

**OMNIMATE Signal - series B2C/S2C 3.50 - 2-row  
S2C-SMT 3.50/20/90LF 3.2SN BK BX**

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 26  
 D-32758 Detmold  
 Germany  
 Fon: +49 5231 14-0  
 Fax: +49 5231 14-292083  
 www.weidmueller.com

**Product image**

Similar to illustration

**High-temperature-resistant male header**

- Finger-safe
- Can be plugged into female plug B2CF 3.50 PUSH IN
- **Plug-in direction is perpendicular or parallel to the circuit board (180° / 90°)**
- Housing variants: closed (G) and with solder flange (LF)
- **Packed either in a box (BX) or on anti-static tape-on-reel (RL)**
- Suitable for reflow and wave soldering applications
- Pin length of either 1.5 mm or 3.2 mm

**General ordering data**

|              |  |
|--------------|--|
| Type         | S2C-SMT 3.50/20/90LF 3.2SN BK BX   |
| Order No.    | <a href="#">1289530000</a>   |
| Version      | PCB plug-in connector, male header, Solder flange, THT/THR solder connection, 3.50 mm, Number of poles: 20, 90°, Solder pin length (l): 3.2 mm, tinned, black, Box |
| GTIN (EAN)   | 4050118081749  |
| Qty.         | 42 pc(s).  |
| Product data | IEC: 200 V / 13.4 A<br>UL: 150 V / 10 A  |
| Packaging    | Box  |

Creation date May 2, 2020 11:13:41 PM CEST

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

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Width                    | 38.6 mm    | Width (inches)  | 1.52 inch  |
| Height                   | 14 mm      | Height (inches) | 0.551 inch |
| Height of lowest version | 10.8 mm    | Depth           | 14.2 mm    |
| Depth (inches)           | 0.559 inch | Net weight      | 8.64 g     |

**System specifications**

| Product family                             | OMNIMATE Signal - series<br>B2C/S2C 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 inch                                       | Outgoing elbow                               | 90°  |
| Number of poles                            | 20   | Number of solder pins per pole               | 1  |
| Solder pin length (l)                      | 3.2 mm   | Tolerance of solder pin position             | ± 0.20 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                                     | 31.5 mm  |
| L1 in inches                               | 1.24 inch  | Number of rows                               | 1  |
| Pin series quantity                        | 2  | Touch-safe protection acc. to DIN VDE 57 106 | touch-safe on connector face, safe to back of hand above the printed circuit board |
| Touch-safe protection acc. to DIN VDE 0470 | IP 20  | Can be coded                                 | Yes  |
| Plugging cycles                            | 25   | Plugging force/pole, max.                    | 3.5 N  |
| Pulling force/pole, max.                   | 2.5 N  |  |  |

**Material data**

|                                       |                            |                                       |                       |
|---------------------------------------|----------------------------|---------------------------------------|-----------------------|
| Insulating material                   | LCP GF                     | Colour                                | black                 |
| Colour chart (similar)                | RAL 9011                   | Insulating material group             | IIIb                  |
| Comparative Tracking Index (CTI)      | ≥ 175                      | Insulation strength                   | ≥ 10 <sup>8</sup> Ω   |
| Moisture Level (MSL)                  | 1                          | UL 94 flammability rating             | V-0                   |
| GWIT                                  | 930 °C                     | GWFI                                  | 960 °C                |
| Contact material                      | Copper alloy               | Contact surface                       | tinned                |
| Layer structure of solder connection  | 1-3 µm Ni / 2-5 µm Sn matt | Layer structure of plug contact       | 2-5 µm Sn / 1-3 µm Ni |
| 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. | -40 °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)                         | 13.4 A           |
| Rated current, min. number of poles (Tu=40°C)                             | 12 A                   | Rated voltage for surge voltage class / pollution degree II/2         | 200 V            |
| Rated voltage for surge voltage class / pollution degree III/2            | 160 V                  | Rated voltage for surge voltage class / pollution degree III/3        | 80 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 |

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

Institute (CSA)



Certificate No. (CSA)

200039-1121690

Rated voltage (Use group B / CSA) 150 V

Rated voltage (Use group C / CSA) 50 V

Rated voltage (Use group D / CSA) 150 V

Rated current (Use group B / CSA) 9.5 A

Rated current (Use group C / CSA) 9.5 A

Rated current (Use group D / CSA) 9.5 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) 150 V

Rated voltage (Use group C / UL 1059) 50 V

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

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

Reference to approval values

Specifications are maximum values, details - see approval certificate.

