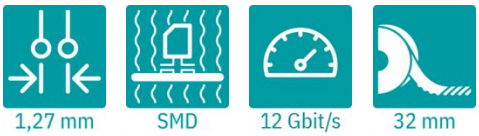
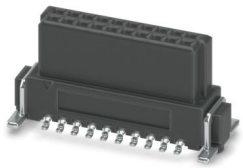
# FR 1,27/ 20-FV 9,05 - SMD female connectors

1374875

https://www.phoenixcontact.com/us/products/1374875

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



SMD female connector, nominal current: 2.1 A, test voltage: 840 V AC, number of positions: 20, pitch: 1.27 mm, color: black, contact surface: Au, contact connection type: 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 | 1374875 |
| Packing unit | 280 pc |
| Minimum order quantity | 280 pc |
| Sales key | AA24 |
| Product key | AAXAAC |
| GTIN | 4063151736040 |
| Weight per piece (including packing) | 2.057 g |
| Weight per piece (excluding packing) | 0.89 g |
| Customs tariff number | 85366930 |
| Country of origin | CN |

## Technical data

### Product properties

| | |
|---|---|
| Product type | SMD female connector |
| Product family | FR 1,27/...-FV 9,05 |
| Number of positions | 20 |
| Pitch | 1.27 mm |
| Number of rows | 2 |
| Pin layout | Linear pad geometry |

Fitting of components

| | |
|---|---|
| Partial assembly | No |

### Electrical properties

Properties

| | |
|---|---|
| Nominal current $I_N$ | 2.1 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 |

Data transmission

| | |
|---|---|
| Data transmission rate | 12 Gbps |

### 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 (min. 0.5 µm Au) |
| Metal surface contact area (middle layer) | Nickel (1.27 µm - 4 µm Ni) |
| Metal surface soldering area (top layer) | Tin (3 µm - 6 µm Sn) |
| Metal surface soldering area (middle layer) | Nickel (1.27 µm - 4 µm Ni) |

Material data - housing

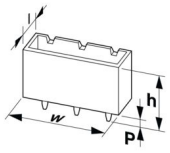
| | |
|---|---|
| Color (Housing) | black (9005) |

| | |
|---|---|
| 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] | 9.7 mm |
| Length [l] | 7.2 mm |
| Installed height | 9.05 mm |

Application

| | |
|---|---|
| Contact cover | 0.9 mm |
| Center offset | ± 0.7 mm in longitudinal and transverse direction |
| Stack height | 10.8 mm Tolerance: +1,5 mm (in combination with Range of articles:FR 1,27/...-MV 1,75) |
| | 12.3 mm Tolerance: +1,5 mm (in combination with Range of articles:FR 1,27/...-MV 3,25) |
| 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 | 0.43 mm |

## Environmental and real-life conditions

### 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 |

### 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 |

### 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.) |

### Railway application: Oscillation/broadband noise

| | |
|---|---|
| Specification | DIN EN 50155 (VDE 0115-200):2022-06 |
| | IEC 61373:2010-05 |
| Spectrum | Long life test category 2, bogie-mounted |
| Frequency | $f_1$ = 5 Hz to $f_2$ = 250 Hz |
| ASD level | 6.12 (m/s²)²/Hz |
| Acceleration | 30.6 m/s² |
| Test duration per axis | 5 h |
| Test directions | X-, Y- and Z-axis |
| Contact interruption | < 1 µs |
| Result | Test passed |

### Railway application: Shocks

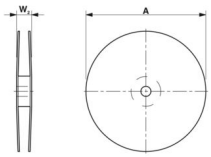
| | |
|---|---|
| Specification | DIN EN 50155 (VDE 0115-200):2022-06 |
| | IEC 61373:2010-05 |
| Pulse shape | Semi-sinusoidal |
| Acceleration | 490 m/s² |
| Shock duration | 11 ms |
| Number of shocks per direction | 3 |

| | |
|---|---|
| Test directions | X-, Y- and Z-axis (pos. and neg.) |
| Contact interruption | < 1 µs |
| Result | Test passed |

Ambient conditions

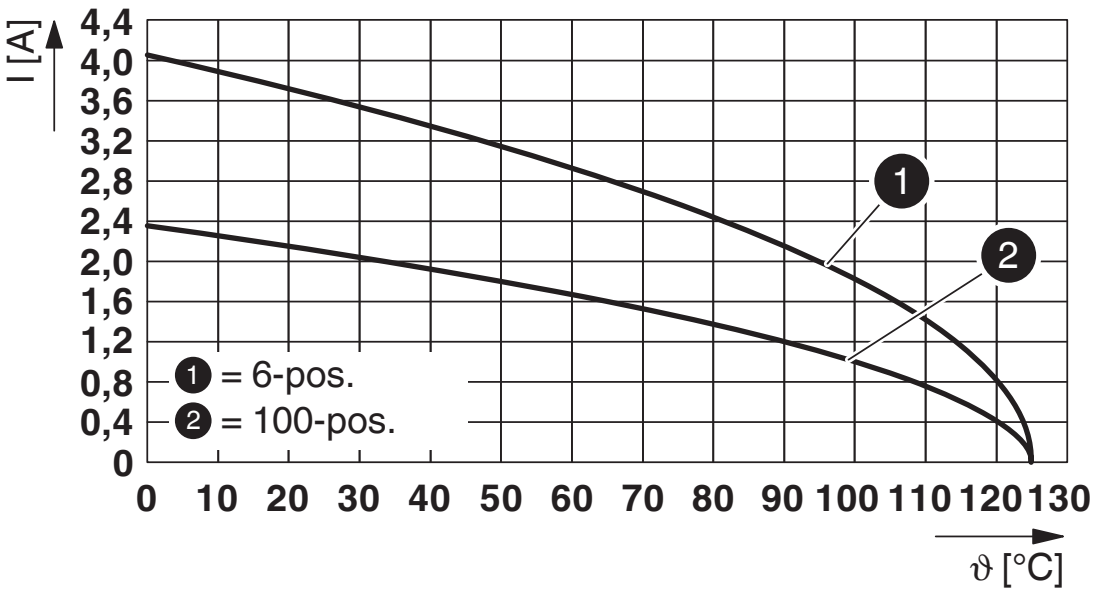
| | |
|---|---|
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Relative humidity (storage/transport) | 30 % ... 70 % |
| Ambient temperature (assembly) | -5 °C ... 100 °C |
| Ambient temperature (operation) | -55 °C ... 125 °C |

## 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 |

## Drawings

Diagram




Type: FR 1,27/...-FV 9,05 with FR 1,27/...-MV 1,75

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1374875

**cUL Recognized**
Approval ID: E118976-20230317

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| keine | | | | |
| | 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 $mm^2$ |
|---|---|---|---|---|
| keine | | | | |
| | 29.9 V | 2 A | - | - |

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27460201 |
| ECLASS-15.0 | 27460201 |

### ETIM

| | |
|---|---|
| ETIM 10.0 | EC002637 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 39121400 |

## 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% |

EF3.1 Climate Change

| | |
|---|---|
| CO2e kg | 0.176 kg CO2e |


Phoenix Contact 2026 © - all rights reserved
https://www.phoenixcontact.com



Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com