

## H.FL75 Series

# Compact 75 $\Omega$ Coaxial Connectors (Low Profile SMT)



75  $\Omega$



Compact



RF



Алматы (7273)495-231  
Ангарск (3955)60-70-56  
Архангельск (8182)63-90-72  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Благовещенск (4162)22-76-07  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Владикавказ (8672)28-90-48  
Владимир (4922)49-43-18  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Иркутск (395)279-98-46  
Казань (843)206-01-48  
Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Коломна (4966)23-41-49  
Кострома (4942)77-07-48  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Курган (3522)50-90-47  
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41  
Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Ноябрьск (3496)41-32-12  
Новосибирск (383)227-86-73  
Омск (3812)21-46-40  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Петрозаводск (8142)55-98-37  
Псков (8112)59-10-37  
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78  
Севастополь (8692)22-31-93  
Саранск (8342)22-96-24  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Сургут (3462)77-98-35  
Сыктывкар (8212)25-95-17  
Тамбов (4752)50-40-97  
Тверь (4822)63-31-35

Тольятти (8482)63-91-07  
Томск (3822)98-41-53  
Тула (4872)33-79-87  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Улан-Удэ (3012)59-97-51  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Чебоксары (8352)28-53-07  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Чита (3022)38-34-83  
Якутск (4112)23-90-97  
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

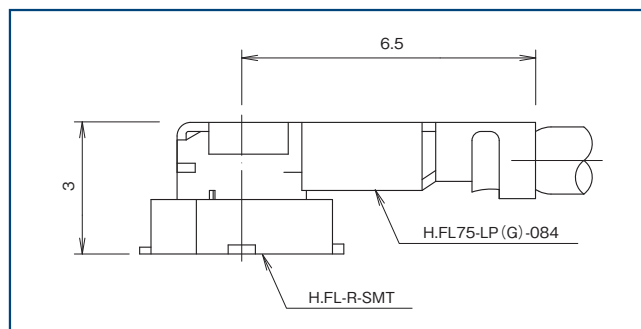
Киргизия +996(312)96-26-47

<https://hirose.nt-rt.ru/> || [hes@nt-rt.ru](mailto:hes@nt-rt.ru)

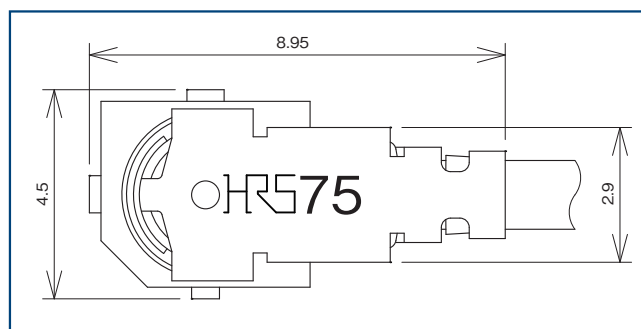
## Features

### 1. Compact 75 $\Omega$ Coaxial Connector

The receptacle and right-angled plug produce a mated height of only 3mm from the PCB.



Mated Connector Dimensions



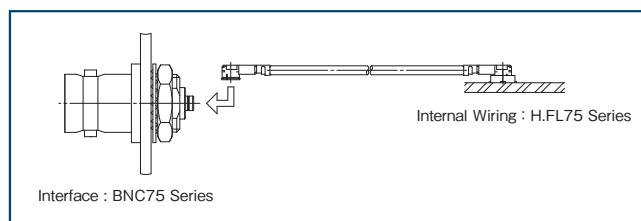
PCB Mounting Space During Mated

### 2. Ultra-fine Coaxial (Fluorinated Resin Insulated) Cables

The use of  $\phi 1.5\text{mm}$ , ultra-fine coaxial (fluorinated resin insulated) cables make this connector perfect for applications that require wiring in tight spaces.

### 3. RF Performance (up to 3GHz) Suitable for 3G-SDI Broadcasting Equipment

High frequency performance from 0 to 3GHz. In combination with BNC 75 Series, etc., connection is possible with 75  $\Omega$  system line from interface connection to internal wiring.



### 4. Supports Automatic Mounting

The receptacles are packaged on reels which supports automatic pick & place mounting. Capped receptacles are available and are suitable for use with virtually all types of mounting machines.

### 5. Lock Click, Mated Part Protective Shape

Even with the compact size, a clear tactile click is emitted when mating is completed. The receptacle surrounds the plug tip and protects the connection.

### 6. RoHS2 Compliant

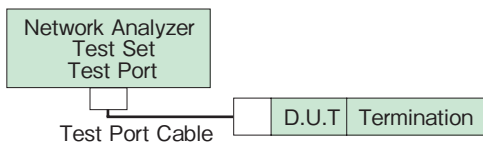
## Product Specifications

Nominal Characteristic Impedance	75 Ω	Operating Temperature	-40 to +90°C (90%RH Max.)
Rating Voltage	60V AC	Storage Temperature Range	-30 to +70°C (90%RH Max.)
Frequency Range	0 to 3GHz		

Items	Specifications	Conditions
Contact Resistance	Center : 20m Ω Max. Outer : 10m Ω Max.	Measured with 10mA Max.
Insulation Resistance	500M Ω Min.	Measured with 250V DC
Withstanding Voltage	No insulation breakdown	300V AC for 1 min.
V.S.W.R.*	1.25 Max.	0 to 1.5GHz
	1.5 Max.	1.5 to 3GHz
Retention Power of Female Contact	0.15N Min.	Measured with φ 0.475 pin gauge.
Total Mating/ Unmating Force	30N Max.	Measured with applicable connector.
Mating Durability	Contact Resistance Center : 25m Ω Max. Outer : 15m Ω Max.	50 times
Vibration Resistance	No electrical discontinuity for 1 μ s or more. No damaged, cracks or loose parts.	Frequency of 10 to 100 Hz, single amplitude of 1.5 mm, acceleration of 59m/s <sup>2</sup> , for 5 cycles in each of the 3 axes direction.
Shock Resistance	No electrical discontinuity for 1 μ s or more. No damaged, cracks or loose parts.	Acceleration of 735m/s <sup>2</sup> , for a duration of 11 ms, sine half-wave waveform, 3 cycles in each of the 6 axes direction.
Humidity Resistance (Steady State)	No damaged, cracked or loose parts Insulation resistance : 10M Ω Min. (High Humidity) Insulation resistance : 500M Ω Min. (Dry)	96 hours at temperature of 40°C and humidity of 95%.
Temperature Cycle	No damaged, cracked or loose parts. Contact Resistance Center : 25m Ω Max. Outer : 15m Ω Max.	Temperature : -40°C → +5 to +35°C → +90°C → +5 to +35°C Time : 30 min. → 5 min. Max. → 30 min. → 5 min. Max. 5 cycles
Salt Spray	No corrosion that impairs function.	5% salt water solution for 48 consecutive hours

\* V.S.W.R. Measurement System

The above V.S.W.R. specification values were measured using the measurement system shown below.



