

**SL-SMT 5.08HC/02/180G 3.2SN BK RL****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image**

Similar to illustration

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

**General ordering data**

|              |                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Version      | PCB plug-in connector, male header, closed side, THT/THR solder connection, 5.08 mm, Number of poles: 2, 180°, Solder pin length (l): 3.2 mm, tinned, black, Tape |
| Order No.    | <a href="#">1115680000</a>                                                                                                                                        |
| Type         | SL-SMT 5.08HC/02/180G 3.2SN BK RL                                                                                                                                 |
| GTIN (EAN)   | 4032248895922                                                                                                                                                     |
| Qty.         | 250 pc(s).                                                                                                                                                        |
| Product data | IEC: 400 V / 27.5 A<br>UL: 300 V / 18.5 A                                                                                                                         |
| Packaging    | Tape                                                                                                                                                              |

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## Technical data

## Dimensions and weights

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Depth                    | 8.5 mm     | Depth (inches)  | 0.335 inch |
| Height                   | 15.2 mm    | Height (inches) | 0.598 inch |
| Height of lowest version | 12 mm      | Width           | 12.06 mm   |
| Width (inches)           | 0.475 inch | Net weight      | 2.896 g    |

## System specifications

|                                                   |                                     |                                 |                  |
|---------------------------------------------------|-------------------------------------|---------------------------------|------------------|
| Product family                                    | OMNIMATE Signal - series BL/SL 5.08 | Type of connection              | Board connection |
| Mounting onto the PCB                             | THT/THR solder connection           | Pitch in mm (P)                 | 5.08 mm          |
| Pitch in inches (P)                               | 0.2 inch                            | Outgoing elbow                  | 180°             |
| Number of poles                                   | 2                                   | Number of solder pins per pole  | 1                |
| Solder pin length (l)                             | 3.2 mm                              | Solder pin length tolerance     | 0 / -0.3 mm      |
| Solder pin dimensions                             | d = 1.2 mm, Octagonal               | Solder eyelet hole diameter (D) | 1.4 mm           |
| Solder eyelet hole diameter tolerance (D)+ 0,1 mm |                                     | L1 in mm                        | 5.08 mm          |
| L1 in inches                                      | 0.2 inch                            | Number of rows                  | 1                |
| Pin series quantity                               | 1                                   | Protection degree               | IP20             |
| Volume resistance                                 | ≤5 mΩ                               | Can be coded                    | Yes              |
| Plugging force/pole, max.                         | 9 N                                 | Pulling force/pole, max.        | 7 N              |

## Material data

|                                       |                                |                                       |                                |
|---------------------------------------|--------------------------------|---------------------------------------|--------------------------------|
| Insulating material                   | LCP GF                         | Colour                                | black                          |
| Colour chart (similar)                | RAL 9011                       | Insulating material group             | IIla                           |
| Comparative Tracking Index (CTI)      | ≥ 175                          | Moisture Level (MSL)                  | 1                              |
| UL 94 flammability rating             | V-0                            | Contact material                      | CuMg                           |
| Contact surface                       | tinned                         | Layer structure of solder connection  | 1...3 µm Ni / 2...4 µm Sn matt |
| Layer structure of plug contact       | 1...3 µm Ni / 2...4 µm Sn matt | Storage temperature, min.             | -40 °C                         |
| Storage temperature, max.             | 70 °C                          | Operating temperature, min.           | -50 °C                         |
| Operating temperature, max.           | 100 °C                         | Temperature range, installation, min. | -30 °C                         |
| Temperature range, installation, max. | 100 °C                         |                                       |                                |

## Rated data acc. to IEC

|                                                                           |                        |                                                                       |        |
|---------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------|--------|
| tested acc. to standard                                                   | IEC 60664-1, IEC 61984 | Rated current, min. number of poles (Tu=20°C)                         | 27.5 A |
| Rated current, max. number of poles (Tu=20°C)                             | 19 A                   | Rated current, min. number of poles (Tu=40°C)                         | 24 A   |
| Rated current, max. number of poles (Tu=40°C)                             | 16.5 A                 | Rated voltage for surge voltage class / pollution degree II/2         | 400 V  |
| Rated voltage for surge voltage class / pollution degree III/2            | 320 V                  | Rated voltage for surge voltage class / pollution degree III/3        | 250 V  |
| Rated impulse voltage for surge voltage class/ pollution degree II/2      | 4 kV                   | Rated impulse voltage for surge voltage class/ pollution degree III/2 | 4 kV   |
| Rated impulse voltage for surge voltage class/ contamination degree III/3 | 4 kV                   |                                                                       |        |

## Rated data acc. to CSA

|                                   |        |                                   |       |
|-----------------------------------|--------|-----------------------------------|-------|
| Rated voltage (Use group B / CSA) | 300 V  | Rated voltage (Use group D / CSA) | 300 V |
| Rated current (Use group D / CSA) | 18.5 A |                                   |       |

