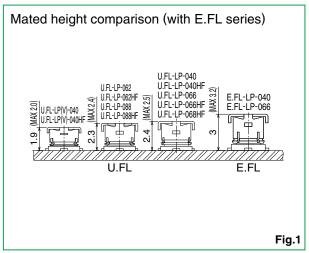
Ultra Small Surface Mount Coaxial Connectors - 1.9mm or 2.3mm, 2.4mm Mated Height

U.FL Series



Up to 6GHz



■Features

1. Nominal mated height of 1.9 or 2.3mm, 2.4mm (Max. 2.0 or 2.4mm, 2.5mm)(Fig.1)

2. Small mounting area

The receptacle occupies an area of 7.7mm².

3. Light weight

Receptacle: 15.7mg

4. Supports high frequency up to 6GHz

To meet the frequency requirements of a wide variety of miniature devices, the connectors offer high frequency performance from DC to 6GHz, with a V.S.W.R. of 1.3 to 1.5 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

Standard ultra-fine coaxial cable of 0.81mm diameter (single braid shielding) is used for the plug termination, assuring secure and stable connections.

7. Simple connector mating / unmating

Use of available extraction tool assures correct disconnection of the plug and receptacle.

8. Verification of the fully mated condition

Tactile click sensation confirms fully mated condition, assuring complete electrical and mechanical connection.

9. Halogen-free*(Receptacle,plug(HF type))

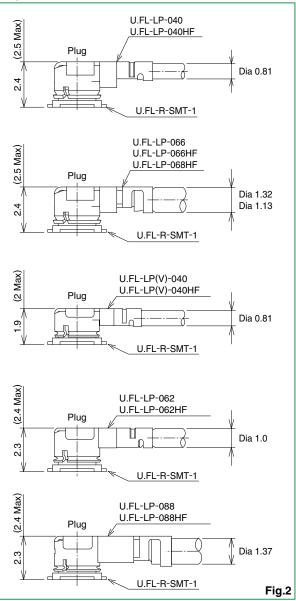
*As defined by IEC61249-2-21

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

Applications

Mobile phones, wireless communication devices, electronic measuring instruments, GPS, wireless LAN, Bluetooth and any application requiring high frequency transmission using small coaxial connectors.

●Space Factor of Mated Connector

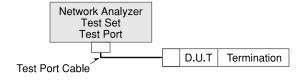


■Product Specifications

Duline	Nominal characte	eristic impedance	50 ohms	Operating temperature range	-40°C to +90°C	Storage temperature range	-30°C to +70°C	
Ratings	Frequency ra	nge	DC to 6GHz	Operating humidity	90%RH max.	Storage humidity	90%RH max.	
Item Specification				Conditions				
Contact resistance		Center : 20 m Outer : 10 m	ohms max.		10 mA max.			
2. Insulation	on resistance	500 M ohms i	nin.		100 V DC			
3. Withsta	nding voltage	No flashover	or insulation bre	akdown.	200 V AC / 1	minute		
			Part N	lo.	Up to 3	3 GHz	to 6GHz	
		U.FL-LP-040	k dia.0.81mm C	oaxial Cable Assembly	1.3 N	Max 1	.35 Max	
		U.FL-LP(V)-0	40* dia.0.81mm	Coaxial Cable Assembly	1.3 N	Max 1	.3 Мах	
4. V.S.W.I	R. *	U.FL-LP-068	k dia.1.13mm C	paxial Cable Assembly	1.3 N	Max 1	.4 Max	
		U.FL-LP-066* dia.1.32mm Coaxial Cable Assembly			1.3 Max		.5 Max	
		U.FL-LP-062* dia.1mm Coaxial Cable Assembly					.3 Max	
		U.FL-LP-088	k dia.1.37mm C	paxial Cable Assembly	1.3 N	1.3 Max 1.4 Max		
-	ity / un-mating, rresponding	Contact resist Center : 25 m Outer : 15 m	ohms max.		30 cycles			
6. Vibratio	on		discontinuity of 1	•	Frequency: 10 to 100 Hz, single amplitude of 1.5mm, acceleration of 59m/s², for 5 cycles in the direction of of the 3 axis.		direction of each	
7. Shock		140 damage, c	racks of parts o	iisiosation.	Acceleration of 735 m/s², 11ms duration, sine half-wave waveform, 3 cycles in each of 3 axes.			
8. Humidit (Steady	,	Insulation res	cracks or parts d istance 10 M oh istance 500 M o	ms min.(humidity high)	96 hours at temperature of 40°C and humidity of 95%		,	
		No damage, o	racks or parts d	lislocation.	Temperature: $-40^{\circ}C \rightarrow +5 \text{ to } +35^{\circ}C \rightarrow +90^{\circ}C \rightarrow +5 \text{ to } +35^{\circ}C$			
9. Temper	ature cycle	Contact resist	ance: 25 m ohm	ns max. (Center)	Time: 30min.	→ 3min. → 30min. →	3min.	
			15 m ohn	ns max. (Outer)	5 cycles			
10. Salt sp	oray	No excessive	corrosion		5% salt water	5% salt water solution, 48 hours		