Note 1 : Cable type connectors were measured with the BNC75 conversion adapter attached to the cable assembly at both ends of a compatible 10cm cable.

Note 2 : Board connectors were measured while mounted on a 75 Ω glass epoxy board with BNC75 connectors attached.

## Material / Finish

Part	Material		Finish	Remarks
Shell	Phosphor Bronze		Silver Plated	—
Male Contact	Brass		Gold Plated	—
Female Contact	Phosphor Bronze			—
Insulator	Plug	PBT	Black	UL94V-0
	Receptacle	LCP		

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.

● Receptacle

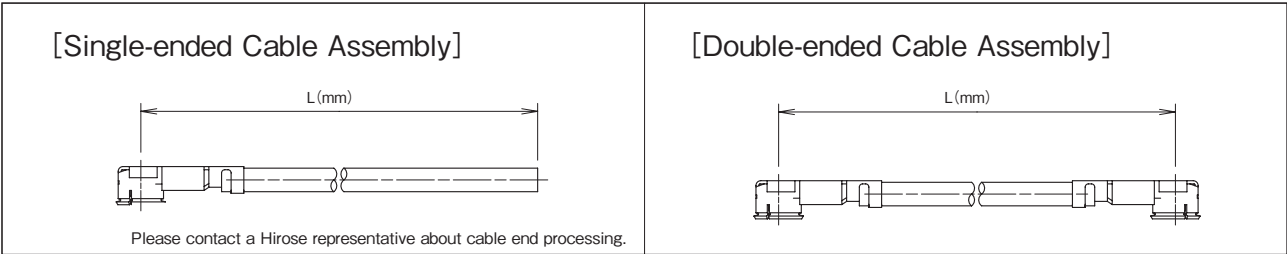
**H.FL - R - SMT (C) (10)**

1	2	3	4	5
1 Series Name	H.FL		4 Receptacle Type	(C) : With Suction Cap None : Without Suction Cap
2 Connector Type	R : Receptacle		5 Packing Type	(01) : Packing (100pcs per bag) (10) : Reel Packing (2,500pcs per reel)
3 Cable Type	SMT : Printed Circuit Board Surface Mount Type			

Note : Please order the plug in cable assembly specifications.

● How to Designate Plug Cable Assembly Dimensions

The dimensions of the H.FL75 Series cable assembly should be specified as follows :



Note : Designate the dimensions from the center of the connector for both single-ended and double-ended cable assemblies. (Please write length L in mm.)

● Cable Assembly Product Number Structure

**H.FL75 - 2LPG - 084N 4 - A - (L)**

1	2	3	4	5
1 Series Name	H.FL75	3 Cable Type	084N : for φ 1.5mm cable	
2 Assembly Type	LPG : Single-ended 2LPG : Double-ended	4 Cable Color	4 : Blue	
		5 Total Length	L length in mm	

● Standard Tolerances for (L)

Total Length L (mm)	Standard Tolerance (mm)
35 ≤ L ≤ 200	± 4
200 < L ≤ 500	± 8
500 < L ≤ 1000	± 12
1000 < L	± 1.5%

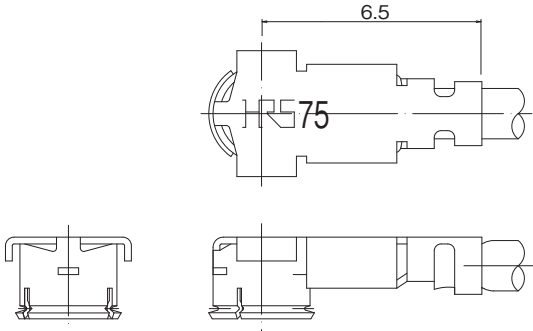
Note : The shortest length is L = 35mm

Plug

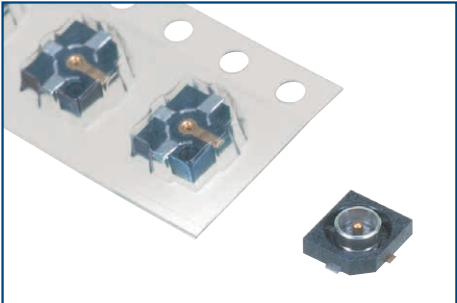
Please order the plug in cable assembly specifications.



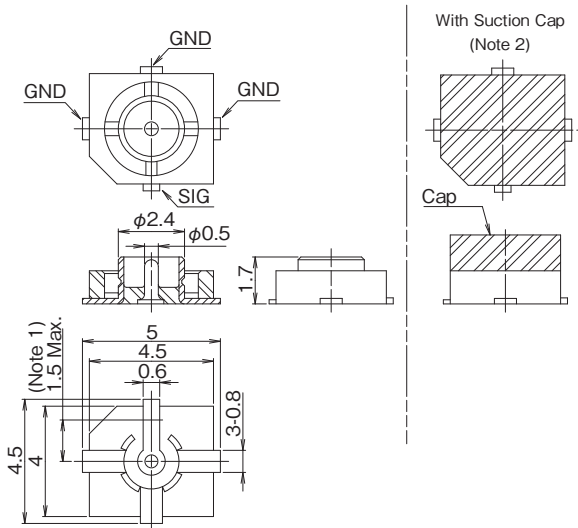
H.FL75-LP(G)-084φ1.50 Cable



Receptacle



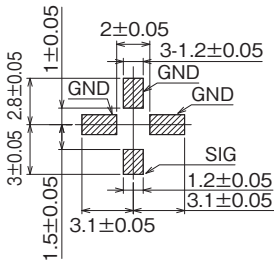
With Suction Cap (Note 2)



Part No.	HRS No.	Remarks	Purchase Unit
H.FL-R-SMT(01)	CL0331-0521-6-01	—	100pcs per bag
H.FL-R-SMT(10)	CL0331-0521-6-10	—	2,500pcs per reel
H.FL-R-SMT(C)(10) (Note 2)	CL0331-0522-9-10	With Suction Cap	

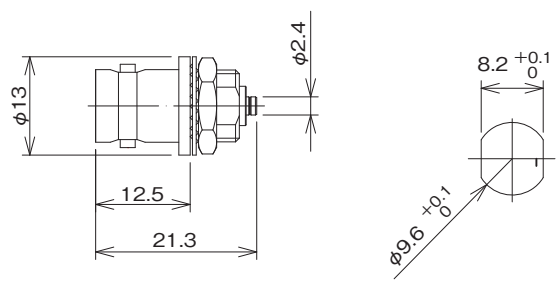
Note 1 : Tolerance value of mold resin applied to center contact.  
Note 2 : The H.FL-R-SMT(C) (10) product specification includes a suction cap for when direct suction is not possible on the product top surface. Please remove the suction cap after mounting.

