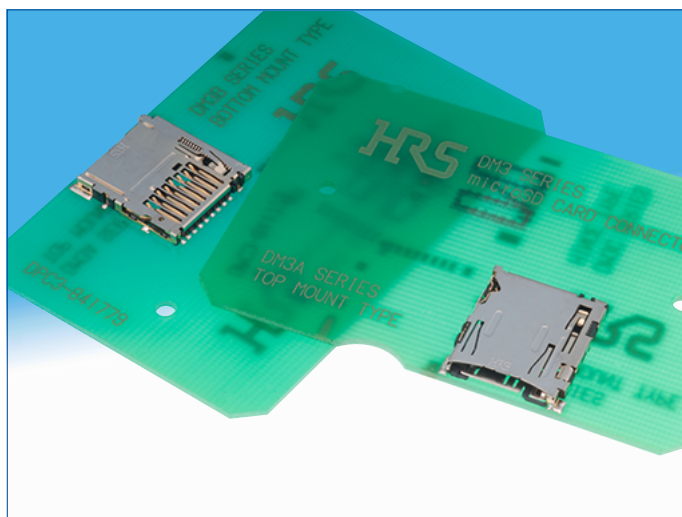


# microSD™ Card Connectors

## DM3 Series



### ■ Features

#### ◆ Common to the entire Series

##### 1. Extremely small in 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 4.0mm, 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.

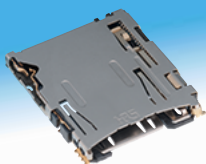
#### ◆ DM3D (Push -Pull, manual, without ejection mechanism)

##### • 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.

| Card insertion-ejection             | Series | Image                                                                                 | Page |
|-------------------------------------|--------|---------------------------------------------------------------------------------------|------|
| Push-Push                           | DM3AT  |  | 2~4  |
|                                     | DM3BT  |  | 5~6  |
| Hinge-manual insertion/ejection     | DM3CS  |  | 7~8  |
| Push-Pull manual insertion/ejection | DM3D   |  | 9~10 |

■Product Specifications (DM3 Series)

|                                 |                                                                                                                                             |                                                                                                                  |                                                             |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Ratings                         | Current rating : 0.5A<br>Voltage rating : 125V AC                                                                                           | Operating temperature range : -25℃ to +85℃ (Note 1)<br>Storage temperature range : -40℃ to +85℃ (Note 2)         | Operating humidity range : RH 95% max.<br>(No condensation) |
| Item                            | Specification                                                                                                                               | Conditions                                                                                                       |                                                             |
| 1. Insulation resistance        | 1000MΩ min. (Initial value)                                                                                                                 | Measure at 500V DC                                                                                               |                                                             |
| 2. Withstanding voltage         | No flashover or insulation breakdown                                                                                                        | 500 V AC / 1 minute                                                                                              |                                                             |
| 3. Contact resistance           | 100mΩ max. (Initial value)                                                                                                                  | 1mA                                                                                                              |                                                             |
| 4. Vibration                    | No electrical discontinuity of 100 ns or longer<br>No damage, cracks or parts dislocation.                                                  | Frequency : 10 to 55Hz, single amplitude of 0.75mm,<br>3 directions for 2 hours                                  |                                                             |
| 5. Humidity                     | Contact resistance : 40mΩ max. (change from initial value)<br>Insulation resistance : 100MΩ min.<br>No damage, cracks or parts dislocation. | 96 hours at of 40 ± 2℃, and humidity of 90 to 95%                                                                |                                                             |
| 6. Temperature cycle            | Contact resistance : 40mΩ max. (change from initial value)<br>Insulation resistance : 100MΩ min.<br>No damage, cracks or parts dislocation. | -55℃ → 5 to 35℃ →+85℃ → 5 to 35℃<br>Times : 30 min. → 5 min. → 30 min. → 5 min.<br>5 cycles                      |                                                             |
| 7. Durability                   | Contact resistance : 40mΩ max. (change from initial value)                                                                                  | 10,000 cycles, 400 to 600 cycles per hour (DM3AT, DM3B)<br>5,000 cycles, 400 to 600 cycles per hour (DM3C, DM3D) |                                                             |
| 8. Resistance to soldering heat | No deformation of components affecting performance.                                                                                         | Reflow : At the recommended temperature profile<br>Manual soldering : 350℃ for 3 seconds                         |                                                             |

