

**SL-SMT 5.08HC/02/90LF 1.5SN BK BX**

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 26  
 D-32758 Detmold  
 Germany

www.weidmueller.com



High-temperature-resistant pin header, packed in box or tape. On tape, with 1.5 mm solder pin, optimised for automatic assembly. 3.2 mm solder pin suitable for reflow and wave soldering. The pin headers provide space for labelling and can be coded. HC = High Current.

**General ordering data**

Version	PCB plug-in connector, male header, Solder flange, THT/THR solder connection, 5.08 mm, Number of poles: 2, 90°, Solder pin length (l): 1.5 mm, tinned, black, Box
Order No.	<a href="#">1775232001</a>
Type	SL-SMT 5.08HC/02/90LF 1.5SN BK BX
GTIN (EAN)	4032248157211
Qty.	90 pc(s).
Product data	IEC: 400 V / 27.5 A UL: 300 V / 18.5 A
Packaging	Box

Creation date January 14, 2022 11:46:27 PM CET

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**Technical data**
**Dimensions and weights**

Depth	12 mm	Depth (inches)	0.472 inch
Height	10 mm	Height (inches)	0.394 inch
Height of lowest version	8.5 mm	Width	19.96 mm
Width (inches)	0.786 inch	Net weight	2.19 g

**System specifications**

Product family	OMNIMATE Signal - series BL/SL 5.08	Type of connection	Board connection
Mounting onto the PCB	THT/THR solder connection	Pitch in mm (P)	5.08 mm
Pitch in inches (P)	0.2 inch	Outgoing elbow	90°
Number of poles	2	Number of solder pins per pole	1
Solder pin length (l)	1.5 mm	Solder pin length tolerance	0 / -0.3 mm
Solder pin dimensions	d = 1.2 mm, Octagonal	Solder eyelet hole diameter (D)	1.5 mm
Solder eyelet hole diameter tolerance (D)+	0,1 mm	L1 in mm	5.08 mm
L1 in inches	0.2 inch	Number of rows	1
Pin series quantity	1	Protection degree	IP20
Volume resistance	≤5 mΩ	Can be coded	Yes
Plugging force/pole, max.	9 N	Pulling force/pole, max.	7 N

**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	CuMg
Contact surface	tinned	Layer structure of solder connection	1...3 μm Ni / 2...4 μm Sn matt
Layer structure of plug contact	1...3 μm Ni / 2...4 μm Sn matt	Storage temperature, min.	-40 °C
Storage temperature, max.	70 °C	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)	27.5 A
Rated current, max. number of poles (Tu=20°C)	19 A	Rated current, min. number of poles (Tu=40°C)	24 A
Rated current, max. number of poles (Tu=40°C)	16.5 A	Rated voltage for surge voltage class / pollution degree II/2	400 V
Rated voltage for surge voltage class / pollution degree III/2	320 V	Rated voltage for surge voltage class / pollution degree III/3	250 V
Rated impulse voltage for surge voltage class/ pollution degree II/2	4 kV	Rated impulse voltage for surge voltage class/ pollution degree III/2	4 kV
Rated impulse voltage for surge voltage class/ contamination degree III/3	4 kV		


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**Technical data**
**Rated data acc. to CSA**

Institute (CSA)		Certificate No. (CSA)	200039-1176845
Rated voltage (Use group B / CSA)	300 V	Rated voltage (Use group D / CSA)	300 V
Rated current (Use group B / CSA)	18.5 A	Rated current (Use group D / CSA)	18.5 A
Reference to approval values	Specifications are maximum values, details - see approval certificate.		

