

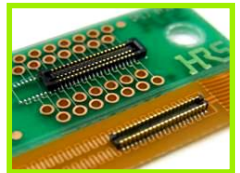
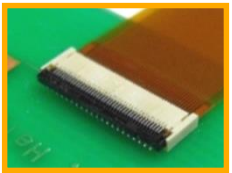
# Hirose's connectors for Smart Watch

## 1. LCD Connection

## 2. Touch Panel Connection

FPC connector  
(1-Piece)

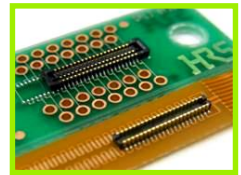
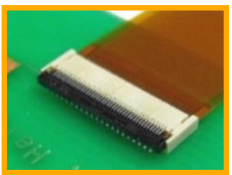
Board to FPC  
(2-Piece)



## 3. Speaker/Microphone Connection

FPC connector  
(1-Piece)

Board to FPC  
(2-Piece)



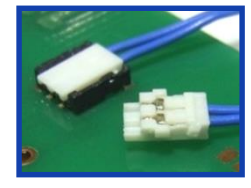
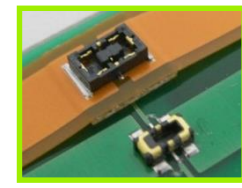
Board to Wire



## 4. Battery Connection

Board to FPC  
(2-Piece)

