

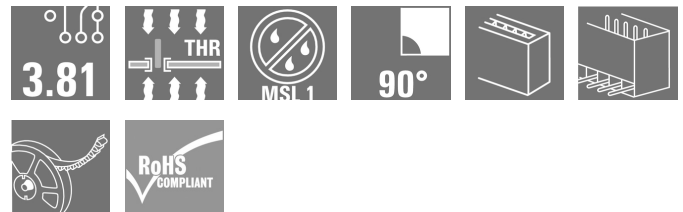
**SC-SMT 3.81/06/90G 3.2SN BK RL****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image**

High-temperature-resistant pin header (SC-SMT 90G) in 3.81-mm pitch (0.15 inch)

- Plugging direction parallel to PCB (recumbent)
- Closed (G)
- Packed either in box (BX) or on anti-static roll (tape-on-reel, RL)
- Pin length of either 1.5 mm or 3.2 mm

Weidmüller's 3.81-mm-pitch (0.15 inch) plug-in connectors are compatible with the layouts of standard connectors and offer space for labelling and coding.

**General ordering data**

|              |  |
|--------------|--|
| Version      | PCB plug-in connector, male header, closed side, THT/THR solder connection, 3.81 mm, Number of poles: 6, 90°, Solder pin length (l): 3.2 mm, tinned, black, Tape |
| Order No.    | <a href="#">1862880000</a>   |
| Type         | SC-SMT 3.81/06/90G 3.2SN BK RL   |
| GTIN (EAN)   | 4032248428014  |
| Qty.         | 400 pc(s).   |
| Product data | IEC: 320 V / 17.5 A<br>UL: 300 V / 11 A  |
| Packaging    | Tape   |

Creation date May 8, 2024 9:25:39 PM CEST

## SC-SMT 3.81/06/90G 3.2SN BK RL

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## Technical data

## Dimensions and weights

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Depth                    | 9.2 mm     | Depth (inches)  | 0.362 inch |
| Height                   | 10.27 mm   | Height (inches) | 0.404 inch |
| Height of lowest version | 7.07 mm    | Width           | 23.55 mm   |
| Width (inches)           | 0.927 inch | Net weight      | 2.625 g    |

## System specifications

|  |   |  |                              |
|--|---|--|------------------------------|
| Product family                               | OMNIMATE Signal - series BC/SC 3.81                 | Type of connection                         | Board connection             |
| Mounting onto the PCB                        | THT/THR solder connection                           | Pitch in mm (P)                            | 3.81 mm                      |
| Pitch in inches (P)                          | 0.15 "  | Outgoing elbow                             | 90°                          |
| Number of poles                              | 6   | Number of solder pins per pole             | 1                            |
| Solder pin length (l)                        | 3.2 mm  | Solder pin length tolerance                | 0 / -0,02 mm                 |
| Solder pin dimensions                        | d = 1.0 mm, Octagonal                               | Solder pin dimensions = d tolerance        | 0 / -0,04 mm                 |
| Solder eyelet hole diameter (D)              | 1.3 mm  | Solder eyelet hole diameter tolerance (D)+ | 0,1 mm                       |
| Outside diameter of solder pad               | 2.1 mm  | Template aperture diameter                 | 1.9 mm                       |
| L1 in mm                                     | 19.05 mm  | L1 in inches                               | 0.75 "                       |
| Number of rows                               | 1   | Pin series quantity                        | 1                            |
| Touch-safe protection acc. to DIN VDE 57 106 | finger-safe unplugged/<br>back-of-hand-safe plugged | Touch-safe protection acc. to DIN VDE 0470 | IP20 plugged/ IP10 unplugged |
| Volume resistance                            | ≤5 mΩ   | Can be coded                               | Yes                          |

## 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                      | Cu-alloy |
| 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. | -25 °C   |
| Temperature range, installation, max. | 120 °C   |                                       |          |

## 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)                             | 13.9 A                 | Rated current, min. number of poles (Tu=40°C)                         | 17 A             |
| Rated current, max. number of poles (Tu=40°C)                             | 12.4 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 76 A |

## SC-SMT 3.81/06/90G 3.2SN BK RL

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## Technical data

## Rated data acc. to CSA

Institute (CSA)



Certificate No. (CSA)

200039-1121690

Rated voltage (Use group B / CSA) 300 V

Rated current (Use group B / CSA) 11 A

Reference to approval values Specifications are maximum values, details - see approval certificate.