**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)	18.5 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	339 mm
VPE width	134 mm	VPE height	21 mm

**Classifications**

ETIM 6.0	EC002637	ETIM 7.0	EC002637
ETIM 8.0	EC002637	ECLASS 9.0	27-44-04-02
ECLASS 9.1	27-44-04-02	ECLASS 10.0	27-44-04-02
ECLASS 11.0	27-46-02-01		

**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	<ul style="list-style-type: none"> <li>• Gold-plated contact surfaces on request</li> <li>• Rated current related to rated cross-section &amp; min. No. of poles.</li> <li>• Diameter of solder eyelet <math>D = 1.4 + 0.1 \text{ mm}</math></li> <li>• Solder eyelet diameter <math>D = 1.5 + 0.1 \text{ mm}</math>, from 9 poles</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>• Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months</li> </ul>

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## Technical data

### Approvals

Approvals



ROHS	Conform
UL File Number Search	E60693

### Downloads

Approval/Certificate/Document of Conformity	<a href="#">Declaration of the Manufacturer</a>
Engineering Data	<a href="#">CAD data – STEP</a>
Engineering Data	<a href="#">WSCAD</a>
Catalogues	<a href="#">Catalogues in PDF-format</a>
Brochures	<a href="#">FL DRIVES EN</a> <a href="#">MB SMT EN</a> <a href="#">FL DRIVES DE</a> <a href="#">MB DEVICE MANUF. EN</a> <a href="#">FL BUILDING SAFETY EN</a> <a href="#">FL APPL LED LIGHTING EN</a> <a href="#">FLIndustr.CONTROLS EN</a> <a href="#">FL MACHINE SAFETY EN</a> <a href="#">FL HEATING ELECTR EN</a> <a href="#">FL APPL INVERTER EN</a> <a href="#">FL_BASE_STATION_EN</a> <a href="#">FL ELEVATOR EN</a> <a href="#">FL POWER SUPPLY EN</a> <a href="#">FL 72H SAMPLE SER EN</a> <a href="#">PO OMNIMATE EN</a> <a href="#">PO OMNIMATE EN</a>
White paper surface mount technology	<a href="#">Download Whitepaper</a>

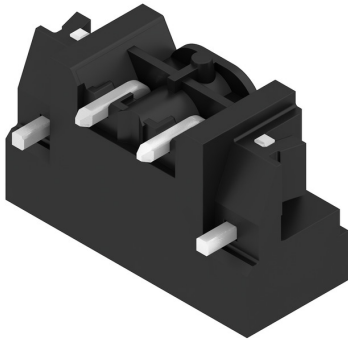
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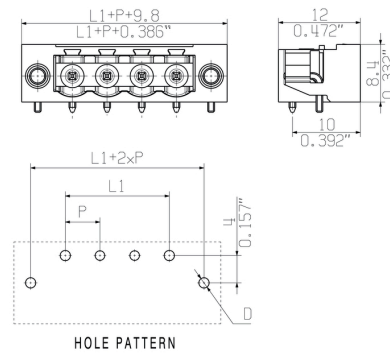
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**Drawings**

**Product image**



**Dimensional drawing**



**Product benefits**



Safe power transmission  
 Proven properties

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## Accessories

## LED Light guides

**Effective: the link between LED and front panel.**

Floodlight indicators allow users to monitor the switching states without requiring a special design: optical plastic directs the light from standard LEDs around a bend into the connectors or through the front plate.

The fibre-optic elements are simply clipped behind the relevant 90° bend male connectors (90° outlet direction). Versions with different incoming light beam heights achieve maximum light efficiency for LEDs with different designs or heights.

The advantages compared to conventional solutions:

- No additional LED circuit board required behind the front panel
- No "long-legged" LEDs with separate mounting required
- Bent fibre-optic cable line for maximum light efficiency
- Uncomplicated front plate bore holes due to circular shape of outgoing light beam
- Easy to maintain correct clearance and creepage distance
- Can be partitioned for smaller pole numbers

The result: simplified manufacturing process, reduced costs and simplified design