**Packing**

|           |        |            |        |
|-----------|--------|------------|--------|
| Packaging | Box    | VPE length | 35 mm  |
| VPE width | 135 mm | VPE height | 350 mm |

**Classifications**

|             |             |            |             |
|-------------|-------------|------------|-------------|
| ETIM 6.0    | EC002637    | ETIM 7.0   | EC002637    |
| eClass 9.0  | 27-44-04-02 | eClass 9.1 | 27-44-04-02 |
| eClass 10.0 | 27-44-04-02 |            |             |

**Notes**

Notes

- Gold-plated contact surfaces on request
- Rated current related to rated cross-section & min. No. of poles.
- Spacing between rows: see hole layout
- 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.

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.

**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](#)
- [MB SMT EN](#)
- [FL DRIVES DE](#)
- [MB DEVICE MANUF. EN](#)
- [CAT 2 PORTFOLIOGUIDE EN](#)
- [FL BUILDING SAFETY EN](#)
- [FL APPL LED LIGHTING EN](#)
- [FLIndustr.CONTROLS EN](#)
- [FL MACHINE SAFETY EN](#)
- [FL HEATING ELECTR EN](#)
- [FL APPL\\_INVERTER EN](#)
- [FL\\_BASE\\_STATION\\_EN](#)
- [FL ELEVATOR EN](#)
- [FL POWER SUPPLY EN](#)
- [FL 72H SAMPLE SER EN](#)
- [PO OMNIMATE EN](#)

Engineering Data

[EPLAN, WSCAD](#)

Engineering Data

[STEP](#)

White paper surface mount technology

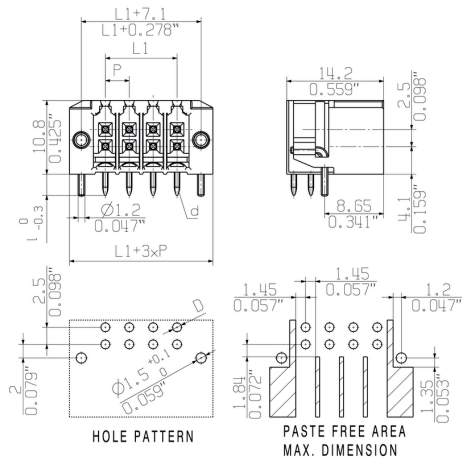
[Download Whitepaper](#)

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**Drawings**

**Dimensional drawing**



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**Mating connector (fully pluggable)**
**B2CF 3.50/180LR**

**Two-row female plug with PUSH IN spring connection**

- Simply insert the prepared wire - and you're done
- Intuitive to use because
- the wire-entry area and handling area are clearly separated
- Integrated push-buttons for opening the terminal point
- High component density because of low heights
- Optional: locking and releasing require no tools when using Weidmüller's release latch (LR) or release lever (LH)

