Crimp Contact for Direct Joining Thick Wire PCB
Thick Wire Crimp Contact for Direct Soldering to PCB
MDF12/27 Series

**Features**

1. **Allows for direct soldering of wires to the PCB**
   - The MDF12 and MDF27 eliminates the traditional crimp housing/receptacle combination by crimping the contact on to the wire and then directly soldering it to the PCB. This improves assembly times and connection reliability.
   - Has temporary PCB hold retention ability which allows for easier soldering and helps to reduces labor costs.
   - The contact crimps both around the center conductor and the jacket. The jacket crimp prevents breakage or damage to the center conductor at the solder joint by transferring stress to the jacket portion of the terminated wire.

2. **Vertical and right angle versions**
   - The MDF12 contact is designed for when a vertical connection to the PCB is needed. Please use the MDF27 contact for applications that require a right angle orientation.

3. **Supports larger gauge wires and higher current ratings**
   - The MDF12 and MDF27 can be used with wire diameters ranging from 22 to 14 AWG and provides for a current capacity of up to 15 A when using 14 AWG. Contacts are suitable for use with readily available UL1007 and UL1015 wire types.

**Product specifications**

<table>
<thead>
<tr>
<th>Rated value</th>
<th>Rated current (Note 1)</th>
<th>Operating temperature range</th>
<th>Operating humidity range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14 AWG : 15A</td>
<td></td>
<td>-35 to 85 °C (Note 2)</td>
</tr>
<tr>
<td></td>
<td>16 AWG : 10A</td>
<td></td>
<td>20 to 80 %</td>
</tr>
<tr>
<td></td>
<td>18 AWG : 9A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 AWG : 5A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22 AWG : 5A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated voltage</td>
<td>300V AC</td>
<td>Storage temperature range</td>
<td>-10 to 60 °C (Note 3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage humidity range</td>
<td>40 to 70 % (Note 3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crimp Contact resistance</td>
<td>15 mΩ min.</td>
<td>Measured at 100 mA</td>
</tr>
<tr>
<td>2. Vibration resistance</td>
<td>No damaged or loosened parts.</td>
<td>Frequency: 10 to 55 Hz; half amplitude: 0.75 mm, in 3 directions for 2 hours</td>
</tr>
<tr>
<td>3. Moisture resistance</td>
<td>No damaged or loosened parts.</td>
<td>Left for 96 hours at a temperature of 40 °C ±2 °C and with humidity of 90 to 95 %</td>
</tr>
<tr>
<td>4. Temperature cycle</td>
<td>No damaged or loosened parts.</td>
<td>(~55 °C for 30 minutes → 5 to 35 °C for 10 minutes → 85 °C for 30 minutes → 5 to 35 °C for 10 minutes) in 5 cycles for 5 cycles</td>
</tr>
<tr>
<td>5. Solder heat resistance</td>
<td>No loosening affecting the performance.</td>
<td>Flow: 250 °C for 10 seconds Hand soldering: soldering iron temperature 300 °C for 3 seconds</td>
</tr>
</tbody>
</table>

Note 1: The rated current differs depending on the wire size used.
Note 2: Includes the temperature rise when energized.
Note 3: Storage described here indicates the long-term-storage of unused items before they are mounted on PCB. Operating humidity range applies to the non-energized state after the items are mounted on PCB.

**Material**

<table>
<thead>
<tr>
<th>Product</th>
<th>Component</th>
<th>Material</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crimping contact</td>
<td>Contact</td>
<td>Brass</td>
<td>Tin plating</td>
</tr>
</tbody>
</table>

Note: Our tin plating process helps prevent whiskering.

In cases where the application will demand a high level of reliability, such as automotive, please contact a company representative for further information.