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 / Finish

DM3AT, DM3BT

| Part             | Material                                             | Finish                                                | Remarks |
|------------------|------------------------------------------------------|-------------------------------------------------------|---------|
| Insulator        | LCP                                                  | Color : Black                                         | UL94V-0 |
| Contacts         | Copper alloy                                         | Contact area : Gold plated<br>Lead area : Gold plated | _____   |
| Guide cover      | Stainless steel (DM3AT)<br>Copper alloy (DM3BT)      | Lead area : Gold plated                               | _____   |
| Other components | Stainless steel (DM3AT, DM3BT)<br>Piano wire (DM3BT) | _____ Nickel plated                                   | _____   |

DM3CS, DM3D

| Part        | Material        | Finish                                                | Remarks |
|-------------|-----------------|-------------------------------------------------------|---------|
| Insulator   | LCP             | Color : Black                                         | UL94V-0 |
| Contacts    | Copper alloy    | Contact area : Gold plated<br>Lead area : Gold plated | _____   |
| Guide cover | Stainless steel | _____ (DM3CS)<br>Tin plated (DM3D)                    | _____   |

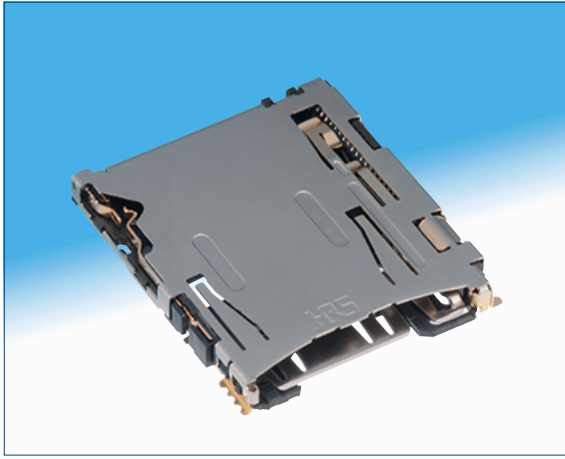
■Product Number Structure

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.

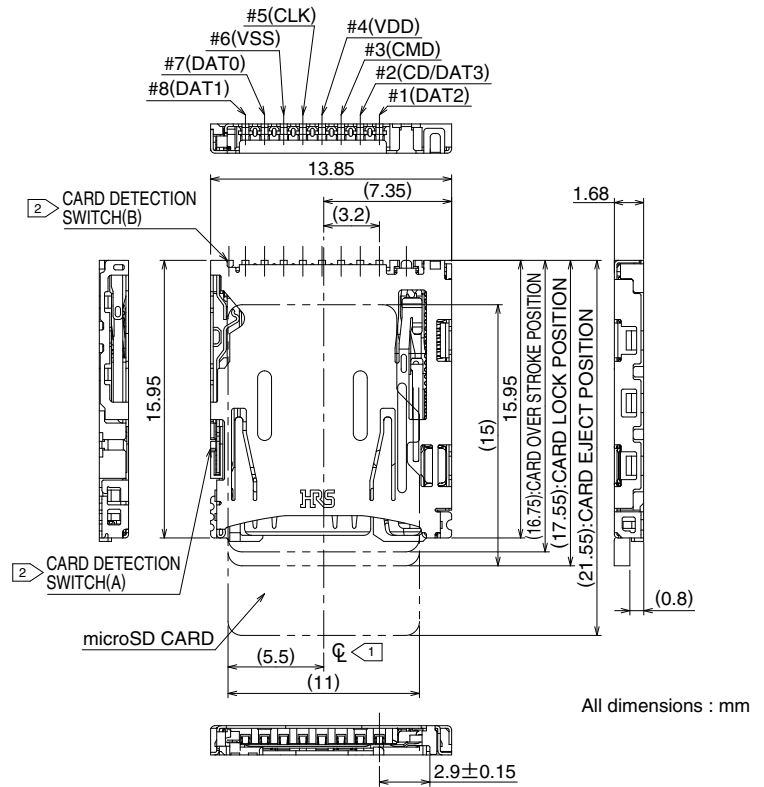
DM3 AT – SF – PEJM5  
①            ②            ③            ④

