

**S2L-SMT 3.50/24/180LF 3.5SN BK RL****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

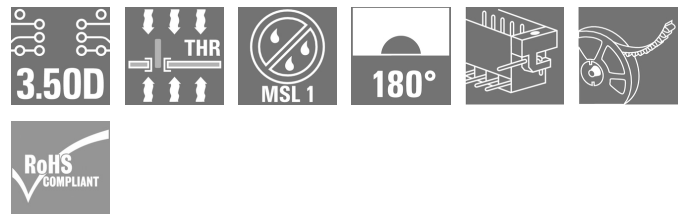
D-32758 Detmold

Germany

www.weidmueller.com

**Product image**

Similar to illustration

**Do not use product for new developments**

High-temperature-resistant, double-row pin header for all common soldering methods. Optimised for automatic assembly. Packed in box or tape. Solder pin 3.2 mm long, suitable for reflow and wave soldering. The male connectors provide space for labelling and can be coded.

**General ordering data**

|                 |                                                                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Version         | PCB plug-in connector, male header, Solder flange, THT/THR solder connection, 3.50 mm, Number of poles: 24, 180°, Solder pin length (l): 3.5 mm, tinned, black, Tape |
| Order No.       | <a href="#">1868280000</a>                                                                                                                                           |
| Type            | S2L-SMT 3.50/24/180LF 3.5SN BK RL                                                                                                                                    |
| GTIN (EAN)      | 4032248439263                                                                                                                                                        |
| Qty.            | 150 pc(s).                                                                                                                                                           |
| Product data    | IEC: 160 V / 10 A<br>UL: 150 V / 10 A                                                                                                                                |
| Packaging       | Tape                                                                                                                                                                 |
| Delivery status | <b>This article will no longer be available in the future.</b>                                                                                                       |
| Available until | 2028-12-31                                                                                                                                                           |

Creation date April 22, 2025 7:00:39 PM CEST

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

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Depth                    | 10.8 mm    | Depth (inches)  | 0.425 inch |
| Height                   | 14.3 mm    | Height (inches) | 0.563 inch |
| Height of lowest version | 14.2 mm    | Width           | 49 mm      |
| Width (inches)           | 1.929 inch | Net weight      | 11.387 g   |

**System specifications**

|                                              |                                                     |                                             |                              |
|----------------------------------------------|-----------------------------------------------------|---------------------------------------------|------------------------------|
| Product family                               | OMNIMATE Signal - series B2L/S2L 3.50 - 2-row       | 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 "                                             | Outgoing elbow                              | 180°                         |
| Number of poles                              | 24                                                  | Number of solder pins per pole              | 1                            |
| Solder pin length (l)                        | 3.5 mm                                              | Solder pin dimensions                       | d = 1.0 mm, Octagonal        |
| 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                                     | 38.5 mm                                             | L1 in inches                                | 1.516 "                      |
| Number of rows                               | 2                                                   | Pin series quantity                         | 2                            |
| 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 |
| Can be coded                                 | Yes                                                 | Plugging force/pole, max.                   | 3 N                          |
| Pulling force/pole, max.                     | 6 N                                                 |                                             |                              |

**Material data**

|                                       |                           |                                       |                           |
|---------------------------------------|---------------------------|---------------------------------------|---------------------------|
| Insulating material                   | LCP GF                    | Colour                                | black                     |
| Colour chart (similar)                | RAL 9011                  | Insulating material group             | IIIb                      |
| Comparative Tracking Index (CTI)      | ≥ 175                     | Moisture Level (MSL)                  | 1                         |
| UL 94 flammability rating             | V-0                       | Contact material                      | Cu-alloy                  |
| Contact surface                       | tinned                    | Layer structure of solder connection  | 2...3 µm Ni / 5...7 µm Sn |
| Layer structure of plug contact       | 2...5 µm Sn / 1...3 µm Ni | 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)                         | 10 A             |
| Rated current, max. number of poles (Tu=20°C)                             | 10 A                   | Rated current, min. number of poles (Tu=40°C)                         | 9 A              |
| Rated current, max. number of poles (Tu=40°C)                             | 8.5 A                  | Rated voltage for surge voltage class / pollution degree II/2         | 160 V            |
| Rated voltage for surge voltage class / pollution degree III/2            | 125 V                  | Rated voltage for surge voltage class / pollution degree III/3        | 50 V             |
| Rated impulse voltage for surge voltage class/ pollution degree II/2      | 1.5 kV                 | Rated impulse voltage for surge voltage class/ pollution degree III/2 | 1.5 kV           |
| Rated impulse voltage for surge voltage class/ contamination degree III/3 | 2.5 kV                 | Short-time withstand current resistance                               | 3 x 1s with 77 A |