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### MDF12/27 Series

#### Crimp Contact for Direct Joining Thick Wire PCB

**Crimp Contact for Direct Soldering to PCB**

- **Applicable wire size**
  - MDF12: 18 to 22 AWG
  - 1416: 14 to 16 AWG

- **Jacket outer diameter type**
  - None: For jacket diameters from 1.5 to 2.2 mm (UL1007-equivalent)
  - A: For jacket diameters from 2.1 to 2.9 mm (UL1015-equivalent)

- **State type/packaging type**
  - PCF: plug contact/reel
  - PC: plug contact/loose pieces

### MDF12 Series

**Part No.**

- MDF12-1822PCF
- MDF12A-1822PCF

**HRS No.**

- 547-0196-9
- 547-0208-6

**Applicable wire Type**

- 18 to 22 AWG
- 14 to 16 AWG

**Jacket outer diameter**

- 1.5mm to 2.2mm
- 2.4mm to 2.7mm

**Type**

- 5,000 pcs/reel
- 2,500 pcs/reel
- 100 pcs/pack
- 100 pcs/pack

**Recommended through-hole diameter on PCB**

- 1.8\(\pm 0.1\)

### MDF27 Series

**Part No.**

- MDF27-1822PCF
- MDF27A-1822PCF

**HRS No.**

- 547-0286-0
- 547-0296-3

**Applicable wire Type**

- 18 to 22 AWG
- 14 to 16 AWG

**Jacket outer diameter**

- 1.5mm to 2.2mm
- 2.4mm to 2.7mm

**Type**

- 5,000 pcs/reel
- 2,500 pcs/reel
- 100 pcs/pack
- 100 pcs/pack

**Recommended through-hole diameter on PCB**

- 1.8\(\pm 0.1\)

### Applicable wire size

- (tin-plated annealed copper wires)

<table>
<thead>
<tr>
<th>Conductor size (construction)</th>
<th>14 AWG (41/0.25 mm)</th>
<th>16 AWG (26/0.254mm)</th>
<th>18 AWG (34/0.18 mm)</th>
<th>20 AWG (21/0.18 mm)</th>
<th>22 AWG (17/0.16 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3 to 4.2 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Wire strip length**

- 3.3 to 4.2 mm

**Note:** Please contact our Sales Dept. when using wires other than those noted above.

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**Product Number Structure**

- **Contact**

<table>
<thead>
<tr>
<th>Series Name: MDF</th>
<th>MDF 12 A - 1822 PCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series No.</td>
<td></td>
</tr>
<tr>
<td>12: Right angle type</td>
<td></td>
</tr>
<tr>
<td>27: Coplanar type</td>
<td></td>
</tr>
<tr>
<td>Applicable wire size</td>
<td></td>
</tr>
<tr>
<td>1822: 18 to 22 AWG</td>
<td></td>
</tr>
<tr>
<td>1416: 14 to 16 AWG</td>
<td></td>
</tr>
</tbody>
</table>

- **Jacket outer diameter type**
  - None: For jacket diameters from 1.5 to 2.2 mm (UL1007-equivalent)
  - A: For jacket diameters from 2.1 to 2.9 mm (UL1015-equivalent)

- **State type/packaging type**
  - PCF: plug contact/reel
  - PC: plug contact/loose pieces

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**Note:** Dimensions for the 14 to 16 AWG MDF12 contact is shown above.

**Recommended through-hole diameter on PCB**

- 1.8\(\pm 0.1\)

**Applicable thickness of the PCB**

- 1.6 mm

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**MDF12 Series**

- **Part No.**
  - MDF12-1822PCF
  - MDF12A-1822PCF

- **HRS No.**
  - 547-0196-9
  - 547-0208-6

- **Applicable wire Type**
  - 18 to 22 AWG
  - 14 to 16 AWG

- **Jacket outer diameter**
  - 1.5mm to 2.2mm
  - 2.4mm to 2.7mm

- **Type**
  - 5,000 pcs/reel
  - 2,500 pcs/reel
  - 100 pcs/pack
  - 100 pcs/pack

**Recommended through-hole diameter on PCB**

- 1.8\(\pm 0.1\)

**Applicable thickness of the PCB**

- 1.6 mm

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**MDF27 Series**

- **Part No.**
  - MDF27-1822PCF
  - MDF27A-1822PCF
  - MDF27-1416PCF
  - MDF27A-1416PCF

- **HRS No.**
  - 547-0286-0
  - 547-0296-3

- **Applicable wire Type**
  - 18 to 22 AWG
  - 14 to 16 AWG

- **Jacket outer diameter**
  - 1.5mm to 2.2mm
  - 2.4mm to 2.7mm

- **Type**
  - 5,000 pcs/reel
  - 2,500 pcs/reel
  - 100 pcs/pack
  - 100 pcs/pack

