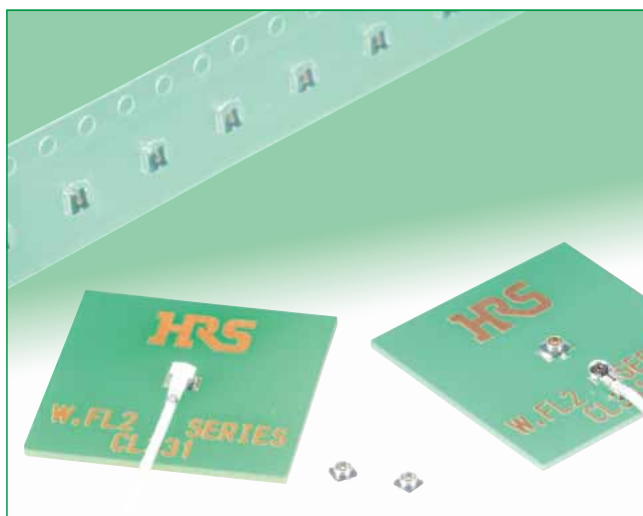


# Ultra-Small Surface Mount Coaxial Connectors - 1.18mm Mated Height

## W.FL2 Series



### Occupied Mounting Area



### ■ Features

#### 1. Nominal mated height of 1.18 mm (Max. 1.3 mm)

#### 2. Small board footprint

As with X.FL, W.FL Series, the receptacles occupies an area of 3.4 mm<sup>2</sup> and share the same land pattern.

Note: The W.FL2 Series is not compatible with X.FL, W.FL Series.

#### 3. Extremely light weight

The world's smallest and lightest class of coaxial connectors.

Receptacle: 5.0mg

Right angle plug: 16.7mg(062), 17.4mg(040), 15.3mg(032)

#### 4. Frequency range up to 6 GHz

DC to 3 GHz: V.S.W.R. of 1.3 max.

3 GHz to 6 GHz: V.S.W.R. of 1.4 max.

#### 5. Automatic board placement

Packaged on tape-and-reel the receptacles can be placed with vacuum nozzles of the automatic placement equipment.

#### 6. Plugs are terminated with ultra-fine coaxial (fluorinated resin insulated) cable

The use of ultra-fine coaxial (fluorinated resin insulated) cables on these connectors offer the ability to complete connections in small, confined spaces with a smooth, easy operation.

#### 7. Simple connector mating / un-mating

Use of the available mating / un-mating tools assures correct connection / disconnection of the plug and receptacle.

#### 8. Halogen-free\*(Receptacle, Plug(HF type))

\*As defined by IEC61249-2-21

Br-900 ppm maximum, Cl-900 ppm maximum, Cl+Br combined-1,500 ppm maximum.

### Mated height comparison (with W.FL Series)

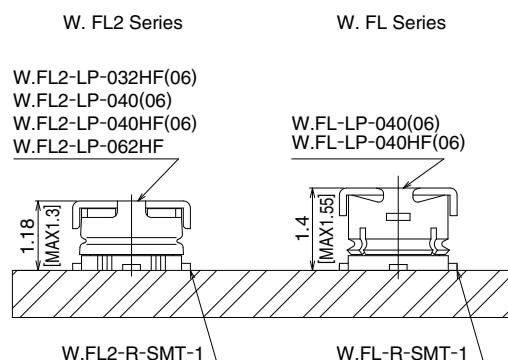


Fig.1

### W.FL2 Plug and Receptacle

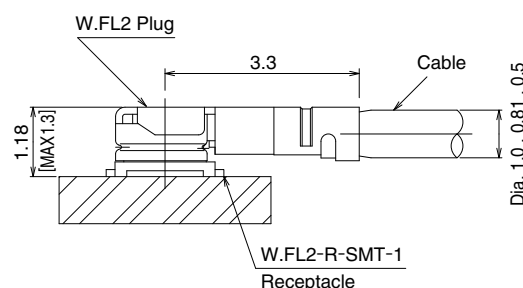


Fig.2

## ■ Specifications

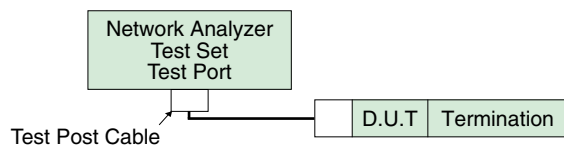
Rating	Nominal characteristic impedance	50Ω	Operating temperature range	-40°C to +90°C (90%RH max.)
	Frequency range	DC to 6 GHz	Storage temperature range	-30°C to +70°C (90%RH max.)Note 1

Item	Specification
1. Contact resistance	20 mΩ max. (center contact), 10 mΩ max. (outer contact)
2. Insulation resistance	500 MΩ min., 100 V DC
3. Withstanding voltage	200 V AC / 1 minute
4. V.S.W.R.	1.3 max. (DC to 3 GHz) 1.4 max. (3 GHz to 6 GHz)

\* V.S.W.R. Measurement

as shown on the block diagram below.

