1. **Features**

1. **High-speed data transfer**
   Ground contacts opposite the signal contacts (Receptacle) provide superior impedance matching.

2. **EMI protection**
   Metal shell provides shielding and ground connections.

3. **Increased Plug / Receptacle retention force**
   Unique configuration of the receptacle ground contacts mating with the corresponding plug increases the retention force between them. (MDF76-30P-1 Plug mated with MDF76KBW or MDF76LBRW Receptacles.)

4. **Incorrect insertion prevention**
   Built-in polarizing features prevent reverse insertion of the plug in the receptacle.

5. **High board retention force**
   Metal shell is soldered directly to the PC board.

6. **RoHS compliant**
   All components and materials comply with the requirements of EU Directive 2002/95/EC.

**Applications**

Notebook computers, desktop computers, Liquid Crystal Panels, LCD monitors and other devices requiring discrete wire connections with a low-profile high performance connectors.
### Product Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Insulation resistance</td>
<td>100MΩ min.</td>
<td>100V DC</td>
</tr>
<tr>
<td>2. Withstanding voltage</td>
<td>No flashover or insulation breakdown</td>
<td>500V AC / 1 minute</td>
</tr>
<tr>
<td>3. Contact resistance</td>
<td>40mΩ max.</td>
<td>20mV max., at 1 mA.</td>
</tr>
<tr>
<td>4. Durability</td>
<td>Contact resistance : 80mΩ max. No deformation of components affecting performance.</td>
<td>50 cycles</td>
</tr>
<tr>
<td>5. Vibration</td>
<td>No electrical discontinuity of 1µs or longer</td>
<td>Frequency : 10 to 55Hz, single amplitude of 0.75mm, 10 cycles in each of the 3 axial directions</td>
</tr>
<tr>
<td>6. Shock</td>
<td>No electrical discontinuity of 1µs or longer No damage, cracks or parts dislocation.</td>
<td>Acceleration of 490m/s², 11ms duration, sine half-wave, 3 cycles in each of the 3 axis</td>
</tr>
<tr>
<td>7. Humidity</td>
<td>Contact resistance : 80mΩ max. Insulation resistance : 50MΩ min.</td>
<td>96 hours at 60 ±2°C, and humidity of 90% to 95%</td>
</tr>
<tr>
<td>8. Temperature cycle</td>
<td>Contact resistance : 80mΩ max. Insulation resistance : 50MΩ min. No damage, cracks or parts dislocation.</td>
<td>-55°C → 5 to 35°C → 85°C → 5 to 35°C Times : 30 min. → 2 min. to 3 min. → 30 min. → 2 min. to 3 min. 5 cycle</td>
</tr>
<tr>
<td>9. Resistance to soldering heat</td>
<td>No deformation of components affecting performance.</td>
<td>Rerflow : At the recommended temperature profile Manual soldering : 300°C for 3 seconds</td>
</tr>
</tbody>
</table>

Note 1: The current rating will differ depending on the wire size used.
Note 2: Includes temperature rise caused by current flow.
Note 3: The term “storage” refers to products stored for a long period prior to mounting and use.

### Material / Finish

#### Plug

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Finish</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulator</td>
<td>Polyamide</td>
<td>Color : Beige</td>
<td>UL94V-0</td>
</tr>
<tr>
<td>Ground plate</td>
<td>Stainless steel</td>
<td>Tin plated</td>
<td></td>
</tr>
<tr>
<td>Crimp contact</td>
<td>Phosphor bronze</td>
<td>Gold plated</td>
<td></td>
</tr>
</tbody>
</table>

#### Receptacle

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Finish</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulator</td>
<td>Polyamide or LCP (Note 4)</td>
<td>Color : Beige or black (Note 5)</td>
<td>UL94V-0</td>
</tr>
<tr>
<td>Contacts</td>
<td>Phosphor bronze</td>
<td>Gold plated</td>
<td></td>
</tr>
<tr>
<td>Ground contact</td>
<td>Stainless steel</td>
<td>Tin plated</td>
<td></td>
</tr>
<tr>
<td>Shell</td>
<td></td>
<td>Tin plated or gold plated (Note 6)</td>
<td>UL94V-0</td>
</tr>
</tbody>
</table>