● Recommended PCB Layout (Common)



Conversion Adapter

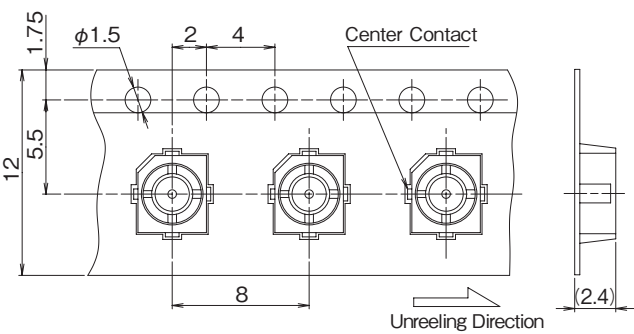
BNC75 Conversion Adapter  
(Mated Portion - H.FL75 Side : Jack, BNC75 Side : Jack)



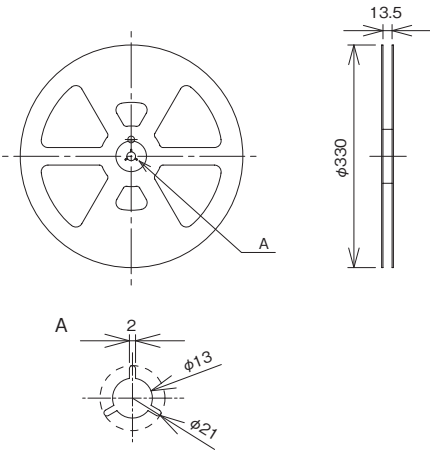
Part No.	HRS No.	Purchase Unit
BNC(75)J-H.FLJ-BPA(40)	CL0311-0302-8-40	20pcs per bag

Embossed Carrier Tape Dimensions (JIS-C-0806, IEC60286 Compliant)

Dimensions of the embossed carrier tape for H.FL-R-SMT(10) are shown below.

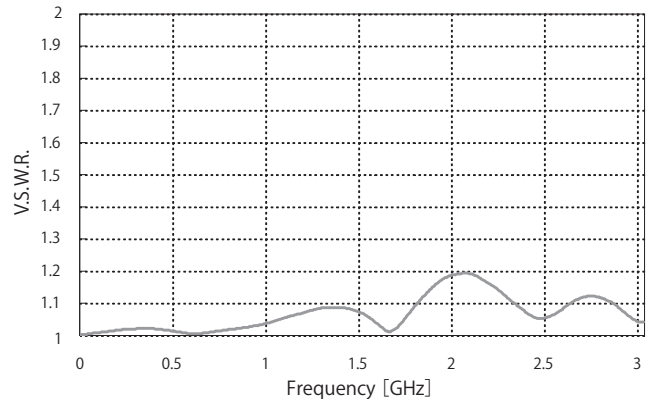
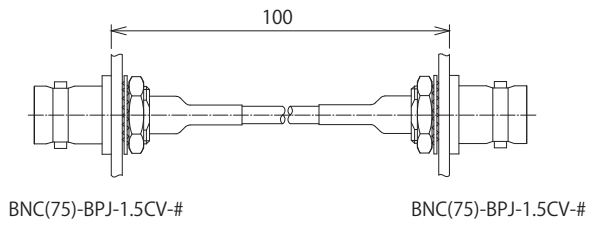


Reel Dimensions

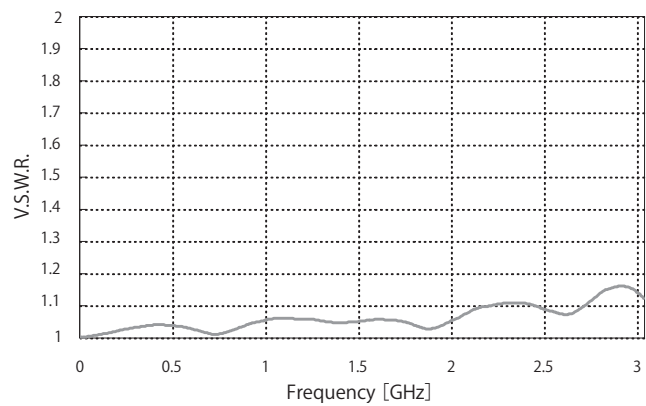
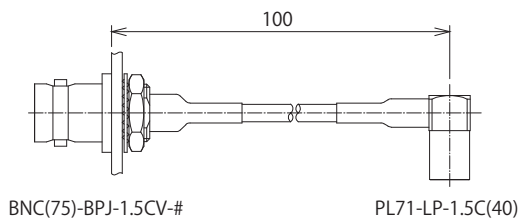


## High Frequency Performance of 75 $\Omega$ Products

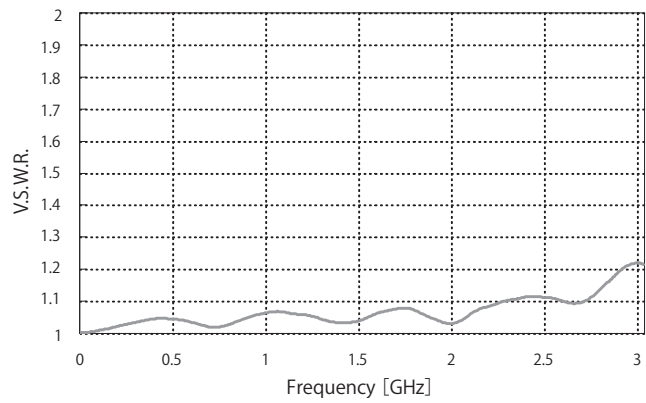
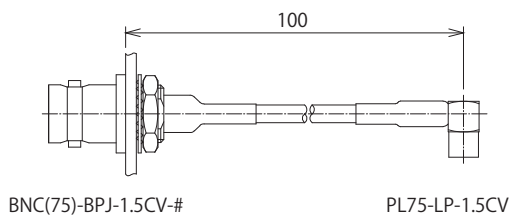
### ● BNC75 Series



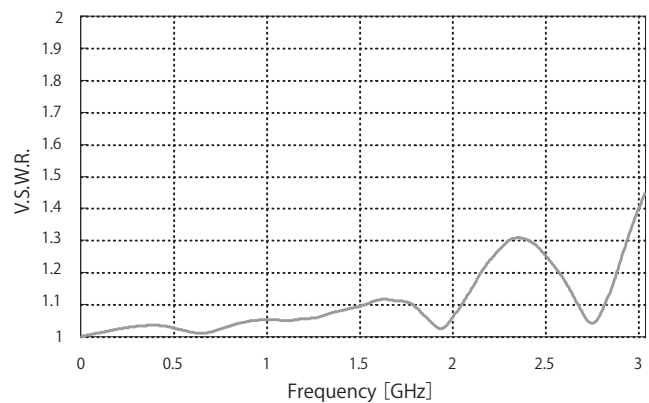
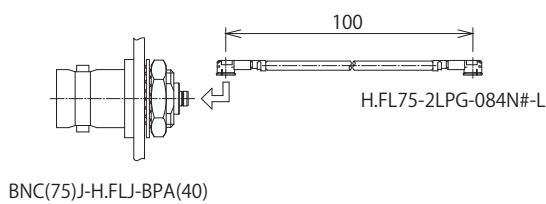
### ● PL71 Series



### ● PL75 Series

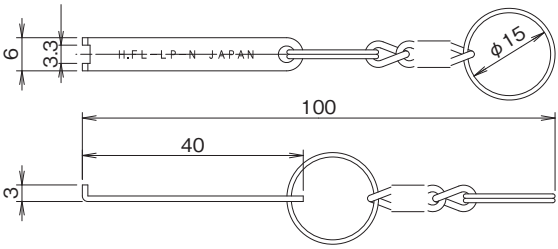


### ● H.FL75 Series



Extraction Tool

Tool for Unmating.