Note: Verify connection and measurement setup.



Note1: Cable assembly measurements with SMA conversion adapters mated with W.FL2 plug at each end of the 100cm long ultra-fine coaxial cable.

Note2: Receptacles mounted on a 50 ohms glass epoxy board. Measurements were conducted with SMA conversion adapters attached.

Note1. The term "storage" refers to products stored for long period of time prior to mounting and use.

## ■ Materials

### ● Plugs – Right Angle

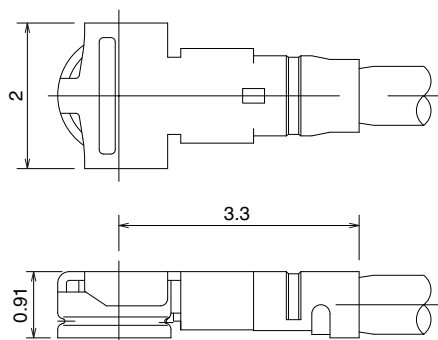
Part	Material	Finish
Shell	Phosphor bronze	Silver plated/Gold plated(062)
Insulator	PBT	Color: Black, UL94V-0
Insulator (HF type)	LCP	Color: Milky white, UL94V-0
Female center contact	Phosphor bronze	Gold plated

### ● Receptacle

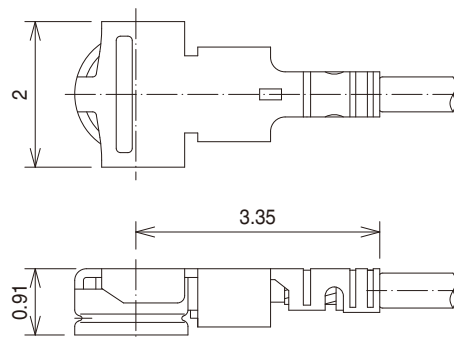
Part	Material	Finish
Shell	Phosphor bronze	Silver plated
Insulator	LCP	Color: Black, UL94V-0
Male center contact	Brass	Gold plated

## ■ Cable Assembly(Plug)

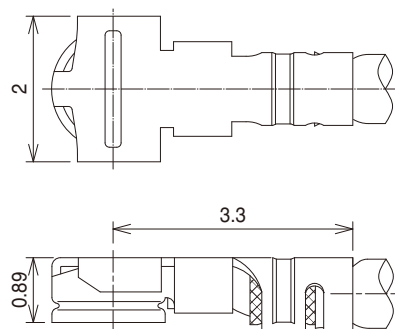
W.FL2-LP-040(06), W.FL2-LP-040HF(06) (Applicable cable : outer diameter 0.81)



W.FL2-LP-032HF(06) (Applicable cable : outer diameter 0.5)

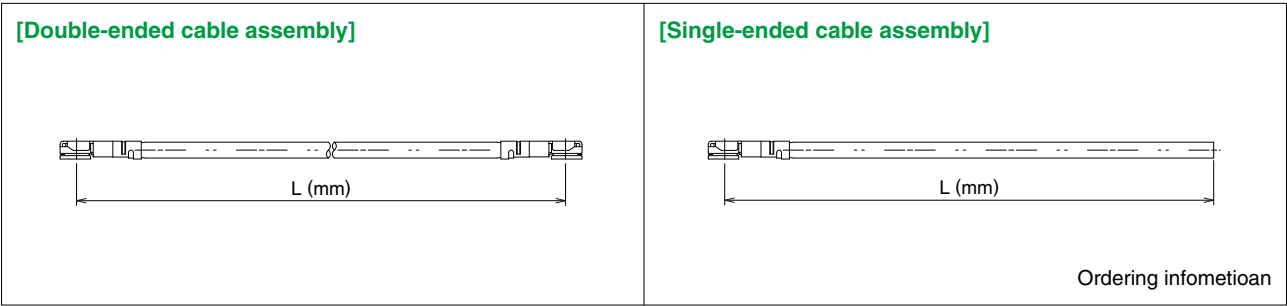


W.FL2-LP-062HF (Applicable cable : outer diameter 1.0)



[Plugs can be ordered only as terminated cable assemblies.]