Note 4: Low profile receptacles MDF76KBW and MDF76LBRW are polyamide.
High profile receptacles MDF76TW and MDF76GW are LCP.
Note 5: Low profile receptacles MDF76KBW, MDF76TW, and MDF76GW are beige.
Reverse mounting MDF76LBRW is black.
Note 6: Low profile receptacles MDF76KBW and MDF76LBRW have tin plating on the solder leads.
High profile receptacles MDF76TW and MDF76GW have gold plating on the solder leads.
### Product Number Structure
Refer to the chart below when determining the product specifications from the product number. Please select from the product numbers listed in this catalog when placing orders.

#### Connector

<table>
<thead>
<tr>
<th>MDF 76</th>
<th>#</th>
<th>*</th>
<th>P</th>
<th>1</th>
<th>C</th>
</tr>
</thead>
</table>

1. **Series Name**: MDF76
2. **Form type**
   - Plug: Blank: Standard
   - Receptacle (Low profile)
     - KBW: Standard, mid-mount
     - LBRW: Reverse, mid-mount
   - Receptacle (High profile)
     - TW: Standard, mid-mount
     - GW: Standard, top board
3. **Number of contacts**: 30
4. **Connector type**
   - P: Plug
   - S: Receptacle
5. **Contact pitch**: 1mm
6. **Housing type**
   - C: Crimp
   - H: Right angle SMT

#### Contacts

<table>
<thead>
<tr>
<th>MDF 76</th>
<th>2836</th>
<th>PCF</th>
<th>A</th>
</tr>
</thead>
</table>

1. **Applicable conductor**
   - 2836: 28 to 36 AWG
2. **Packaging**
   - PCF: Male crimp contact / reel
3. **Plating**
   - A: Gold plated
Plug (Discrete cable)

- Supplied in bag (100 pieces/bag)
- Contacts supplied separate

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>No. of contacts</th>
<th>Insulator Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDF76-30P-1C</td>
<td>547-0918-1</td>
<td>30</td>
<td>Beige</td>
</tr>
</tbody>
</table>

Crimp contact

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>Quantity</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDF76-2836PCFA(41)</td>
<td>547-0919-41</td>
<td>Reel</td>
<td>1 Reel / 30,000</td>
<td>Gold plated</td>
</tr>
</tbody>
</table>

Applicable wire (Tin plated annealed copper wire)

<table>
<thead>
<tr>
<th>Wire size (Stranded wire conductor)</th>
<th>Jacket diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 AWG (7 / 0.127mm)</td>
<td>0.6mm max.</td>
</tr>
<tr>
<td>30 AWG (7 / 0.10mm)</td>
<td></td>
</tr>
<tr>
<td>32 AWG (7 / 0.08mm)</td>
<td></td>
</tr>
<tr>
<td>36 AWG (7 / 0.05mm)</td>
<td>0.4mm max.</td>
</tr>
</tbody>
</table>

Note: When using other than the recommended wire, contact nearest Hirose sales representative.

Tools

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
<th>HRS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicator</td>
<td>AP105-MDF76-2836P</td>
<td>901-4613-1</td>
</tr>
<tr>
<td>Press</td>
<td>CM-105C</td>
<td>901-0001-0</td>
</tr>
<tr>
<td>Extraction tool</td>
<td>DF-C-PO(B)</td>
<td>550-0179-2</td>
</tr>
</tbody>
</table>
## Receptacles (Low profile)

**Right angle, Standard, mid-mount, SMT**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>No. of contacts</th>
<th>Insulator Color</th>
<th>Packaging</th>
<th>Above the mounting surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDF76KBW-30S-1H(55)</td>
<td>547-0606-9 55</td>
<td>30</td>
<td>Beige</td>
<td>3,000 pcs. / reel</td>
<td>1.0mm</td>
</tr>
</tbody>
</table>