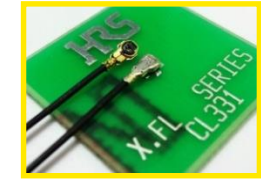
Board to Wire



## 5. Antenna Connection

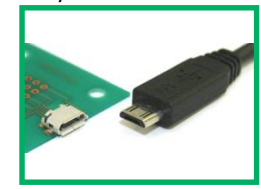
RF Switch

Miniature RF connector



## 6. Interface Connection

I/O connector



# connectors for 1. LCD/2. Touch Panel Connection (High to Pin to Count)

## FPC connector

## Board to FPC (2 to Piece)

|   |  |   |   |  |   |   |
|---|--|---|---|--|---|---|
| <p><b>FH43BW</b></p>   | <p><b>FH53/FH53M</b></p>    | <p><b>FH58/FH58M</b></p>   | <p><b>FH35C</b></p>   | <p><b>DF37</b></p>    | <p><b>KN13</b></p>   | <p><b>BM20</b></p>   |
| <p>Low profile,<br/>Space saving<br/>Bottom Contact<br/>Pitch: 0.2mm<br/>Height: 0.9mm<br/>Depth: 2.77mm<br/>Pin Counts: 21 to 71pos.<br/>Rated Current: 0.2A</p>                 | <p>Ultra low-profile,<br/>High density connector<br/>Top Contact<br/>Pitch: 0.2/0.25/0.3mm<br/>Height: 0.65mm<br/>Depth: 3.2mm<br/>Pin Counts: 7 to 51pos.<br/>Rated Current: 0.2A</p> | <p>Space saving,<br/>Multipurpose connector<br/>Top/Bottom Contact<br/>Pitch: 0.2/0.25mm<br/>Height: 0.9mm<br/>Depth: 3.1mm<br/>Pin Counts: 7 to 71pos.<br/>Rated Current: 0.2A</p> | <p>Commonly used for<br/>FPC connection<br/>Top/Bottom Contact<br/>Pitch: 0.3mm<br/>Height: 0.9mm<br/>Depth: 3.20mm<br/>Pin Counts: 9 to 61pos.<br/>Rated Current: 0.2A</p> | <p>Wide pin count variation<br/>Pitch: 0.4mm<br/>Stacking Height:<br/>0.98/1.5mm<br/>Depth: 2.98mm<br/>Pin Counts: 10 to 74pos.<br/>Rated Current: 0.3A</p>                                    | <p>High retention force,<br/>User-friendly design<br/>Pitch: 0.4mm<br/>Stacking Height: 0.8mm<br/>Depth: 2.5mm<br/>Pin Counts: 10, 24, 30pos.<br/>Rated Current: 0.3A</p> | <p>Commonly used for<br/>FPC connection<br/>Pitch: 0.4mm<br/>Stacking Height:<br/>0.6/0.8mm<br/>Depth: 2.30mm<br/>Pin Counts: 10 to 60pos.<br/>Rated Current: 0.3A</p>  |
| <p><b>FH36W</b></p>   | <p><b>FH64MA</b></p>   |  <p>LCD</p> <p>Touch Panel</p>  |   | <p><b>BM15FR</b></p>   | <p><b>BM23FR</b></p>    | <p><b>BM28</b></p>    |
| <p>Saves size in depth,<br/>High retention force<br/>Bottom Contact<br/>Pitch: 0.3mm<br/>Height: 0.95mm<br/>Depth: 2.7mm<br/>Pin Counts: 11 to 61pos.<br/>Rated Current: 0.2A</p> | <p>The world's lowest profile<br/>Top Contact<br/>Pitch: 0.25mm<br/>Height: 0.5mm<br/>Depth: 3.15mm<br/>Pin Counts: 7 to 21pos.<br/>Rated Current: 0.2A</p>                            |   |   | <p>Space saving,<br/>Wide varieties of<br/>stacking height<br/>Pitch: 0.35mm<br/>Stacking Height:<br/>0.7/0.8/1.0mm<br/>Depth: 1.98mm<br/>Pin Counts: 10 to 30pos.<br/>Rated Current: 0.3A</p> | <p>Small,<br/>Multipurpose connector<br/>Pitch: 0.35mm<br/>Stacking Height: 0.6mm<br/>Depth: 1.98mm<br/>Pin Counts: 6 to 60pos.<br/>Rated Current: 0.3A</p>               | <p>Low profile, Space saving<br/>hybrid connector up to 5A<br/>Pitch: 0.35mm<br/>Stacking Height: 0.6mm<br/>Depth: 1.7mm<br/>Pin Counts: 6 to 60+2pos<br/>Rated Current:<br/>5A for power<br/>0.3A for signal</p> |

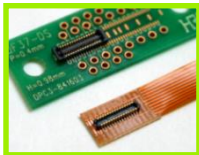
※Variations under development are included. Confirm the latest information through your HRS contact person. (As of Nov, 2017)



# 3. connectors for Speaker/Microphone Connection (Low to Pin to Count)

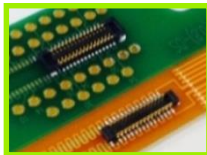
## Board to FPC (2 to Piece)

### DF37



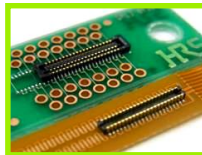
Wide pin count variation  
Pitch: 0.4mm  
Stacking Height:  
0.98/1.5mm  
Depth: 2.98mm  
Pin Counts: 10 to 80pos.  
Rated Current: 0.3A

### KN13



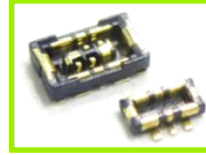
High retention force,  
User-friendly design  
Pitch: 0.4mm  
Stacking Height: 0.8mm  
Depth: 2.5mm  
Pin Counts: 10, 24, 30pos.  
Rated Current: 0.3A

### BM20



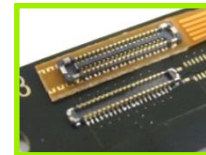
Commonly used for  
FPC connection  
Pitch: 0.4mm  
Stacking Height:  
0.6/0.8mm  
Depth: 2.30mm  
Pin Counts: 10 to 60pos.  
Rated Current: 0.3A

### BM29



Ultra small hybrid connector  
Pitch: 0.35mm  
Stacking Height: 0.6mm  
Depth: 1.5mm  
Pin Counts: 2+2pos.  
Rated Current: 3A for power  
0.3A for signal