Part No.	HRS No.	Purchase Unit
H.FL-LP-N	CL0331-0551-7-00	1pc per bag



Usage Precautions

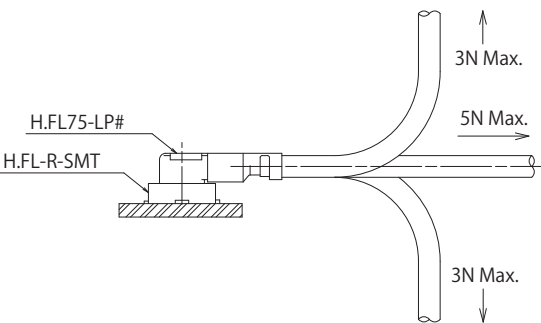
1. Plugs

1.Mating/Unmating

- (1)To disconnect the connector, insert the edge of the extraction tool (H.FL-LP-N) under the connector flange.  
Pull in a perpendicular direction in line with the connector's mating axis.  
Do not unmate the plug by pulling on the cable, this can damage the connector performance.
- (2) When mating, align the mating axes between the receptacle and cable assembly, and insert the cable assembly downward and perpendicular into the receptacle.  
Do not insert the cable assembly at a slanted angle.

2.Tolerable Load to a Cable After Mating

Once the connector has been mated do not apply forces exceeding the values in the diagram below.



3.Precautions

Do not use excessive prying to mate or un-mate the connectors as it may lead to damage.

2. Receptacles

(1) Recommended Reflow Temperature Profile (Reference)	<div><p>[°C]</p><p>Temperature of Top of Component</p><p>Heating Peak 250°C 10 Seconds</p><p>230°C 50 sec. Max.</p><p>220°C 60 sec. Max.</p><p>120 sec. Max.</p><p>Time</p></div> <div><p>1. Temperature refers to the temperature of the PCB surface at the terminal leads.</p><p>2. Reflow soldering should be performed at a printed circuit surface temperature of 250°C Max.</p><p>3. The temperature profile may vary depending on board size, solder used and solder thickness.</p></div>
(2) Recommended Manual Soldering Conditions	Manual soldering : 350°C for 5 seconds
(3) Recommended Metal Mask Thickness	0.1 to 0.15mm
(4) Reflow Cycles	Up to 2 times

# 75Ω Micro Coaxial Connector Supporting 12G-SDI

D.FL75 Series

75Ω, up to 12GHz



Exterior mating view

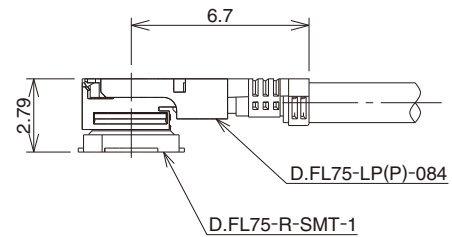


Fig.1

## ■ Features

### 1. Compact 75Ω Coaxial Connector

Receptacle and plug (right angle) produces a total mating height of only 2.79mm. (Fig. 1)

### 2. High impedance matching

High frequency compatible from DC to 12GHz suitable for 12G-SDI broadcasting equipment.

### 3. Terminated with 75Ω, ultra-fine coaxial cable

φ1.5mm, ultra-fine coaxial (fluorinated resin insulated) cables allow for connections in limited spaces.

### 4. Suitable for 12G-SDI broadcasting and video equipment

When used with the BNC(75) series plug, 75Ω system lines are maintained from interface connection to the internal wiring systems.

### 5. Supports automatic mounting

Tape and Reel packaging allows for pick-and-place mounting.

### 6. Easy mating

Compact connector makes a clear tactile click when mated which confirms complete mating.

### 7. Simple unmating process

An extraction tool which simplifies the unmating process is available.

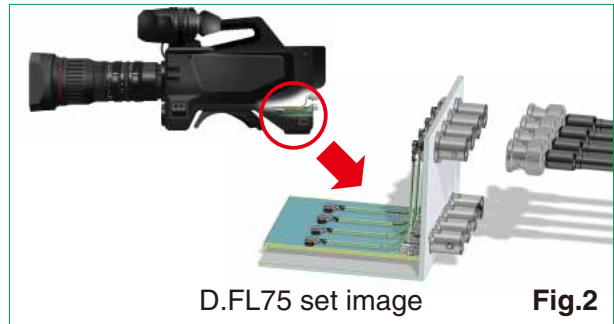
### 8. Environmental Compatibility

◆ Halogen Free

Chlorine and bromine above the standard values are not used for receptacle and plug harnesses.

\*As defined by IEC61249-2-21

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



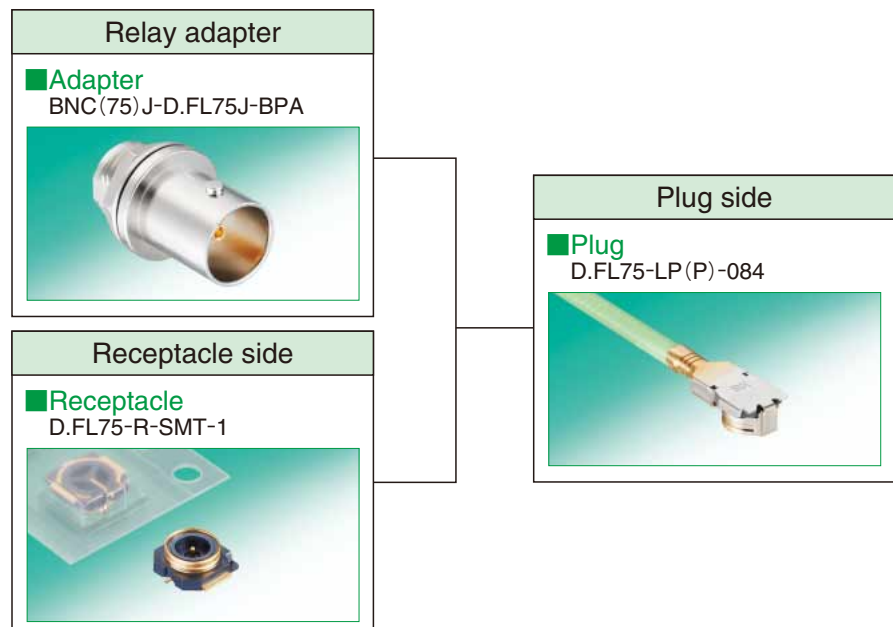
D.FL75 set image

Fig.2

## ■ Applications

Broadcasting camera, FA/commercial camera, switcher, medical equipment, large video equipment.

