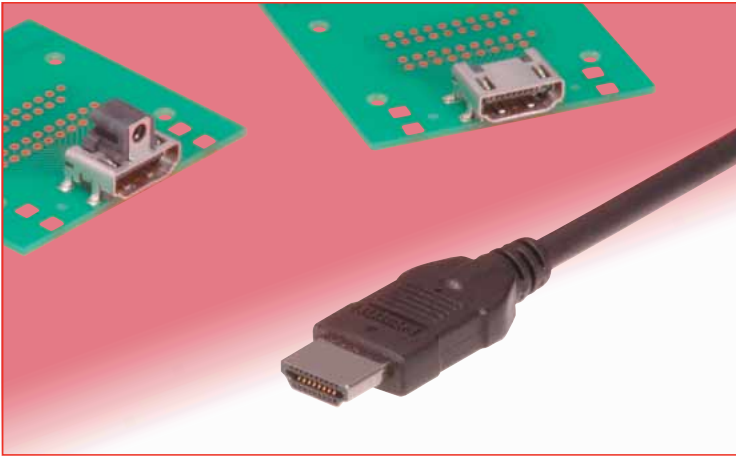




# HDMI™ Standard Connectors

## MD Series



### Features

#### 1. Two panel mounting styles (receptacle)

- SMT termination, through panel (no screw)
- SMT termination, through panel, single screw panel attachment

#### 2. Easy insertion

Mating interface is visible on the panel surface, allowing correct insertion of the plug. (Figures (1) and (2))

#### 3. Reliable connection

Fully mated condition between the plug and receptacle is confirmed with a distinctive tactile "click" sensation, assuring complete mechanical and electrical connection.

#### 4. Small size

Despite it's small size, solder connection of the wires to the terminations is easily performed.

#### 5. Strong shields

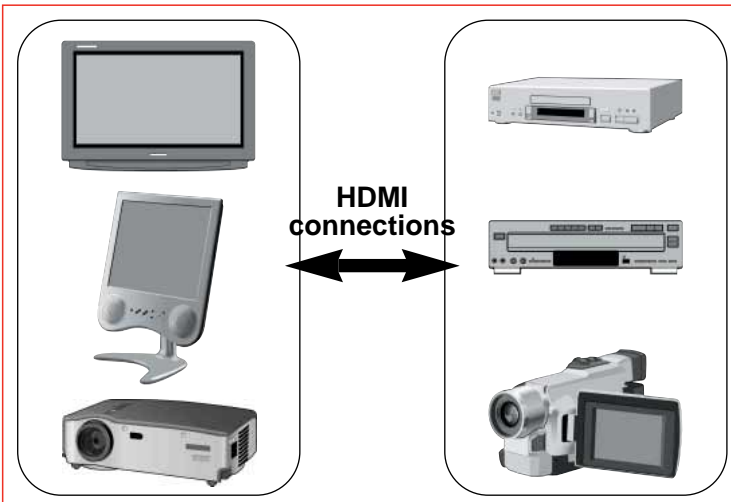
Two-piece shields surrounding the wire termination areas provide EMI protection as well as increase the strength of the plug. (Figure (3))

#### 6. RoHS compliant

All components and materials comply with the requirements of EU Directive 2002/95/EC

### Applications

PDP, LCD, CRT televisions, projectors, DVD, set top boxes and other audio-visual peripheral equipment.

