

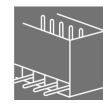
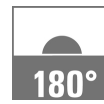
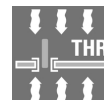
**S2L-SMT 3.50/20/180G 3.5SN BK BX****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image**

Similar to illustration

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, closed side, THT/THR solder connection, 3.50 mm, Number of poles: 20, 180°, Solder pin length (l): 3.5 mm, tinned, black, Box |
| Order No.    | <a href="#">1794600000</a>                                                                                                                                        |
| Type         | S2L-SMT 3.50/20/180G 3.5SN BK BX                                                                                                                                  |
| GTIN (EAN)   | 4032248231782                                                                                                                                                     |
| Qty.         | 48 pc(s).                                                                                                                                                         |
| Product data | IEC: 160 V / 10 A<br>UL: 150 V / 10 A                                                                                                                             |
| Packaging    | Box                                                                                                                                                               |

Creation date October 30, 2021 12:21:25 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           | 36.4 mm    |
| Width (inches)           | 1.433 inch | Net weight      | 5.9 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 inch                                    | Outgoing elbow                                     | 180°                  |
| Number of poles                              | 20                                            | 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                                     | 31.5 mm                                       | L1 in inches                                       | 1.24 inch             |
| Number of rows                               | 2                                             | Pin series quantity                                | 2                     |
| Touch-safe protection acc. to DIN VDE 57 106 | Safe from back-of-hand touch                  | Touch-safe protection acc. to DIN VDE 0470         | IP 10                 |
| 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                      | Copper alloy                     |
| Contact surface                       | tinned                    | Layer structure of solder connection  | 2...3 µm Ni / 5...7 µm Sn glossy |
| 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 C / CSA) 50 V

Rated voltage (Use group D / CSA) 150 V

Rated current (Use group B / CSA) 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 (UR)



Certificate No. (UR)

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 | 341 mm |
| VPE width | 135 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

- Additional colours on request
- Gold-plated contact surfaces on request
- Spacing between rows: see hole layout
- Rated current related to rated cross-section & min. No. of poles.
- 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.
- Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months

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[www.weidmueller.com](http://www.weidmueller.com)**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="#">STEP</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> |

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**Drawings****Product image**

Similar to illustration

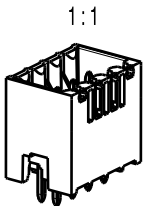
**Dimensional drawing**

Dimensions without tolerances are no check dimensions

The English version is binding



coding not possible at end poles



1:1

P = 3.50 Raster Pitch  
D = Ø1,3<sup>+0.1</sup>  
Ø0.051<sup>+0.1</sup>  
d = 1mm oktagon  
0.039" octogonal

SHOWN: S2L-SMT 3.50/08/180 G

| pin length<br>l | tolerance   |
|-----------------|-------------|
| 1,5             | 0,0<br>-0,3 |
| 3,2             | 0,0<br>-0,3 |
| 4,5             | 0,0<br>-0,3 |

|         |         |           |           |
|---------|---------|-----------|-----------|
| 36      | 59.50   | 2.343     | ±0.2      |
| 34      | 56.00   | 2.205     |           |
| 32      | 52.50   | 2.067     |           |
| 30      | 49.00   | 1.929     |           |
| 28      | 45.50   | 1.791     |           |
| 26      | 42.00   | 1.654     | ±0.15     |
| 24      | 38.50   | 1.516     |           |
| 22      | 35.00   | 1.378     |           |
| 20      | 31.50   | 1.240     |           |
| 18      | 28.00   | 1.102     | ±0.1      |
| 16      | 24.50   | 0.965     |           |
| 14      | 21.00   | 0.827     |           |
| 12      | 17.50   | 0.689     |           |
| 10      | 14.00   | 0.551     |           |
| 8       | 10.50   | 0.413     |           |
| 6       | 7.00    | 0.276     |           |
| 4       | 3.50    | 0.138     |           |
| n Poles | L1 [mm] | L1 [inch] | Tolerance |

For the mounting of PCBs, it should be noted that the rated data given in the catalogue relates only to the connection elements. The necessary creepage and clearance paths must be observed in connection with the respective applicant in accordance to VDE 0110. The current-carrying capacity and pitch tolerance is to be determined according to DIN IEC 326 part 3 very fine.

Weidmüller connectors are tested to the DIN VDE 0627 standard, and are valid for its field of application. Provided that the connectors 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-mK



99684/4  
02.03.18 HELIS\_MA  
00  
Modification

Weidmüller



Cat.no.: .

3 32319

35

Drawing no. Issue no.  
Sheet 02 of 04 sheets



|             |            |          |
|-------------|------------|----------|
| Drawn       | Date       | Name     |
| Responsible |            | AMANN_A  |
| Checked     | 19.03.2018 | HELIS_MA |
| Approved    |            | LANG_T   |

Scale: 2/1

Supersedes: .

S2L-SMT 3.50/././180...  
STIFTLEISTE  
PIN HEADER

Product file: S2L-SMT 3.50

7272

## Recommended wave soldering profiles

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