◆How to specify Cable Assembly



■Ordering information

Used plug: W.FL2-LP-040(06), W.FL2-LP-040HF(06)

Double-Ended W.FL2 - 2LP - HF6 - 04N □ TV - A - (L)  
① ② ③ ④ ⑤ ⑥ ⑦

Single-Ended W.FL2 - LP - HF6 - 04N □ TV - A - (L)  
① ② ③ ④ ⑤ ⑥ ⑦

●Standard Tolerances for (L)

(L)mm	Standard tolerance(mm)
*L=35 to 200	±4
L=200 to 500	±8
L=500 to 1000	±12
L=Longer than 1000mm	±1.5% of (L)

Note: Minimum available length(L) is 35mm.

① Series name	: WFL2, W.FL2	④ Cable type	04N: 0.81mm dia. ultra-fine coaxial cable
② Assembly type	LP: Single ended 2LP: Double ended	⑤ Cable color	1: White, 2: Black
③ Environmental compliant	HF6: Halogen-free 6: RoHS compliant	⑥ Cable outer conductor	TV: Tin Plated braided wire
		⑦ Total length (mm)	Length(L)

Used plug: W.FL2-LP-032HF(06)

Double-Ended W.FL2 - 2LP - HF6 - 032N □ TS - A - (L)  
① ② ③ ④ ⑤ ⑥ ⑦

Single-Ended W.FL2 - LP - HF6 - 032N □ TS - A - (L)  
① ② ③ ④ ⑤ ⑥ ⑦

① Series name	: WFL2, W.FL2	④ Cable type	032N: 0.5mm dia. ultra-fine coaxial cable
② Assembly type	LP: Single ended 2LP: Double ended	⑤ Cable color	1: White, 2: Black
③ Environmental compliant	HF6: Halogen-free	⑥ Cable outer conductor	TS: Tin Plated fiber or paper covered copper winding wire
		⑦ Total length (mm)	Length(L)

Used plug: W.FL2-LP-062HF

Double-Ended W.FL2 - 2LP - HF - 062N □ SC - A - (L)  
① ② ③ ④ ⑤ ⑥ ⑦

Single-Ended W.FL2 - LP - HF - 062N □ SC - A - (L)  
① ② ③ ④ ⑤ ⑥ ⑦

① Series name	: WFL2, W.FL2	④ Cable type	062N: 1.0mm dia. ultra-fine coaxial cable
② Assembly type	LP: Single ended 2LP: Double ended	⑤ Cable color	1: Gray, 2: Black, 3: White
③ Environmental compliant	HF: Halogen-free	⑥ Cable outer conductor	SC: Outer tin plated braided wire Inner conductor silver plated
		⑦ Total length (mm)	Length(L)

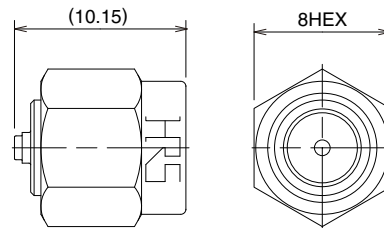


## ■Conversion Adapters

### ●SMA Conversion Adapter (W.FL2 side jack – SMA side plug)



Note: Used for performance measurements only.  
The W.FL2 mating side has lower retention force when mated with the corresponding part.



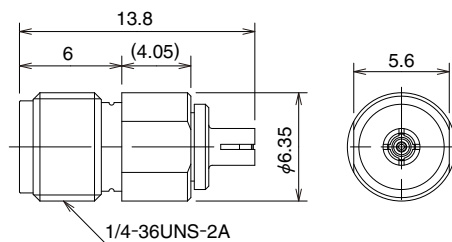
All dimensions: mm

Part No.	HRS No.	Packaging	RoHS
HRMP-W.FL2J	311-0394-6	1	Yes

### ●SMA Conversion Adapter (W.FL2/W.FL side plug – SMA side jack)



Note: Used for performance measurements only.  
The W.FL/W.FL2 mating side has lower retention force when mated with the corresponding part.