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

Institute (CSA)



Certificate No. (CSA)

200039-1176845

|                                   |                                                                        |
|-----------------------------------|------------------------------------------------------------------------|
| Rated voltage (Use group B / CSA) | 50 V                                                                   |
| Rated voltage (Use group D / CSA) | 150 V                                                                  |
| Rated current (Use group C / CSA) | 9.5 A                                                                  |
| Reference to approval values      | Specifications are maximum values, details - see approval certificate. |

|                                   |       |
|-----------------------------------|-------|
| Rated voltage (Use group C / CSA) | 50 V  |
| Rated current (Use group B / CSA) | 5 A   |
| Rated current (Use group D / CSA) | 9.5 A |

**Rated data acc. to UL 1059**

Institute (UR)



Certificate No. (UR)

E60693

|                                       |                                                                        |
|---------------------------------------|------------------------------------------------------------------------|
| Rated voltage (Use group B / UL 1059) | 150 V                                                                  |
| Reference to approval values          | Specifications are maximum values, details - see approval certificate. |

|                                       |      |
|---------------------------------------|------|
| Rated current (Use group B / UL 1059) | 10 A |
|---------------------------------------|------|

**Packing**

|                                                  |                               |                                                       |         |
|--------------------------------------------------|-------------------------------|-------------------------------------------------------|---------|
| ESD Level packaging                              | static dissipative            | Packaging                                             | Tape    |
| VPE length                                       | 340 mm                        | VPE width                                             | 340 mm  |
| VPE height                                       | 140 mm                        | Tape depth (T2)                                       | 19.8 mm |
| Tape width (W)                                   | 88 mm                         | Tape pocket depth (K0)                                | 19.3 mm |
| Tape pocket height (A0)                          | 11.1 mm                       | Tape pocket width (B0)                                | 70.4 mm |
| Tape pocket separation (P1)                      | 20 mm                         | Tape hole separation (E)                              | 1.75 mm |
| Tape pocket separation (F)                       | 42.2 mm                       | Tape reel diameter $\phi$ (A)                         | 330 mm  |
| Surface resistance                               | $R_s = 10^9 - 10^{12} \Omega$ | Width Pick & Place Pad ( $W_{PPP}$ )                  | 10 mm   |
| Length Pick & Place Pad ( $L_{PPP}$ )            | 15.6 mm                       | Diameter of the withdrawal surface ( $\phi D_{max}$ ) | 9 mm    |
| Protrusion 1 Pick & Place Pad ( $L_{01 (PPP)}$ ) | 7.8 mm                        | Protrusion 2 Pick & Place Pad ( $P_{02 (PPP)}$ )      | 7.8 mm  |

**Classifications**

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002637    | ETIM 7.0    | EC002637    |
| ETIM 8.0    | EC002637    | ETIM 9.0    | EC002637    |
| ETIM 10.0   | 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 | ECLASS 14.0 | 27-46-02-01 |
| ECLASS 15.0 | 27-46-02-01 |             |             |

**Environmental Product Compliance**

|                        |                             |
|------------------------|-----------------------------|
| RoHS Compliance Status | Compliant without exemption |
| REACH SVHC             | No SVHC above 0.1 wt%       |

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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>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



|                       |                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Approvals MAMID       | <a href="https://mdcop.weidmueller.com/mediadelivery/rendition/900_319226/-T1z1mm-S800/">https://mdcop.weidmueller.com/mediadelivery/rendition/900_319226/-T1z1mm-S800/</a> <a href="https://mdcop.weidmueller.com/mediadelivery/rendition/900_319262/-T1z1mm-S800/">https://mdcop.weidmueller.com/mediadelivery/rendition/900_319262/-T1z1mm-S800/</a> |
| ROHS                  | Conform                                                                                                                                                                                                                                                                                                                                                 |
| UL File Number Search | UL Website                                                                                                                                                                                                                                                                                                                                              |
| Certificate No. (UR)  | 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 2 EN</a><br><a href="#">PCN 2015 208 PL30X SC-SMT SL SMT 3.xx 5.xx neue Tapeverpackung Step 2 DE</a><br><a href="#">Change of housing geometry S2L-SMT - EN</a><br><a href="#">Change of housing geometry S2L-SMT - DE</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><br><a href="#">Changeover of the locking hook for the solder flange pin of the S2C-SMT 3.50 and S2L-SMT 3.50</a><br><a href="#">Umstellung des Rasthakens für den Lötflanschstift der S2C-SMT 3.50 und der S2L-SMT 3.50</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>                                                                                                         |
| White paper surface mount technology        | <a href="#">Download Whitepaper</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