|                                                                                                                                                                                                                                                                                                                                         |                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| ① Series name : DM3                                                                                                                                                                                                                                                                                                                     | ③ Termination type : SF Right-angle SMT(Standard)<br>DSF Right-angle SMT(Reverse)                    |
| ② Connector type : AT Push-Push (ejection mechanism), Top board mounting (Standard)<br>BT Push-Push (ejection mechanism), Bottom board mounting (Reverse)<br>CS Hinge, Push-Pull (no ejection mechanism), Top board mounting (Standard)<br>D Push-Pull (no ejection mechanism), Top board mounting (Standard)<br>Number of contacts : 8 | ④ Card ejection code : PEJM5, PEJS (Push insert/push eject)<br>None : Manual card insertion/ejection |

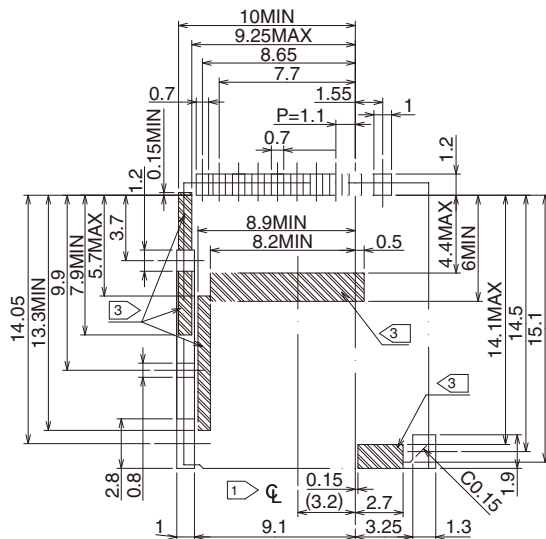
## DM3AT Push-Push (ejection mechanism), Top board mounting (Standard)



| Part No.       | HRS No.    |
|----------------|------------|
| DM3AT-SF-PEJM5 | 609-0031-0 |



## Recommended PCB mounting pattern



Note 1  $\phi$  indicates the center line of the microSD card slot.

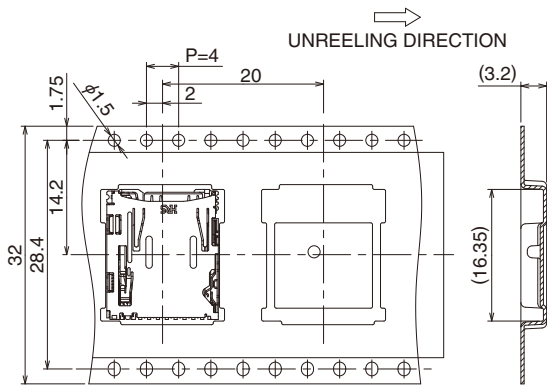
| Card detection switch |     |               |     |
|-----------------------|-----|---------------|-----|
| Without the card      |     | Card inserted |     |
| Open                  |     | Closed        |     |
| (A)                   | (B) | (A)           | (B) |