**General ordering data**

| Type       | B2CF 3.50/20/180LR SN O ... | Version   | Product data                                     | Packaging |
|------------|-----------------------------|---|--|-----------|
| Order No.  | <a href="#">1278120000</a>  | PCB plug-in connector, female plug, 3.50 mm, Number of poles: 20,             | IEC: 320 V / 13.4 A / 0.14 - 1.5 mm <sup>2</sup> | Box       |
| GTIN (EAN) | 4050118069013               | 180°, PUSH IN, Spring connection, Clamping range, max.: 1.5 mm <sup>2</sup> , | UL: 300 V / 9.5 A / AWG 26 - AWG                 |           |
| Qty.       | 42 pc(s).                   | Box   | 16   |           |
| Type       | B2CF 3.50/20/180LR SN B ... | Version   | Product data                                     | Packaging |
| Order No.  | <a href="#">1278310000</a>  | PCB plug-in connector, female plug, 3.50 mm, Number of poles: 20,             | IEC: 320 V / 13.4 A / 0.14 - 1.5 mm <sup>2</sup> | Box       |
| GTIN (EAN) | 4050118068771               | 180°, PUSH IN, Spring connection, Clamping range, max.: 1.5 mm <sup>2</sup> , | UL: 300 V / 9.5 A / AWG 26 - AWG                 |           |
| Qty.       | 42 pc(s).                   | Box   | 16   |           |

**B2CF 3.50/180LH**

**Two-row female plug with PUSH IN spring connection**

- Simply insert the prepared wire - and you're done
- Intuitive to use because
- the wire-entry area and handling area are clearly separated
- Integrated push-buttons for opening the terminal point
- High component density because of low heights
- Optional: locking and releasing require no tools when using Weidmüller's release latch (LR) or release lever (LH)

**General ordering data**

| Type       | B2CF 3.50/20/180LH SN O ... | Version   | Product data                                     | Packaging |
|------------|-----------------------------|---|--|-----------|
| Order No.  | <a href="#">1375980000</a>  | PCB plug-in connector, female plug, 3.50 mm, Number of poles: 20,             | IEC: 320 V / 13.4 A / 0.14 - 1.5 mm <sup>2</sup> | Box       |
| GTIN (EAN) | 4050118176919               | 180°, PUSH IN, Spring connection, Clamping range, max.: 1.5 mm <sup>2</sup> , | UL: 300 V / 9.5 A / AWG 26 - AWG                 |           |
| Qty.       | 42 pc(s).                   | Box   | 16   |           |
| Type       | B2CF 3.50/20/180LH SN B ... | Version   | Product data                                     | Packaging |
| Order No.  | <a href="#">1375800000</a>  | PCB plug-in connector, female plug, 3.50 mm, Number of poles: 20,             | IEC: 320 V / 13.4 A / 0.14 - 1.5 mm <sup>2</sup> | Box       |
| GTIN (EAN) | 4050118176933               | 180°, PUSH IN, Spring connection, Clamping range, max.: 1.5 mm <sup>2</sup> , | UL: 300 V / 9.5 A / AWG 26 - AWG                 |           |
| Qty.       | 42 pc(s).                   | Box   | 16   |           |

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**Mating connector (fully pluggable)**
**B2CF 3.50/180F**

**Two-row female plug with PUSH IN spring connection**

- Simply insert the prepared wire - and you're done
- Intuitive to use because
- the wire-entry area and handling area are clearly separated
- Integrated push-buttons for opening the terminal point
- High component density because of low heights
- Optional: locking and releasing require no tools when using Weidmüller's release latch (LR) or release lever (LH)

**General ordering data**

| Type       | B2CF 3.50/20/180F SN OR ... | Version  | Product data                                     | Packaging |
|------------|-----------------------------|--|--|-----------|
| Order No.  | <a href="#">1277760000</a>  | PCB plug-in connector, female plug, 3.50 mm, Number of poles: 20,              | IEC: 320 V / 13.4 A / 0.14 - 1.5 mm <sup>2</sup> | Box       |
| GTIN (EAN) | 4050118067576               | 180°, PUSH IN, Spring connection, Clamping range, max. : 1.5 mm <sup>2</sup> , | UL: 300 V / 9.5 A / AWG 26 - AWG                 |           |
| Qty.       | 42 pc(s).                   | Box  | 16   |           |
| Type       | B2CF 3.50/20/180F SN BK ... | Version  | Product data                                     | Packaging |
| Order No.  | <a href="#">1277940000</a>  | PCB plug-in connector, female plug, 3.50 mm, Number of poles: 20,              | IEC: 320 V / 13.4 A / 0.14 - 1.5 mm <sup>2</sup> | Box       |
| GTIN (EAN) | 4050118068900               | 180°, PUSH IN, Spring connection, Clamping range, max. : 1.5 mm <sup>2</sup> , | UL: 300 V / 9.5 A / AWG 26 - AWG                 |           |
| Qty.       | 42 pc(s).                   | Box  | 16   |           |

