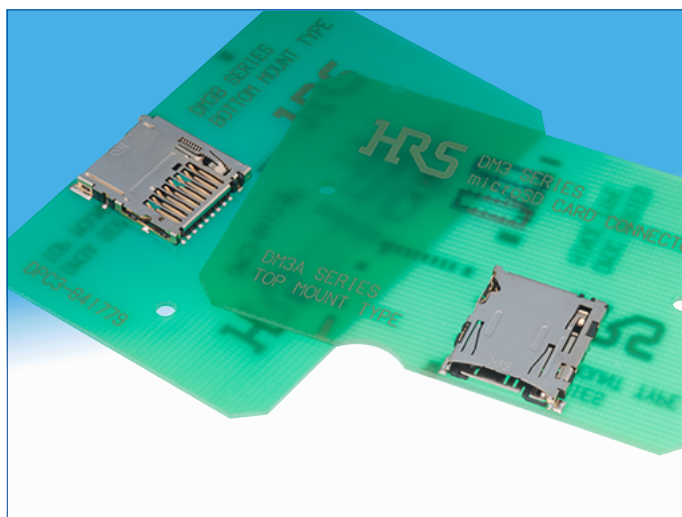


# microSD™ Card Connectors

## 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    | Operating temperature range : -25℃ to +85℃ (Note 1) | Operating humidity range : RH 95% max. |
|         | Voltage rating : 125V AC | Storage temperature range : -40℃ to +85℃ (Note 2)   | (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) | _____<br>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

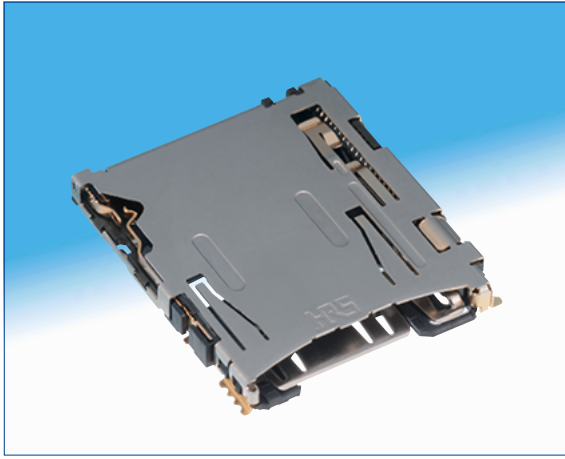
Refer to the chart below when determining the product specifications from the product number.  
Please select from the product numbers listed in this catalog when placing orders.

