

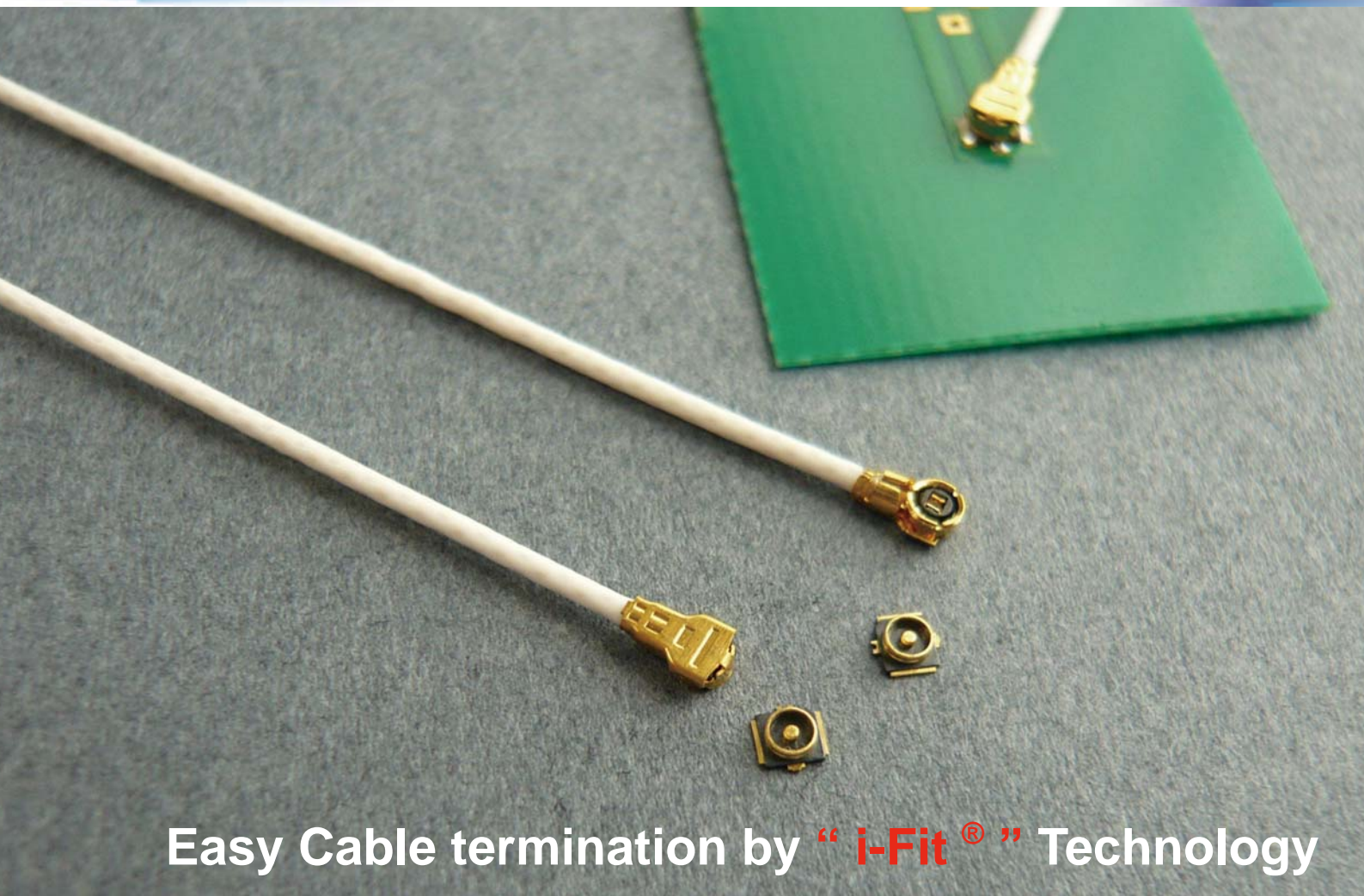
Micro RF Coax Connector

MHF[®] Series

IEEE802.11a/b/g/n, WiMAX,
Bluetooth, ZigBee and
MIMO (Multiple input and multiple output)