3 No conductive traces.

All dimensions : mm

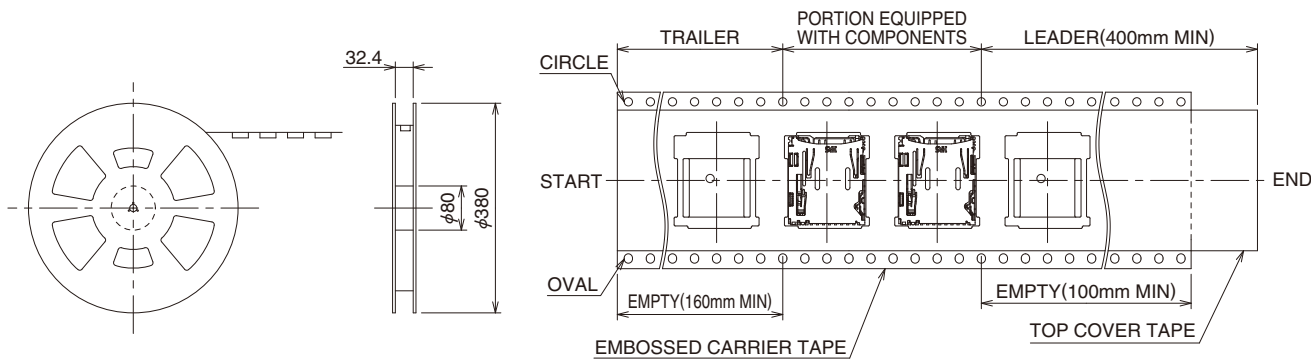
◆Packaging Specifications

- Embossed carrier tape dimensions (1,500 pcs/reel)

