

# FR 1,27/100-FH - SMD female connectors



1337021

<https://www.phoenixcontact.com/pc/products/1337021>

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SMD female connector, nominal current: 2.2 A, Test voltage: 500 V AC, number of positions: 100, pitch: 1.27 mm, color: black, contact surface: Gold, type of contact: Socket, mounting: SMD soldering



## Your advantages

- The first high-speed data transmission at up to 28 Gbps using the established market standard, opens up new design possibilities.
- Robust 6-pos. to 100-pos. board-to-board and wire-to-board connectors ensure greater flexibility with regard to component options.
- Time savings during the development process with customer-specific simulations for data integrity.
- Gold-plated contact points enable long-term stable signal transmission and currents of up to 2.3 A.
- Design-in support during device development using MCAD/ECAD data and a free sample service.

## Commercial Data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1337021       |
| Packing unit                         | 560 pc        |
| Minimum order quantity               | 560 pc        |
| Product Key                          | AAXAAA        |
| GTIN                                 | 4063151638528 |
| Weight per Piece (including packing) | 4.729 g       |
| Weight per Piece (excluding packing) | 22.22 g       |
| Customs tariff number                | 85366930      |
| Country of origin                    | CN            |

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## Technical Data

### Product properties

|                     |                      |
|---------------------|----------------------|
| Product type        | SMD female connector |
| Product family      | FR 1,27/...-FH       |
| Number of positions | 100                  |
| Pitch               | 1.27 mm              |
| Number of rows      | 2                    |
| Pin layout          | Linear pad geometry  |

### Electrical properties

|                       |  |
|-----------------------|--|
| Nominal current $I_N$ | 2.2 A IEC 60512-5-2:2002-02 (at 20°C 100-pos.) |
| Degree of pollution   | 3  |
| Contact resistance    | 10 mΩ  |
| Test voltage          | 500 V AC IEC 60512-4-1:2003                    |

### Mounting

|               |                     |
|---------------|---------------------|
| Mounting type | SMD soldering       |
| Pin layout    | Linear pad geometry |

### Processing notes

|                                  |                  |
|----------------------------------|------------------|
| Process                          | Reflow soldering |
| Moisture Sensitive Level         | MSL 1            |
| Classification temperature $T_c$ | 260 °C           |
| Solder cycles in the reflow      | 3                |

### Material specifications

#### Material data - contact

|   |  |
|---|--|
| Note  | WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201 |
| Contact material                            | Cu alloy   |
| Surface characteristics                     | Selective coating  |
| Metal surface contact area (top layer)      | Gold (Au)  |
| Metal surface contact area (middle layer)   | Nickel (Ni)  |
| Metal surface soldering area (top layer)    | Tin (Sn)   |
| Metal surface soldering area (middle layer) | Nickel (Ni)  |

#### Material data - housing

|  |              |
|--|--------------|
| Color (Housing)                        | black (9005) |
| Insulating material                    | LCP          |
| Insulating material group              | IIIb         |
| CTI according to IEC 60112             | 150          |
| Flammability rating according to UL 94 | V0           |

# FR 1,27/100-FH - SMD female connectors

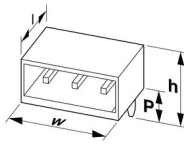
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## Notes

|                    |  |
|--------------------|--|
| Notes on operation | The permissible voltage during operation depends on the application, taking into consideration the air clearances and creepage distances within the scope of insulation requirements in accordance with IEC 60664-1. |
|--------------------|--|

## Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Pitch               | 1.27 mm  |
| Width [w]           | 68.59 mm   |
| Height [h]          | 4.53 mm  |
| Length [l]          | 10.8 mm  |
| Installed height    | 3.78 mm  |

## Application

|                   |   |
|-------------------|---|
| Contact cover     | 0.9 mm  |
| Center offset     | ± 0.7 mm in longitudinal and transverse direction |
| Wipe length       | 1.5 mm  |
| Angular tolerance | ± 5 ° in longitudinal and transverse direction    |

## PCB design

|              |              |
|--------------|--------------|
| Pad geometry | 0.8 x 0.8 mm |
|--------------|--------------|