### BM23FR



Small,  
multipurpose connector  
Pitch: 0.35mm  
Stacking Height: 0.6mm  
Depth: 1.98mm  
Pin Counts: 6 to 60pos.  
Rated Current: 0.3A

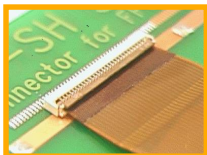
### BM28



Low profile, space saving  
hybrid connector up to 5A  
Pitch: 0.35mm  
Stacking Height: 0.6mm  
Depth: 1.7mm  
Pin Counts: 6 to 60+2pos.  
Rated Current: 5A for power  
0.3A for signal

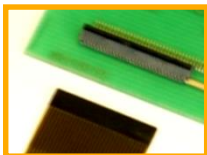
## FPC connector

### FH19C



Commonly used for  
FPC connection  
Bottom Contact  
Pitch: 0.5mm  
Height: 0.9mm  
Depth: 3.0mm  
Pin Counts: 4 to 50pos.  
Rated Current: 0.5A

### FH34SRJ



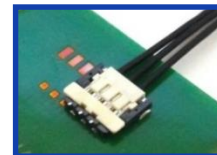
High retention force and  
ideal less pin connection  
Top/Bottom Contact  
Pitch: 0.5mm  
Height: 1.0mm  
Depth: 3.20mm  
Pin Counts: 4 to 50pos.  
Rated Current: 0.5A

### DF57H



Low profile, Swing lock  
Pitch: 1.2mm  
Mated Height: 1.4mm  
Depth: 4.35mm  
Pin Counts: 2 to 6pos.  
AWG wire: 28 to 34  
Rated Current: 0.5 to 2.5A

### DF58



The world's lowest profile  
with AWG 28  
Pitch: 1.2mm  
Stacking Height: 1.0mm  
Depth: 4.72mm  
Pin Counts: 2 to 6pos.  
AWG wire: 28 to 30  
Rated Current: 1.0 to 3.0A

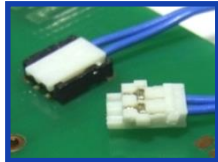


※Variations under development are included. Confirm the latest information through your HRS contact person. (As of Nov, 2017)

# 4. connectors for Battery Connection

## Board to Wire

### DF57H



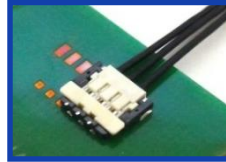
Low profile, Swing lock  
Pitch: 1.2mm  
Mated Height: 1.4mm  
Depth: 4.35mm  
Pin Counts: 2 to 6pos.  
AWG wire: 28 to 34  
Rated Current: 0.5 to 2.5A

### DF52



Small,  
high current capability  
Pitch: 0.8mm  
Stacking Height: 1.75mm  
Depth: 4.1mm  
Pin Counts: 2 to 20pos.  
AWG wire: 28 to 32  
Rated Current: 0.8 to 2.5A

### DF58



The world's lowest profile  
with AWG 28  
Pitch: 1.2mm  
Stacking Height: 1.0mm  
Depth: 4.72mm  
Pin Counts: 2 to 6pos.  
AWG wire: 28 to 30  
Rated Current: 1 to 3A

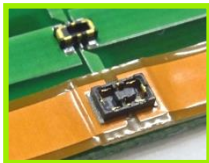
### DF65



Small,  
high current capability  
Pitch: 1.7mm  
Stacking Height: 1.8mm  
Depth: 6.0mm  
Pin Counts: 3 to 7pos.  
AWG wire: 24 to 28  
Rated current: 2 to 4A