**Right angle, Reverse, mid-mount, SMT**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>No. of contacts</th>
<th>Insulator Color</th>
<th>Packaging</th>
<th>Above the mounting surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDF76LBRW-30S-1H(55)</td>
<td>547-0607-1 55</td>
<td>30</td>
<td>Black</td>
<td>3,000 pcs. / reel</td>
<td>1.1mm</td>
</tr>
</tbody>
</table>

## Receptacles (High profile)

**Right angle, Standard, mid-mount, SMT**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>No. of contacts</th>
<th>Insulator Color</th>
<th>Packaging</th>
<th>Above the mounting surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDF76TW-30S-1H(55)</td>
<td>547-0912-5 55</td>
<td>30</td>
<td>Beige</td>
<td>2,500 pcs. / reel</td>
<td>1.5mm</td>
</tr>
</tbody>
</table>
MDF76 Series - 1.0mm Pitch, Board-to-Wire LCD Interface Connectors

**Receptacles (High profile)**

- **Right angle, Standard, top board, SMT**

![Gold plated receptacle](image)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>No. of contacts</th>
<th>Insulator Color</th>
<th>Packaging</th>
<th>Above the mounting surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDF76GW-30S-1H(55)</td>
<td>547-0916-6 55</td>
<td>30</td>
<td>Beige</td>
<td>2,500 pcs. / reel</td>
<td>2.35mm</td>
</tr>
</tbody>
</table>

**Recommended PCB mounting pattern**

- **Mid-mount**
  - For receptacles: MDF76KBW-30S-1H(***), MDF76LBRW-30S-1H(***), MDF76TW-30S-1H(***)

![Mid-mount diagram](image)

Note: For MDF76LBRW, No.32 (Ground and No.31 (Signal) are on left side.

**Top board**

- For receptacles: MDF76GW-30S-1H(***)

![Top board diagram](image)

All dimensions: mm

---

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Packaging Specifications

MDF76TW-30S-1H(55)
MDF76GW-30S-1H(55)

MDF76KBW-30S-1H(55)
MDF76LBRW-30S-1H(55)
Usage Recommendations

1. Recommended temperature profile

![Recommended temperature profile graph]

Note 1: Up to 2 cycles of Reflow soldering is possible under the same conditions, provided that there is a return to normal temperature between the first and second cycle.

Note 2: The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.

2. Recommended manual soldering
   300±10°C for 3 seconds

3. Recommended screen thickness and open area ratio
   Thickness: 0.15mm
   Open area ratio: 100%

4. Board warpage
   Maximum of 0.03mm at the connector center, with both ends of the connector as reference points.

5. Cleaning conditions
   Refer to "Nylon Connector Use Handbook".

6. Wire preparation and contact crimping
   Refer to "Nylon Connector Use Handbook".
   The crimp contact termination must be performed using specified tools. All dimensions and crimp conditions are listed in applicable Crimp Condition Table and Crimping Quality Standards Manual.

7. Crimped contact extraction
   Insert the contact retention tool in the insulator body and carefully lift the molded-in retention tab while pulling on the wire at the same time (Fig. 1). Do not deflect the molded-in retention tab more than is needed to release the contact. The tab should return to its initial position after the contact is removed.

   Note: If the tab is not returning to its initial position carefully push it back before inserting the crimped contact. Permanent breakage of the molded-in retention tab will require replacement of the entire plug.

![Contact extraction diagram]
<table>
<thead>
<tr>
<th>8. Crimped contact insertion</th>
<th>Contact must be inserted horizontally oriented as shown on Fig. 2. Do NOT attempt to insert crimped contact in any other direction.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image" alt="Horizontal insertion" /></td>
</tr>
<tr>
<td>9. Connector mating / un mating</td>
<td>Mating / un mating of the connectors should be done in the direction parallel to the receptacle’s mounting surface. Do not attempt to mate/unmate in any other direction. Note: The connectors will self-guide themselves within the 20° angle, as shown in Fig. 3.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Angular mating / un mating" /></td>
</tr>
<tr>
<td>10. Precautions</td>
<td>Do not mate / unmate the connectors when the receptacle is NOT mounted on the PC board. Differences in color shade of molded components will not affect form, fit or function. Contact HRS if additional information is required.</td>
</tr>
</tbody>
</table>
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