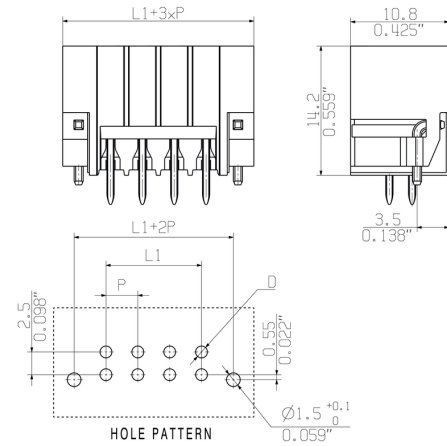
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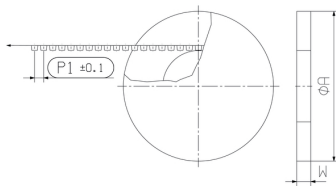
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# Drawings

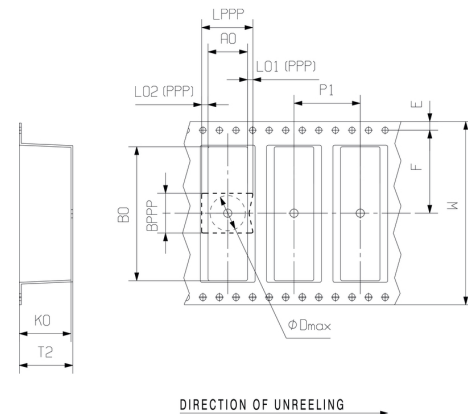
## Dimensional drawing



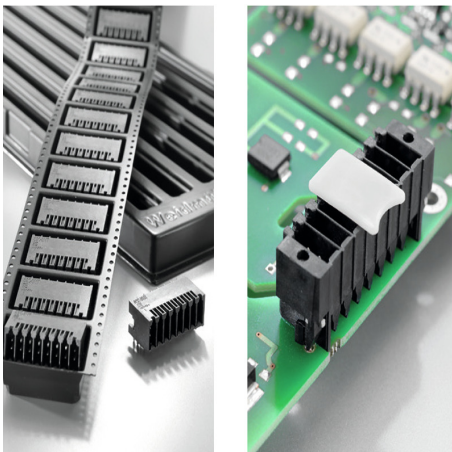
## Dimensional drawing



## Dimensional drawing



## Product benefits



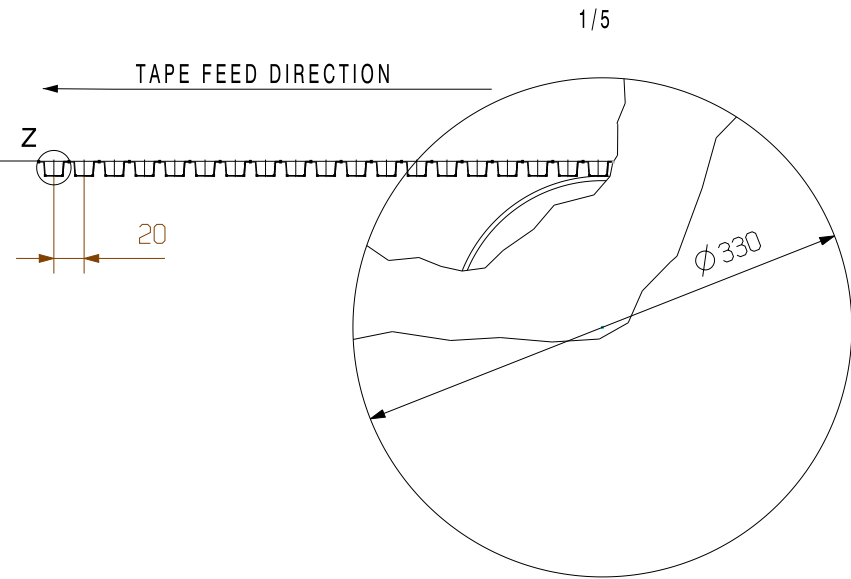
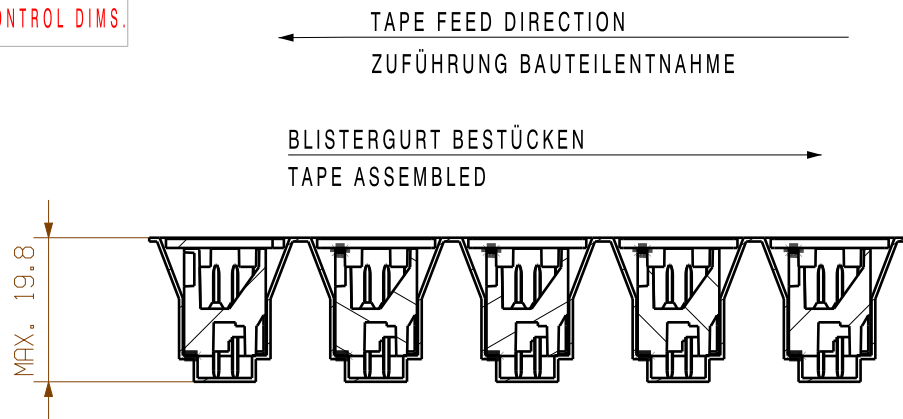
Optimised for the SMT process  
Safe board-to-board connection