**DM3 AT – SF – PEJM5**

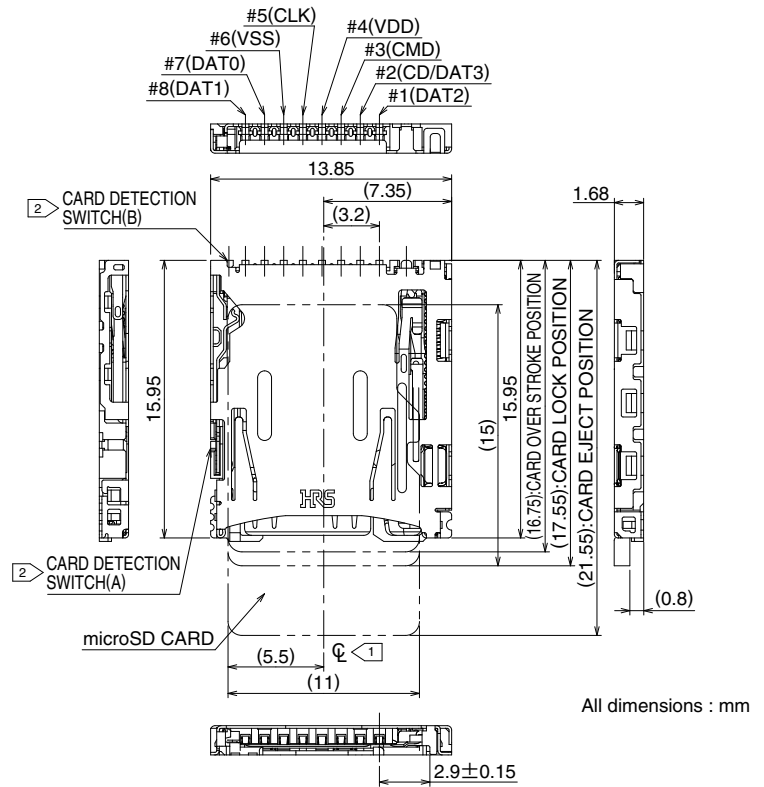
①      ②      ③      ④

|                                                                                                                                                                                                                                                                                                                                         |                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 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<br>(Push insert/push eject)<br>None : Manual card<br>insertion/ejection |

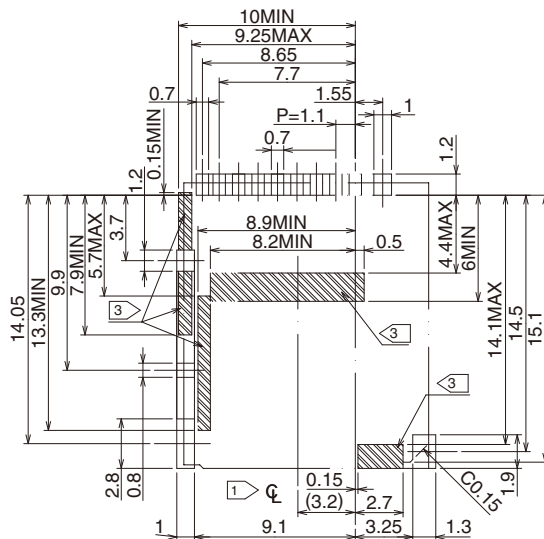
## DM3AT Push-Push (ejection mechanism), Top board mounting (Standard)



| 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.