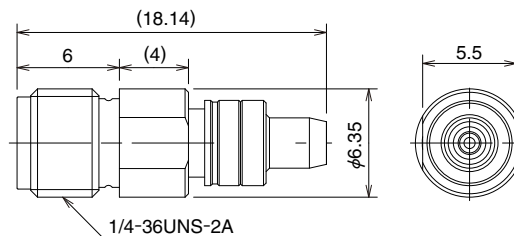
All dimensions: mm

Part No.	HRS No.	Packaging	RoHS
HRMJ-W.FLP(40)	311-0368-6 40	1	Yes

### ●SMA Conversion Adapter



Note: When mating with corresponding part (W.FL2-R-SMT-1) must be pressed down and held to make complete connection.

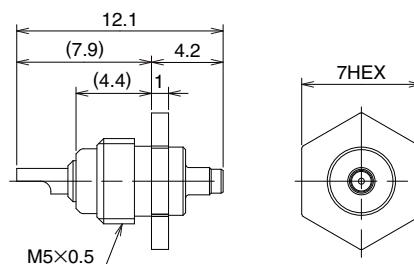
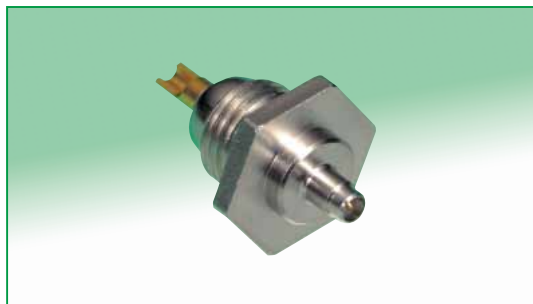


All dimensions: mm

Part No.	HRS No.	Packaging	RoHS
HRMJ-W.FL2P-ST3	311-0417-0	1	Yes

## ■Receptacle Inspection Adapter (W.FL2/W.FL)

Used for inspecting the performance parameters of the cable assembly.



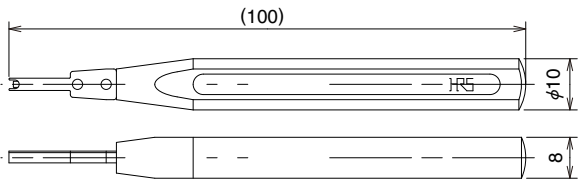
All dimensions: mm

Part No.	HRS No.	Packaging	RoHS
W.FL-R-1	331-0483-9	1	Yes

◆Tools

●Plug - Mating (Space saving type)

This tool is used for mating a plug.

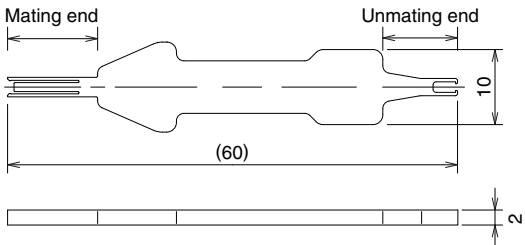
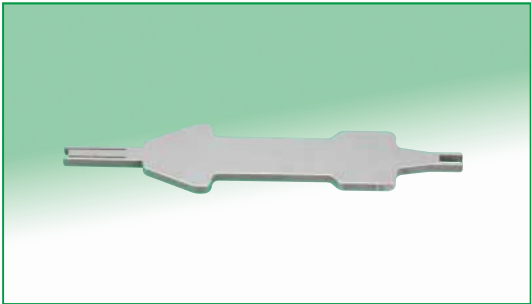


Part No.	HRS No.	RoHS
W.FL-LP-IN	331-0323-2	Yes

Note: Can be used with W.FL, X.FL plugs.

●Plug - Mating /Unmating (W.FL2-LP-040HF/032HF)

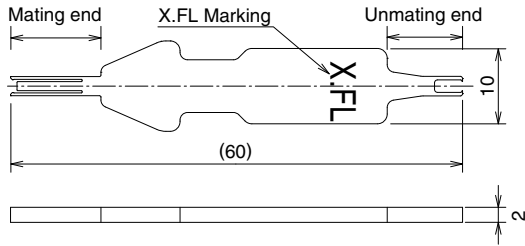
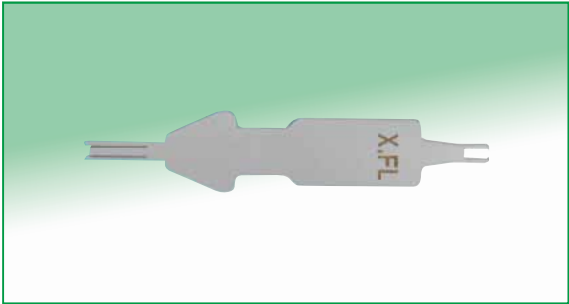
This tool is for mating and unmating a plug.