RoHS Compliance

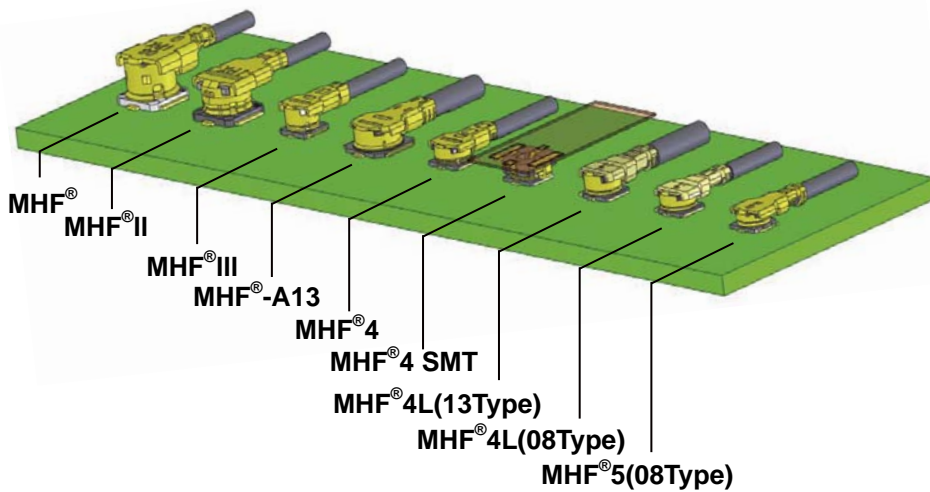
Halogen - Free^{*1}



Easy Cable termination by “**i-Fit[®]**” Technology

MHF[®] Series

Micro RF coax connector



【Major Application】

Wireless LAN Antenna

- ▶ Mobile Phone
- ▶ Smart Phone
- ▶ Note Book PC
- ▶ Gaming Device
- ▶ Access Point

【Key Features】

- ▶ SMT Receptacle and Cable plug Connector
- ▶ Super low profile : 1.2mm to 2.5mm MAX. Mating profile
- ▶ Applicable Cable :
φ0.64mm / 0.81mm / 0.95mm / 1.13mm / 1.32mm / 1.37mm and 1.80mm Coaxial Cable
- ▶ High productivity and stable performance
- ▶ Solderless and easy cable termination by “i-Fit[®]” technology
- ▶ Applicable Technology :
IEEE802.11 a/b/g/n, WiMAX, Zigbee, Bluetooth, MIMO, WiGig, M.2(MHF[®] 4L) etc.

【Specifications】

- ▶ Frequency Range : DC to 6GHz (V.S.W.R. : 1.3MAX at 0.1~3GHz, 1.45MAX at 3~6GHz)
- ▶ Characteristic Impedance : 50 ohm (Nominal)
- ▶ Temperature : -40°C to +90°C
- ▶ Rated Voltage : AC 60V
- ▶ Contact Resistance : 20m ohm MAX. (Signal) and 20m ohm MAX. (Ground)
- ▶ Withstand Voltage : AC 200V
- ▶ Insulation Resistance : 500M ohm MIN. / DC 100V

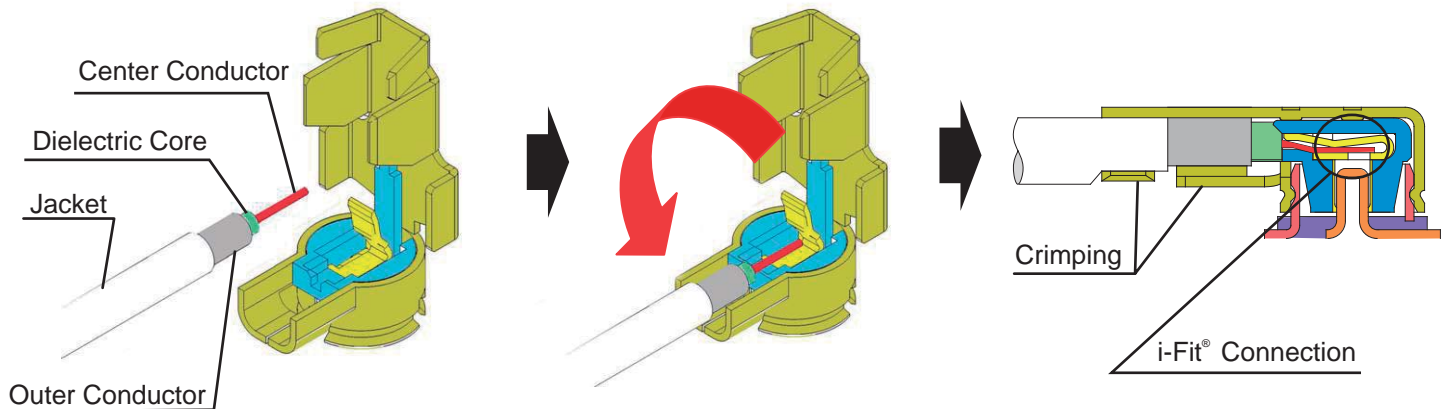
* 1..... [Halogen-Free]