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## Packing

|                                                              |          |                                                  |                               |
|--------------------------------------------------------------|----------|--------------------------------------------------|-------------------------------|
| Packaging                                                    | Tape     | VPE length                                       | 35 mm                         |
| VPE width                                                    | 330 mm   | VPE height                                       | 330 mm                        |
| Tape depth (T2)                                              | 17.45 mm | Tape width (W)                                   | 32 mm                         |
| Tape pocket depth (K0)                                       | 16.95 mm | Tape pocket height (A0)                          | 8 mm                          |
| Tape pocket width (B0)                                       | 13.66 mm | Tape pocket separation (P1)                      | 16 mm                         |
| Tape hole separation (E)                                     | 1.75 mm  | Tape pocket separation (F)                       | 14.2 mm                       |
| Tape reel diameter $\varnothing$ (A)                         | 330 mm   | Surface resistance                               | $R_s = 10^9 - 10^{12} \Omega$ |
| Width Pick & Place Pad ( $W_{PPP}$ )                         | 9.6 mm   | Length Pick & Place Pad ( $L_{PPP}$ )            | 12.36 mm                      |
| Diameter of the withdrawal surface ( $\varnothing D_{max}$ ) | 8.5 mm   | Protrusion 1 Pick & Place Pad ( $L_{01 (PPP)}$ ) | 2 mm                          |
| Protrusion 2 Pick & Place Pad ( $P_{02 (PPP)}$ )             | 2.3 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 | ECLASS 12.0 | 27-46-02-01 |

## Important note

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IPC conformity | Conformity: The products are developed, manufactured and delivered according international recognized standards and norms and comply with the assured properties in the data sheet resp. fulfill decorative properties in accordance with IPC-A-610 "Class 2". Further claims on the products can be evaluated on request.                                                                                                                                                                                                                                                                                                                                                                   |
| Notes          | <ul style="list-style-type: none"> <li>• Gold-plated contact surfaces on request</li> <li>• Rated current related to rated cross-section &amp; min. No. of poles.</li> <li>• Diameter of solder eyelet <math>D = 1.4 \pm 0.1 \text{ mm}</math></li> <li>• Solder eyelet diameter <math>D = 1.5 \pm 0.1 \text{ mm}</math>, from 9 poles</li> <li>• P on drawing = pitch</li> <li>• Rated data refer only to the component itself. Clearance and creepage distances to other components are to be designed in accordance with the relevant application standards.</li> <li>• Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months</li> </ul> |

## Approvals

Approvals



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

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## Technical data

### Downloads

|                                             |                                                                 |
|---------------------------------------------|-----------------------------------------------------------------|
| Approval/Certificate/Document of Conformity | <a href="#">CB Certificate</a><br><a href="#">CB Testreport</a> |
| Catalogues                                  | <a href="#">Catalogues in PDF-format</a>                        |
| Brochures                                   | <a href="#">FL DRIVES EN</a><br><a href="#">FL DRIVES DE</a>    |
| White paper surface mount technology        | <a href="#">Download Whitepaper</a>                             |

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## Drawings

Technical drawings of the HOLE PATTERN. The top left drawing shows a side view of the pattern with dimensions  $L1+6.98$  and  $L1+0.274''$ . The top right drawing shows a top view with dimensions  $8.4$ ,  $0.332''$ ,  $0.472''$ ,  $3.8$ , and  $0.15''$ . The bottom drawing is a detailed view of the hole pattern, showing four holes with diameter  $D$  and pitch  $P$ , with a total width  $L1$ .

Technical drawing of a coil with dimensions and labels. The drawing shows a side view of the coil on the left and a top view on the right. The side view labels include  $W_{MAX}$  (top width),  $W_{MIN}$  (bottom width),  $KO$  (inner diameter), and  $T2$  (thickness). The top view labels include  $LPPP$  (total length),  $A0$  (width of the first section),  $LQ2 (PPP)$  (length of the second section),  $LQ1 (PPP)$  (length of the third section),  $P1$  (pitch),  $E$  (edge thickness),  $F$  (width of the fourth section),  $M$  (width of the fifth section),  $B0$  (total width),  $BPPP$  (width of the sixth section),  $\Phi D_{max}$  (maximum diameter), and  $D$  (diameter). A dashed circle is shown in the center of the top view. An arrow at the bottom indicates the **DIRECTION OF UNREELING**.

## A roll of black tape with a white pattern, unrolled to show the pattern. The pattern consists of a series of white, curved, and somewhat irregular shapes that resemble a stylized 'S' or a series of connected loops. The tape is shown in a perspective view, with the roll on the left and the unrolled section extending towards the right.

A 3D exploded view of a LEGO Technic assembly. The assembly consists of a grey base and a white top piece. The grey base has several orange pins inserted into it. The white top piece is shown above the grey base, with some of its internal structure visible. The assembly is shown in a perspective view, highlighting the mechanical connection between the two parts.

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## Recommended wave soldering profiles

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### Single Wave:



### Double Wave:



### Wave soldering profiles

Wired connection elements should be processed in accordance with the DIN EN 61760-1 standard. We have included two recommendations for practical wave soldering profiles, with which Weidmüller PCB terminals and connectors are qualified.

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

- PCB thickness
- Proportion of Cu in the layers
- Single/double-sided assembly
- Product range
- Heating and cooling rates

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

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.