*V.S.W.R. Measurement System

The above V.S.W.R. standard values were measured using the measurement connection shown below.



- Note 1: Cable type connectors were measured with SMA conversion adapters attached to both ends of the harness product of a suitable 100cm cable.
- Note 2: Board type connectors were mounted to a 50Ω glass epoxy board and measurements were conducted with SMA conversion adapters attached.

■Material

Plug-right angle

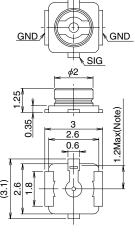
Part	Material	Finish/Remarks
Shell	Phosphor bronze	Silver plated
	PBT, Color: Black	UL94V-0(040,066, LP(V)-040, 062, 088)
Insulator	PBT, Color: Gray	UL94HB(LP(V)-040HF)
	LCP, Color: Milky-white	UL94V-0(040HF,066HF, 068HF, 062HF, 088HF)
Female center contact	Phosphor bronze	Gold plated

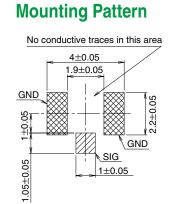
•Receptacle

•		
Part	Material	Finish/Remarks
Shell	Phosphor bronze	Silver plated
Insulator	LCP, Color: Milky-white	UL94V-0
Male center contact	Brass	Gold plated

■Receptacles







● Recommended PCB

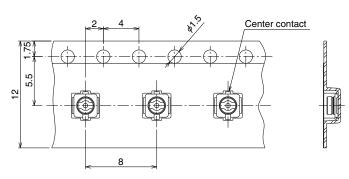
U.FL-R-SMT-1

Part No.	HRS No.	Packaging	Weight / EA	RoHS
U.FL-R-SMT-1(01)	331-0472-2 01	100 pcs/pack		
U.FL-R-SMT-1(60)	331-0472-2 60	4,000 pcs/reel	15.7/mg	0
U.FL-R-SMT-1(80)	331-0472-2 80	10,000 pcs/reel		

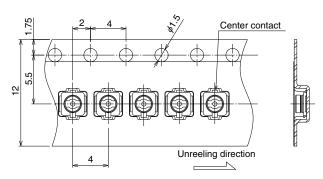
Note: This area may be covered by insulating material.

● Embossed Carrier Tape Dimensions(IEC 60286-3 compliant)

Embossed Carrier Tape Dimensions

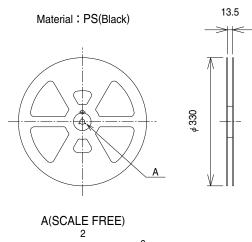


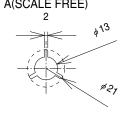
U.FL-R-SMT-1(60): 8mm pitch



U.FL-R-SMT-1(80): 4mm pitch

Reel Dimensions





■Cable Assembly (Plug)