Definition of Halogen-free : IEC 61249-2-21

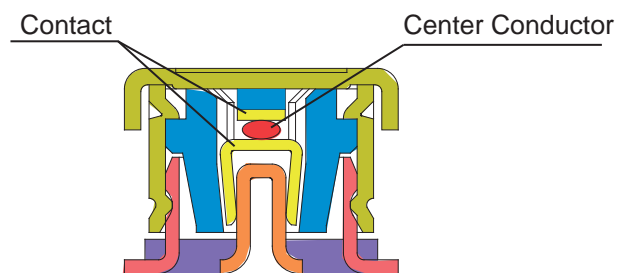
- ▶ Bromine < 900ppm
- ▶ Chlorine < 900ppm
- ▶ Bromine + Chlorine < 1,500ppm

【i-Fit[®] Termination mechanism】

i-Fit[®] : One action, instant termination without soldering process.
Stable electric performance by special assembling machine.

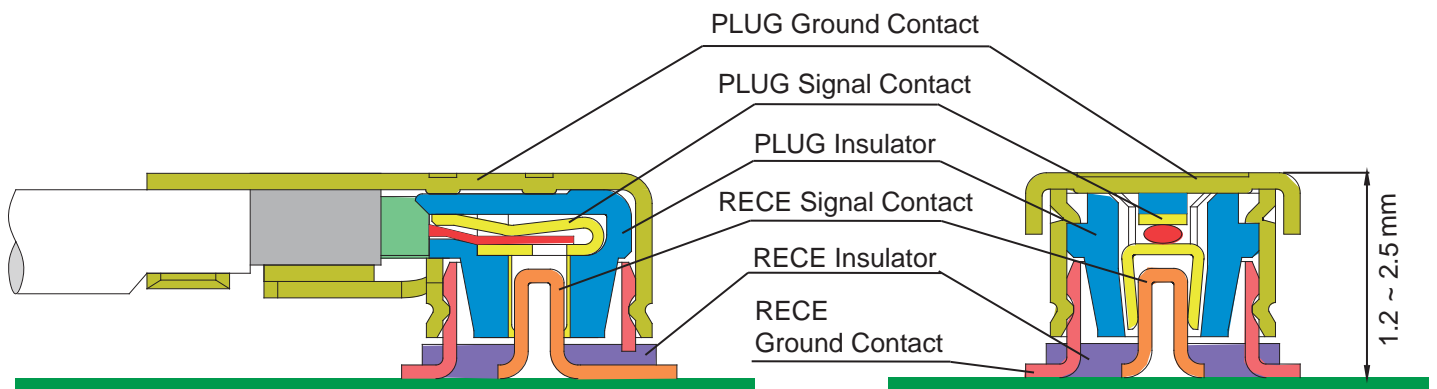


i-Fit[®] PATENT NO.
U.S.A. PAT.6,790,082
JAPAN PAT.4148339



i-Fit[®] Cross-section

【Product Mechanism】



MHF[®] Series product overview

Type	Photo	Product Name	Plug Prefix P/N	Rece Prefix P/N	Applicable cable gauge								Mating Height Max. (mm)			
					AWG 30 φ 1.80	AWG 30 φ 1.37	AWG 32 φ 1.32	AWG 32 φ 1.13	AWG 33 φ 0.95	AWG 36 φ 0.81	AWG 36 φ 0.64	AWG 38 φ 0.48		FPC		
RF coaxial connector		MHF [®]	20278-1*2R-**	20279-001E-** 20441-001E-01	●		●	●		●					2.5	
		MHF [®]	20351-1*2R-37	20279-001E-** 20441-001E-01		●									2.5	
		MHF [®] (Ag plating)	20308-1*2R-**	20314-001E-01			●	●								2.5
		MHF [®] II	20311-011R-**	20279-001E-** 20441-001E-01					●	●	●					2.1
		MHF [®] II (Ag plating)	20312-011R-**	20314-001E-01					●	●						2.1
		MHF [®] III	20367-001R	20369-001E						●	●					1.6
		MHF [®] -A13	20428-001R	20429-001E				●								1.45
		MHF [®] 4	20448-001R-081	20449-001E-** 20579-001E						●						1.2
		MHF [®] 4 SMT	20462-001E	20449-001E-** 20579-001E										●		1.2