## 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) 11 A

Rated current (Use group D / UL 1059) 11 A

Reference to approval values Specifications are maximum values, details - see approval certificate.

## Packing

|                             |                               |
|-----------------------------|-------------------------------|
| ESD Level packaging         | static dissipative            |
| VPE length                  | 330 mm                        |
| VPE height                  | 61 mm                         |
| Tape width (W)              | 56 mm                         |
| Tape pocket height (A0)     | 9.5 mm                        |
| Tape pocket separation (P1) | 16 mm                         |
| Tape pocket separation (F)  | 26.2 mm                       |
| Surface resistance          | $R_s = 10^9 - 10^{12} \Omega$ |

|                                      |         |
|--------------------------------------|---------|
| Packaging                            | Tape    |
| VPE width                            | 330 mm  |
| Tape depth (T2)                      | 11.1 mm |
| Tape pocket depth (K0)               | 10.6 mm |
| Tape pocket width (B0)               | 41.2 mm |
| Tape hole separation (E)             | 1.75 mm |
| Tape reel diameter $\varnothing$ (A) | 330 mm  |

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002637    | ETIM 7.0    | EC002637    |
| ETIM 8.0    | EC002637    | ETIM 9.0    | 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 |
| ECLASS 12.0 | 27-46-02-01 | ECLASS 13.0 | 27-46-02-01 |

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## Technical data

## 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>• Rated current related to rated cross-section &amp; min. No. of poles.</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>• P on drawing = pitch</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> |

## Approvals

Approvals



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

## Downloads

|   |   |
|---|---|
| Approval/Certificate/Document of Conformity | <a href="#">Declaration of the Manufacturer</a>   |
| Engineering Data                            | <a href="#">CAD data – STEP</a>   |
| Product Change Notification                 | <a href="#">PCN_2015_208_PL30X_SC-SMT_SL_SMT_3.xx_5.xx_new_Tape_Packaging_Step_1_EN</a><br><a href="#">PCN_2015_208_PL30X_SC-SMT_SL_SMT_3.xx_5.xx_neue_Tapeverpackung_Step_1_DE</a><br><a href="#">20210831 SC-SMT 3.81.. 90° und 180° - Erweiterung der Fertigungsverfahren</a><br><a href="#">20210831 SC-SMT 3.81.. 90° und 180° - Expansion of the production processes</a><br><a href="#">Changeover to ESD bags for "Tape on Reel" products</a><br><a href="#">Umstellung auf ESD-Beutel bei „Tape on Reel“ Produkten</a>   |
| Catalogues                                  | <a href="#">Catalogues in PDF-format</a>  |
| Brochures                                   | <a href="#">FL DRIVES EN</a><br><a href="#">MB SMT EN</a><br><a href="#">FL DRIVES DE</a><br><a href="#">MB DEVICE MANUF. EN</a><br><a href="#">FL BUILDING SAFETY EN</a><br><a href="#">FL APPL LED LIGHTING EN</a><br><a href="#">FL INDUSTR.CONTROLS EN</a><br><a href="#">FL MACHINE SAFETY EN</a><br><a href="#">FL HEATING ELECTR EN</a><br><a href="#">FL APPL INVERTER EN</a><br><a href="#">FL_BASE_STATION_EN</a><br><a href="#">FL ELEVATOR EN</a><br><a href="#">FL POWER SUPPLY EN</a><br><a href="#">FL 72H SAMPLE SER EN</a><br><a href="#">PO OMNIMATE EN</a><br><a href="#">PO OMNIMATE EN</a> |
| White paper surface mount technology        | <a href="#">Download Whitepaper</a>   |

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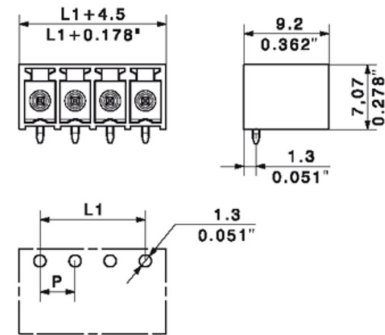
Catalogue status 04.05.2024 / We reserve the right to make technical changes.