	U.FL-LP-040 U.FL-LP-040HF	U.FL-LP-066 U.FL-LP-066HF U.FL-LP-068HF	U.FL-LP(V)-040 U.FL-LP(V)-040HF(06)	U.FL-LP-062(06) U.FL-LP-062HF(06)	U.FL-LP-088(06) U.FL-LP-088HF(06)
Part No. Size	88	86.	3.4	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	SS 5
Mated Height	2.5mm Max. (2.4mm Nom.)	2.5mm Max. (2.4mm Nom.)	2.0mm Max. (1.9mm Nom.)	2.4mm Max. (2.3mm Nom.)	2.4mm Max. (2.3mm Nom.)
Applicable cable	Dia. 0.81mm	Dia. 1.13mm and Dia. 1.32mm	Dia. 0.81mm	Dia. 1mm	Dia. 1.37mm
Weight (mg)	54	59	35	45.5	72
Environmental compliant	The	article excellent end HF	other than halogen-free, i	t only as for RoHS comp	pliant

●Cable Guide

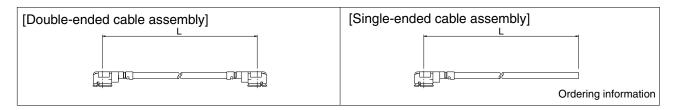
Cubic	GGI	u U						
	Cable							
Description		Inner	Dielectric	Outer	Jacket	Flame Retardant	Nominal a	ttenuation
	Туре	Conductor*	Diameter	Conductor*	Diameter	Grade	At 3GHz	At 6GHz
Dia.0.81mm	0.4	7/0.05 SA	Dia.0.4mm	Single	Dia.0.81mm		C FO-ID/	0.5040/
Coaxial Cable	04	(AWG#36)	FEP	Shield TA	FEP		6.52dB/m	9.52dB/m
Dia.1.13mm	000	7/0.08 SA	Dia.0.68mm	Single	Dia.1.13mm		0.70.10/	5.44 JD/
Coaxial Cable	068	(AWG#32)	FEP	Shield TA	FEP	_	3.73dB/m	5.44dB/m
Dia.1.32mm	000	7/0.08 SA	Dia.0.66mm	Double	Dia.1.32mm		0.040/	5 C-ID/
Coaxial Cable	066	(AWG#32)	FEP	Shield TA	FEP	1004	3.8dB/m	5.6dB/m
Dia.1mm	000	7/0.071 SA	Dia.0.62mm	Tape, single	Dia.1mm	- VW-1	0.4.15/	4.4.15/
Coaxial Cable	062	(AWG#33)	FEP	Shield TA	FEP		3.1dB/m	4.4dB/m
Dia.1.37mm	000	7/0.102 SA	Dia.0.88mm	Single	Dia.1.37mm		0.040/	4.0-10/
Coaxial Cable	088	(AWG#30)	FEP	Shield TA	FEP		2.8dB/m	4.3dB/m
Dia.1.37mm	000	7/0.102 SA	Dia.0.88mm	Tape, Single	Dia.1.37mm] [0.E-ID/	0.4-10/
Coaxial Cable	088	(AWG#30)	FEP/PTEE	Shield TA	FEP		2.5dB/m	3.4dB/m

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

⁽data as provided by cable suppliers, for reference only)

* SA: Silver plated annealed copper wire, TA: Tin plated annealed copper wire

◆How To Specify Cable Assembly



Ordering information

Used plug: U.FL-LP(V)-040, U.FL-LP(V)-040HF(06) U.FL-LP-040, U.FL-LP-040HF(Dia.0.81mm)

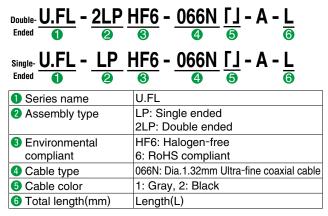
Double- U.FL - 2LP HF6 - 04N $\boxed{1}$ \boxed{V} - A - L $\boxed{0}$ Single- U.FL - LP HF6 $\boxed{0}$ $\boxed{0}$

Series name	U.FL
2 Assembly type	LP: Single ended LPV: Plug(V) Single ended 2LP: Double ended 2LPV plug(V) Double ended
3 Environmental compliant	HF6: Halogen-free 6: RoHS compliant
4 Cable type	04N: Dia.0.81mm Ultra-fine coaxial cable
6 Cable color	1: White, 2: Black
Cable outer conductor	TV: Tin plated braided wire
Total length(mm)	Length(L)

