

OMNIMATE Signal - series LSF LSF-SMD 3.50/12/180 SN BK RL

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Product image



Similar to illustration

The innovative quick connector - simple, safe and economical:

PCB terminals with spring connection and direct PUSH IN technology. A milestone in connection technology.

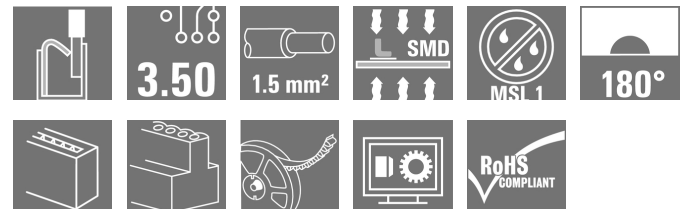
Amazingly simple and simply amazing in practice:

- Connect and easily detach solid wires or wires with wire-end ferrules without using tools
- Processed automatically in the reflow or vapour phase
- Potentials and clamping points marked clearly by coloured push buttons

World-class design-in and processing phases, and suitable for a vast range of applications.

PCB terminal for fully automatic assembly using reflow soldering (SMD), with PUSH IN wire connections. Conductor insertion and slider operation from the same direction (TOP).

- **Solid & flexible conductors with wire-end ferrules need only to be inserted and they are ready.**
- **When connecting stranded wires without wire-end ferrules the actuating element is used to open the terminal point**
- **Intuitive handling – since the wire-entry area and handling area are clearly separated.**
- **Packaged in tape-on-reel**
- **Conductor outlet direction 180°**



General ordering data

Type	LSF-SMD 3.50/12/180 SN BK RL
Order No.	1250470000
Version	Printed circuit board terminals, 3.50 mm, Number of poles: 12, 180°, black, PUSH IN, Clamping range, max.: 1.5 mm², Tape
GTIN (EAN)	4050118041064
Qty.	180 pc(s).
Product data	IEC: 320 V / 17.5 A / 0.2 - 1.5 mm² UL: 300 V / 12 A / AWG 24 - AWG 16
Packaging	Tape

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Technical data
Dimensions and weights

Width	42.7 mm	Width (inches)	1.681 inch
Height	16.3 mm	Height (inches)	0.642 inch
Height of lowest version	16.3 mm	Depth	10.5 mm
Depth (inches)	0.413 inch	Net weight	8.48 g

System parameters

Product family	OMNIMATE Signal - series LSF	Wire connection method	PUSH IN
Mounting onto the PCB	SMD solder connection	Conductor outlet direction	180°
Pitch in mm (P)	3.5 mm	Pitch in inches (P)	0.138 inch
Number of poles	12	Fitted by customer	No
Coplanarity:	100 µm	Number of solder pins per pole	2
Stripping length	8 mm	L1 in mm	38.5 mm
L1 in inches	1.518 inch	Touch-safe protection acc. to DIN VDE 0470	IP 20
Touch-safe protection acc. to DIN VDE 57 106	Safe from finger touch	Volume resistance	1.60 mΩ

Material data

Insulating material	LCP GF	Colour	black
Colour of operational elements	white	Material of operational elements	PPA GF
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
Contact material	Copper alloy	Layer structure of solder connection	4-6 µm Sn matt
Storage temperature, min.	-25 °C	Storage temperature, max.	50 °C
Max. relative humidity during storage	70 %	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, min.	0.25 mm ²
w. plastic collar ferrule, DIN 46228 pt 4, max.	0.75 mm ²
w. wire end ferrule, DIN 46228 pt 1, min.	0.25 mm ²
w. wire end ferrule, DIN 46228 pt 1, max.	1.5 mm ²