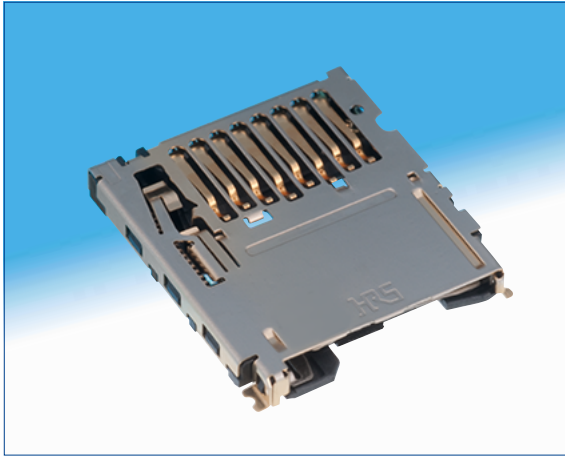
All dimensions : mm

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

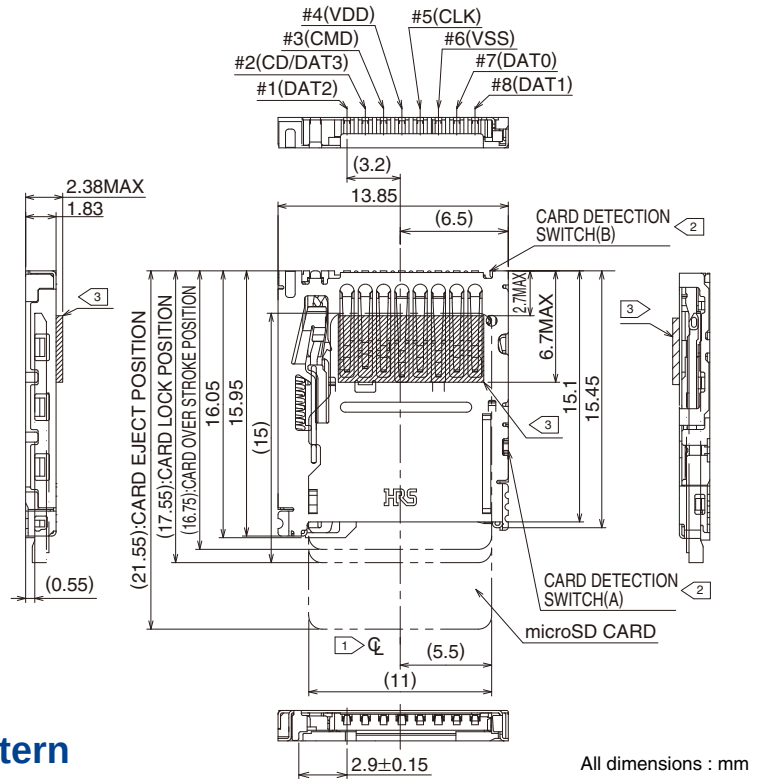


Technical drawings of the tape assembly. The left side shows a circular cross-section of the tape with a central hole and six segments. The right side shows a longitudinal cross-section of the tape assembly, including the embossed carrier tape, top cover tape, and the portion equipped with components. Dimensions include 32.4, 380, 160mm, and 100mm.

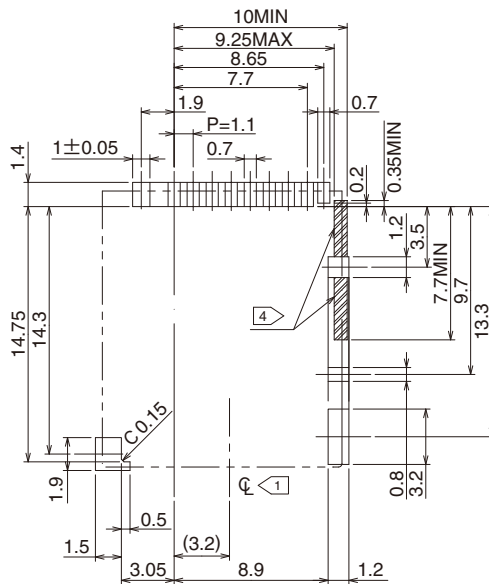
## DM3BT, Push-Push (ejection mechanism), Bottom board mounting (Reverse)



| 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

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



CARD DETECTION SWITCH  $\leq 2$   
 13.8  
 (6.9)  
 (0.2)  
 14.1  
 (15.45): LOCK POSITION  
 12  
 13.9  
 1.83  
 0.1  
 (0.93)  
 (1.78)  
 (5.5)  
 (11)  
 microSD CARD  
 #8(DAT1)  
 #7(DAT0)  
 #6(VSS)  
 #5(CLK)  
 #1(DAT2)  
 #2(CD/DAT3)  
 #3(CMD)  
 #4(VDD)  
 All dimensions : mm

[illegible]

**2**

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

**3**

No conductive traces.

HRS 7

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



Technical drawing of the 35mm film magazine, showing three views: top, side, and front.

**Top View:** Shows the circular magazine with a central hub and four quadrants. Dimensions include a diameter of  $\phi 380$  and a central hole diameter of  $\phi 80$ . A dimension of 32.4 is indicated for the side view.

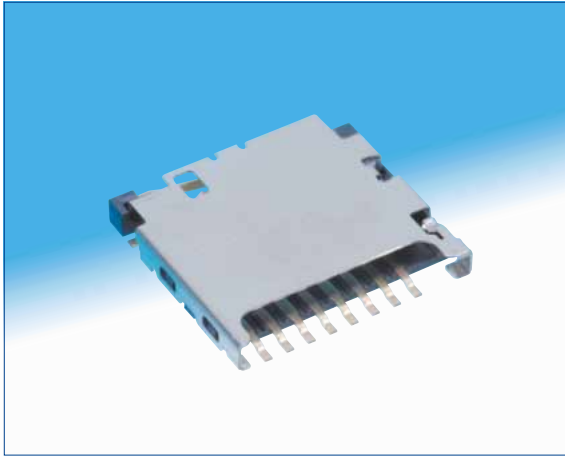
**Side View:** Shows the magazine's profile with a diameter of  $\phi 380$  and a central hole diameter of  $\phi 80$ .