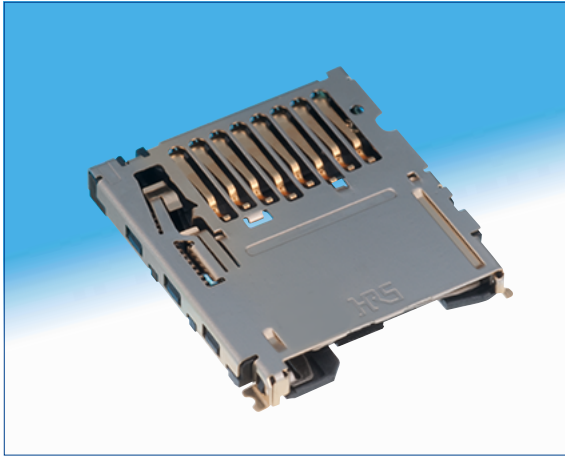


All dimensions : mm

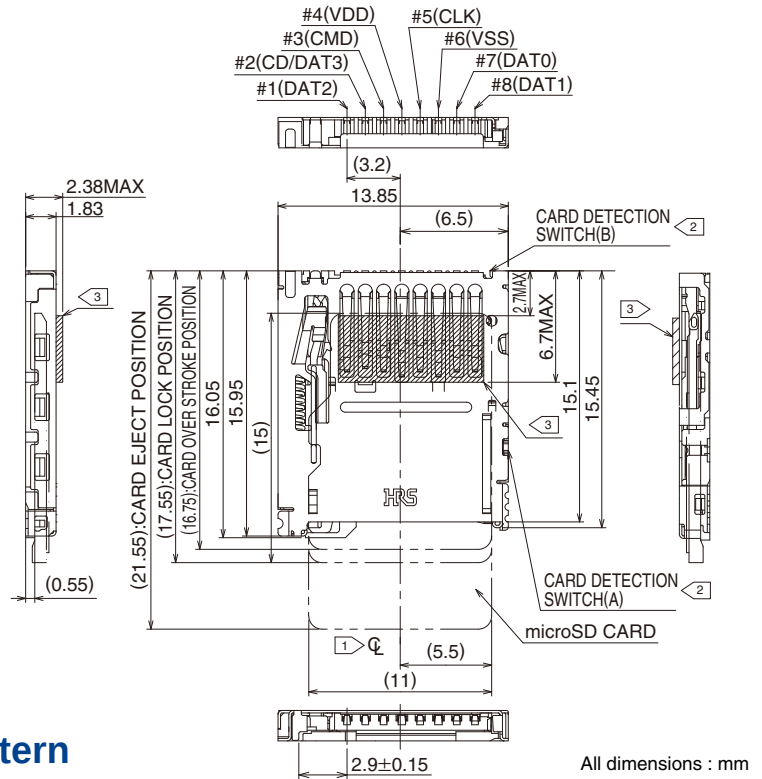
- Reel Dimensions



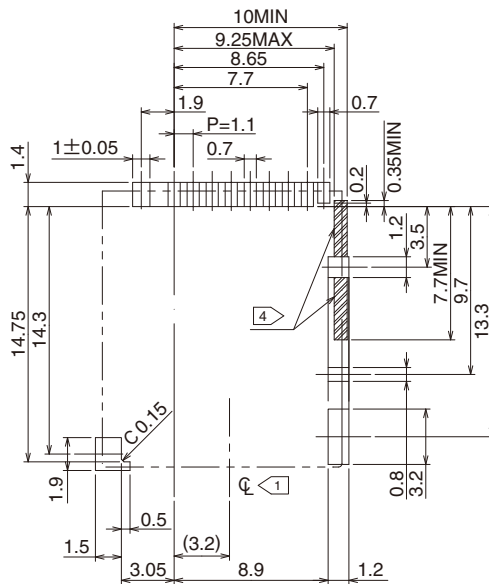
## DM3BT, Push-Push (ejection mechanism), Bottom board mounting (Reverse)



| Part No.       | HRS No.    |
|----------------|------------|
| DM3BT-DSF-PEJS | 609-0029-9 |



## Recommended PCB mounting pattern



Note 1  $\Phi$  indicates the center line of the microSD card slot.

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

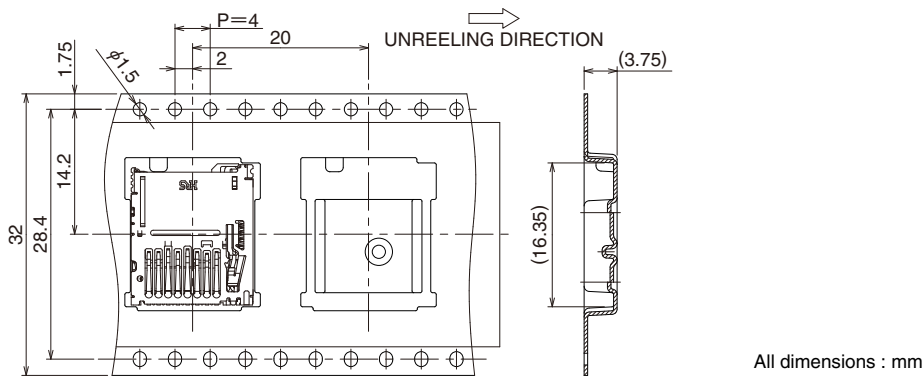
3 Oblique-hatched area is projection of contact.

4  No conductive traces.

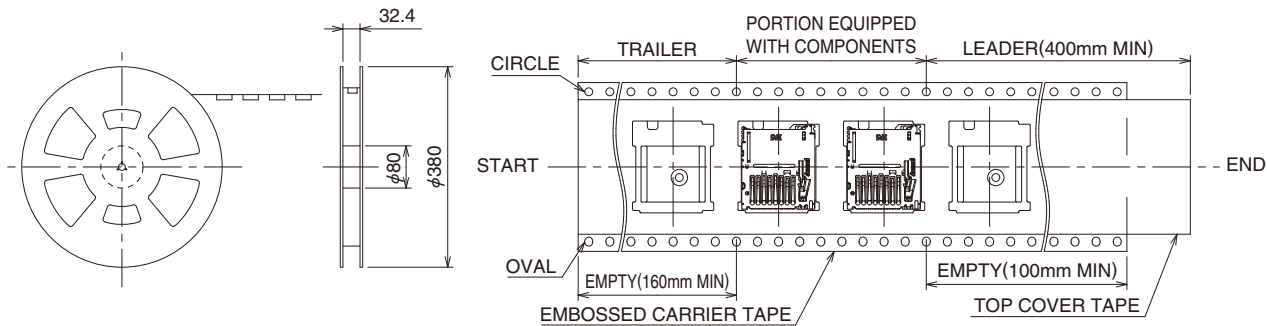
All dimensions : mm

◆Packaging Specifications

- Embossed carrier tape dimensions (1,200 pcs/reel)