## ■ Function Diagram



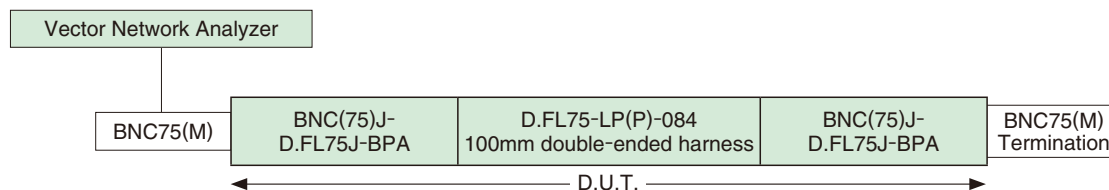
## Product Specifications

Ratings	Nominal characteristic impedance : 75Ω	Operating temperature range	-40°C to +105°C (RH 90% max.)
	Frequency range : DC to 12GHz	Storage temperature range	-20°C to +70°C (RH 90% max.)
Items	Specifications	Conditions	
1. Contact resistance	Center : 50mΩ max. Outer : 20mΩ max.	Measured with 10mA max.	
2. Insulation resistance	500MΩ min.	Measured with 250V DC	
3. Withstanding voltage	No flashover or insulation breakdown	300V AC for 1 min.	
4. V.S.W.R. (*)	1.3 max.	DC to 3GHz	
	1.5 max.	3 to 12GHz	
5. Total Insertion/ Extraction Force	Insertion force 30N max.	Measured with applicable connector	
	Extraction force First time : 7N min. 2 to 20 times : 3N min.		
6. Durability (insertion/ extraction with corresponding plug)	Contact resistance Center : 55mΩ max. Outer : 25mΩ max.	20 mating cycles	
7. Vibration resistance	No electrical discontinuity for 1μs or more. No damaged, cracks or loose parts.	Frequency of 10 to 100Hz, single amplitude of 1.5mm, acceleration of 59m/s <sup>2</sup> , for 5 cycles in 3 axial directions.	
8. Shock resistance	No electrical discontinuity for 1μs or more. No damaged, cracks or loose parts.	Acceleration of 735m/s <sup>2</sup> , for a duration of 11 ms, sine half-wave waveform, 3 cycles in 6 axial directions.	
9. Humidity resistance (Steady state)	Insulation resistance : 10MΩ min. (high humidity) Insulation resistance : 500MΩ min. (dry) No damaged, cracked or loose parts.	96 hours at temperature of 40°C and humidity of 95%	
10. Temperature cycle	No damaged, cracked or loose parts.	Temperature : -40°C → +5 to +35°C → +105°C → +5 to +35°C Time : 30 → 5 max. → 30 → 5 max. (minutes) 5 Cycles	
11. Salt spray	Meets voltage standing wave ratio (V.S.W.R.) standards	5% salt water solution for 48 consecutive hours	

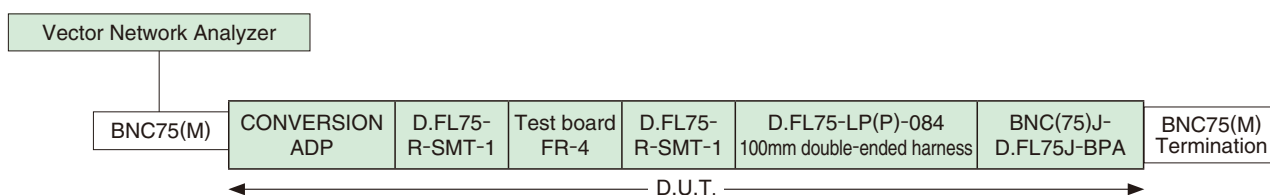
\*V.S.W.R. Measurement System

The above V.S.W.R. specification values were measured using the measurement system shown below.

### 〈Plug harness measurement system〉



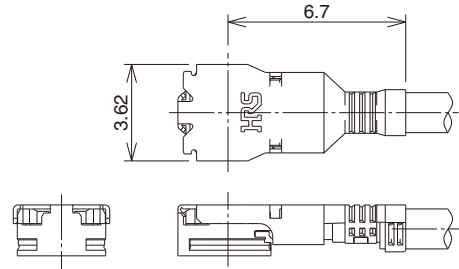
### 〈Receptacle measurement system〉



## Materials / Finish

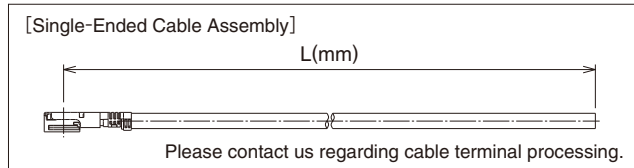
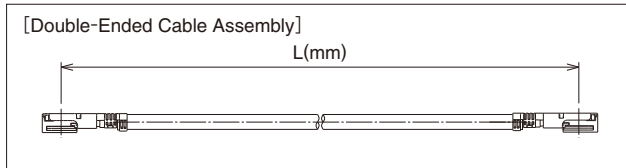
Product	Part	Materials	Finish/Remarks
Plug-right angle	Shell	Phosphor bronze	Partially gold plated
	Insulator	LCP	Black, UL94V-0
	Female center contact	Phosphor bronze	Gold plated
Receptacle	Shield	Phosphor bronze	Gold plated
	Insulator	LCP	Black, UL94V-0
	Male center contact	Phosphor bronze	Gold plated
Adapter	Shell	Brass/zinc alloy	Nickel plated
	Insulator	PTFE resin	—
	Male center contact	Phosphor bronze	Gold plated

## Plug



**[Please order plug with as cabled assembly]**

## How to Specify Plug Cable Assembly



## Cable Assembly Product Number Structure

Refer to this page when determining product specifications by model types.  
Please place orders with part numbers listed in this catalog.  
The characteristics and specifications of the product described in this catalog are reference values. Please make sure to check the latest delivery specifications at the time of product use.