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Technical data

Clampable conductor	Cross-section for conductor connection	Type	fine-wired
		nominal	0.25 mm ²
wire end ferrule		Stripping length	nominal 10 mm
		Recommended wire-end ferrule	H0,25/12 HBL
Cross-section for conductor connection	Cross-section for conductor connection	Type	fine-wired
		nominal	0.34 mm ²
wire end ferrule		Stripping length	nominal 10 mm
		Recommended wire-end ferrule	H0,34/12 TK
Cross-section for conductor connection	Cross-section for conductor connection	Type	fine-wired
		nominal	0.5 mm ²
wire end ferrule		Stripping length	nominal 10 mm
		Recommended wire-end ferrule	H0,5/14 OR
Cross-section for conductor connection	Cross-section for conductor connection	Type	fine-wired
		nominal	0.75 mm ²
wire end ferrule		Stripping length	nominal 10 mm
		Recommended wire-end ferrule	H0,75/14T HBL
Cross-section for conductor connection	Cross-section for conductor connection	Type	fine-wired
		nominal	1.5 mm ²
wire end ferrule		Stripping length	nominal 7 mm
		Recommended wire-end ferrule	H1,5/7
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)		
Max. clamping range	1.5 mm ²		

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)	16 A	Rated current, min. number of poles (Tu=40°C)	17.5 A
Rated current, max. number of poles (Tu=40°C)	14 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 80 A

Rated data acc. to CSA

Institute (CSA)		Certificate No. (CSA)	200039-1664286
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
Wire cross-section, AWG, min.	AWG 28	Wire cross-section, AWG, max.	AWG 14
Reference to approval values	Specifications are maximum values, details - see approval certificate.		

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Technical data
Rated data acc. to UL 1059

Institute (cURus)



Certificate No. (cURus)

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)	12 A	Rated current (Use group D / UL 1059)	10 A
Wire cross-section, AWG, min.	AWG 24	Wire cross-section, AWG, max.	AWG 16
Reference to approval values	Specifications are maximum values, details - see approval certificate.		

Packing

Packaging	Tape	VPE length	50 mm
VPE width	330 mm	VPE height	330 mm
Tape depth (T2)	17.6 mm	Tape width (W)	56 mm
Tape pocket depth (K0)	17.1 mm	Tape pocket height (A0)	11.2 mm
Tape pocket width (B0)	43.7 mm	Tape pocket separation (P1)	20 mm
Tape hole separation (E)	1.75 mm	Tape pocket separation (F)	26.2 mm
Tape reel diameter \varnothing (A)	330 mm	Surface resistance	$R_s = 10^9 - 10^{12} \Omega$
Width Pick & Place Pad (W_{PPP})	7.5 mm	Length Pick & Place Pad (L_{PPP})	8.5 mm
Diameter of the withdrawal surface ($\varnothing D_{max}$)	9 mm		

Classifications

ETIM 6.0	EC002643	ETIM 7.0	EC002643
eClass 9.0	27-44-04-01	eClass 9.1	27-44-04-01
eClass 10.0	27-44-04-01		

Notes

Notes	<ul style="list-style-type: none"> • 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.
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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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Data sheet

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Technical data

Approvals

Approvals



ROHS

Conform

Downloads

Approval/Certificate/Document of
Conformity

[Declaration of the Manufacturer](#)

Brochure/Catalogue

- [FL DRIVES EN](#)
- [PI OMNIMATE LSF SMD EN](#)
- [FL ANALO.SIGN.CONV. EN](#)
- [MB DEVICE MANUF. EN](#)
- [FL DRIVES DE](#)
- [CAT 2 PORTFOLIOGUIDE EN](#)
- [FL BUILDING SAFETY EN](#)
- [FL APPL LED LIGHTING EN](#)
- [FLIndustr.CONTROLS EN](#)
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- [FL_BASE_STATION_EN](#)
- [FL ELEVATOR EN](#)
- [FL POWER SUPPLY EN](#)
- [FL 72H SAMPLE SER EN](#)
- [PO OMNIMATE EN](#)

Engineering Data

[EPLAN, WSCAD](#)

Engineering Data

[STEP](#)

