

# FR 1,27/ 32-FV 9,05 - SMD female connectors



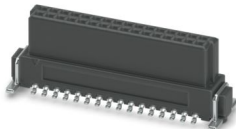
1374879

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SMD female connector, nominal current: 2.1 A, test voltage: 840 V AC, number of positions: 32, 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                          | 1374879       |
| Packing unit                         | 280 pc        |
| Minimum order quantity               | 280 pc        |
| Sales key                            | AA24          |
| Product key                          | AAXAAC        |
| GTIN                                 | 4063151733353 |
| Weight per piece (including packing) | 2.564 g       |
| Weight per piece (excluding packing) | 1.25 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/...-FV 9,05  |
| Number of positions | 32                   |
| Pitch               | 1.27 mm              |
| Number of rows      | 2                    |
| Pin layout          | Linear pad geometry  |

### 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         |

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|  |     |
|--|-----|
| 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]           | 25.41 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)<br>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

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## Durability test

|  |                                   |
|--|-----------------------------------|
| Specification                                | IEC 60512-9-1:2010-03 (following) |
| Contact resistance $R_1$                     | 10 m $\Omega$                     |
| Contact resistance $R_2$                     | 15 m $\Omega$                     |
| Insertion/withdrawal cycles                  | 500                               |
| Insulation resistance, neighboring positions | $\geq 5$ G $\Omega$               |

## 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/s <sup>2</sup> (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/s <sup>2</sup>              |
| 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<br>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/s <sup>2</sup> ) <sup>2</sup> /Hz                |
| Acceleration           | 30.6 m/s <sup>2</sup>                                    |
| Test duration per axis | 5 h  |
| Test directions        | X-, Y- and Z-axis  |
| Contact interruption   | < 1 $\mu$ s  |
| Result                 | Test passed  |

## Railway application: Shocks

|                                |  |
|--------------------------------|--|
| Specification                  | DIN EN 50155 (VDE 0115-200):2022-06<br>IEC 61373:2010-05 |
| Pulse shape                    | Semi-sinusoidal  |
| Acceleration                   | 490 m/s <sup>2</sup>                                     |
| Shock duration                 | 11 ms  |
| Number of shocks per direction | 3  |
| Test directions                | X-, Y- and Z-axis (pos. and neg.)                        |
| Contact interruption           | < 1 $\mu$ s  |
| Result                         | Test passed  |

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## 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           | 44 mm wide tape  |
| [W] tape width              | 44 mm  |
| [W2] coil overall dimension | ≤ 50.4 mm  |
| [A] coil diameter           | ≤ 330 mm   |
| Outer packaging type        | Transparent-Bag  |

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## Drawings

Diagram



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

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1374879>

|  <b>cUL Recognized</b><br>Approval ID: E118976-20230317 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
|  | 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 $\text{mm}^2$ |
| keine   |                       |                       |                   |                             |
|   | 29.9 V                | 2 A                   | -                 | -                           |

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## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

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

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## 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 | 0.371 kg CO2e |
|---------|---------------|

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