**DFL75 - 2LPP - 084N 9 D - [ ] - L**

1 2 3 4 5 6 7

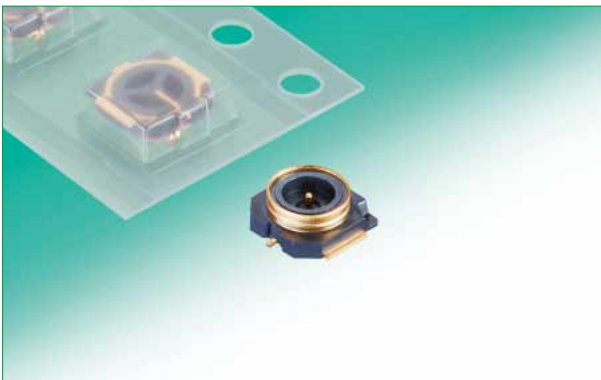
① Series name : D.FL75	⑤ Cable exterior conductor specifications D : Copper tape+exterior single braid
② Assembly type 2LPP : Double-ended	⑥ Connector direction (double-ended) A : Same direction AC : Reversed 180°
③ Cable type 084N : $\phi 1.5$ mm cable	⑦ Total Length L L length (mm)
④ Cable color 9 : Green	

## Standard Tolerances for L

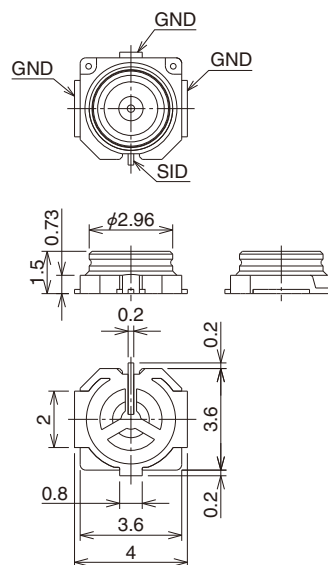
Total length (mm)	Standard Tolerance (mm)
$50 \leq L \leq 200$	$\pm 4$
$200 < L \leq 500$	$\pm 8$
$500 < L \leq 1000$	$\pm 12$
$1000 < L$	$\pm 1.5\%$

Note : 50mm is the shortest length (L) that can be made.

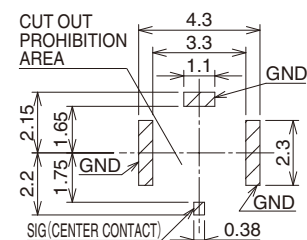
## Receptacle



## Recommended PC Board Pattern/ Metal Mask Drawing

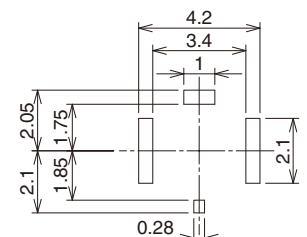


### Recommended PC Board Pattern Drawing



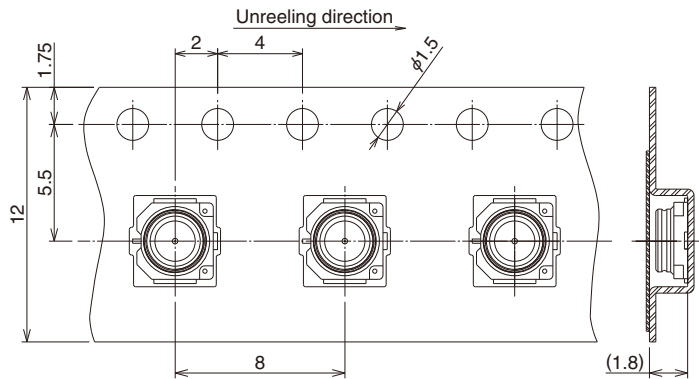
### Recommended Metal Mask Drawing

Thickness : 0.10mm/0.12mm



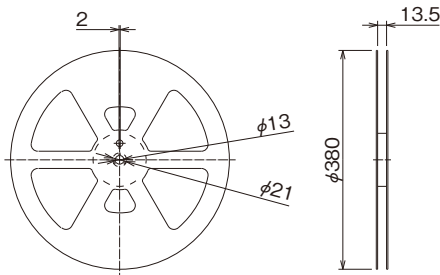
Part No.	HRS No.	Packaging	Mass (g)
D.FL75-R-SMT-1(01)	331-0079-0 01	100 pieces per pack	0.031/pc
D.FL75-R-SMT-1(40)	331-0079-0 40	5,000 pieces per reel	

●Embossed Carrier Tape Dimensions  
(JIS-C-0806 / IEC60286 compliant)



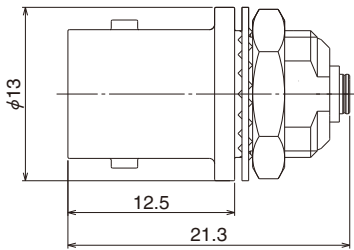
The above diagram shows the embossed carrier tape dimensions used to package D.FL75-R-SMT-1(40).

●Reel Dimensions

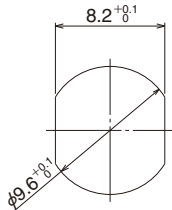


■Conversion Adapter

●BNC(75) Conversion Adapter (Mating portion-D.FL75 side : Jack, BNC(75) jack)



Panel mounting hole dimensions

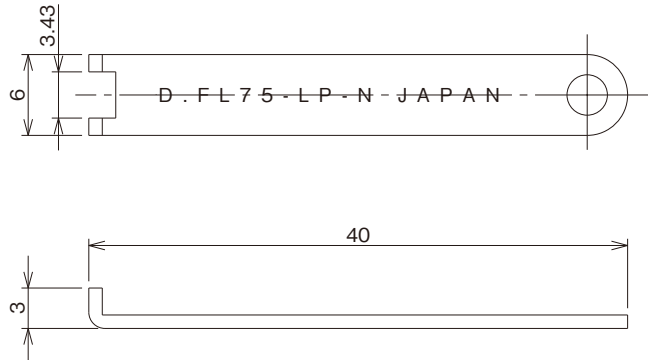


Recommended thickness / dimensions : 0.8-2.7mm

Part No.	HRS No.	Mass (g)
BNC(75)J-D.FL75J-BPA	311-0015-0	5.66/pc

■Plug Extraction Tool

Recommended unmating tool the plug.

