microSD™ Card Connectors
DM3 Series

Features

◆ Common to the entire Series

1. Extremely small size
   Small external dimensions and the above-the-board height make the connectors the smallest on the market.

2. Reverse card insertion protection
   Unique card slot design (patented) protects the connector from damage when the card is attempted to be inserted in reverse, allowing it to re-inserted correctly.

3. Effective ground and shield configuration
   4-connection points of the metal cover to the printed circuit board assures secure connection of the ground circuit and provides EMI protection.

4. Rigid and strong construction
   Despite its small size, high-strength materials used in the connectors produced a strong and rigid structure.

5. Card detection switch
   The card detection switch is Normally Open

◆ DM3AT and DM3BT (Push - Push, with ejection mechanism)

   · Card fall-out prevention
     Built-in card tray and the unique push insertion-push ejection mechanism (patented) prevent accidental card ejection or fall-out.
     Despite its small size the connectors will eject the card to a distance of 4.0 mm, allowing easy hold and removal of the card.

   · Exposed termination leads
     Easy inspection and rework of the solder termination joints.

◆ DM3CS (Hinge, Push-Pull, manual, without ejection mechanism)

   · Simple and reliable card insertion
     Hinged metal cover provides location and guides the card during the insertion / removal. Closing of the cover confirms the electrical and mechanical connection with a tactile click sensation.

   · Reliable contact with the card contact pads
     Unique contact design and card slide action will clean the contact areas of the card.

   · Accessible termination areas
     Contact solder terminations may be inspected and reworked.

◆ DM3D (Push -Pull, manual, without ejection mechanism)

   · Partial card insertion hold
     Card will not fall-out even when it is not fully inserted. Full insertion and electrical / mechanical connection is confirmed with a distinct tactile feel.

   · Accessible termination areas
     An inner lead system that can be reworked is used in this design. Contact solder terminations may be inspected and reworked.

<table>
<thead>
<tr>
<th>Card insertion-ejection</th>
<th>Series</th>
<th>Image</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push-Push</td>
<td>DM3AT</td>
<td></td>
<td>2~4</td>
</tr>
<tr>
<td>DM3BT</td>
<td></td>
<td></td>
<td>5~6</td>
</tr>
<tr>
<td>Hinge-manual insertion/ejection</td>
<td>DM3CS</td>
<td></td>
<td>7~8</td>
</tr>
<tr>
<td>Push-Pull manual insertion/ejection</td>
<td>DM3D</td>
<td></td>
<td>9~10</td>
</tr>
</tbody>
</table>
### Specifications (DM3 Series)

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Insulation resistance</td>
<td>1000 MΩ min. (Initial value)</td>
<td>Measure at 500 V DC</td>
</tr>
<tr>
<td>2. Withstanding voltage</td>
<td>No flashover or insulation breakdown</td>
<td>500 V AC / 1 minute</td>
</tr>
<tr>
<td>3. Contact resistance</td>
<td>100mΩ max. (Initial value)</td>
<td>1mA</td>
</tr>
<tr>
<td>4. Vibration</td>
<td>No electrical discontinuity of 100 ns or longer</td>
<td>Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 3 directions for 2 hours</td>
</tr>
<tr>
<td></td>
<td>No damage, cracks or parts dislocation.</td>
<td></td>
</tr>
<tr>
<td>5. Humidity</td>
<td>Contact resistance: 40 mΩ max. (change from initial value)</td>
<td>96 hours at of 40 ± 2°C, and humidity of 90 to 95%</td>
</tr>
<tr>
<td></td>
<td>Insulation resistance: 100 MΩ min.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No damage, cracks or parts dislocation.</td>
<td></td>
</tr>
<tr>
<td>6. Temperature cycle</td>
<td>Contact resistance: 40 mΩ max. (change from initial value)</td>
<td>-55°C → 5 to 35°C → +85°C → 5 to 35°C</td>
</tr>
<tr>
<td></td>
<td>Insulation resistance: 100 MΩ min.</td>
<td>Times: 30 min. → 5 min. → 30 min. → 5 min.</td>
</tr>
<tr>
<td></td>
<td>No damage, cracks or parts dislocation.</td>
<td>5 cycles</td>
</tr>
<tr>
<td>7. Durability</td>
<td>Contact resistance: 40 mΩ max. (change from initial value)</td>
<td>10,000 cycles, 400 to 600 cycles per hour (DM3AT, DM3B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5,000 cycles, 400 to 600 cycles per hour (DM3C, DM3D)</td>
</tr>
<tr>
<td>8. Resistance to soldering heat</td>
<td>No deformation of components affecting performance.</td>
<td>Reflow : At the recommended temperature profile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manual soldering : 350°C for 3 seconds</td>
</tr>
</tbody>
</table>