**Front View:** Shows the magazine's internal components and tape. Labels include:

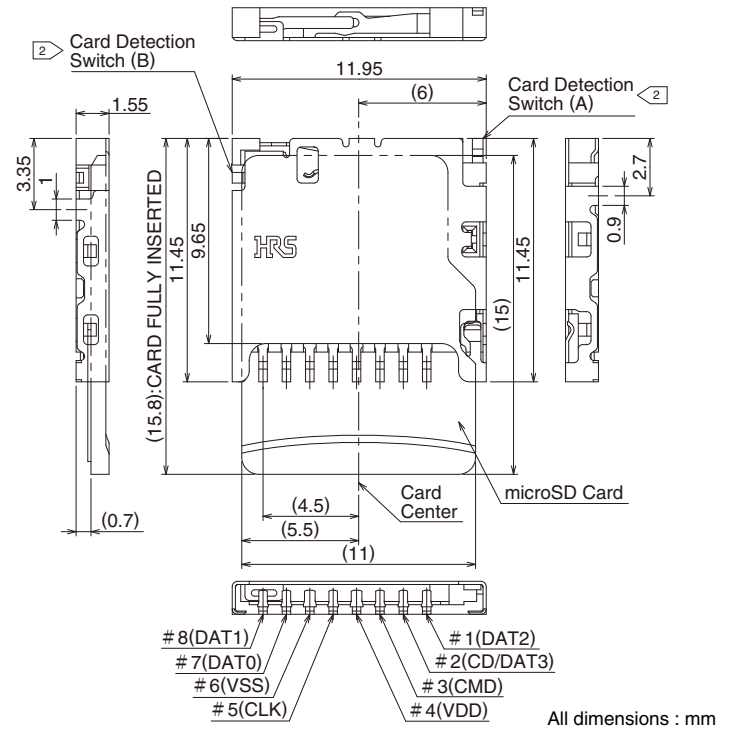
- CIRCLE:** Points to the top edge of the magazine.
- START:** Points to the beginning of the film strip.
- OVAL:** Points to the bottom edge of the magazine.
- TRAILER:** Points to the initial section of the film strip.
- PORTION EQUIPPED WITH COMPONENTS:** Points to the central section of the film strip.
- LEADER(400mm MIN):** Points to the final section of the film strip.
- EMPTY(160mm MIN):** Points to the empty section of the film strip.
- EMPTY(100mm MIN):** Points to the empty section of the film strip.
- EMBOSSED CARRIER TAPE:** Points to the top cover tape.
- TOP COVER TAPE:** Points to the bottom cover tape.
- END:** Points to the end of the film strip.



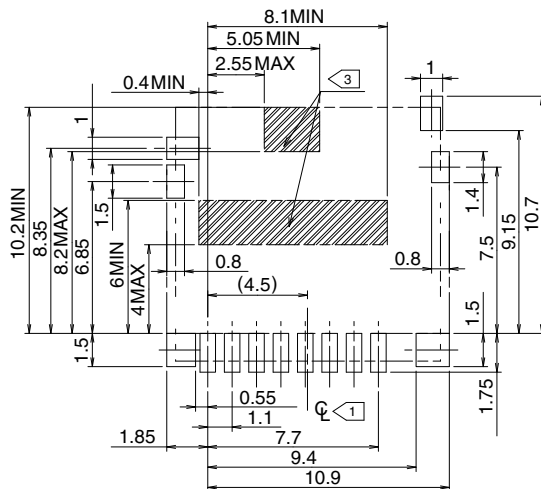
## ■DM3D, Push-Pull (no ejection mechanism), Top board mounting (Standard)



| 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.