**SC-SMT 3.81/06/90G 3.2SN BK RL**

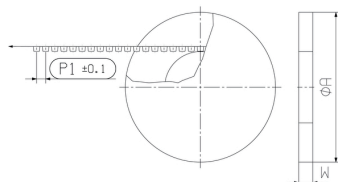
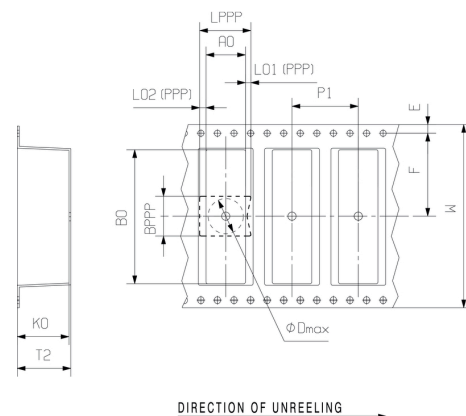
**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 26  
 D-32758 Detmold  
 Germany

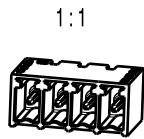
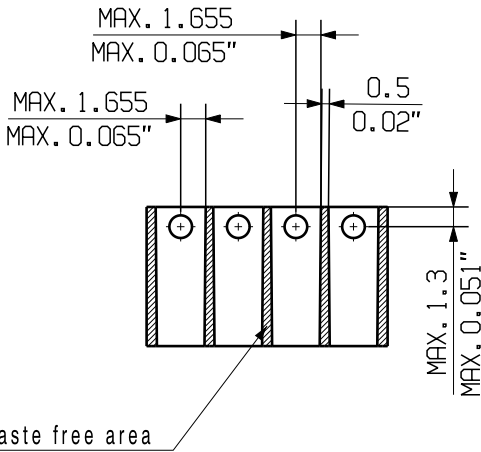
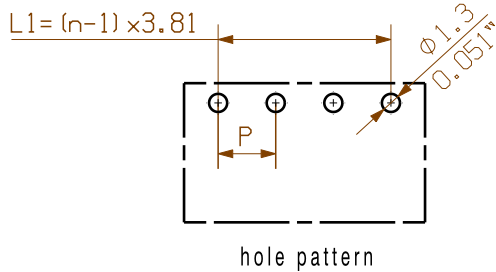
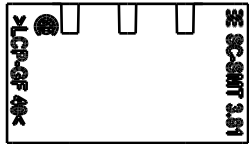
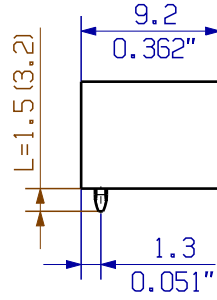
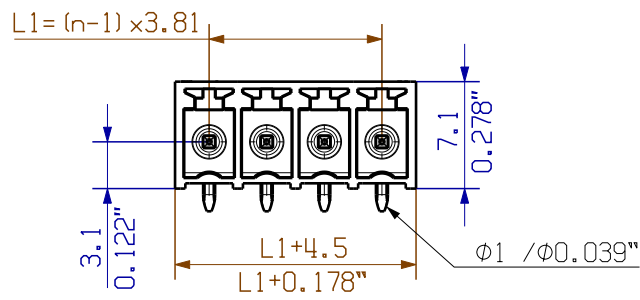
[www.weidmueller.com](http://www.weidmueller.com)