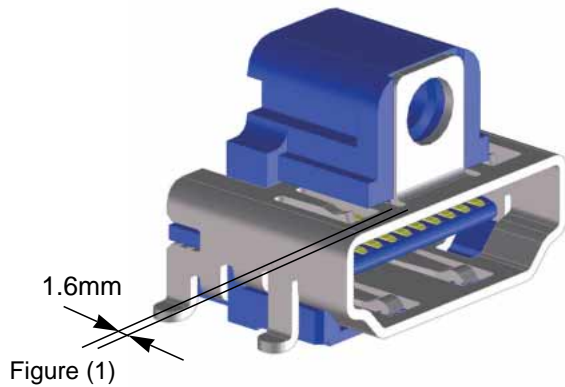


### Overview

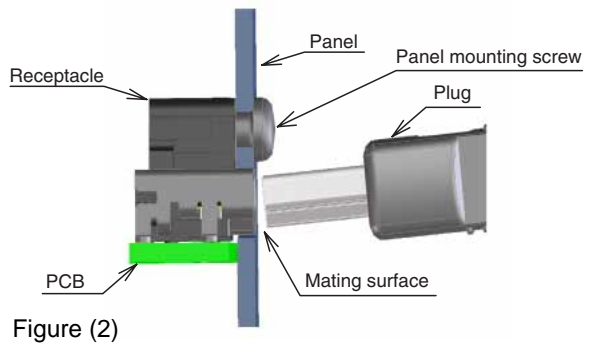
Connectors conforming to the requirements of the High Definition Multimedia Interface (HDMI) Standard intended for the digital television.

The HDMI places the video and audio links into a single connector /cable.

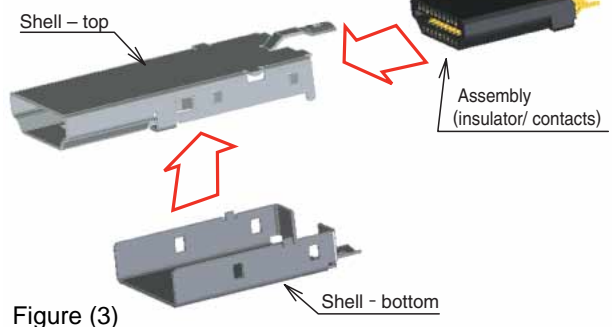
#### 1.6 mm offset from the mating surface



#### Easy insertion - connector flush with the panel



#### Strong shields-plug



\*High Definition Multimedia Interface and HDMI are trademarks of HDMI Licensing, LLC.

MD Series HDMI Standard Connectors

## ■ Specifications

|         |                |         |  |
|---------|----------------|---------|--|
| Ratings | Current rating | 0.5A    | Operating temperature range : -55°C to +85°C |
|         | Voltage rating | 125V AC |  |

| Item                     | Specification  | Conditions  |
|--------------------------|--|---|
| 1. Contact resistance    | Signal: 60 mΩ max.<br>Shell: 30 mΩ max.  | 100mA (DC or 1,000Hz)   |
| 2. Insulation resistance | 100 MΩ min.  | 500V DC   |
| 3. Withstanding voltage  | No flashover or insulation breakdown   | 500 V AC / 1 minute   |
| 4. Durability            | Contact resistance of contacts: Change of 30mΩ max.<br>Contact resistance of shell: Change of 50mΩ max.  | 10,000 cycles   |
| 5. Vibration             | No electrical discontinuity of 1 μs or longer.<br>Contact resistance, contacts: Change of 30 mΩ max.   | Frequency: 55 to 2,000 Hz, total amplitude of 1.5 mm<br>Acceleration of 147 m/s <sup>2</sup> , 12 test cycles in each of the 3 directions |
| 6. Shock                 | Contact resistance, shell: Change of 50 mΩ max.<br>No damage, cracks, or parts dislocation   | Acceleration of 490m/s <sup>2</sup> , 11 ms continuous time, sine half-wave, 3 test cycles in each of the 3 directions                    |
| 7. Temperature cycle     | Contact resistance, contacts: Change of 30 mΩ max.<br>Contact resistance, shell: Change of 50 mΩ max.<br>No damage, cracks, or parts dislocation | Temperature:-55°C→+15°C to 35°C→+85°C→+15°C to 35°C<br>Times: 30 min.→ 2 min. to 3 min. → 30 min.→ 2 min. to 3 min<br>10 cycles           |
| 8. Salt spray            | No corrosion   | 5% salt water solution / 48 hours   |

## ■ Materials / Finishes

### ● Receptacles

| Part      | Material     | Finish  | Remarks |
|-----------|--------------|---|---------|
| Insulator | LCP          | —   | UL94V-0 |
| Contacts  | Copper alloy | Contact area: Gold plating over nickel<br>Lead area: Gold flash plating over nickel | —<br>—  |
| Shell     | Copper alloy | Tin plating over nickel   | —       |

### ● Plugs

| Part      | Material     | Finish  | Remarks |
|-----------|--------------|---|---------|
| Insulator | LCP          | —   | UL94V-0 |
| Contacts  | Copper alloy | Contact area: Gold plating over nickel<br>Lead area: Gold flash plating over nickel | —<br>—  |
| Shell     | Copper alloy | Tin plating over nickel   | —       |