## Board to FPC (2 to Piece)

### BM22



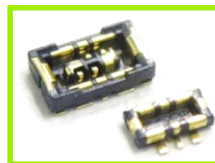
Commonly used  
for FPC connection  
Power connectors  
Mated Height: 0.9mm  
Mated Depth: 2.64mm  
Pin Counts: 2+2, 4+2pos.  
Rated Current: 4A for power  
0.3A for signal

### BM24



Hybrid connector up to 5A  
Power/Signal Hybrid connector  
Mated Height: 0.8mm  
Mated Depth: 2.3mm  
Pin Counts: 10 to 50+2pos.  
Rated Current: 5A for power  
0.25A for signal

### BM29



Ultra small hybrid connector  
Power/Signal Hybrid connector  
Pitch: 0.35mm  
Stacking Height: 0.6mm  
Depth: 1.5mm  
Pin Counts: 2+2pos.  
Rated Current: 3A for power  
0.3A for signal

Battery



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# 5. connectors for Antenna Connection

## Miniature RF connector

### X.FL



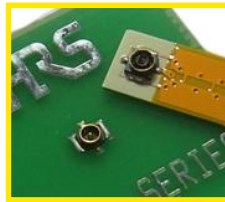
Ultra small connector  
Mated Height: 0.94mm Max.  
Frequency: 0 to 12GHz  
V.S.W.R.: 1.7 Max.

### X.FL (Low Loss)



WiGig standard  
Mated Height: 1.3mm Max.  
Frequency: 0 to 12GHz  
V.S.W.R.: 1.7 Max.  
Intel WiGig Recommended

### X.FL (FPC-to-Board) W.FL2

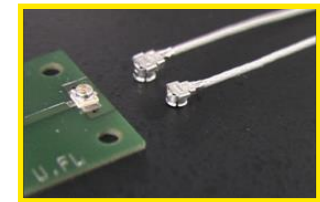


Ultra small connector  
for FPC connection  
Mated Height: 0.89mm Max.  
Frequency: 0 to 6GHz  
V.S.W.R.: 1.5 Max.



Ultra small connector  
Mated Height: 1.18mm Max.  
Frequency: 0 to 6GHz  
V.S.W.R.: 1.6 Max.

### U.FL



Excellent high frequency  
characteristics  
Mated height: 1.9mm Max.  
Frequency: 0 to 6GHz  
V.S.W.R.: 1.5 Max.

## RF Switch

### MS-156C



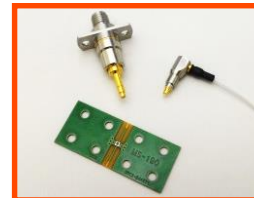
Commonly used for RF switch  
Height: 1.35mm  
Frequency: 0 to 11GHz  
V.S.W.R.: 1.5 Max.

### MS-180



Small switch  
for checking terminal  
Height: 0.85mm  
Frequency: 0 to 11GHz  
V.S.W.R.: 1.4 Max.

### MS-190



The world's smallest size,  
Ultra low-profile  
Height: 0.68mm  
Frequency: 0 to 11GHz  
V.S.W.R. : 1.4 Max.



※Variations under development are included. Confirm the latest information through your HRS contact person. (As of Nov, 2017)

# 6. connectors for Interface Connection

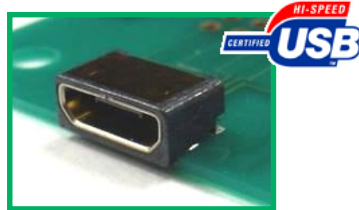
## I/O connector

ZX



Micro to USB2.0 connector

ZX62W



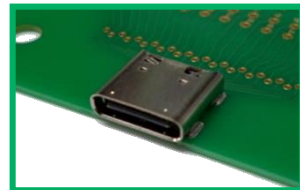
Overmolded type micro to USB2.0 receptacles for splash resistance

CX70M



USB Type-C connector  
USB3.1 Gen1  
Mid-mount  
Space saving

CX90B1



USB Type-C connector  
USB3.1 Gen2  
On-board  
Robust