**Drawings**
**Product image**

**Dimensional drawing**

**Example of use**

**Example of use**

**Dimensional drawing**

**Dimensional drawing**




|    |         |           |
|----|---------|-----------|
| 16 | 57,15   | 2,252     |
| 15 | 53,34   | 2,102     |
| 14 | 49,53   | 1,951     |
| 13 | 45,72   | 1,801     |
| 12 | 41,91   | 1,651     |
| 11 | 38,1    | 1,501     |
| 10 | 34,29   | 1,351     |
| 9  | 30,48   | 1,201     |
| 8  | 26,67   | 1,051     |
| 7  | 22,86   | 0,901     |
| 6  | 19,05   | 0,751     |
| 5  | 15,24   | 0,600     |
| 4  | 11,43   | 0,450     |
| 3  | 7,62    | 0,300     |
| 2  | 3,81    | 0,150     |
| n  | L1 [mm] | L1 [Inch] |

| pin length<br>l | tolerance   |   |       |       |
|-----------------|-------------|---|-------|-------|
| 1,5             | 0,0<br>-0,2 | 6 | 19,05 | 0,751 |
| 3,2             | 0,0<br>-0,2 | 4 | 11,43 | 0,450 |
| 2,1             | 0,1<br>-0,2 | 2 | 3,81  | 0,150 |

P= Raster/pitch  
n= Polzahl/no of poles  
shown: SC-SMT3.81/04/90G

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.

GENERAL TOLERANCE:  
DIN ISO 2768-m

106980/5  
02.08.18 HELIS\_MA  
00

Modification

Drawn  
Responsible  
Checked  
Approved

Date  
11.11.2004  
29.08.2018

Name  
POCTA\_C  
AMANN\_A  
HELIS\_MA  
LANG\_T

**Weidmüller**

3 36136

27

Drawing no.  
Sheet 02 of 05 sheets

Issue no.

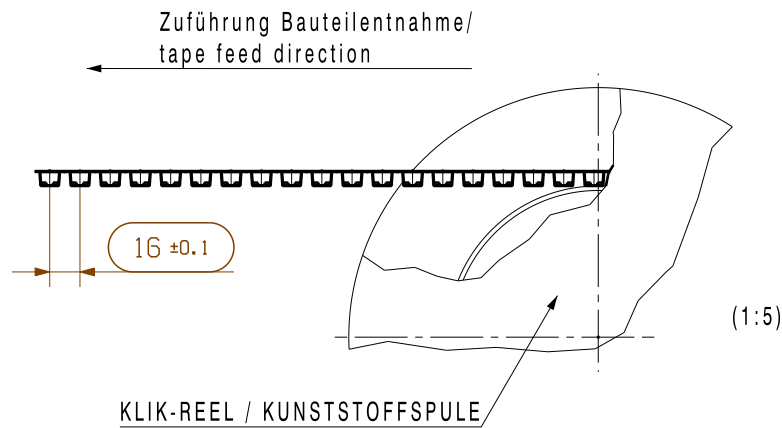
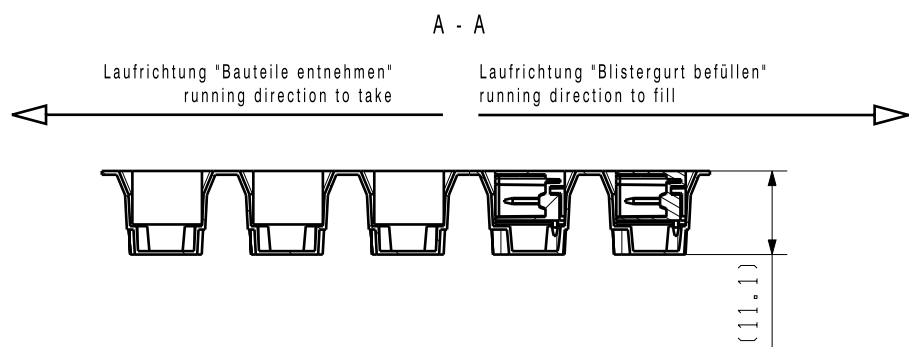
SC-SMT 3.81/02...16/90...