## General ordering data

Type	SL FLA 2.3/1	Version	Product data	Packaging
Order No.	<a href="#">1636670000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190409975	Number of poles: 1		
Qty.	100 pc(s).			
Type	SL FLA 1.5/1	Version	Product data	Packaging
Order No.	<a href="#">1580100000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190152475	Number of poles: 1		
Qty.	100 pc(s).			
Type	SL FLA 2.3/24	Version	Product data	Packaging
Order No.	<a href="#">1636680000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190409968	Number of poles: 1		
Qty.	10 pc(s).			
Type	SL FLA 3.8/1	Version	Product data	Packaging
Order No.	<a href="#">1580110000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190050740	Number of poles: 1		
Qty.	100 pc(s).			
Type	SL FLA 9.0/1	Version	Product data	Packaging
Order No.	<a href="#">1580120000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190031909	Number of poles: 1		
Qty.	100 pc(s).			
Type	SL FLA 1.5/24	Version	Product data	
Order No.	<a href="#">1595850000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		
GTIN (EAN)	4008190092573	Number of poles: 1		
Qty.	10 pc(s).			

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## Accessories

Type	SL FLA 3.8/24	Version	Product data
Order No.	<a href="#">1595860000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,	
GTIN (EAN)	4008190140892	Number of poles: 1	
Qty.	10 pc(s).		
Type	SL FLA 9.0/24	Version	Product data
Order No.	<a href="#">1595870000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,	
GTIN (EAN)	4008190079796	Number of poles: 1	
Qty.	10 pc(s).		

## Additional accessories



### No task is too small when creating the perfect solution. br />

Connections form just one part of the overall process. Small details are often the key to the perfect solution in applications where potentials are tested, grouped or even isolated.

A system is not a system without small but useful details:

- Test plugs - ensure reliable pick-up from diagnostic sockets
- Cross-connectors - ensure a stable electrical distribution contact directly at the connection
- Compartment partition elements - divide a large number of male connectors into several separate socket connector channels
- Locks and clips - optional vibration-resistant clip-on connection or mounting for male and female connectors

In tandem with the manufacturing process and application - more accessories = smaller workload

## General ordering data

Type	SL AT SW	Version	Product data	Packaging
Order No.	<a href="#">1770240000</a>	PCB plug-in connector, Accessories, Spacer, black, Number of poles: 1		Box
GTIN (EAN)	4032248117710			
Qty.	100 pc(s).			
Type	SL AT OR	Version	Product data	Packaging
Order No.	<a href="#">1598300000</a>	PCB plug-in connector, Accessories, Spacer, orange, Number of poles:		Box
GTIN (EAN)	4008190189266	1		
Qty.	100 pc(s).			

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# Accessories

## Coding elements



**Only connects what is supposed to be connected: the right connection at the right place.**

Coding elements and locking devices clearly assign connecting elements during the manufacturing process and operation

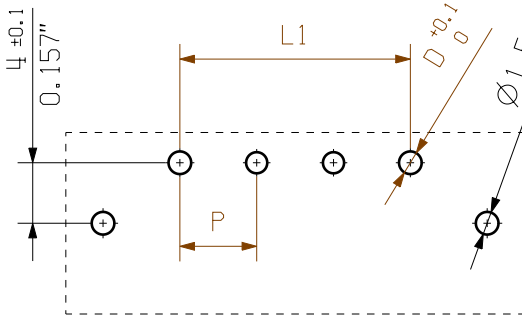
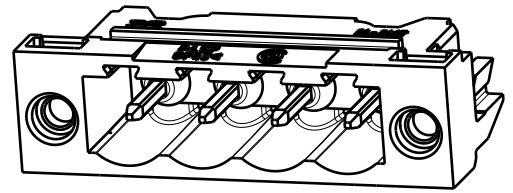
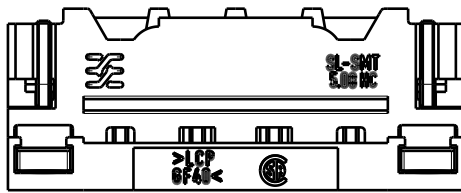
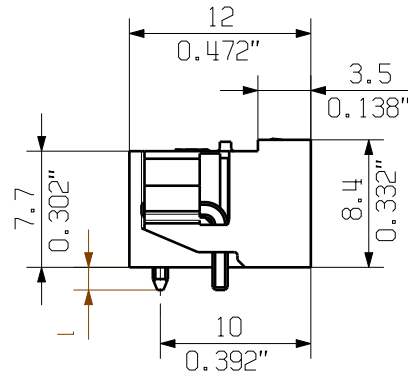
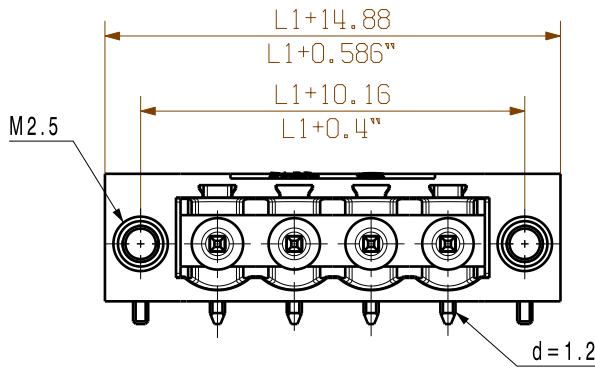
The coding elements and locking devices are inserted prior to assembly or during the cable assembly phase. The Weidmüller alternative: configure online using the variant configurator to precode prior to delivery.