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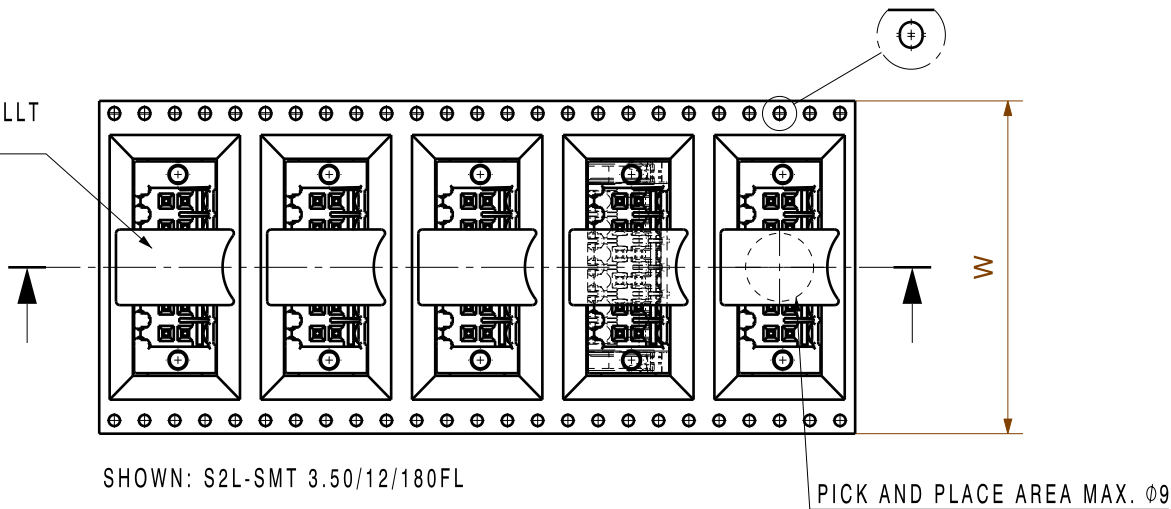
WEIDMUELLER INTERFACE GmbH & Co.KG

MASSE OHNE TOLERANZ SIND KEINE PRUEFMASSE  
DIMS. WITHOUT TOLERANCE ARE NOT CONTROL DIMS.