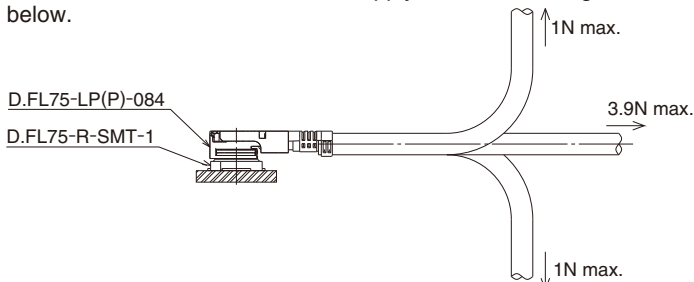


Part No.	HRS No.	Mass (g)
D.FL75-LP-N	311-0080-0	1.85/pc

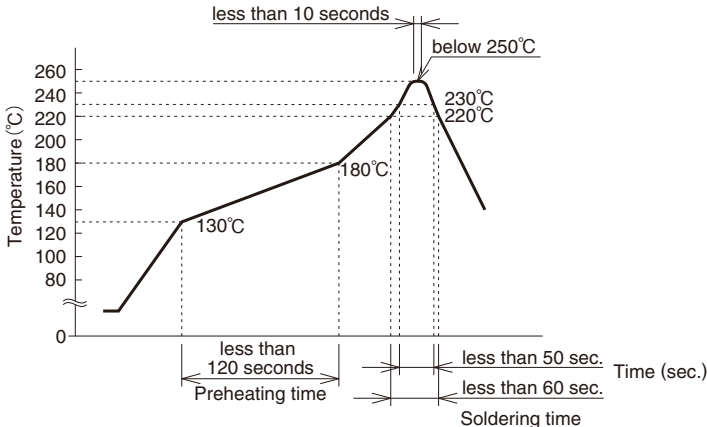
There is a possibly of deforming / damaging the plug extraction tool when dropped, etc., please handle with care.

## ◆ Usage Precautions

### 1. Plugs

(1) Mating/Unmating	<ol style="list-style-type: none"> <li>1. To disconnect the connector, insert the extraction tool (D.FL75-LP-N) under the connector flange. Pull in a perpendicular direction in line with the connector's mating axis. Do not unmate the plug by pulling on the cable, this can damage the connector performance.</li> <li>2. When mating, align the mating axes between the receptacle and cable assembly, and insert the cable assembly downward and perpendicular into the receptacle. Do not insert the cable assembly at a slanted angle.</li> </ol>
(2) Tolerable load to a cable after mating	<p>Once the connector has been mated do not apply forces exceeding the values in the diagram below.</p> 
(3) Precautions	Do not use excessive prying form to mate or un-mate the connectors as it may lead to damage.

### 2. Receptacles

(1) Recommended reflow temperature profile (reference)	<p><b>Lead-free paste solder temperature profile (reference)</b></p>  <ol style="list-style-type: none"> <li>1. The temperatures indicated are the surface temperatures of the printed circuit board near the terminal contact points.</li> <li>2. Reflow soldering should be performed on the surface of the printed circuit board at a max temperature of 250°C or less.</li> <li>3. Temperature profile may vary due to external mounting conditions such as solder paste, manufacturer, PCB size and other soldering materials.</li> </ol>
(2) Recommended metal mask thickness	0.1mm-0.12mm
(3) Reflow cycles	Maximum of 2 cycles

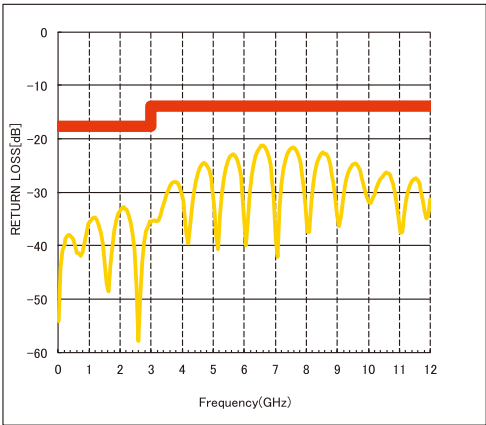
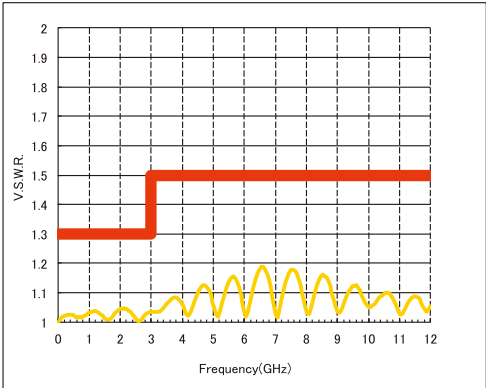
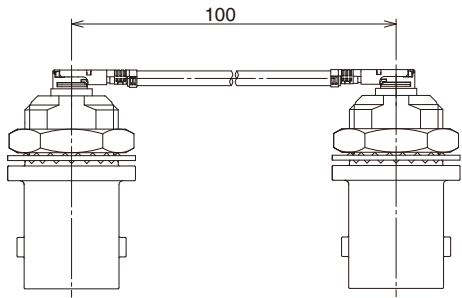
### 3. Operating Environment and Storage Conditions

(1) Operation environment	<p>This product was designed assuming use in a normal environment. Please be advised that using this product in the environments described below may result in discoloration and other types of degradation.</p> <ul style="list-style-type: none"> <li>•Exposure to excessive amounts of fine particles and dust.</li> <li>•Regions/ areas with a high concentration of gases like sulfur dioxide, hydrogen sulfide and nitrogen dioxide.</li> <li>•Areas with drastic temperature change, such as locations near a heater.</li> </ul>
(2) Storage conditions	<p>Store this product in Hirose's packaging or similar conditions.  Temperature : -10 to +40°C Humidity : 85% or less (recommended storage conditions)  We recommend the product be used within six months from delivery.  Products that have been stored beyond the recommended storage period need to be tested for mounting and solderability before use.</p>

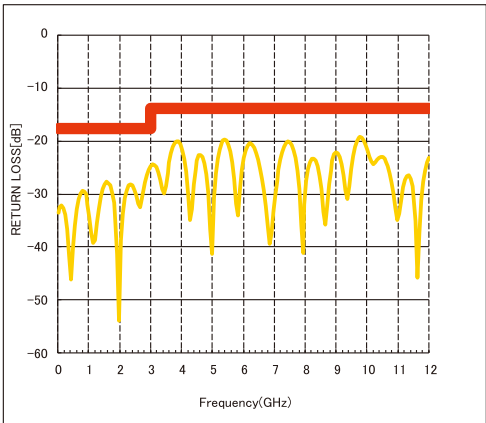
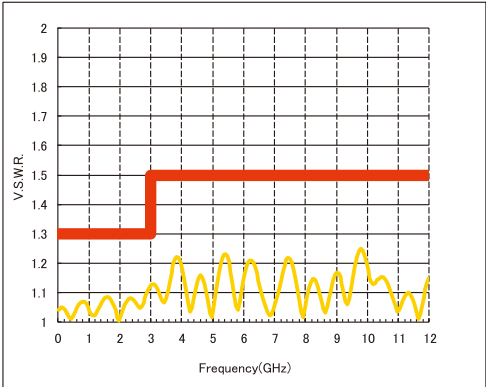
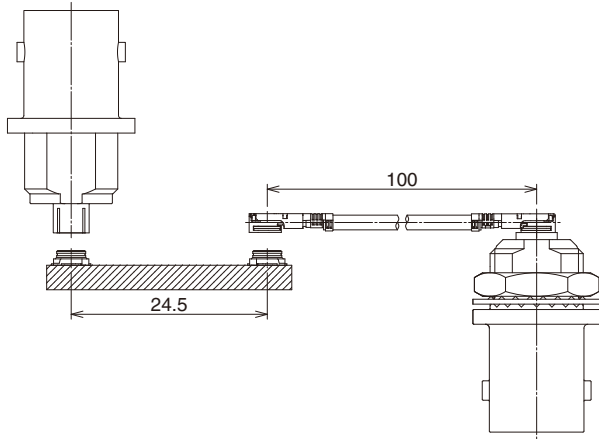
High Frequency Characteristics of related 75Ω, 12G-SDI Hirose products

D.FL75 Series

Plug assembly High-frequency characteristics



Receptacle High-frequency Characteristics



Please refer our BNC(75) series when mounting a BNC receptacle directly on to the board.