## Electrical tests

### Thermal test | Test group C

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60512-5-2:2002-02 |
|---------------|-----------------------|

### Insulation resistance

|  |                       |
|--|-----------------------|
| Specification                                | IEC 60512-3-1:2002-02 |
| Insulation resistance, neighboring positions | ≥ 5 GΩ                |

### Air clearances and creepage distances |

|   |        |
|---|--------|
| Insulating material group                         | IIIb   |
| Minimum value for clearance and creepage distance | 0.4 mm |

## Environmental and real-life conditions

### Vibration test

|               |                       |
|---------------|-----------------------|
| Specification | IEC 60068-2-6:2007-12 |
| Frequency     | 10 - 2000 - 10 Hz     |
| Sweep speed   | 1 octave/min          |

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|                        |  |
|------------------------|--|
| Amplitude              | 1.5 mm (10 Hz ... 58 Hz)                 |
| Sweep speed            | 200 m/s <sup>2</sup> (58 Hz ... 2000 Hz) |
| Test duration per axis | 2.5 h                                    |

## Durability test

|  |                                   |
|--|-----------------------------------|
| Specification                                | IEC 60512-9-1:2010-03 (following) |
| Contact resistance R <sub>1</sub>            | 10 mΩ                             |
| Contact resistance R <sub>2</sub>            | 15 mΩ                             |
| Insertion/withdrawal cycles                  | 500                               |
| Insulation resistance, neighboring positions | ≥ 5 GΩ                            |

## Shocks

|                 |                                   |
|-----------------|-----------------------------------|
| Specification   | IEC 60068-2-27:2008-02            |
| Pulse shape     | Semi-sinusoidal                   |
| Acceleration    | 490 m/s <sup>2</sup>              |
| Shock duration  | 11 ms                             |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

## Ambient conditions

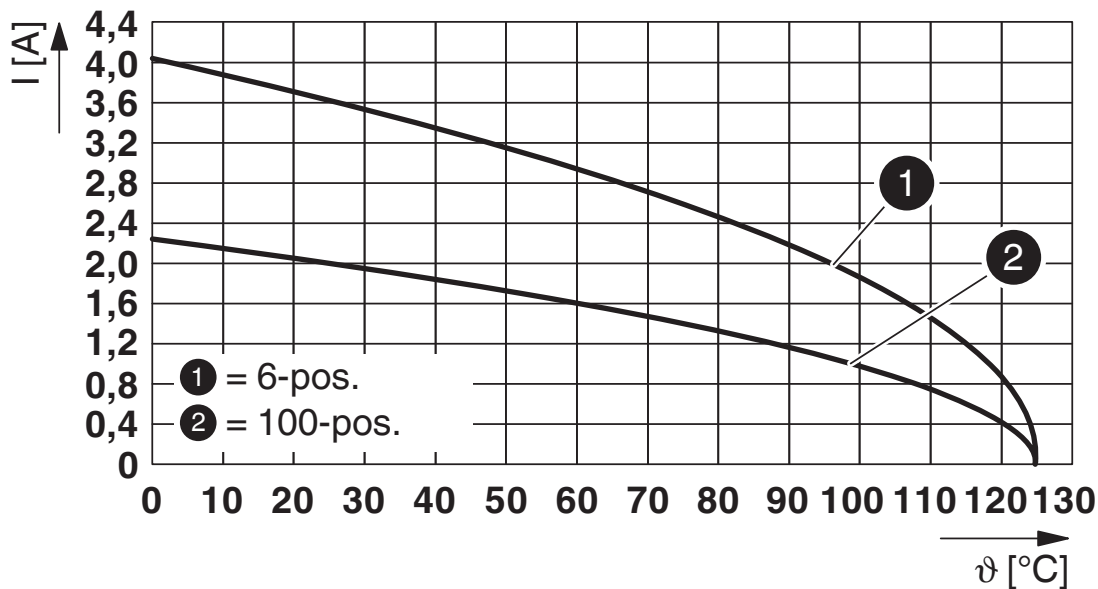
|   |                   |
|---|-------------------|
| Ambient temperature (operation)         | -55 °C ... 125 °C |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C  |
| Relative humidity (storage/transport)   | 30 % ... 70 %     |
| Ambient temperature (assembly)          | -5 °C ... 100 °C  |