Used plug: U.FL-LP-066, U.FL-LP-068HF(Dia.1.13mm)

Double- U.FL - 2LP HF6 - 068N [] T HF6 - 068N [] T - A Ended -U.FL Series name 2 Assembly type LP: Single ended 2LP: Double ended 3 Environmental HF6: Halogen-free compliant 6: RoHS compliant 4 Cable type 068N: Dia.1.13mm Ultra-fine coaxial cable Gable color 1: Gray, 2: Black, 3: White 6 Cable outer T: Tin plated braided wire conductor 7 Total length(mm) Length(L)

Used plug: U.FL-LP-066, U.FL-LP-066HF(Dia.1.32mm)



Used plug: U.FL-LP-062(06), U.FL-LP-062HF(06)(Dia.1mm)



Series name	U.FL
2 Assembly type	LP: Single ended 2LP: Double ended
3 Environmental compliant	HF6: Halogen-free 6: RoHS compliant
4 Cable type	062N: Dia.1mm Ultra-fine coaxial cable
6 Cable color	1: Gray, 2: Black, 3: White
6 Cable outer conductor	D: Copper tape+ Tin plated braided wire
Total length(mm)	Length(L)

Used plug: U.FL-LP-088(06), U.FL-LP-088HF(06)(Dia.1.37mm)

Double-	U.FL -	2LP	HF6 -	088K		Τ	- A - L
Ended	0	2	8	4	6	6	7
Single-	U.FL -	LP	HF6 -	088K		T	- A - L
Ended	0	2	<u> </u>	4	6	6	7

Ended 1	8 4 5 6
Series name	U.FL
2 Assembly type	LP: Single ended 2LP: Double ended
3 Environmental compliant	HF6: Halogen-free 6: RoHS compliant
Cable type	088K: Dia.1.37mm Ultra-fine coaxial cable
6 Cable color	1: Gray, 2: Black, 3: White
6 Cable outer conductor	T: Tin plated braided wire PD: Copper tape + Tin plated braided wire
Total length(mm)	Length(L)

Standard tolerances for (L)

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

Note: Minimum available length(L) is 35mm

■Conversion Adapters

●SMA Conversion Adapter (Mating portion: U.FL side jack - SMA side plug)



Note: The U.FL side mating portions has a lower lock retention force than the regular product, therefore, cannot be used for purposes other than performance measurements.

SMA Conversion Adapter (Mating portion: U.FL side plug - SMA side jack)



Note: The U.FL side mating portions has a lower lock retention force than the regular product, therefore, cannot be used for purposes other than performance measurements.

●SMA Conversion Adapter (Mating portion: U.FL side plug - SMA side jack)



Note: This connector is used by compressing the mated portion of U.FL side onto the U.FL-R-SMT-1 portion.

■Receptacle to Inspection



This receptacle is used for inspecting the continuity, withstand voltage, and other aspects of the harness product.

◆Plug Extraction Tool

This tool is used for extraction from a mating condition.

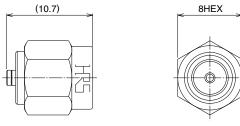


Note: Part No. U.FL-LP-N-2 for U.FL-LP-040/066/088. Part No. U.FL-LP(V)-N-2 for U.FL-LP(V)-040/U.FL-LP-062.

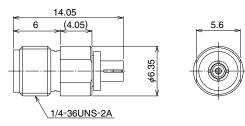
▶ Plug Insertion Tool

This tool is for mating U.FL series plug into receptacle.