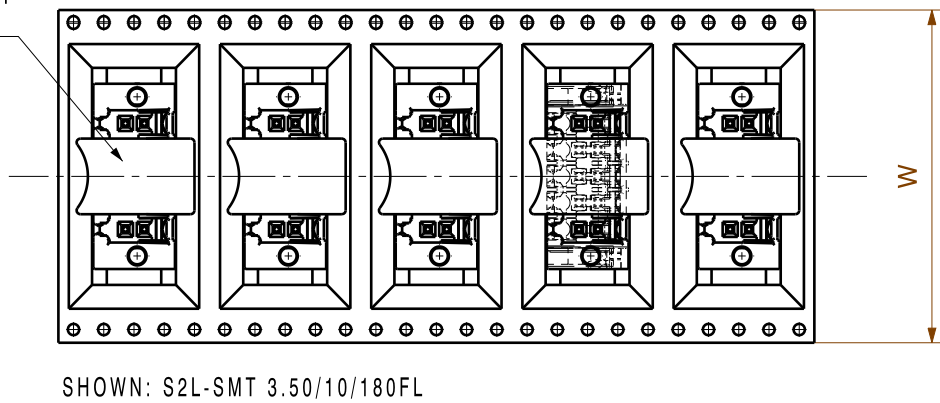
DIE DEUTSCHE VERSION IST VERBINDLICH  
THE GERMAN VERSION IS BINDING



n/2 = 6 = PPP GERADE DARGESTELLT  
n/2 = 6 = PPP EVEN SHOWN



n/2 = 5 = PPP UNGERADE DARGESTELLT  
n/2 = 5 = PPP UNEVEN SHOWN



| NO OF POLES MATCHING IN TAPE |      |      |      |      |              |      |      |      |      |                     |      |      |      |      |
|------------------------------|------|------|------|------|--------------|------|------|------|------|---------------------|------|------|------|------|
| OPEN ENDED                   |      |      |      |      | CLOSED ENDED |      |      |      |      | SOLDER FLANGE ENDED |      |      |      |      |
| w                            |      |      |      |      | w            |      |      |      |      | w                   |      |      |      |      |
| 32mm                         | 44mm | 56mm | 72mm | 88mm | 32mm         | 44mm | 56mm | 72mm | 88mm | 32mm                | 44mm | 56mm | 72mm | 88mm |
| 4                            |      |      |      |      | 4            |      |      |      |      | 4                   |      |      |      |      |
| 6                            |      |      |      |      | 6            |      |      |      |      | 6                   |      |      |      |      |
| 8                            |      |      |      |      | 8            |      |      |      |      |                     | 8    |      |      |      |
| 10                           |      |      |      |      |              | 10   |      |      |      |                     | 10   |      |      |      |
|                              | 12   |      |      |      |              | 12   |      |      |      |                     | 12   |      |      |      |
|                              | 14   |      |      |      |              | 14   |      |      |      |                     | 14   |      |      |      |
|                              | 16   |      |      |      |              | 16   |      |      |      |                     |      | 16   |      |      |
|                              | 18   |      |      |      |              |      | 18   |      |      |                     |      | 18   |      |      |
|                              |      | 20   |      |      |              |      | 20   |      |      |                     |      | 20   |      |      |
|                              |      | 22   |      |      |              |      | 22   |      |      |                     |      |      | 22   |      |
|                              |      | 24   |      |      |              |      | 24   |      |      |                     |      |      | 24   |      |
|                              |      |      | 26   |      |              |      |      | 26   |      |                     |      |      | 26   |      |
|                              |      |      | 28   |      |              |      |      | 28   |      |                     |      |      | 28   |      |
|                              |      |      | 30   |      |              |      |      | 30   |      |                     |      |      |      | 30   |
|                              |      |      | 32   |      |              |      |      | 32   |      |                     |      |      |      | 32   |
|                              |      |      |      | 34   |              |      |      |      | 34   |                     |      |      |      | 34   |
|                              |      |      |      | 36   |              |      |      |      | 36   |                     |      |      |      | 36   |
|                              |      |      |      | 38   |              |      |      |      | 38   |                     |      |      |      |      |
|                              |      |      |      | 40   |              |      |      |      |      |                     |      |      |      |      |

|                             |  |            |  |                                                                                                         |  |
|-----------------------------|--|------------|--|---------------------------------------------------------------------------------------------------------|--|
|                             |  |            |  | CAT.NO.:.                                                                                               |  |
| 83816/5<br>03.09.15 AMANN_A |  | 00         |  | <b>Weidmüller</b>  |  |
| MODIFICATION                |  |            |  | <b>C 33278</b> <b>12</b>                                                                                |  |
|                             |  | DATE       |  | NAME                                                                                                    |  |
| DRAWN                       |  | 23.08.2007 |  | LANG_T                                                                                                  |  |
| RESPONSIBLE                 |  |            |  | AMANN_A                                                                                                 |  |
| CHECKED                     |  | 03.09.2015 |  | HELIS_MA                                                                                                |  |
| APPROVED                    |  |            |  | LANG_T                                                                                                  |  |
| SCALE: 1/1                  |  |            |  | <b>TAPE S2L-SMT 3.50/././180</b><br>TAPE STIFTFLEISTE<br>TAPE PIN HEADER                                |  |
| SUPERSEDES:.                |  |            |  |                                                                                                         |  |
|                             |  |            |  | PRODUCT FILE: S2L-SMT 3.50                                                                              |  |
|                             |  |            |  | 7272                                                                                                    |  |

## 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.