White paper surface mount technology

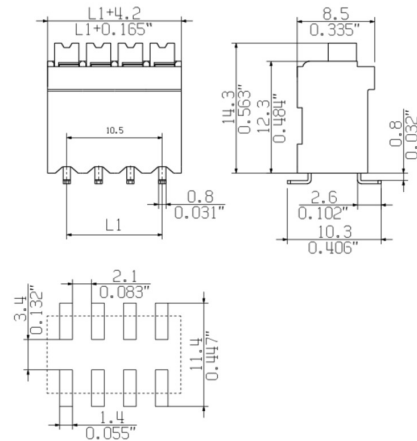
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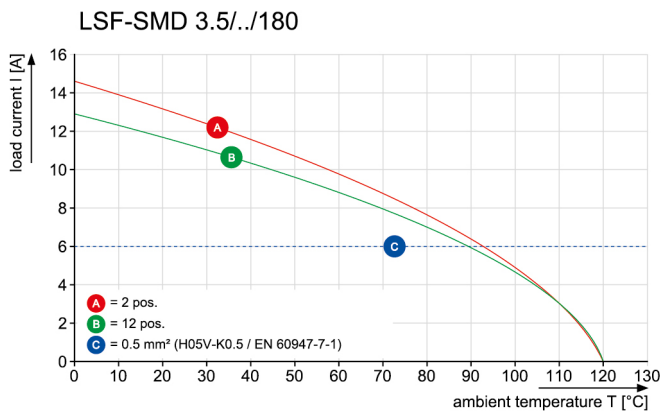
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Drawings

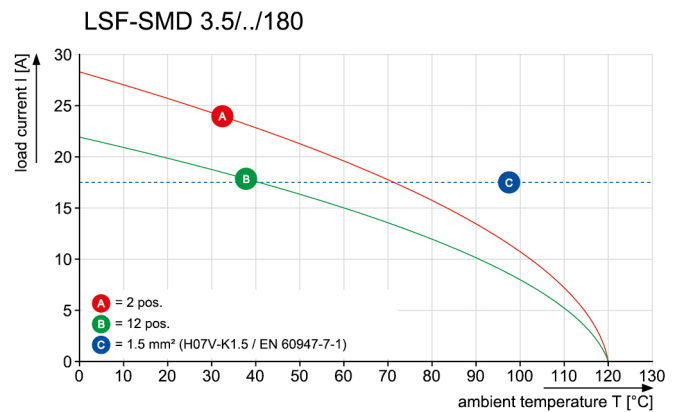
Dimensional drawing



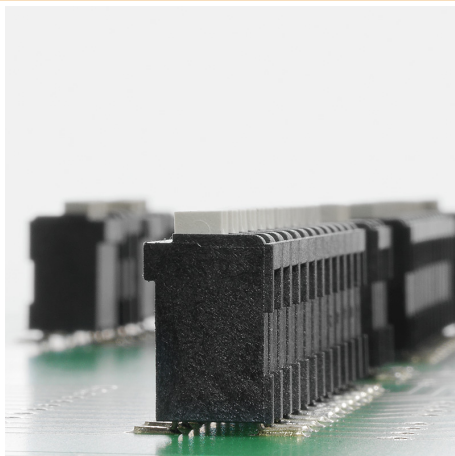
Graph



Graph

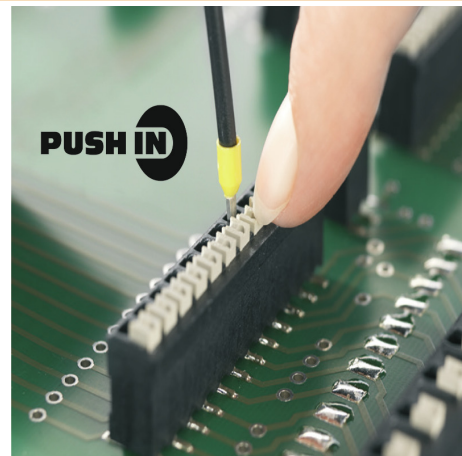


Product benefits



Stable solder connection

Product benefits



PUSH IN wire connection

Data sheet

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Accessories

Slotted screwdriver

Slotted screwdriver with rounded blade SD DIN 5265, ISO 2380/2, output to DIN 5264, ISO 2380/1. ChromTop tip, SoftFinish grip



General ordering data

Type	SDS 0.4X2.5X75	Version
Order No.	9009030000	Screwdriver, Blade width (B): 2.5 mm, Blade length: 75 mm, Blade thickness (A): 0.4 mm
GTIN (EAN)	4032248266944	
Qty.	1 pc(s).	