STIFTLISTE  
MALE HEADER

Product file: SC-SMT 3.81

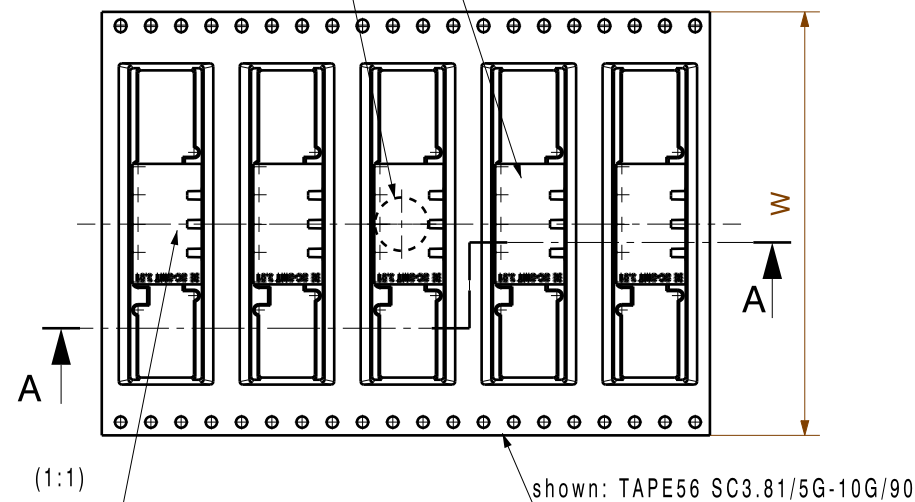
Cat.no.: .

7278



shown: SC-SMT 3.81/04/180G 1.5 ..

pick and place area max. Ø7



gerade Polzahl dargestellt/  
even pole number shown

ungerade Polzahl Drehung Stiftheiste um 180°/  
uneven pole number pin header rotated 180°

Stiftheisten müssen mittig im Tape sitzen /  
pin header assembled in the middle

29

Information: F= Lötflanschvariante ohne Lötflanschstift mit Vierkantsmutter / solder flange version without solder flange pin but with square nut

| Tapebreite/<br>tape width<br>(Mat.nr.) | no<br>of<br>poles | SC-SMT 3.81/././90.. 1.5SN BK |            | 90.. 2.6SN BK          | SC-SMT 3.81/././90.. 3.2SN BK |            | SC-SMT 3.81/././90.. 2.1SN BK |    | SC-SMT 3.81/././90.. 1.5SN OR |    | SC-SMT 3.81/././90.. 1.5AU BK |    |
|--|-------------------|-------------------------------|------------|------------------------|-------------------------------|------------|-------------------------------|----|-------------------------------|----|-------------------------------|----|
|  |                   | Bestellnr./cat.no.            |            | Bestellnr./<br>cat.no. | Bestellnr./cat.no.            |            | Bestellnr./cat.no.            |    | Bestellnr./cat.no.            |    | Bestellnr./cat.no.            |    |
| W                                      | n                 | G                             | LF         | F                      | G                             | LF         | G                             | LF | G                             | LF | G                             | LF |
| 32<br>(1437290000)                     | 2                 | 1863140000                    | 1862720000 | 2780690000             | 1862810000                    | 1863890000 | 2429820000                    |    | 1105060000                    |    |                               |    |
|  | 3                 | 1863150000                    | /          | 29                     | 1862840000                    | /          | 2128630000                    | /  |                               | /  |                               |    |
|  | 4                 | 1863160000                    | /          | /                      | 1862860000                    | /          | 2495680000                    | /  |                               | /  | 2522690000                    |    |
| 44<br>(2017990000)                     | 3                 | /                             | 1862750000 |                        | /                             | 1863970000 | /                             |    | /                             |    |                               |    |
|  | 4                 | /                             | 1862770000 |                        | /                             | 1863980000 | /                             |    | /                             |    |                               |    |
|  | 5                 | 1863170000                    | 1862790000 | 2780700000             | 1862870000                    |            |                               |    |                               |    |                               |    |
|  | 6                 | 1863180000                    | 1862820000 | 29                     | 1862880000                    |            |                               |    |                               |    |                               |    |
|  | 7                 | 1863190000                    | /          | /                      |                               | /          |                               | /  |                               | /  |                               |    |
|  | 8                 | 1863200000                    | /          | /                      | 1862900000                    | /          |                               | /  |                               | /  |                               |    |
| 56<br>(1348070000)                     | 7                 | /                             | 1862830000 |                        | /                             |            | /                             |    | /                             |    |                               |    |
|  | 8                 | /                             | 1862850000 |                        | /                             |            | /                             |    | /                             |    |                               |    |
|  | 9                 | 1863210000                    | /          | /                      |                               | /          |                               | /  |                               | /  |                               |    |
|  | 10                | 1863220000                    | /          | /                      | 1862930000                    | /          |                               | /  |                               | /  |                               |    |
| 88<br>(1396710000)                     | 9                 | /                             | 1430360000 |                        | /                             | 1430370000 | /                             |    | /                             |    |                               |    |
|  | 10                | /                             | 1430380000 |                        | /                             | 1430390000 | /                             |    | /                             |    |                               |    |
|  | 11                | 1430230000                    | 1430400000 |                        |                               | 1430420000 |                               |    |                               |    |                               |    |
|  | 12                | 1430250000                    | 1430430000 |                        | 1430240000                    | 1359450000 |                               |    |                               |    |                               |    |
|  | 13                | 1430270000                    | 1430440000 |                        | 1430260000                    | 1430450000 |                               |    |                               |    |                               |    |
|  | 14                | 1430290000                    | 1430470000 |                        | 1430280000                    | 1430480000 |                               |    |                               |    |                               |    |
|  | 15                | 1430330000                    | 1430490000 |                        | 1430320000                    | 1430500000 |                               |    |                               |    |                               |    |
|  | 16                | 1430350000                    | 1430510000 |                        | 1430340000                    | 1430520000 |                               |    |                               |    |                               |    |