Incorrect assembly on the circuit board and incorrect plugging of connecting elements is no longer possible. The advantage: no troubleshooting during manufacture and no operational errors by the user.

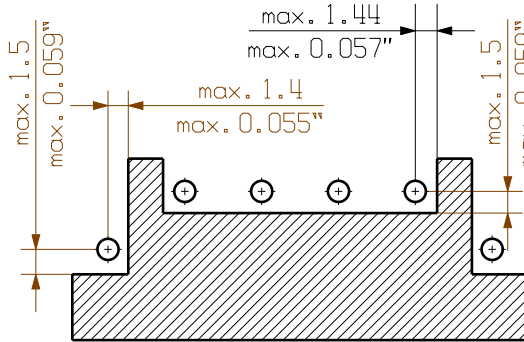
## General ordering data

Type	BLZ/SL KO BK BX	Version	Product data	Packaging
Order No.	<a href="#">1545710000</a>	PCB plug-in connector, Accessories, Coding element, black, Number		Box
GTIN (EAN)	4008190087142	of poles: 1		
Qty.	50 pc(s).			
Type	BLZ/SL KO OR BX	Version	Product data	Packaging
Order No.	<a href="#">1573010000</a>	PCB plug-in connector, Accessories, Coding element, orange, Number		Box
GTIN (EAN)	4008190048396	of poles: 1		
Qty.	100 pc(s).			





hole pattern



paste-free-area

D = 1.5/0.059" (REFLOW SOLDERING)  
RECOMMENDATION FOR AUTOMATIC ASSEMBLY

n = Polzahl / no of poles  
P = Raster / pitch

For the mounting of PCBs, it should be noted that the rated data relates only to the PCB components alone.

The necessary creepage and clearance paths must be observed in connection with the respective applicant in accordance to IEC 664 / VDE 0110.

The current-carrying capacity and pitch tolerance is to be determined according to DIN IEC 326 part 3 very fine.

Weidmüller PCB components are tested to the DIN EN 61984 standard, and are valid for its field of application. Provided that the components are used to the intended purpose, all requirements with respect to the occurring of electrical, mechanical, thermic and corrosive stress will be satisfied.

shown: SL-SMT 5.08HC/04/90LF

24	116.84	4.600	+/- 0.2
23	111.76	4.400	
22	106.68	4.200	
21	101.60	4.000	
20	96.52	3.800	
19	91.44	3.600	
18	86.36	3.400	+/- 0.15
17	81.28	3.200	
16	76.20	3.000	
15	71.12	2.800	
14	66.04	2.600	
13	60.96	2.400	
12	55.88	2.200	+/- 0.1
11	50.80	2.000	
10	45.72	1.800	
9	40.64	1.600	
8	35.56	1.400	
7	30.48	1.200	
6	25.40	1.000	+/- 0.1
5	20.32	0.800	
4	15.24	0.600	
3	10.16	0.400	
2	5.08	0.200	
1	tolerance		

