

OMNIMATE Signal - series B2C/S2C 3.50 - 2-row S2C-SMT 3.50/16/180G 3.5SN BK BX

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High-temperature-resistant pin header.

- touch-safe
- can be plugged into B2CF 3.50 PUSH IN female plug
- Plug-in direction is perpendicular or parallel to the circuit board (180° / 90°)
- Housing variants: closed (G) and with solder flange (LF)
- Box packaging (BX) or, anti-static, tape-on-reel (RL)
- Suitable for reflow and wave soldering applications
- Pin length of either 1.5 mm or 3.5 mm

General ordering data

| | |
|--------------|--|
| Type | S2C-SMT 3.50/16/180G 3.5SN BK BX |
| Order No. | 1290090000 |
| Version | PCB plug-in connector, male header, closed side, THT/THR solder connection, 3.50 mm, No. of poles: 16, 180°, Solder pin length (l): 3.5 mm, tinned, Black, Box |
| GTIN (EAN) | 4050118083293 |
| Qty. | 60 pc(s). |
| Product data | IEC: 200 V / 13.4 A UL: 150 V / 10 A |
| Packaging | Box |

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Technical data**Dimensions and weights**

| | | | |
|--------------------------|------------|-----------------|------------|
| Width | 29.4 mm | Width (inches) | 1.157 inch |
| Height | 17.7 mm | Height (inches) | 0.697 inch |
| Height of lowest version | 14.2 mm | Depth | 10.8 mm |
| Depth (inches) | 0.425 inch | Net weight | 5.47 g |

System specifications

| Product family | OMNIMATE Signal - series 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 | 180° |
| No. of poles | 16 | Number of solder pins per pole | 1 |
| Solder pin length (l) | 3.5 mm | Solder pin length tolerance | 0 / -0.3 mm |
| Tolerance of solder pin position | ± 0.20 mm | Solder pin dimensions | d = 1.0 mm, Octagonal |
| Solder pin dimensions = d tolerance | +0,01 / -0,03 mm | Solder eyelet hole diameter (D) | 1.3 mm |
| Solder eyelet hole diameter tolerance (D) | + 0,1 mm | Outside diameter of solder pad | 2.1 mm |
| Template aperture diameter | 1.9 mm | L1 in mm | 24.5 mm |
| L1 in inches | 0.965 inch | Number of rows | 1 |
| Pin series quantity | 2 | Touch-safe protection acc. to DIN VDE 57 106 | Safe from finger touch |
| Touch-safe protection acc. to DIN VDE 0470 | IP 20 | Can be coded | Yes |
| Plugging cycles | 25 | push-in force/pole | 5 N |
| Withdrawal force per pole | 5 N | | |

Material data

| | | | |
|---------------------------------------|-----------------------|---------------------------------------|-----------------------|
| Insulating material | LCP GF | Colour | Black |
| Colour chart (similar) | RAL 9011 | Insulating material group | IIIb |
| CTI | ≥ 175 | Insulation resistance | ≥ 10 ⁸ Ω |
| Moisture Level (MSL) | 1 | UL 94 flammability rating | V-0 |
| Contact material | Copper alloy | Contact surface | tinned |
| Layer structure of solder connection | 2-5 µm Sn / 1-3 µm Ni | Layer structure of plug contact | 2-5 µm Sn / 1-3 µm Ni |
| Storage temperature, min. | -25 °C | Storage temperature, max. | 55 °C |
| Max. relative humidity during storage | 80 % | 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. no. of poles (Tu=20°C) | 13.4 A |
| Rated current, min. no. 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) | 150 V | Rated voltage (Use group C) | 50 V |
| Rated voltage (use group D) | 150 V | Rated current (use group B) | 9.5 A |
| Rated current (use group C) | 9.5 A | Rated current (use group D) | 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) | 150 V | Rated voltage (use group C) | 50 V |
| Rated current (use group B) | 10 A | Rated current (use group C) | 10 A |
| Reference to approval values | Specifications are maximum values, details - see approval certificate. | | |

Classifications

| | | | |
|------------|-------------|------------|-------------|
| ETIM 4.0 | EC002637 | ETIM 5.0 | EC002637 |
| ETIM 6.0 | EC002637 | eClass 6.2 | 27-26-07-04 |
| eClass 7.1 | 27-44-04-02 | eClass 8.1 | 27-44-04-02 |
| eClass 9.0 | 27-44-04-02 | eClass 9.1 | 27-44-04-02 |

Notes

| | |
|----------------|--|
| Notes | <ul style="list-style-type: none"> • 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. |

Approvals

| | |
|-----------|---------|
| Approvals | |
| ROHS | Conform |

Data sheet**OMNIMATE Signal - series B2C/S2C 3.50 - 2-row
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Technical data**Downloads**

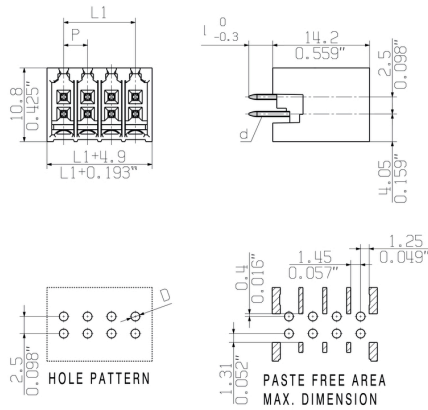
| | |
|---|---|
| Approval/Certificate/Document of Conformity | Declaration of the Manufacturer |
| Brochure/Catalogue | FL DRIVES EN MB SMT EN FL DRIVES DE MB DEVICE MANUF. EN CAT 2 PORTFOLIOGUIDE EN FL BUILDING SAFETY EN FL APPL LED LIGHTING EN FLIndustr.CONTROLS EN FL MACHINE SAFETY EN FL HEATING 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 |
| SMT white paper | Download Whitepaper |

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Drawings

Dimensional drawing



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.

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.