Slotted screwdriver

VDE insulated slot-head screwdriver, SDI DIN 7437, ISO 2380/2, drive output acc. to DIN 5264, ISO 2380/1. SoftFinish grip



General ordering data

Type	SDIS 0.4X2.5X75	Version
Order No.	9008370000	Screwdriver, Blade width (B): 2.5 mm, Blade length: 75 mm, Blade thickness (A): 0.4 mm
GTIN (EAN)	4032248056330	
Qty.	1 pc(s).	

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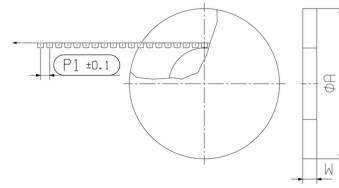
Drawings

Product benefits

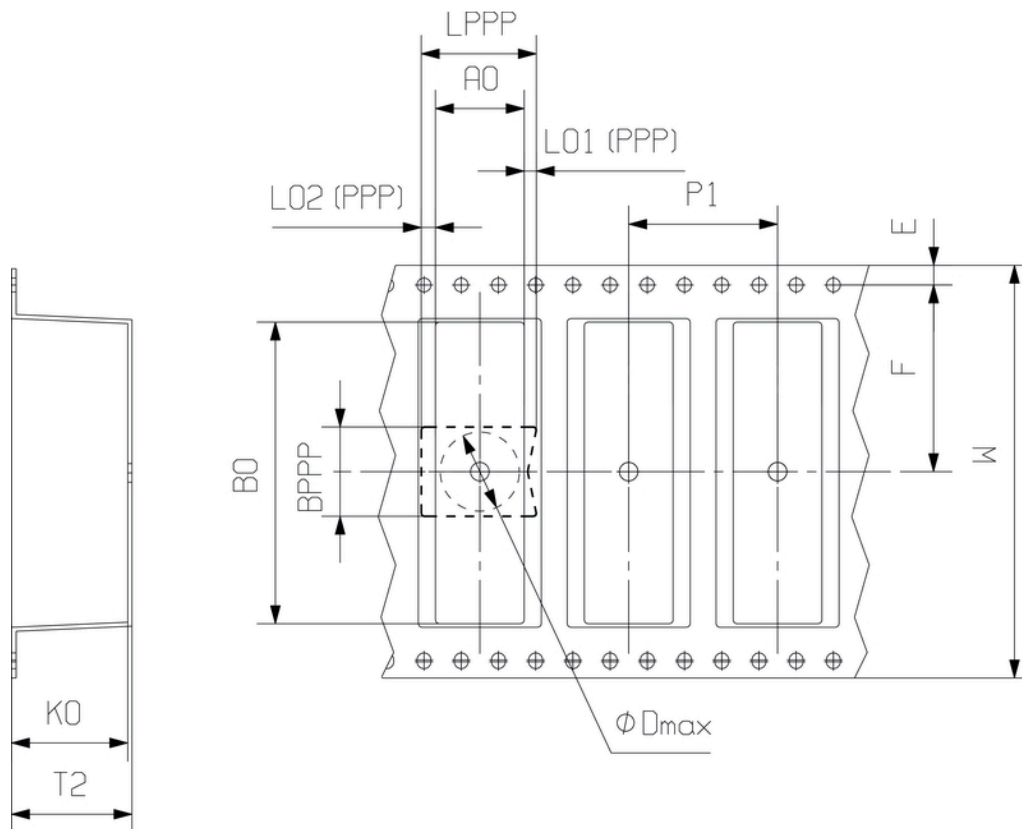


Packaged in tape-on-reel

Dimensional drawing



Dimensional drawing



DIRECTION OF UNREELING 

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.