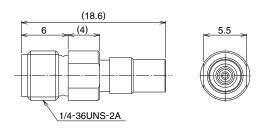




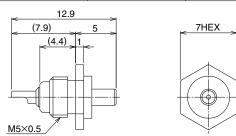
Part No.	HRS No.	RoHS
HRMP-U.FLJ(40)	311-0300-2 40	0



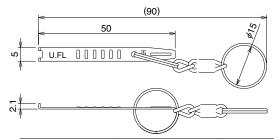
Part No.	HRS No.	RoHS
HRMJ-U.FLP(40)	311-0301-5 40	0



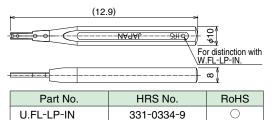
Part No.	HRS No.	RoHS
HRMJ-U.FLP-ST1(40)	311-0385-5 40	0



Part No.	HRS No.	RoHS
U.FL-R-1	331-0466-0	0



Part No.	HRS No.	RoHS
U.FL-LP-N-2	331-0494-5)
U.FL-LP(V)-N-2	331-0493-2	

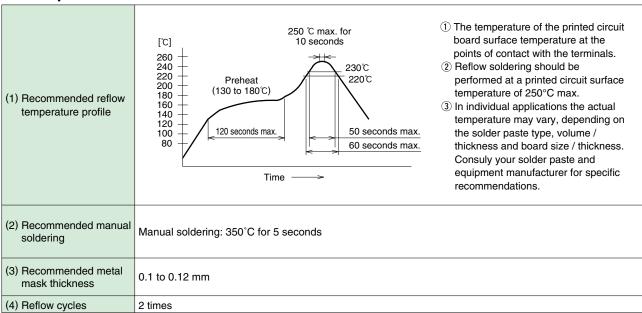


● Usage Precautions

1. Plugs

(1) Mating / unmating	1) To disconnect connectors, insert the end portion of U.FL-LP-N-2 and U.FL-LP(V)-N-2 under the connector flanges and pull off vertically, in the direction of the connector mating axis. 2) To mate the connectors, the mating axes of both connectors must be aligned and the connectors can be mated. The "click" will confirm fully mated connection.Do not attempt to insert on an extreme angle. U.FL-R-SMT-1	
(2) Pull forces on the cable after connectors are mated.	After the connectors are mating, do not apply a load to the cable in excess of the values indicated in the diagram below. U.FL-LP Cable Assembly 1N max (U.FL-LP(V)-040, U.FL-LP-062) 2N max (U.FL-LP-040, U.FL-LP-066, U.FL-LP-088) 3N max (U.FL-LP(V)-040, U.FL-LP-062) 4N max (U.FL-LP-040, U.FL-LP-066, U.FL-LP-088) 1N max (U.FL-LP-040, U.FL-LP-066, U.FL-LP-088)	
(3) Precautions	Do NOT forcefully twist or deform wires.	

2. Receptacles



3. Operating environment and storage conditions

	The connectors are not designed to operate in the following environments:
	Exposed to a excessive amounts of fine particles and dust
(1) Operating environment	• Regions and places having a high density of sulfur dioxide, hydrogen sulfide, nitrogen dioxide or other corrosive
	gasses.
	Environments having large rapid variations in temperature.
	Store in the Hirose Electric packaging.
(2) Storage conditions -	Temperature: -10 to +40°C, Humidity: 85% max.
	Use within 6 months of delivery.
Receptacle	Receptacles for which the storage period has elapsed must be tested for solderability to the PC board
	mounting surface.

■SMA cable type

SMA

Straight Plug



Straight Jack



●Panel mount Jack

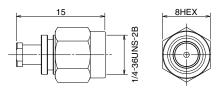


Panel mount Jack

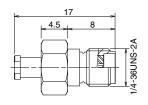


● Panel mount Jack (Bulkhead)



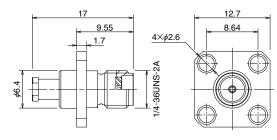


Part No.	HRS No.	Applicable cable	RoHS
HRM-200-040PBN(40)	323-0790-3 40	Dia. 0.81 type	
HRM-200-066PBN(40)	323-0791-6 40	Dia. 1.13, Dia.1.32 type	
HRM-200-088PBN(40)	323-0800-5 40	Dia. 1.37, Dia.1.48 type	

