touch-safe protection acc. to DIN VDE 0470	IP 20
Touch-safe protection acc. to DIN VDE 57 106	Safe from finger touch	Protection degree	IP20
Volume resistance	1.60 mΩ		

Material data

Insulating material	LCP GF	Colour	black
Colour chart (similar)	RAL 9011	Insulating material group	IIIa
Comparative Tracking Index (CTI)	≥ 175	Moisture Level (MSL)	1
UL 94 flammability rating	V-0	Contact material	Copper alloy
Layer structure of solder connection	4...6 µm Sn matt	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.	120 °C		

Conductors suitable for connection

Clamping range, min.	0.13 mm ²
Clamping range, max.	1.5 mm ²
Wire connection cross section AWG, min.	AWG 28
Wire connection cross section AWG, max.	AWG 14
Solid, min. H05(07) V-U	0.2 mm ²
Solid, max. H05(07) V-U	1.5 mm ²
Flexible, min. H05(07) V-K	0.2 mm ²
Flexible, max. H05(07) V-K	1.5 mm ²
w. plastic collar ferrule, DIN 46228 pt 4, 0.25 mm ² min.	
w. plastic collar ferrule, DIN 46228 pt 4, 0.75 mm ² max.	

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Technical data

w. wire end ferrule, DIN 46228 pt 1, min. 0.25 mm²w. wire end ferrule, DIN 46228 pt 1, max. 1.5 mm²

Clampable conductor

Cross-section for conductor connection

Type fine-wired

nominal 0.25 mm²

wire end ferrule

Stripping length nominal 10 mm

Recommended wire-end ferrule [H0.25/12 HBL](#)

Cross-section for conductor connection

Type fine-wired

nominal 0.34 mm²

wire end ferrule

Stripping length nominal 10 mm

Recommended wire-end ferrule [H0.34/12 TK](#)

Cross-section for conductor connection

Type fine-wired

nominal 0.5 mm²

wire end ferrule

Stripping length nominal 10 mm

Recommended wire-end ferrule [H0.5/14 OR](#)

Cross-section for conductor connection

Type fine-wired

nominal 0.75 mm²

wire end ferrule

Stripping length nominal 10 mm

Recommended wire-end ferrule [H0.75/14T HBL](#)

Reference text

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

Rated data acc. to IEC

tested acc. to standard

IEC 60664-1, IEC 61984

Rated current, max. number of poles (Tu=20°C)

16 A

Rated current, max. number of poles (Tu=40°C)

14 A

Rated voltage for surge voltage class / pollution degree III/2

160 V

Rated impulse voltage for surge voltage class/ pollution degree II/2

2.5 kV

Rated impulse voltage for surge voltage class/ contamination degree III/3

2.5 kV

Rated current, min. number of poles (Tu=20°C)

17.5 A

Rated current, min. number of poles (Tu=40°C)

17.5 A

Rated voltage for surge voltage class / pollution degree II/2

320 V

Rated voltage for surge voltage class / pollution degree III/3

160 V

Rated impulse voltage for surge voltage class/ pollution degree III/2

2.5 kV

Short-time withstand current resistance

3 x 1s with 80 A

Rated data acc. to CSA

Institute (CSA)



Certificate No. (CSA)

200039-1664286

Rated voltage (Use group B / CSA)

300 V

Rated current (Use group B / CSA)

10 A

Wire cross-section, AWG, min.

AWG 28

Reference to approval values

Specifications are maximum values, details - see approval certificate.

Rated voltage (Use group D / CSA)

300 V

Rated current (Use group D / CSA)

10 A

Wire cross-section, AWG, max.

AWG 14

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Technical data

Rated data acc. to UL 1059

Institute (cURus)



Certificate No. (cURus) www.weidmueller.com

E60693

Rated voltage (Use group B / UL 1059) 300 V

Rated current (Use group B / UL 1059) 12 A

Wire cross-section, AWG, min. AWG 28

Reference to approval values

Specifications are maximum values, details - see approval certificate.