Tape und Reel gemäß IEC 286-3 (EN 60286-3) /  
tape and reel according to IEC 286-3 (EN 60286-3)

|                                |  |             |  |                           |  |                                |  |
|--------------------------------|--|-------------|--|---------------------------|--|--------------------------------|--|
| First Issue Date<br>11.11.2004 |  | Max. nos.   |  | Prim PLM Part No.: 024124 |  | Prim ERP Part No.: 1862980000  |  |
| Modification                   |  | Date        |  | Name                      |  | 36136                          |  |
| Scale: 1:1                     |  | Size: A3    |  | Drawn                     |  | Ma, Junliang                   |  |
| Drawings Assembly              |  | Responsible |  | Amann, Alexand            |  | Sheet 6 of 6 sheets            |  |
| Approved                       |  | 13.01.2021  |  | Lang, Thomas              |  | SC-SMT 3.81/02...16/90...      |  |
|                                |  |             |  |                           |  | STIFTHEISTE<br>MALE HEADER     |  |
|                                |  |             |  |                           |  | Product file: 7278 SC-SMT 3.81 |  |

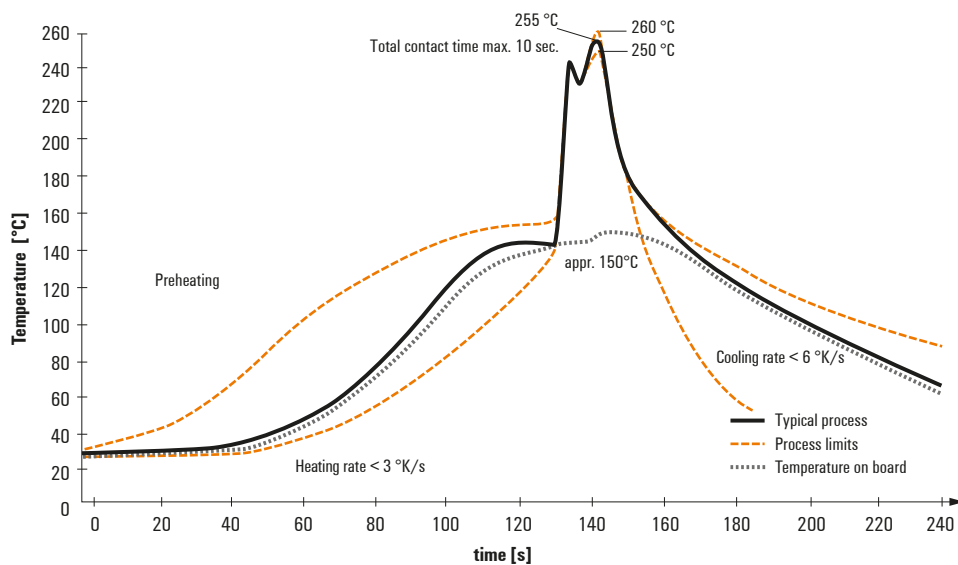
## Recommended wave soldering profiles

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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