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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       | S2L/S2C 3.5 FLA 20/10 S ... | Version   | Product data | Packaging |
|------------|-----------------------------|---|--------------|-----------|
| Order No.  | <a href="#">1814590000</a>  | PCB plug-in connector, Accessories, Flood-light display, Transparent, |              | Box       |
| GTIN (EAN) | 4032248302826               | Number of poles: 10   |              |           |
| Qty.       | 50 pc(s).                   |   |              |           |
| Type       | S2L/S2C 3.5 FLA 20/10       | Version   | Product data | Packaging |
| Order No.  | <a href="#">1699580000</a>  | PCB plug-in connector, Accessories, Flood-light display, Transparent, |              | Box       |
| GTIN (EAN) | 4008190891350               | Number of poles: 10   |              |           |
| 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.

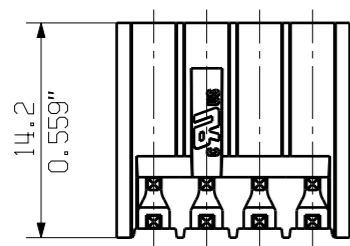
Incorrect assembly on the circuit board and incorrect plugging of connecting elements is no longer possible. The advantage: no troubleshooting during manufacture and no operational errors by the user.

## General ordering data

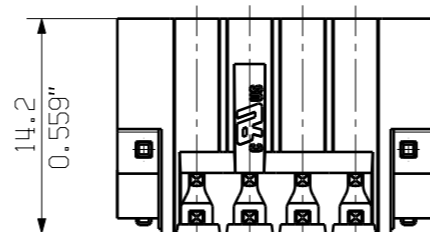
| Type       | B2L/S2L 3.50 KO OR BX      | Version  | Product data | Packaging |
|------------|----------------------------|--|--------------|-----------|
| Order No.  | <a href="#">1849730000</a> | PCB plug-in connector, Accessories, Coding element, orange, Number |              | Box       |
| GTIN (EAN) | 4032248378197              | of poles: 1  |              |           |
| Qty.       | 100 pc(s).                 |  |              |           |
| Type       | B2L/S2L 3.50 KO BK BX      | Version  | Product data | Packaging |
| Order No.  | <a href="#">1849740000</a> | PCB plug-in connector, Accessories, Coding element, black, Number  |              | Box       |
| GTIN (EAN) | 4032248378203              | of poles: 1  |              |           |
| Qty.       | 100 pc(s).                 |  |              |           |