Rated voltage (Use group D / UL 1059) 300 V

Rated current (Use group D / UL 1059) 10 A

Wire cross-section, AWG, max. AWG 14

Packing

Packaging Tube

VPE width 22 mm

Surface resistance $R_s = 10^9 - 10^{12} \Omega$

VPE length 19 mm

VPE height 555 mm

Classifications

ETIM 6.0 EC002643

ETIM 8.0 EC002643

ECLASS 9.1 27-44-04-01

ECLASS 11.0 27-46-01-01

ETIM 7.0 EC002643

ECLASS 9.0 27-44-04-01

ECLASS 10.0 27-44-04-01

ECLASS 12.0 27-46-01-01

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

- Additional push button colours on request
- Operating force of slider max. 40 N
- Rated current related to rated cross-section & min. No. of poles.
- Wire end ferrule with plastic collar to DIN 46228/4
- Wire end ferrule without plastic collar to DIN 46228/1
- 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.
- Crimping shape "A" for wire end ferrules with PZ 6/5 crimping tool recommended.
- Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months

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Technical data

Approvals

Approvals



ROHS	Conform
UL File Number Search	UL Website
Certificate No. (cURus)	E60693

Downloads

Approval/Certificate/Document of Conformity	Declaration of the Manufacturer
Engineering Data	CAD data – STEP
Engineering Data	EPLAN, WSCAD
Catalogues	Catalogues in PDF-format
Brochures	FL DRIVES EN FL ANALO.SIGN.CONV. EN MB SMT EN FL DRIVES DE MB DEVICE MANUF. EN FL BUILDING SAFETY EN FL APPL LED LIGHTING EN FL INDUSTR.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 PO OMNIMATE EN
White paper surface mount technology	Download Whitepaper

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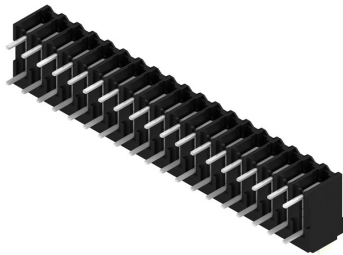
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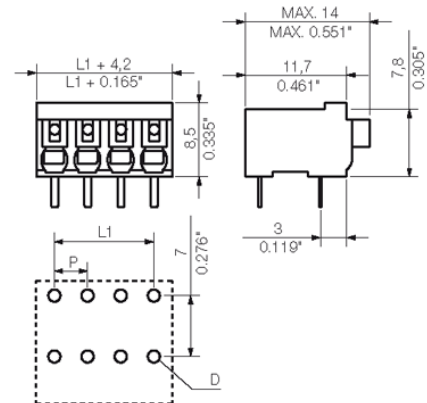
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Drawings

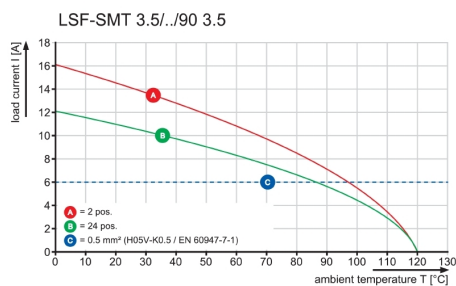
Product image



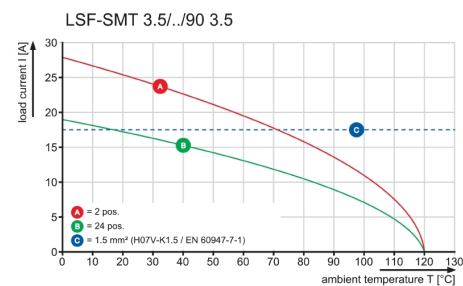
Dimensional drawing



Graph



Graph



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.

We reserve the right to make technical changes.

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.