## ■ Ordering information

### ● Receptacles

**MD 60 - 19 P A**

①      ②      ③      ④      ⑤

### ● Plugs

**MD 40 - 19 S**

①      ②      ③      ④

#### Receptacles

|                                      |                                    |
|--------------------------------------|------------------------------------|
| ① Series name                        | : MD                               |
| ② Board mounting style:<br>60        | : Right angle SMT                  |
| ③ Number of Contacts                 | : 19                               |
| ④ Contact type<br>P                  | : Male                             |
| ⑤ Panel mounting style<br>Blank<br>A | : Standard<br>: Single panel screw |

#### Plugs

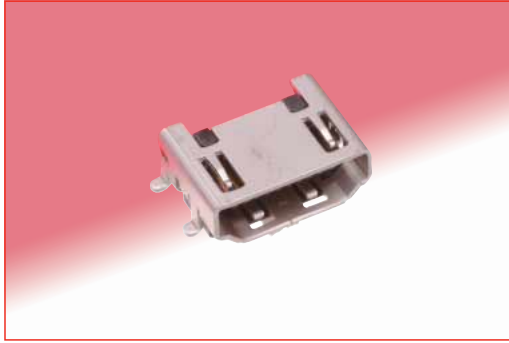
|                           |          |
|---------------------------|----------|
| ① Series name             | : MD     |
| ② Termination style<br>40 | : Solder |
| ③ Number of Contacts      | : 19     |
| ④ Contact type<br>S       | : Female |

Note: Plug cable termination and overmold recommendations are available upon request.  
 Contact your Hirose sales representative for details.

\*Information contained in this catalog may not reflect latest updates.  
 Request drawing for a specific part number listed.

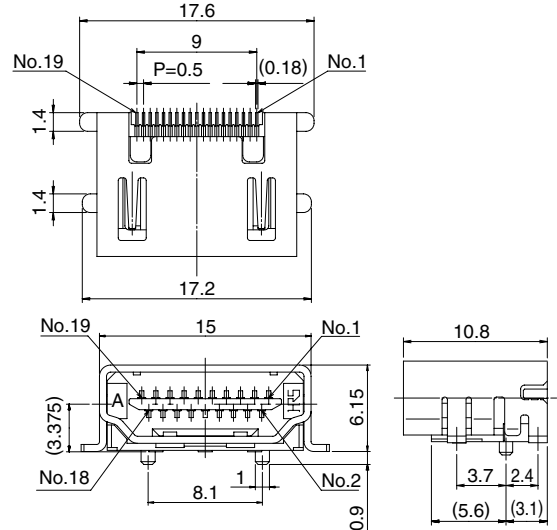
## Receptacles

### Receptacles – Right angle



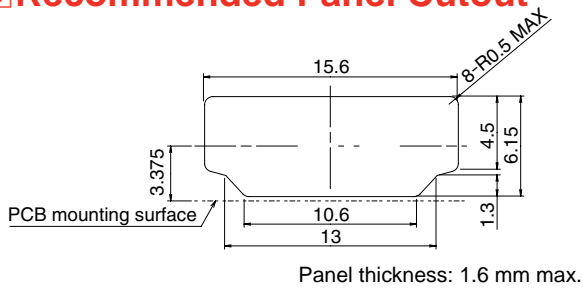
| Part Number | CL No.     | RoHS |
|-------------|------------|------|
| MD60-19P    | 243-0001-8 | YES  |

Note 1: Tape and reel packaging (750 pieces/reel).  
 Order by number of reels.