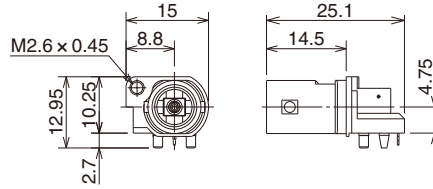
## 12G-SDI standard compatible BNC(75) connector

12G (UHD)-SDI (SMPTE ST-2082) transmission compatible.

Meets 12G-SDI standard while maintaining superior reflection characteristics.

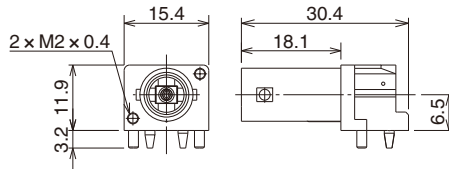
### Right angle receptacle

#### Center contact THR type, 16mm minimum PCB mount pitch



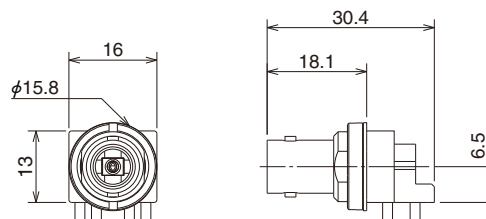
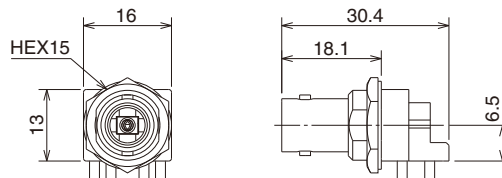
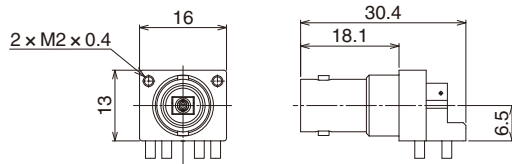
Part No.	HRS No.	Mass (g)
BNC(75)-PLR-PC(D)-12G-3	302-0088-0	5.3/pc

#### Center contact SMT type, 16mm minimum PCB mount pitch



Part No.	HRS No.	Panel mount	Minimum PCB mount pitch	Mass (g)
BNC(75)-PLR-PC-12G-2	302-0085-0	Screw : M2×0.4	16mm	9.4/pc

#### Center contact SMT type

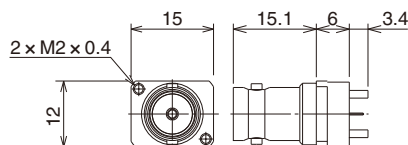


Part No.	HRS No.	Panel mount	Minimum PCB mount pitch	Mass (g)
BNC(75)-PLR-PC-12G-1	302-0083-0	Screw : M2×0.4	17mm	13.6/pc
BNC(75)-BLR-PC-12G	302-0081-0	Nut : HEX15	17.5mm	
BNC(75)-BLR-PC-12G(01)	302-0081-0 01	Nut : φ15.8	16.5mm	



## ■ Straight receptacle

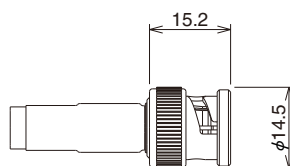
### ● Center contact THR type, 16mm minimum PCB mount pitch



Part No.	HRS No.	Panel mount	Minimum PCB mount pitch	Mass (g)
BNC(75)-PR(6)-PC-12G	302-0086-0	Screw : M2x0.4	16mm	9.65/pc

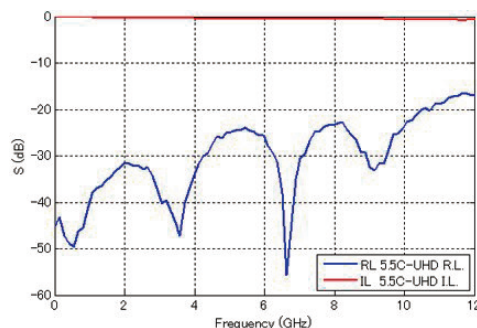
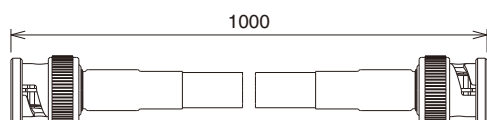
## ■ Plug

### ● Straight crimp type

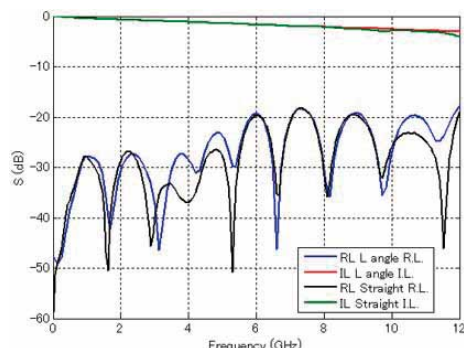
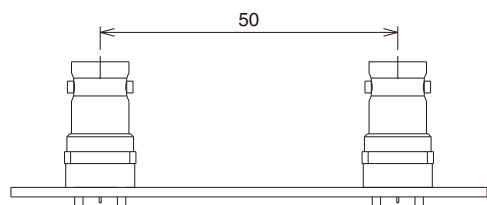


Part No.	HRS No.	Applicable cable	Mass (g)
BNC(75)-P-5.5C-12G	302-0091-0	5.5C-UHD/FW	11.65/pc
BNC(75)-P-3.3C-12G	302-0092-0	3.3C-UHD/FW	11.6/pc

## ◆ Plug assembly High-frequency characteristics



## ◆ Receptacle High-frequency characteristics



Алматы (7273)495-231  
 Ангарск (3955)60-70-56  
 Архангельск (8182)63-90-72  
 Астрахань (8512)99-46-04  
 Барнаул (3852)73-04-60  
 Белгород (4722)40-23-64  
 Благовещенск (4162)22-76-07  
 Брянск (4832)59-03-52  
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 Владикавказ (8672)28-90-48  
 Владимир (4922)49-43-18  
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 Вологда (8172)26-41-59  
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 Ижевск (3412)26-03-58  
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