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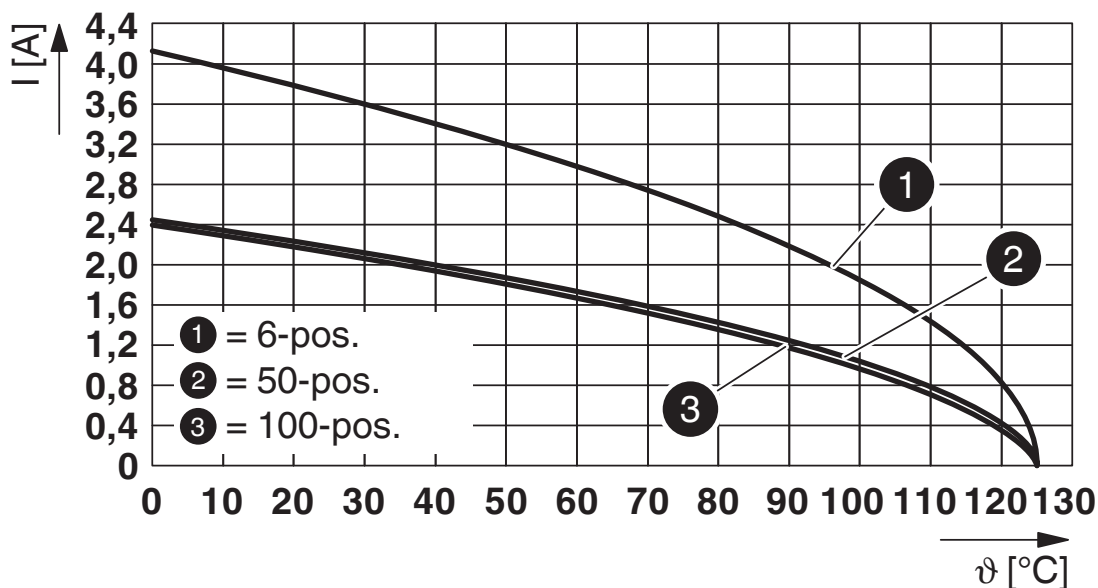
## Drawings

Diagram



Type: FR 1,27/...-FH with FR 1,27/...-MH

Diagram



Type: FR 1,27/...-FH with FR 1,27/...-MV 3,25

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/1337021>

|  <b>cUL Recognized</b><br>Approval ID: E118976-20230317 |                       |                       |                   |                      |
|--|-----------------------|-----------------------|-------------------|----------------------|
|  | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
|  | 29.9 V                | 1.4 A                 | -                 | -                    |

|  <b>UL Recognized</b><br>Approval ID: E118976-20230317 |                       |                       |                   |                      |
|---|-----------------------|-----------------------|-------------------|----------------------|
|   | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
|   | 29.9 V                | 2 A                   | -                 | -                    |

**cULus Recognized**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27460201 |
| ECLASS-12.0 | 27460201 |
| ECLASS-13.0 | 27460201 |

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC002637 |
|----------|----------|

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### Mandatory Accessories

#### FR 1,27/100-MH - SMD male connectors

1377306

<https://www.phoenixcontact.com/pc/products/1377306>

SMD male connector, nominal current: 2 A, Test voltage: 500 V AC, number of positions: 100, pitch: 1.27 mm, color: black, contact surface: Gold, type of contact: Pin, mounting: SMD soldering



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#### FR 1,27/100-MV 1,75 - SMD male connectors

1373896

<https://www.phoenixcontact.com/pc/products/1373896>

SMD male connector, nominal current: 2.2 A, Test voltage: 840 V AC, number of positions: 100, pitch: 1.27 mm, color: black, contact surface: Gold, type of contact: Pin, mounting: SMD soldering





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# FR 1,27/100-MV 3,25 - SMD male connectors

1337146

<https://www.phoenixcontact.com/pc/products/1337146>

SMD male connector, nominal current: 2.2 A, Test voltage: 840 V AC, number of positions: 100, pitch: 1.27 mm, color: black, contact surface: Gold, type of contact: Pin, mounting: SMD soldering



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