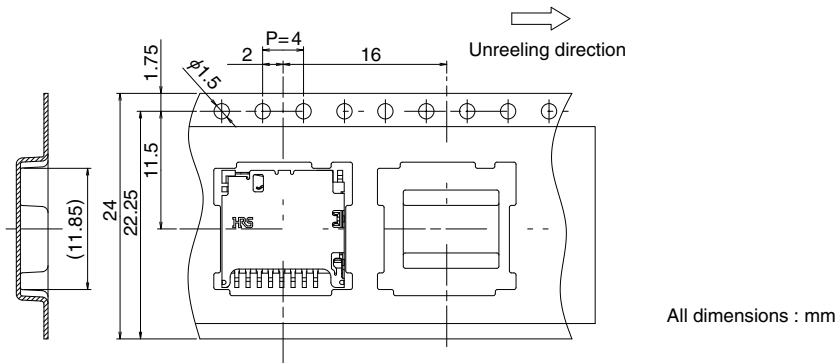
| Card detection switch |     |               |     |
|-----------------------|-----|---------------|-----|
| Without the card      |     | Card inserted |     |
| Open                  |     | Closed        |     |
| (A)                   | (B) | (A)           | (B) |

3 No conductive traces.

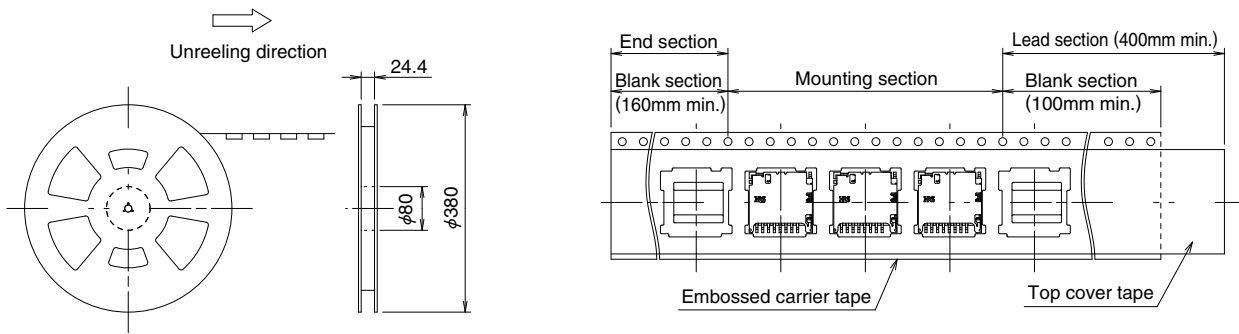
All dimensions : mm

◆Packaging Specifications

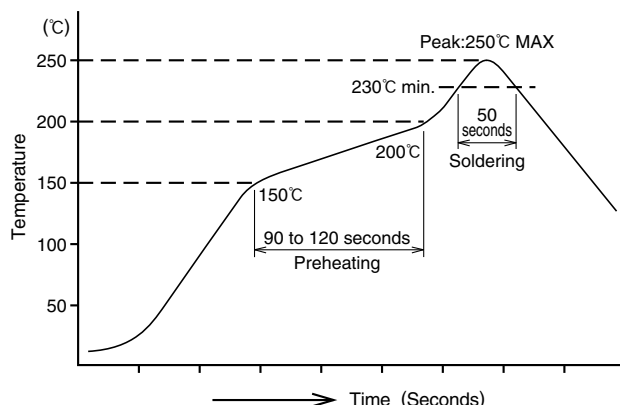
- Embossed carrier tape dimensions (2,000 pcs/reel)



- 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

- 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
- Do not apply excessive force to the connector when handling or after installation on the PC board.
- 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.
- 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.
- 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.
- Small visible residual manufacturing fluids or tooling marks do not affect connector's performance.
- 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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<http://www.hirose-connectors.com>