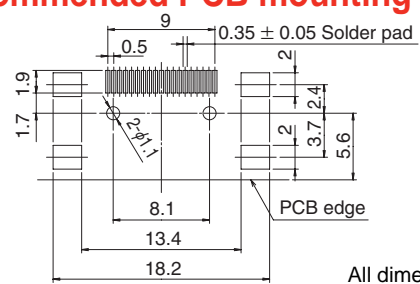


All dimensions: mm

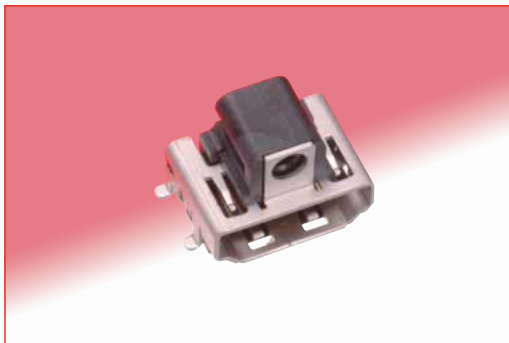
### Recommended Panel Cutout



### Recommended PCB mounting pattern

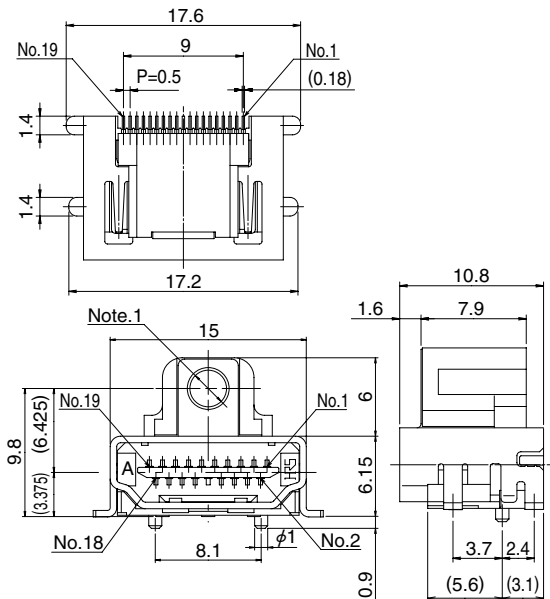


### Receptacles – Single panel screw



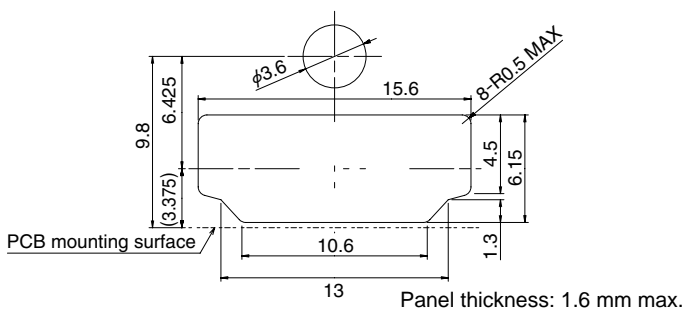
| Part Number | CL No.     | RoHS |
|-------------|------------|------|
| MD60-19PA   | 243-0003-3 | YES  |

Tray packaging

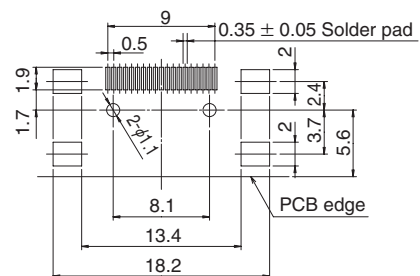


Note 1: Use M3x12mm long pan head self-taping screw.

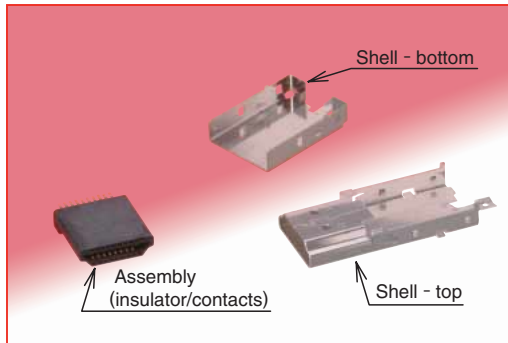
### Recommended Panel Cutout



### Recommended PCB mounting pattern



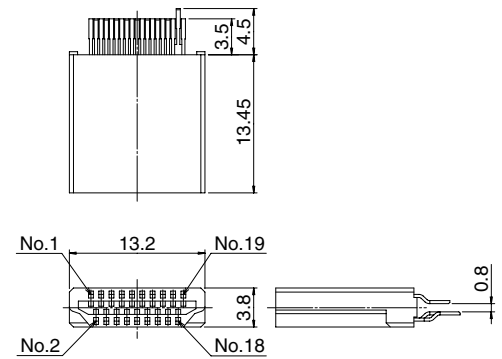
## ■ Plug



| Part Number | CL No.       | RoHS |
|-------------|--------------|------|
| MD40-19S    | CL243-0002-0 | YES  |

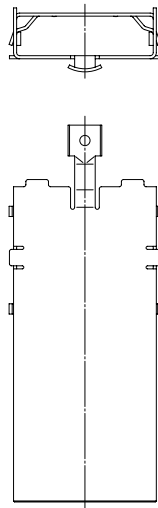
\* Supplied separate as shown.