Note 1: Includes temperature rise caused by current flow.
Note 2: The term "storage" refers to products stored for long period prior to mounting and use.

### Materials and Finishes

#### DM3AT, DM3BT

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Finish</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulator</td>
<td>LCP</td>
<td>Color: Black</td>
<td>UL94V-0</td>
</tr>
<tr>
<td>Contacts</td>
<td>Copper alloy</td>
<td>Contact area: Gold plated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lead area: Gold plated</td>
<td></td>
</tr>
<tr>
<td>Guide cover</td>
<td>Stainless steel (DM3AT)</td>
<td>Lead area: Gold plated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Copper alloy</td>
<td>(DM3BT)</td>
<td></td>
</tr>
<tr>
<td>Other components</td>
<td>Stainless steel (DM3AT, DM3BT)</td>
<td>Nickel plated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piano wire</td>
<td>(DM3BT)</td>
<td></td>
</tr>
</tbody>
</table>

#### DM3CS, DM3D

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Finish</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulator</td>
<td>LCP</td>
<td>Color: Black</td>
<td>UL94V-0</td>
</tr>
<tr>
<td>Contacts</td>
<td>Copper alloy</td>
<td>Contact area: Gold plated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lead area: Gold plated</td>
<td></td>
</tr>
<tr>
<td>Guide cover</td>
<td>Stainless steel</td>
<td></td>
<td>Tin plated</td>
</tr>
</tbody>
</table>

### Ordering information

**DM3 AT – SF – PEJM5**

1. **Series name:** DM3
2. **Connector type:**
   - AT: Push-Push (ejection mechanism), Top board mounting (Standard)
   - BT: Push-Push (ejection mechanism), Bottom board mounting (Reverse)
   - CS: Hinge, Push-Pull (no ejection mechanism), Top board mounting (Standard)
   - D: Push-Pull (no ejection mechanism), Top board mounting (Standard)
3. **Termination type:** SF Right-angle SMT(Standard)
   - DSF Right-angle SMT(Reverse)
4. **Card ejection code:**
   - PEJM5, PEJS (Push insert/push eject)
   - None: Manual card insertion/ejection

Number of contacts : 8
DM3AT Push-Push (ejection mechanism), Top board mounting (Standard)

<table>
<thead>
<tr>
<th>Part number</th>
<th>CL No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM3AT-SF-PEJM5</td>
<td>609-0031-0</td>
</tr>
</tbody>
</table>

Recommended PCB mounting pattern

- CL indicates the center line of the microSD card slot.
- Card detection switch:
  - Without the card: Open
  - Card inserted: Closed

Example of applications
Packaging Specifications

- Embossed carrier tape dimensions (1,500 pieces per reel)

Reel Dimensions

All dimensions: mm

The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information.
DM3 Series™ microSD™ Card Connectors

DM3 Series™ microSD™ Card Connectors

DM3BT, Push-Push (ejection mechanism), Bottom board mounting (Reverse)

<table>
<thead>
<tr>
<th>Part number</th>
<th>CL No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM3BT-DSF-PEJS</td>
<td>609-0029-9</td>
</tr>
</tbody>
</table>

Recommended PCB mounting pattern

Card inserted
Card detection switch
Without the card
Open
(A)
Card inserted
Closed
(B)

Oblique-hatched area is projection of contact.