- Reel Dimensions



MECHANICAL DRAWING OF THE SD CARD READER. The drawing includes top, side, and front views with the following dimensions and labels:

- Top View Dimensions:**
  - Overall width: 13.8
  - Distance from left edge to center: (6.9)
  - Distance from center to right edge: (0.2)
  - Overall height: 14.1
  - Distance from top edge to center: (15.45): LOCK POSITION
  - Distance from center to bottom edge: 12
  - Overall bottom height: 13.9
  - Distance from left edge to center of lock: (5.5)
  - Distance from center to right edge of lock: (11)
- Side View Dimensions:**
  - Overall thickness: 1.83
  - Distance from top edge to bottom edge of lock: 0.1
  - Distance from bottom edge of lock to bottom edge: (0.93)
  - Distance from bottom edge of lock to bottom edge: (1.78)
- Front View Dimensions:**
  - Overall width: 13.8
  - Distance from left edge to center: (6.9)
  - Distance from center to right edge: (0.2)
  - Overall height: 14.1
  - Distance from top edge to center: (15.45): LOCK POSITION
  - Distance from center to bottom edge: 12
  - Overall bottom height: 13.9
  - Distance from left edge to center of lock: (5.5)
  - Distance from center to right edge of lock: (11)
- Labels and Callouts:**
  - CARD DETECTION SWITCH
  - microSD CARD
  - # 8(DAT1)
  - # 7(DAT0)
  - # 6(VSS)
  - # 5(CLK)
  - # 1(DAT2)
  - # 2(CD/DAT3)
  - # 3(CMD)
  - # 4(VDD)
- Text:** All dimensions : mm

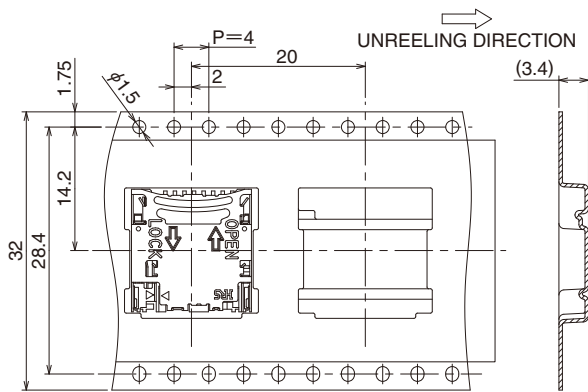
[illegible]

| Card detection switch |               |
|-----------------------|---------------|
| Without the card      | Card inserted |
| <p>Open</p>           | <p>Closed</p> |

HRS 7

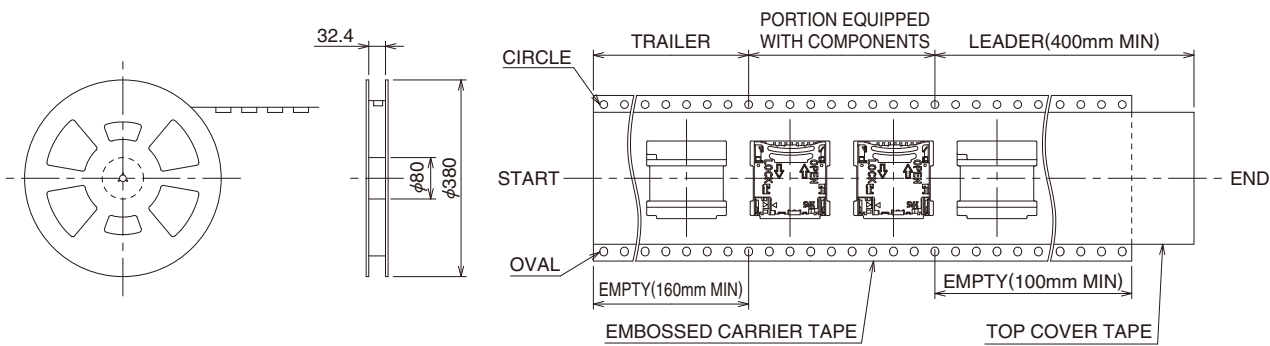
◆Packaging Specifications

- Embossed carrier tape dimensions (1,300 pcs/reel)