## Assembly (insulator / contacts)

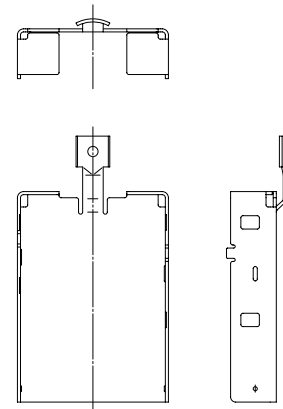


All dimensions: mm

### Shell - top



### Shell - bottom

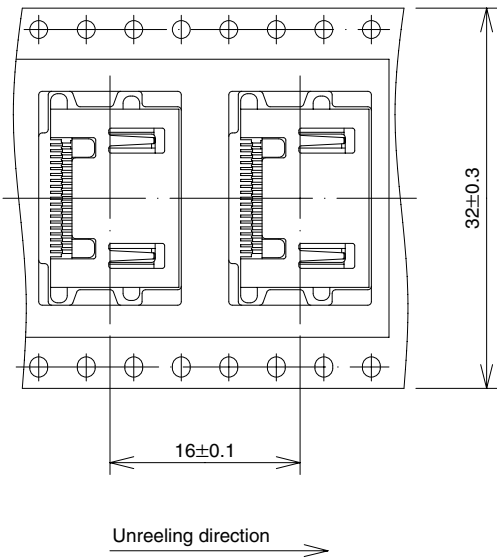


Note: Plug cable termination and overmold recommendations are available upon request.

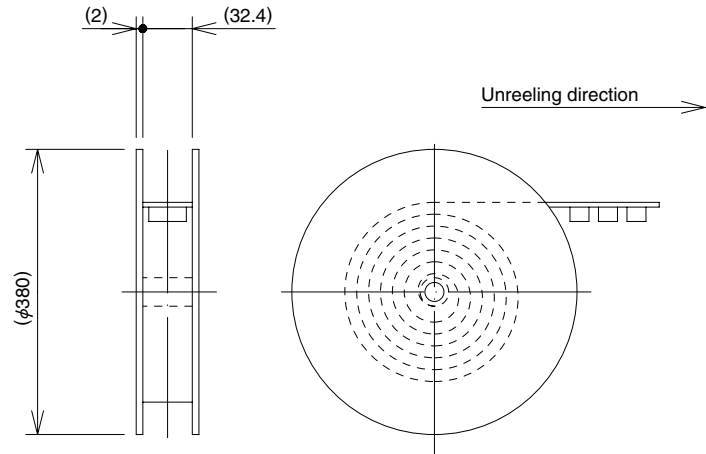
Contact your Hirose sales representative for details.

## ■ Packaging Specifications

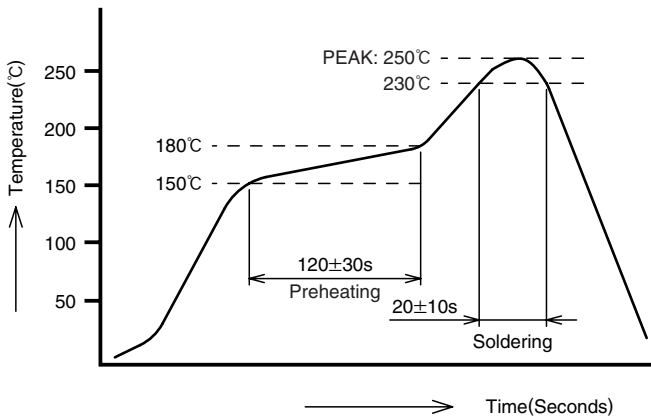
### ● Embossed carrier tape dimensions



### ● Reel Dimensions



## ■ Recommended Temperature Profile



Note 1: Up to 2 cycles of Reflow soldering are 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.



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