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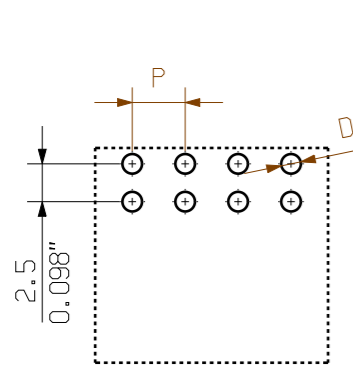
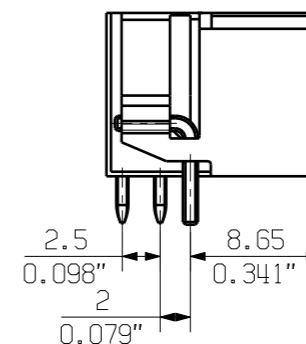
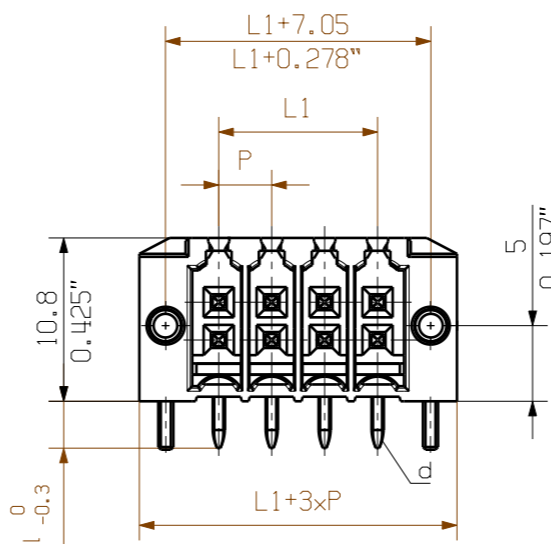
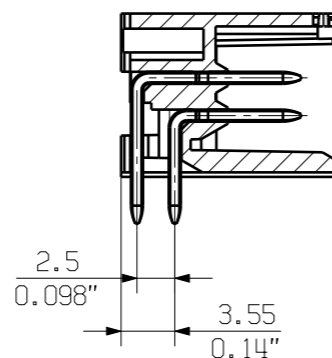
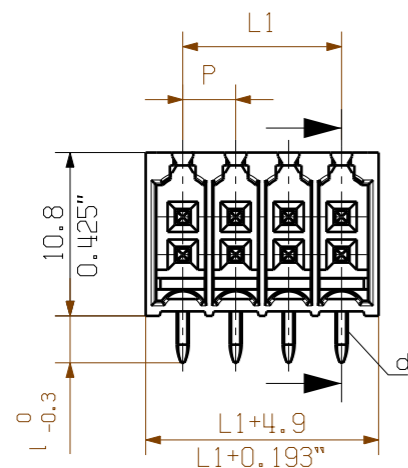
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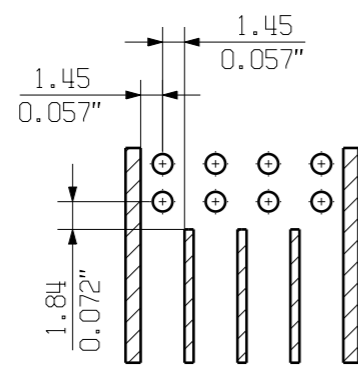
SHOWN: S2C-SMT 3.50/08/90G 3.2



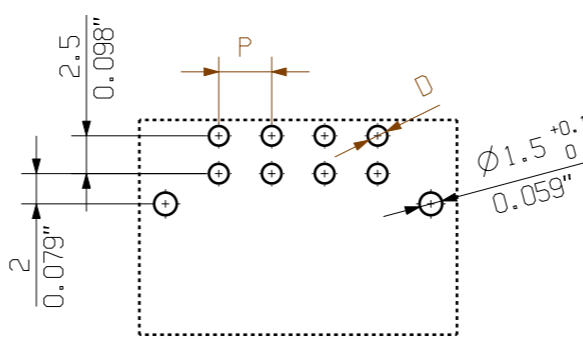
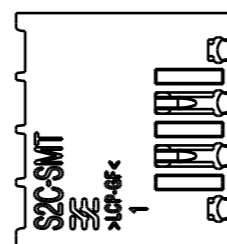
SHOWN: S2C-SMT 3.50/08/90LF 3.2



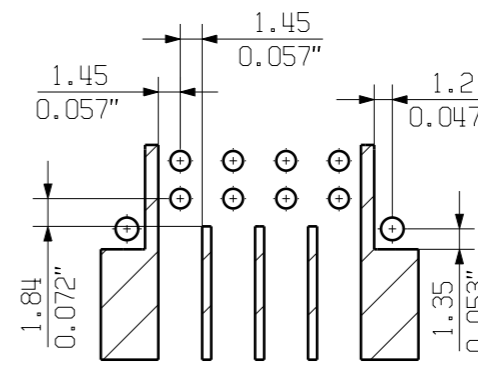
HOLE PATTERN



PASTE FREE AREA  
MAX. DIMENSION



HOLE PATTERN



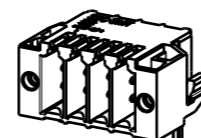
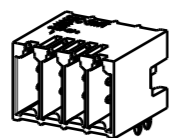
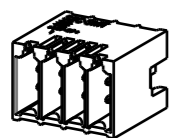
PASTE FREE AREA  
MAX. DIMENSION