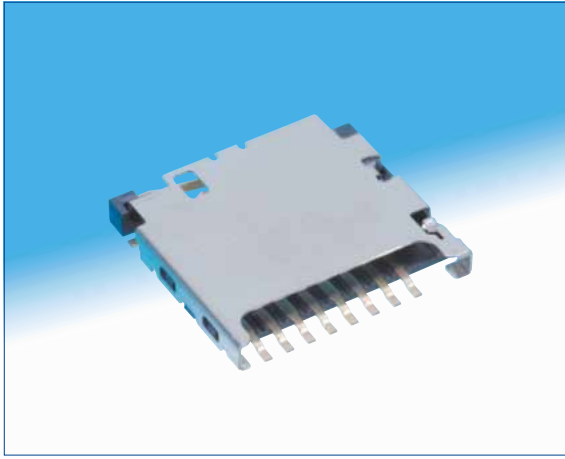


All dimensions : mm

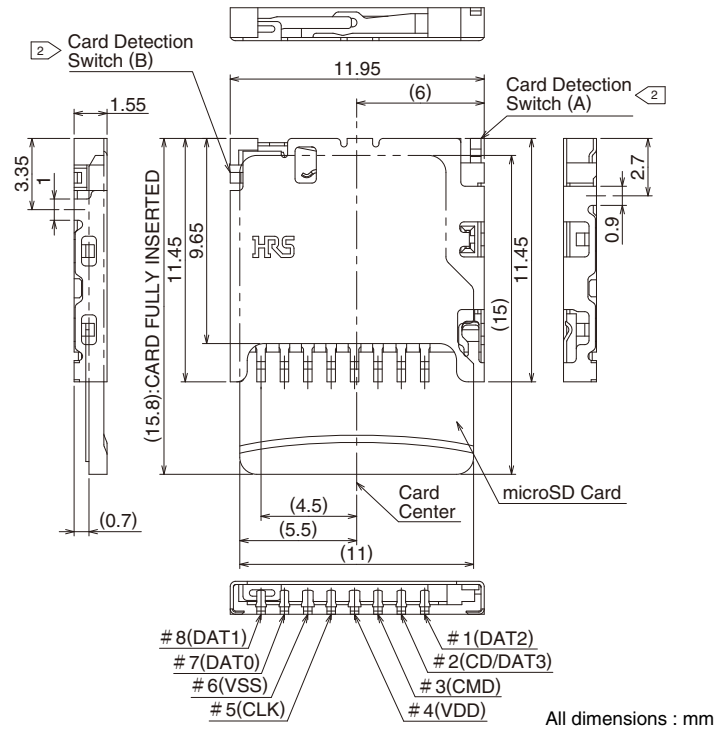
- Reel Dimensions



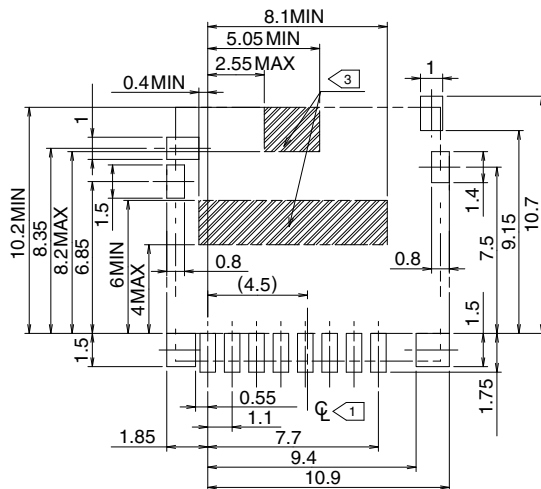
## DM3D, Push-Pull (no ejection mechanism), Top board mounting (Standard)



| Part No. | HRS No.    |
|----------|------------|
| DM3D-SF  | 609-0025-8 |



## Recommended PCB mounting pattern



Note 1  $\Phi$  indicates the center line of the microSD card slot.