		MHF [®] 4L	20565-001R-13	20449-001E-** 20579-001E				●	●							1.4
		MHF [®] 4L	20572-001R-08	20449-001E-** 20579-001E						●	●					1.2
		MHF [®] 5	20567-001R-81 20615-001R-48	20566-001E-01						●	●					1.0
RF switch		MHF [®] -SW18	20608-001E***		-	-	-	-	-	-	-	-	-	-	0.85 (Max. height)	
		MHF [®] -SW23	20549-001E(-01)		-	-	-	-	-	-	-	-	-	-	1.35 (Max. height)	

MHF[®] Plug Cable Assembly

Mating Profile : **2.5mm MAX.**

Applicable for various cable gauge

[Part Number]

Ground Contact : **Au** Plating

Ground Contact : **Ag** Plating

20278-1 * 2 R- * *

20308-1 * 2 R- * *

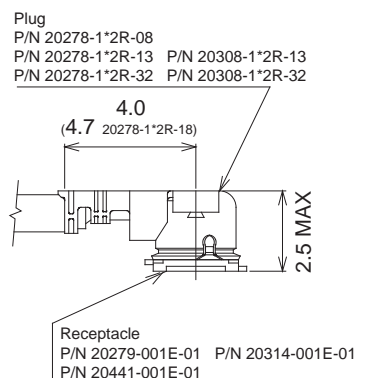
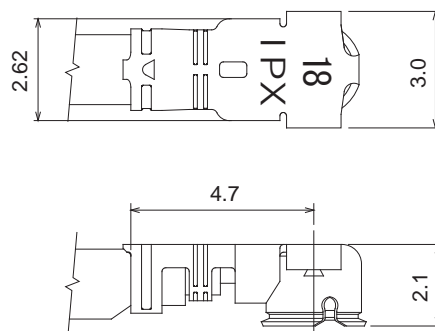
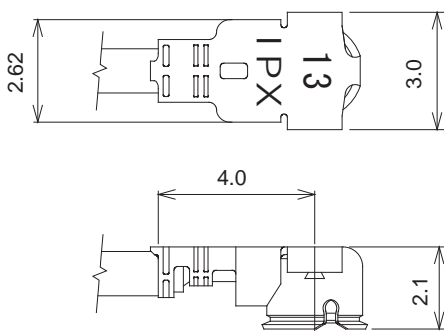
① ② ③

① ② ③

①	Tool	0	for Hand Tool (with Notch)
		1	for Semi-Auto (without Notch)
②	Packing	R	Reel 1reel : 2,000pcs
③	Applicable Cable Size	-	P/N 20278 : 08, 13, 32, 18 P/N 20308 : 13, 32

[Applicable Cable gauge]

Part No. (Au)	20278-1*2R-08	20278-1*2R-13	20278-1*2R-32	20278-1*2R-18
Part No. (Ag)	-	20308-1*2R-13	20308-1*2R-32	-
	for AWG#36	for AWG#32	for AWG#32	for AWG#30
Braided Shield of Outer Conductor	Single Braided Shield	Single Braided Shield	Double Braided Shield	Single Braided Shield RG178 B/U



[Material and Finish]

MATED VIEW

Parts	Material	Plating / Color	Note
HOUSING	PBT UL94V-0	NATURAL or BLACK	Only Au 08, Au 18 is NATURAL
CONTACT	COPPER ALLOY	Au	
GROUND CONTACT	COPPER ALLOY	Au or Ag	