4.5	0.1/-0.3
3.2	0.1/-0.3
2.1	0.1/-0.3
1.5	-0.3
1	tolerance

	DIN ISO 2768-m	106339/4 30.07.18 HERTEL_S 01			Cat.no.: . . .		
	Modification	Date			<b>2 33262</b> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">31</span>		
	Drawn	29.11.2007	HELIS_MA	Drawing no. <b>2 33262</b> Issue no. <b>31</b>			
	Responsible		HERTEL_S	Sheet 03 of 04 sheets			
Scale: 2:1	Checked	01.08.2018	KOCH_JG	<b>SL-SMT 5.08HC/.. /90...</b> STIFTLISTE MALE HEADER			
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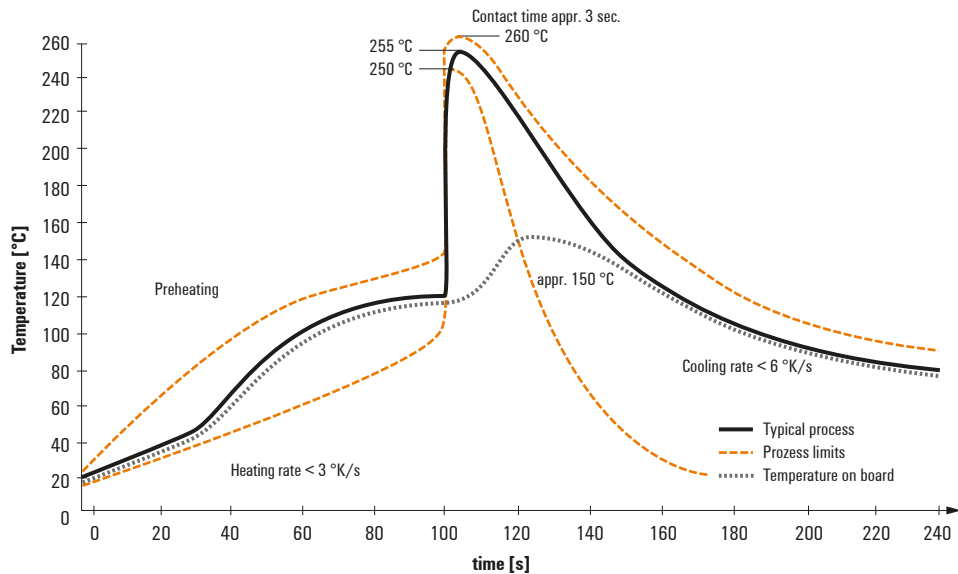
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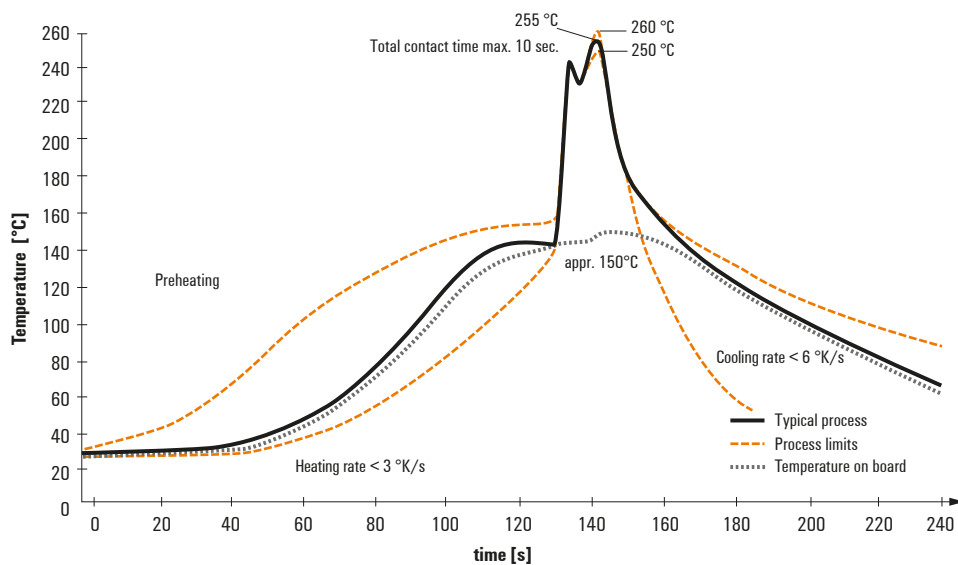
## Recommended wave soldering profiles

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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.