M 1/1  
S2C-SMT 3.50/08/90G 1.5

M 1/1  
S2C-SMT 3.50/08/90G 3.2

M 1/1  
S2C-SMT 3.50/08/90LF 1.5

M 1/1  
S2C-SMT 3.50/08/90LF 3.2



P = 3.50 RASTER PITCH

D\* = Ø1.3 +0.1 / 0.051"

d = 0.8x0.8 / 0.031"x0.031"

\* from n (no of poles) 26  
D = 1.4mm +0.1

|                          |      |        |
|--------------------------|------|--------|
| S2C-SMT 3.50...180LF 3.5 | 3.5  | 0.126  |
| S2C-SMT 3.50...180LF 1.5 | 1.5  | 0.059  |
| S2C-SMT 3.50...180G 3.5  | 3.2  | 0.126  |
| S2C-SMT 3.50...180G 1.5  | 1.5  | 0.059  |
| TYP PART NAME            | [mm] | [inch] |

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.

|    |               |         |           |                    |
|----|---------------|---------|-----------|--------------------|
| 36 | 59.5          | 2.343   | ±0.2      |                    |
| 34 | 56.0          | 2.205   |           |                    |
| 32 | 52.5          | 2.067   |           |                    |
| 30 | 49.0          | 1.929   |           |                    |
| 28 | 45.5          | 1.791   | ±0.15     |                    |
| 26 | 42.0          | 1.654   |           |                    |
| 24 | 38.5          | 1.516   |           |                    |
| 22 | 35.0          | 1.378   |           |                    |
| 20 | 31.5          | 1.240   | ±0.1      |                    |
| 18 | 28.0          | 1.102   |           |                    |
| 16 | 24.5          | 0.965   |           |                    |
| 16 | 24.5          | 0.965   |           |                    |
| 14 | 21.0          | 0.827   | ±0.1      |                    |
| 12 | 17.5          | 0.689   |           |                    |
| 10 | 14.0          | 0.551   |           |                    |
| 8  | 10.5          | 0.413   |           |                    |
| 6  | 7.00          | 0.276   | ±0.1      |                    |
| 4  | 3.50          | 0.138   |           |                    |
| n  | POLZAHL POLES | L1 [mm] | L1 [inch] | TOLERANZ TOLERANCE |

allgemeinguetliche Kundenzeichnung, aktueller Stand nur auf Anfrage  
general customer drawing, topical version only if required

**GENERAL TOLERANCE: DIN ISO 2768-m**

99681/4 22.03.18 AMANN\_A 01

Max. nos.

Modification

Date Name

Drawn 15.07.2011 FRIELING\_L

Responsible AMANN\_A

Checked 04.04.2018 HELIS\_MA

Approved LANG\_T

Scale: 2/1

Supersedes: .

Cat.no.: .

**Weidmüller**

**3 50160 06**

Drawing no. Issue no.

Sheet 02 of 04 sheets

**S2C-SMT 3.50/.../...**

STIFTLISTE MALE HEADER

Product file: B2CF/S2C 7400

## Recommended wave soldering profiles

**Weidmüller Interface GmbH & Co. KG**  
 Klängenbergstraße 16  
 D-32758 Detmold  
 Germany  
 Fon: +49 5231 14-0  
 Fax: +49 5231 14-292083  
 www.weidmueller.com

### 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

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 16  
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 Germany  
 Fon: +49 5231 14-0  
 Fax: +49 5231 14-292083  
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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.