# FR 1,27/ 20-MV 3,25 - SMD male connectors

1337140

https://www.phoenixcontact.com/us/products/1337140

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SMD male connector, nominal current: 2.2 A, test voltage: 840 V AC, number of positions: 20, pitch: 1.27 mm, color: black, contact surface: Au, contact connection type: Pin, 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 | 1337140 |
| Packing unit | 280 pc |
| Minimum order quantity | 280 pc |
| Sales key | AA24 |
| Product key | AAXGAC |
| GTIN | 4063151638948 |
| Weight per piece (including packing) | 2.165 g |
| Weight per piece (excluding packing) | 2.165 g |
| Customs tariff number | 85366930 |
| Country of origin | CN |

## Technical data

### Product properties

| | |
|---|---|
| Product type | SMD male connector |
| Product family | FR 1,27/...-MV 3,25 |
| Number of positions | 20 |
| 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.) |
| Contact resistance | 10 mΩ |
| Test voltage | 840 V AC IEC 60512-4-1:2003-05 |

### 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) |

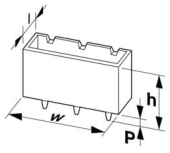
Material data - housing

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

### 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] | 17.79 mm |
| Height [h] | 9 mm |
| Length [l] | 7.2 mm |
| Installed height | 8.25 mm |

Application

| | |
|---|---|
| Contact cover | 0.9 mm |
| Center offset | ± 0.7 mm in longitudinal and transverse direction |
| Stack height | 9.5 mm Tolerance: +1,5 mm (in combination with Range of articles:FR 1,27/...-FV 6,25) |
| | 12.3 mm Tolerance: +1,5 mm (in combination with Range of articles:FR 1,27/...-FV 9,05) |
| Wipe length | 1.5 mm |
| Angular tolerance | ± 5 ° in longitudinal and transverse direction |

PCB design

| | |
|---|---|
| Pad geometry | 0.8 x 1.1 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 | 0.56 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 |
| Amplitude | 1.5 mm (10 Hz ... 58 Hz) |
| Acceleration | 200 m/s² (58 Hz ... 2000 Hz) |
| Test duration per axis | 2.5 h |
| Test directions | X-, Y- and Z-axis |

Durability test

| | |
|---|---|
| Specification | IEC 60512-9-1:2010-03 (following) |
| Contact resistance $R_1$ | 10 mΩ |
| Contact resistance $R_2$ | 15 mΩ |
| Insertion/withdrawal cycles | 500 |
| Insulation resistance, neighboring positions | ≥ 5 GΩ |

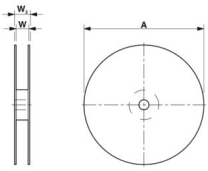
Shocks

| | |
|---|---|
| Specification | IEC 60068-2-27:2008-02 |
| Pulse shape | Semi-sinusoidal |
| Acceleration | 490 m/s² |
| Shock duration | 11 ms |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

Ambient conditions

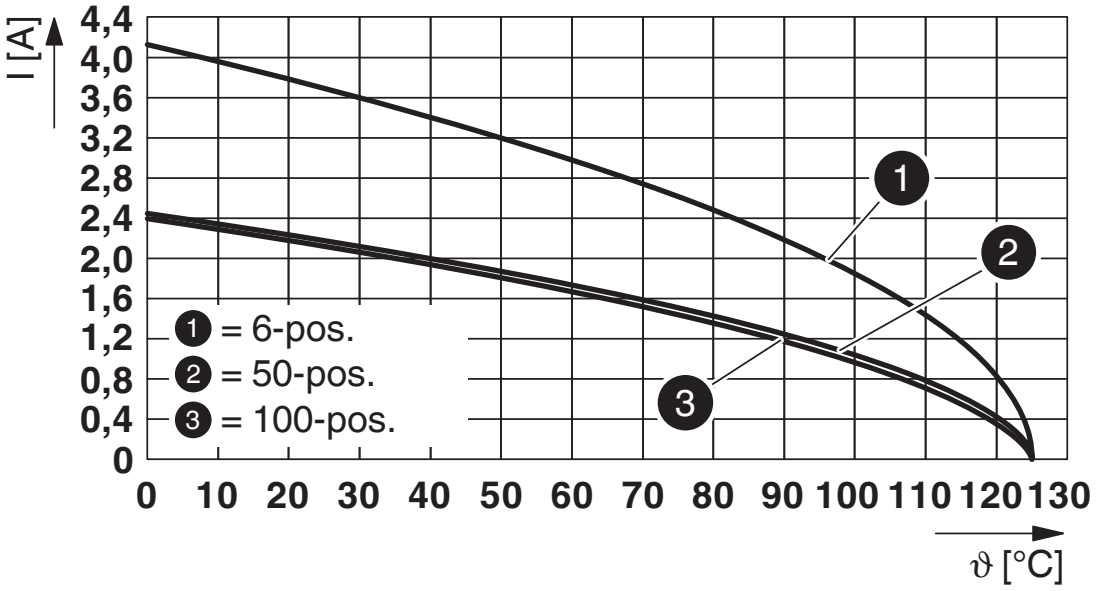
| | |
|---|---|
| Ambient temperature (operation) | -55 °C ... 125 °C |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Relative humidity (storage/transport) | 30 % ... 70 % |
| Ambient temperature (assembly) | -5 °C ... 100 °C |