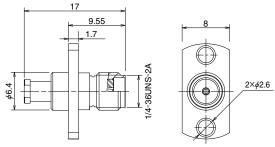




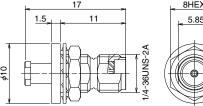
Part No.	HRS No.	Applicable cable	RoHS
HRM-200-040JBN(40)	323-0792-9 40	Dia. 0.81 type	
HRM-200-066JBN(40)	323-0793-1 40	Dia. 1.13, Dia.1.32 type	
HRM-200-088JBN(40)	323-0801-8 40	Dia. 1.37, Dia.1.48 type	



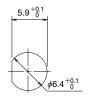
Part No.	HRS No.	Applicable cable	RoHS
HRM-200-040PJ4BN(40)	323-0795-7 40	Dia. 0.81 type	
HRM-200-066PJ4BN(40)	323-0796-0 40	Dia. 1.13, Dia.1.32 type	
HRM-200-088PJ4BN(40)	323-0803-3 40	Dia. 1.37, Dia.1.48 type	



Part No.	HRS No.	Applicable cable	RoHS
HRM-200-040PJ2BN(40)	323-0794-4 40	Dia. 0.81 type	
HRM-200-066PJ2BN(40)	323-0788-1 40	Dia. 1.13, Dia.1.32 type	0
HRM-200-088PJ2BN(40)	323-0802-0 40	Dia. 1.37, Dia.1.48 type	





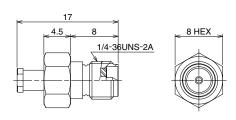


Part No.	HRS No.	Applicable cable	RoHS
HRM-200-040BPJBN(40)	323-0797-2 40	Dia. 0.81 type	
HRM-200-066BPJBN(40)	323-0798-5 40	Dia. 1.13, Dia.1.32 type	
HRM-200-088BPJBN(40)	323-0804-6 40	Dia. 1.37, Dia.1.48 type	

Reverse polarity SMA

Straight Jack

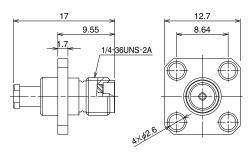




Part No.	HRS No.	Applicable cable	RoHS
SMA(R)-200-040JBN	323-0926-3	Dia. 0.81 type	
SMA(R)-200-066JBN	323-0931-3	Dia. 1.13, Dia.1.32 type	
SMA(R)-200-088JBN	323-0904-0	Dia. 1.37 type	

● Panel mount Jack

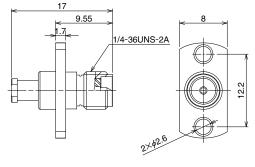




Part No.	HRS No.	Applicable cable	RoHS
SMA(R)-200-040PJ4BN	323-0928-9	Dia. 0.81 type	
SMA(R)-200-066PJ4BN	323-0932-6	Dia. 1.13, Dia.1.32 type	
SMA(R)-200-088PJ4BN	323-0934-1	Dia. 1.37 type]

● Panel mount Jack

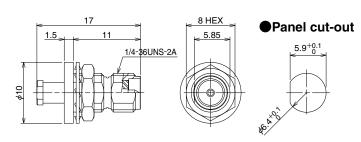




Part No.	HRS No.	Applicable cable	RoHS
	711.10 7.10	11	110110
SMA(R)-200-040PJ2BN	323-0929-1	Dia. 0.81 type	
SMA(R)-200-066PJ2BN	323-0933-9	Dia. 1.13, Dia.1.32 type	
SMA(R)-200-088PJ2BN	323-0935-4	Dia. 1.37 type	

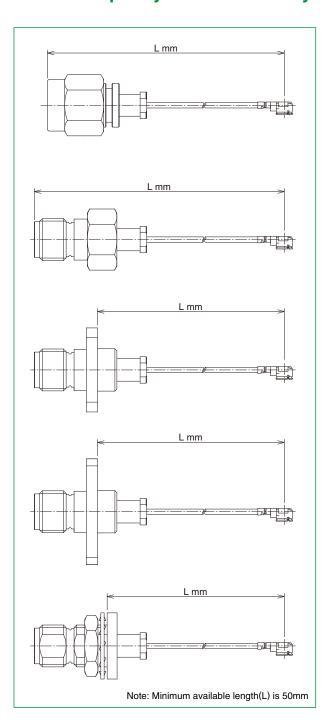
● Panel mount Jack (Bulkhead)