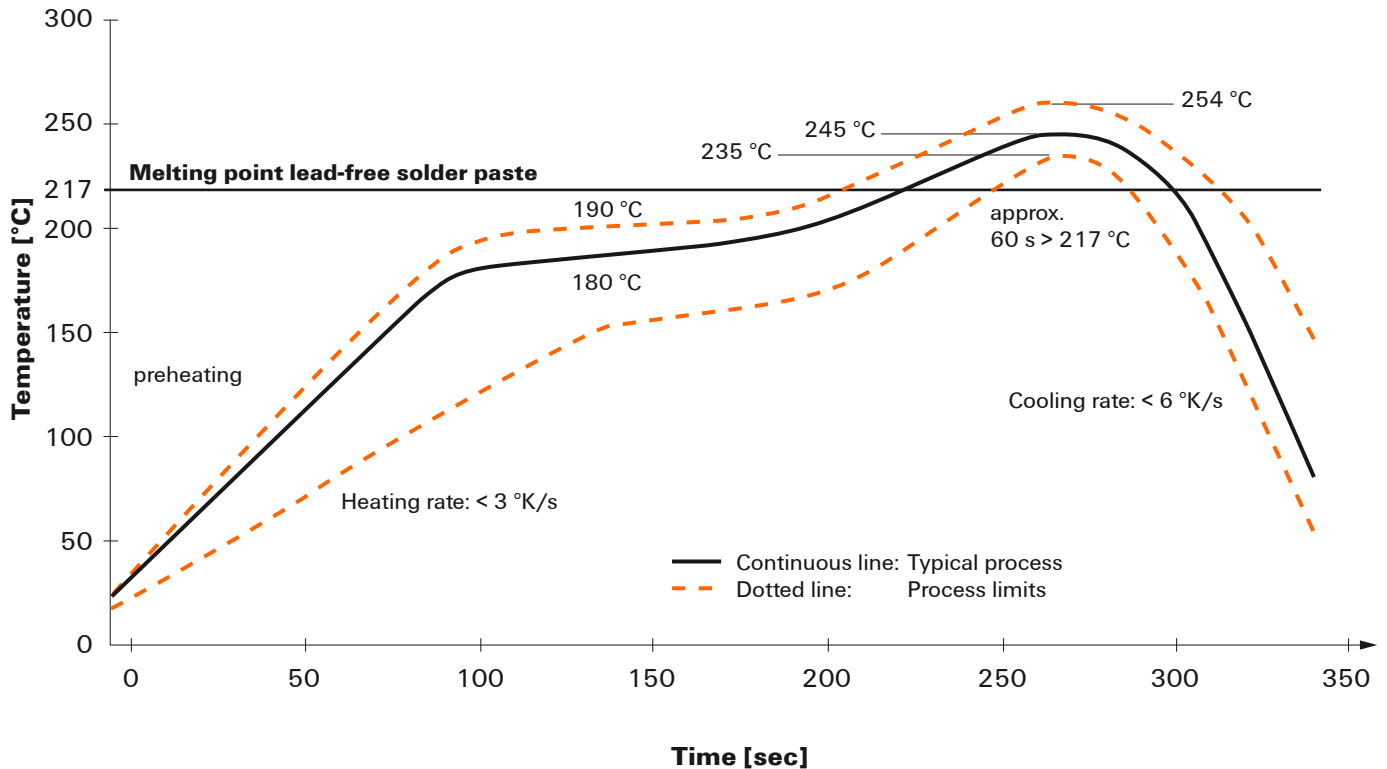
The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of 260°C. In practice, the maximum soldering temperature is quite often well below the above maximum profile.

We reserve the right to make technical changes.



## Recommended reflow soldering profile

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Germany  
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Fax: +49 5231 14-292083  
www.weidmueller.com



## 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.