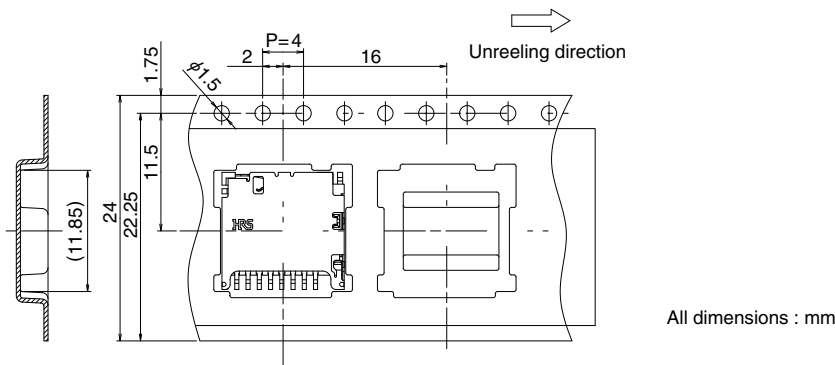
| Card detection switch |     |               |     |
|-----------------------|-----|---------------|-----|
| Without the card      |     | Card inserted |     |
| Open                  |     | Closed        |     |
| (A)                   | (B) | (A)           | (B) |

Note 3 No conductive traces.

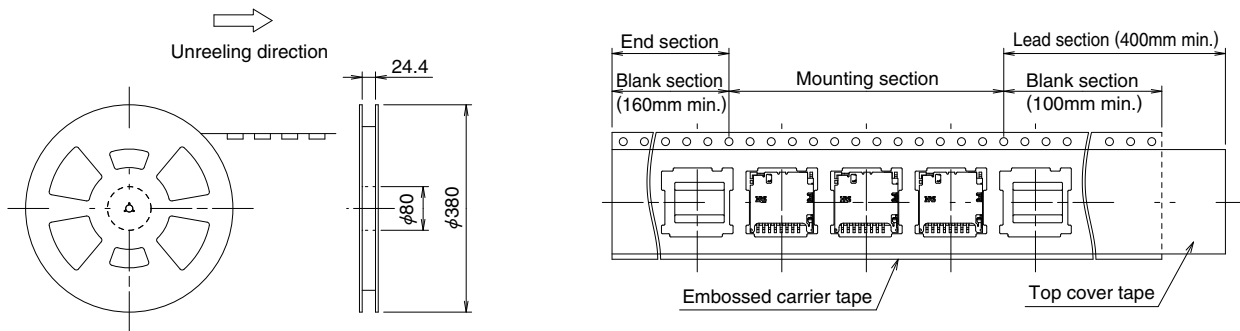
All dimensions : mm

◆ Packaging Specifications

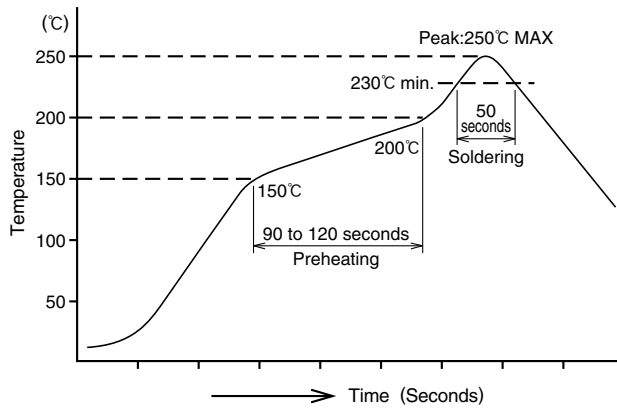
- Embossed carrier tape dimensions (2,000 pcs/reel)



- Reel Dimensions



## ◆ 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.

| Series       | Operation Manual Number |
|--------------|-------------------------|
| DM3AT Series | ETAD-F0345              |
| DM3BT Series | ETAD-F0324              |
| DM3CS Series | ETAD-F0335              |
| DM3D Series  | ETAD-F0353              |

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