Part No.	HRS No.	Applicable cable	RoHS
SMA(R)-200-040BPJBN	323-0927-6	Dia. 0.81 type	
SMA(R)-200-066BPJBN	323-0902-5	Dia. 1.13, Dia.1.32 type	
SMA(R)-200-088BPJBN	323-0901-2	Dia. 1.37 type	

■How To Specify Cable Assembly



Ordering information



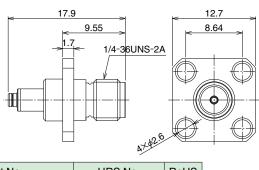
•	
Series name	HRM : SMA type
	SMAR : Reverse polarity SMA
2 Connector type	P : Plug
	J : Jack
	PJ : Panel mount Jack(Four screws)
	PJ2 : Panel mount Jack(Two screws)
	BPJ: Panel mount Jack(Bulkhead)
3 Cable type	04 : Dia. 0.81mm Coaxial cable
	066 : Dia. 1.32mm Coaxial cable
	068 : Dia. 1.13mm Coaxial cable
	088 : Dia. 1.37mm Coaxial cable
4 Cable color	04 1: White, 2: Black
	066
	068 1: Gray, 2: Black
	088
5 Total length(mm)	Length(L)

■SMA conversion adapter

SMA

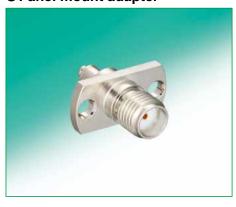
● Panel mount adapter

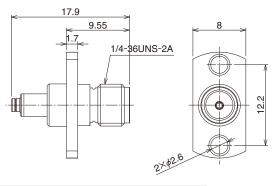




Part No.	HRS No.	RoHS
HRMJ-U.FLJ-PA4	311-0465-2	0

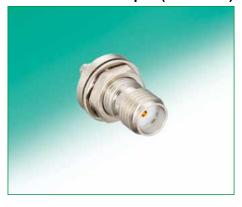
Panel mount adapter

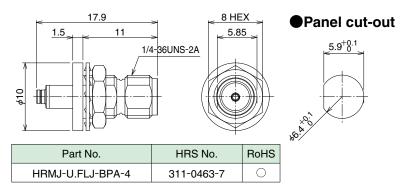




Part No.	HRS No.	RoHS
HRMJ-U.FLJ-PA2	311-0467-8	0

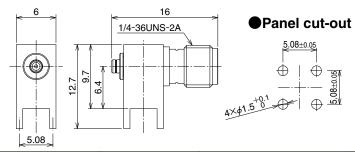
● Panel mount adapter(Bulkhead)





●PCB mount adapter



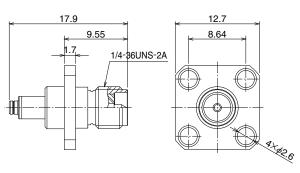


Part No.	HRS No.	Finish	RoHS
HRMJ-U.FLJ-PC	311-0411-3	Nickel plated	
HRMJ-U.FLJ-PC(01)	311-0411-3 01	Gold plated	

Reverse polarity SMA

●Panel mount adapter

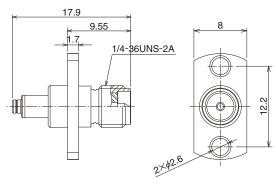




Part No.	HRS No.	RoHS
SMA(R)J-U.FLJ-PA4	311-0466-5	0

Panel mount adapter

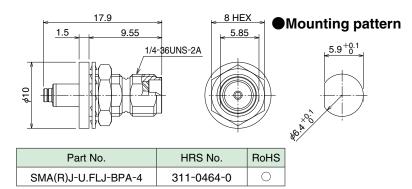




Part No.	HRS No.	RoHS
SMA(R)J-U.FLJ-PA2	311-0468-0	0

Panel mount adapter (Bulkhead)







HIROSE ELECTRIC CO.,LTD.

2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN TEL: +81-45-620-3526 Fax: +81-45-591-3726 http://www.hirose.com

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