Example of applications

DM3BT-DSF-PEJS Portable device

Note
1. Indicates the center line of the microSD card slot.
2. Card detection switch
   - Without the card
     - Open
     - (A)
   - Card inserted
     - Closed
     - (B)

3. Oblique-hatched area is projection of contact.
4. No conductive traces.

All dimensions: mm

The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information.
Packaging Specifications

- Embossed carrier tape dimensions (1,200 pieces per reel)

![Diagrams showing packaging specifications]

- Reel Dimensions

All dimensions: mm

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DM3 Series microSD™ Card Connectors

DM3CS, Hinge, Push - Pull (no ejection mechanism), Top board mounting (Standard)

<table>
<thead>
<tr>
<th>Part number</th>
<th>CL No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM3CS-SF</td>
<td>609-0032-3</td>
</tr>
</tbody>
</table>

Recommended PCB mounting pattern

Note 1 Q indicates the center line of the microSD card slot.

<table>
<thead>
<tr>
<th>Card detection switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without the card</td>
</tr>
<tr>
<td>Open</td>
</tr>
<tr>
<td>GND(1)</td>
</tr>
<tr>
<td>GND(2)</td>
</tr>
<tr>
<td>GND(3)</td>
</tr>
<tr>
<td>GND(4)</td>
</tr>
</tbody>
</table>

Example of Use applications
Packaging Specifications

- Embossed carrier tape dimensions (1,300 pieces per reel)

![Diagram](image)

All dimensions: mm

Reel Dimensions

![Diagram](image)
DM3D, Push-Pull (no ejection mechanism), Top board mounting (Standard)

<table>
<thead>
<tr>
<th>Part number</th>
<th>CL No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM3D-SF</td>
<td>609-0025-8</td>
</tr>
</tbody>
</table>

Recommended PCB mounting pattern

Note: Q indicates the center line of the microSD card slot.

- Card detection switch
  - Without the card: Open
  - Card inserted: Closed
    - (A) (B) (A) (B)

No conductive traces.

Example of applications
■ Packaging Specifications

- Embossed carrier tape dimensions (2,000 pieces per reel)

```
Unreeling direction

End section
Mounting section
Lead section (400mm min.)
```

- Reel Dimensions

```
Unreeling direction

End section
Mounting section
Blank section (160mm min.)
Blank section (100mm min.)
```

All dimensions: mm
Recommended temperature profile

HRS test condition
Solder method: Reflow, IR/hot air
Environment: Room air
Solder composition: Paste, 96.5%Sn/3.0%Ag/0.5%Cu
(Senju Metal Industry, Co., Ltd.’s
Part Number: M705-GRN360-K2-V)
Test board: Glass epoxy 60mm×100mm×1.0mm thick
Metal mask: 0.12mm thick
Number of reflow cycles: 2cycles max.

The temperature profiles shown are based on the above conditions.
In individual applications the actual temperature may vary, depending on solder paste type, volume / thickness and board size / thickness. Consult your solder paste and equipment manufacturer for specific recommendations.

Precautions

1. Do not immerse or clean the entire connector with cleaning solutions as this may affect proper operation of the ejection mechanism and electrical performance of the connector.

2. Do not apply excessive force to the connector when handling or after installation on the PC board.

3. The connectors will reliably connect and operate with the correctly inserted microSD™ cards. Follow the correct insertion / ejection procedure for the specific connector in use. Attempts of incorrect insertion of the card may cause damage to the connector or the card.

4. The connector must be correctly mounted on the PC board before the card can be inserted. Do not insert the card in the un-mounted connector.

5. Mounting on the Flexible Printed Circuit (FPC)
To assure correct performance it is recommended that a flat reinforcement plate 0.3 mm min. thick be used under the FPC.

6. Small visible residual manufacturing fluids or tooling marks do not affect connector's performance.

7. Repeated insertions and removal of the cards may leave some marks on the card itself. This will have no affect on the connector performance.

Refer to applicable Operation Manual listed below for additional precautions.

<table>
<thead>
<tr>
<th>Series</th>
<th>Operation Manual Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM3AT Series</td>
<td>ETAD-F0345</td>
</tr>
<tr>
<td>DM3BT Series</td>
<td>ETAD-F0324</td>
</tr>
<tr>
<td>DM3CS Series</td>
<td>ETAD-F0335</td>
</tr>
<tr>
<td>DM3D Series</td>
<td>ETAD-F0353</td>
</tr>
</tbody>
</table>