Part No.	HRS No.	RoHS
W.FL2-LP-IN.OUT	331-0321-7	Yes

●Plug-Mating/Unmating (W.FL2-LP-062HF)

This tool is for mating and unmating W.FL2-LP-062HF plug.

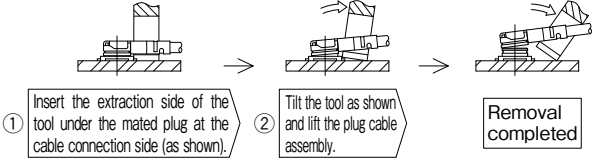
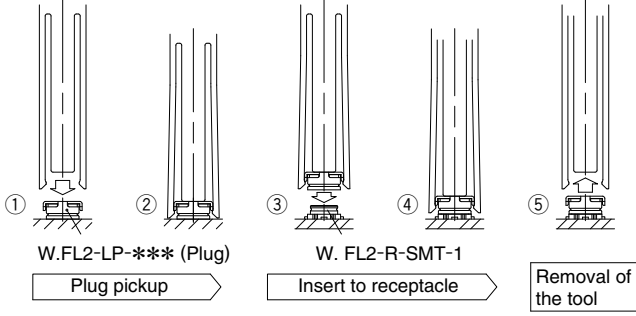
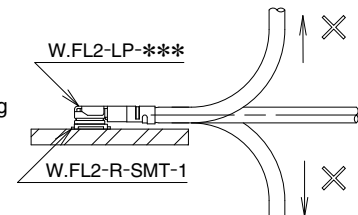


Part No.	HRS No.	RoHS
X.FL-LP-IN.OUT1	331-0715-2	Yes

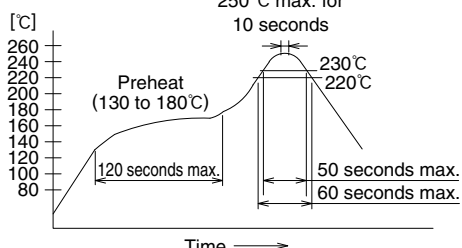
Note: Can be used with X.FL plug.

## ■Precautions

### 1. Plugs

(1) Mating / Unmating	<p>① To disconnect connectors, insert the extraction side of insertion and extraction jig and perform as described in the diagram below.</p> <p>• <b>Unmating</b></p>  <p>● Use of the extraction tool is absolutely mandatory. Any attempt of unmating by pulling on the cable may result in damage and affect the mechanical / electrical performance.</p> <p>• <b>Mating</b></p> <p>① Align the mating axes of the plug and the receptacle.          ② Confirm that the plug is positioned to be guided. (The both axes are aligned and the plug is positioned stably.)          ③ Remove the tool by carefully pulling it up.</p> 
(2) Pull forces on the cable after connectors are mated	<p>Do not apply any pull forces after the bending of the cable.</p>  <p>2 N max. (062-040 type)</p> <p>1 N max. (032 type)</p>
(3) Precautions	Do not twist connectors excessively during mating / unmating.

### 2. Receptacles

(1) Recommended reflow temperature profile	 <p>① The temperature of the printed circuit board surface temperature at the points of contact with the terminals.          ② Reflow soldering should be performed at a printed circuit surface temperature of 250°C max.          ③ In individual applications the actual temperature may vary, depending on the solder paste type, volume / thickness and board size / thickness. Consult your solder paste and equipment manufacturer for specific recommendations.</p>
(2) Recommended metal mask thickness	0.1 mm to 0.12 mm
(3) Reflow cycles	2 times

### 3. Operating environment and storage conditions

(1) Operating environment	<p>The connectors are not designed to operate in the following environments:</p> <ul style="list-style-type: none"> <li>• Exposed to a excessive amounts of fine particles and dust</li> <li>• Regions and places having a high density of sulfur dioxide, hydrogen sulfide, nitrogen dioxide or other corrosive gasses.</li> <li>• Environments having large rapid variations in temperature.</li> </ul>
(2) Storage conditions - Receptacle	<p>Store in the Hirose Electric packaging.          Temperature: -10 to +40°C, Humidity: 85% max.          Use within 6 months of delivery.          Receptacles for which the storage period has elapsed must be tested for solderability to the PC board mounting surface.</p>



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<http://www.hirose-connectors.com>



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- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
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- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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