**Recommended through-hole diameter on PCB**

- 1.8\(\pm 0.1\)

**Applicable thickness of the PCB**

- 1.6 mm

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**Note:** Please contact our Sales Dept. when using wires other than those noted above.
## Applicable crimping tools

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
<th>HRS No.</th>
<th>Applicable contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicator</td>
<td></td>
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</tr>
<tr>
<td>AP105-MDF12-1822P</td>
<td>901-4514-0</td>
<td>MDF12-1822PCF</td>
<td></td>
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<tr>
<td>AP105-MDF12A-1822P</td>
<td>901-4515-2</td>
<td>MDF12A-1822PCF</td>
<td></td>
</tr>
<tr>
<td>AP105-MDF12-1416P</td>
<td>901-4533-4</td>
<td>MDF12A-1416PCF</td>
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<tr>
<td>AP105-MDF27-1822P</td>
<td>901-4515-2</td>
<td>MDF27-1822PCF</td>
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<tr>
<td>AP105-MDF27A-1822P</td>
<td>901-4533-4</td>
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<tr>
<td>AP105-MDF12A-1416P</td>
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<td>MDF12A-1416PCF</td>
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<td>Press body</td>
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<tr>
<td>CM-105</td>
<td>901-0005-4</td>
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<tr>
<td>MDF12-TA1822HC</td>
<td>550-0238-0</td>
<td>MDF12-1822PC</td>
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<tr>
<td>MDF12A-TA1822HC</td>
<td>550-0239-2</td>
<td>MDF12A-1822PC</td>
<td></td>
</tr>
<tr>
<td>MDF12-TA1416HC</td>
<td></td>
<td></td>
<td>MDF12A-1416PC</td>
</tr>
<tr>
<td>MDF12A-TA1416HC</td>
<td>550-0237-7</td>
<td>MDF12A-1416PC</td>
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<tr>
<td>Manual crimping tools</td>
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<tr>
<td>MDF12A-TA1416HC</td>
<td>550-0237-7</td>
<td>MDF12A-1416PC</td>
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<tr>
<td>HT104/MDF27-1822P</td>
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<td>MDF27-1822PC</td>
</tr>
<tr>
<td>MDF27A-TA1822HC</td>
<td></td>
<td></td>
<td>MDF27A-1822PC</td>
</tr>
<tr>
<td>MDF27-TA1416HC</td>
<td></td>
<td></td>
<td>MDF27-1416PC</td>
</tr>
<tr>
<td>MDF27A-TA1416HC</td>
<td></td>
<td></td>
<td>MDF27A-1416PC</td>
</tr>
</tbody>
</table>

Note 1: Issues caused by use of tools other than the ones designed or recommended by Hirose are not covered by warranty.
Note 2: Please contact our Sales Dept. When you are placing an order for products listed above that show no HRS Part Number.

## Usage recommendations

### 1. Recommended soldering conditions
- **Flow conditions using an automatic soldering device:** Soldering temperature: 250 ±5°C; soldering time: within 3 seconds
- **Hand soldering conditions:** Soldering iron temperature: 290 ±10°C; soldering time: within 3 seconds
- **After soldering,** be sure not to disturb the connectors before they have returned to their normal temperature because the coating presser part is likely to be loosened when a load is applied on the cables while the connectors and the cables are still heated.

### 2. Cleaning conditions
Please refer to the "Handbook on the Use of Nylon Connectors".
Do not use solvents which will impair the cable jacket, such as trichloroethane. Additionally, avoid heating cleaning using solvents.
Additionally, avoid using heated cleaning solvents.

### 3. Wire connecting conditions
Please refer to the "Handbook on the Use of Nylon Connectors".
The characteristics and the specifications contained herein are for reference purpose. Please refer to the latest customer drawings prior to use.

Contents are subject to change without notice for the purpose of improvements.