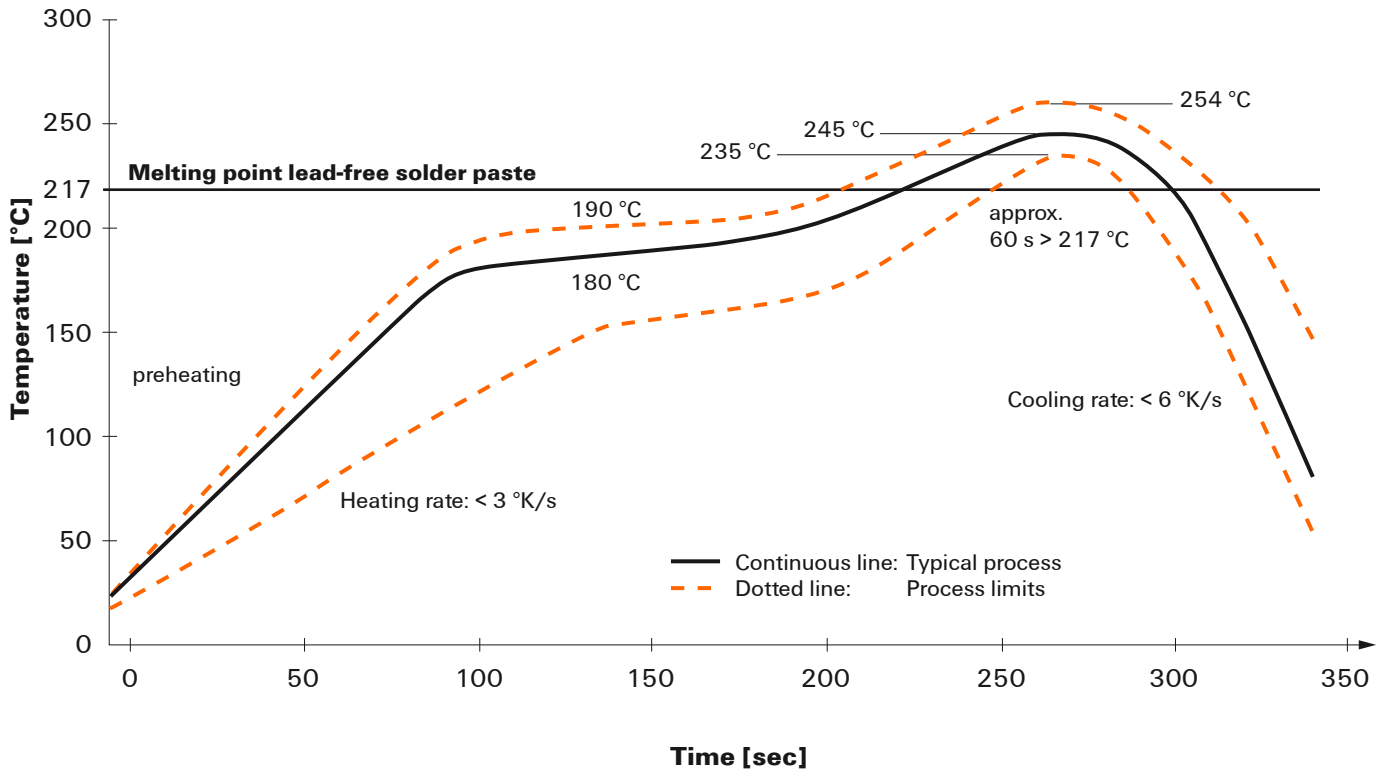
When choosing a suitable profile for your application, the following factors also need to be considered:

- 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.

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