## Packaging specifications

| | |
|---|---|
| Dimensional drawing |   |
| Type of packaging | 32 mm wide tape |
| [W] tape width | 32 mm |
| [W2] coil overall dimension | 38.4 mm |
| [A] coil diameter | 330 mm |
| Outer packaging type | Transparent-Bag |
| ESD level | (D) electrostatically conductive |
| Specification | DIN EN 61340-5-1 (VDE 0300-5-1): 2008-07 |

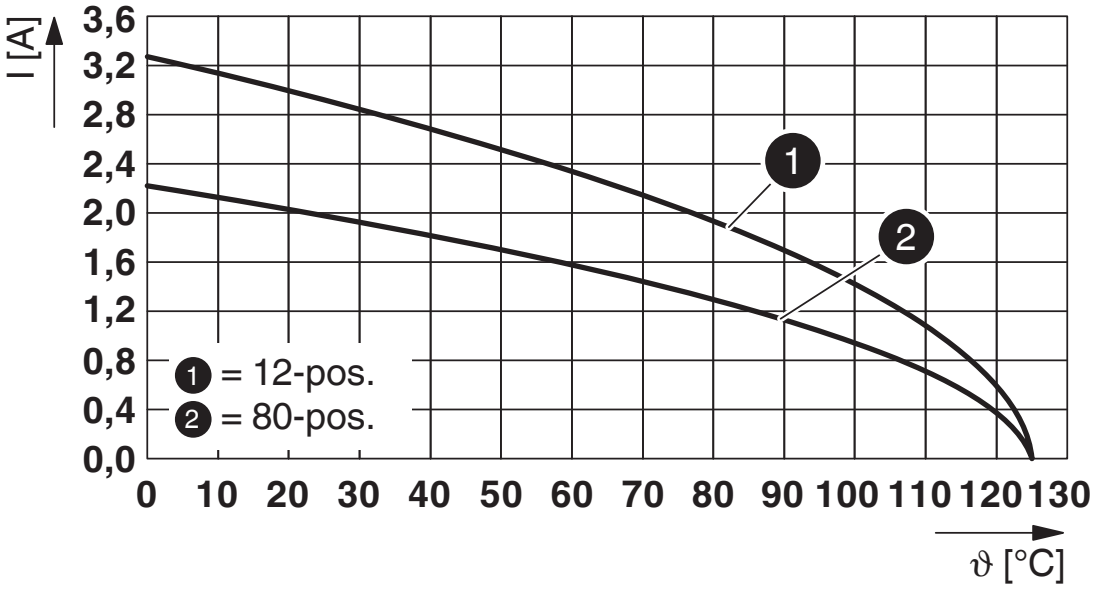
## Drawings

Diagram




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

Diagram




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

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1337140

**cUL Recognized**
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 | - | - |

**UL Recognized**
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**

## Classifications

### ECLASS

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

### ETIM

| | |
|---|---|
| ETIM 9.0 | EC002637 |

## Environmental product compliance

EU RoHS

| | |
|---|---|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |

China RoHS

| | |
|---|---|
| Environment friendly use period (EFUP) | EFUP-E |
| | No hazardous substances above the limits |

EU REACH SVHC

| | |
|---|---|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |


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