MHF[®] Receptacle

3pad type

【Part Number】

Ground Contact : **Au Plating**

20279-001 E- * *

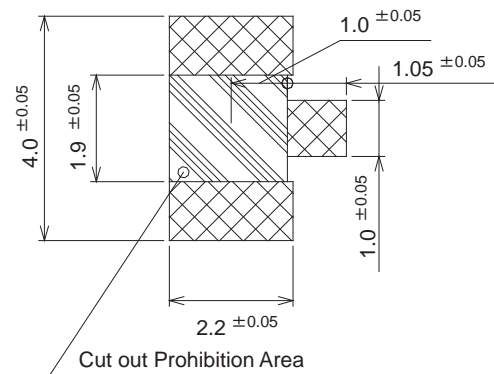
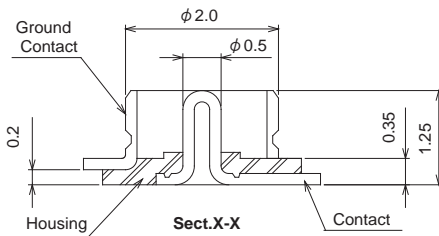
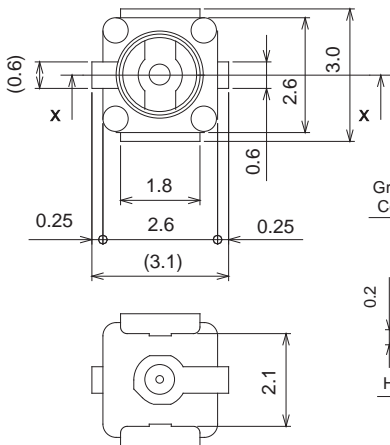
① ②

Ground Contact : **Ag Plating**

20314-001 E- 01

①

①	Packing : Emboss Tape		
②	1reel	01	2,500pcs
		03	5,000pcs
		05	10,000pcs



RECOMMENDED FOOTPRINT PATTERN

4pad type

【Part Number】

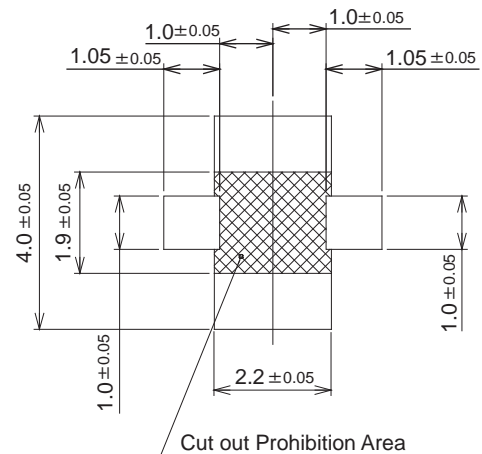
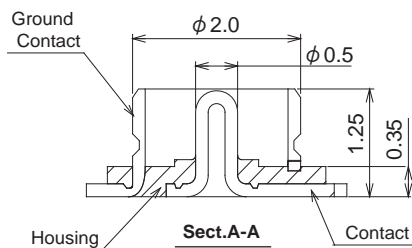
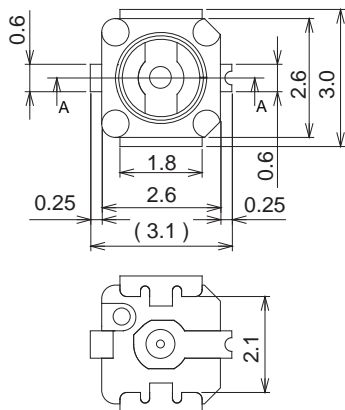
Ground Contact : **Au Plating**

20441-001 E- 01

※

※ Packing : Emboss Tape

1reel : 5,000pcs



RECOMMENDED FOOTPRINT PATTERN

【Material and Finish】

Parts	Material	Plating / Color (3pad)	Plating / Color (4pad)
HOUSING	LCP UL94V-0	NATURAL	BLACK
CONTACT	COPPER ALLOY	Au	Au
GROUND CONTACT	COPPER ALLOY	Au or Ag	Au

MHF[®] Plug Cable Assembly

Mating Profile : **2.5mm MAX.**

Applicable for AWG30 (ϕ 1.37mm) Cable

【Part Number】

Ground Contact : **Au** Plating

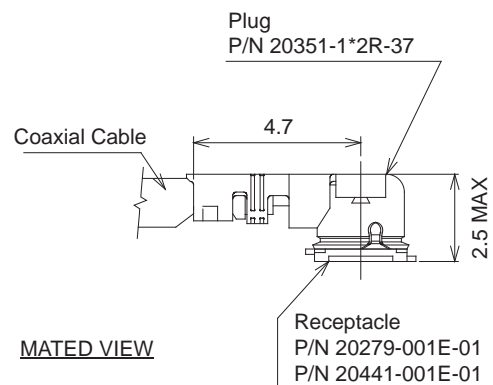
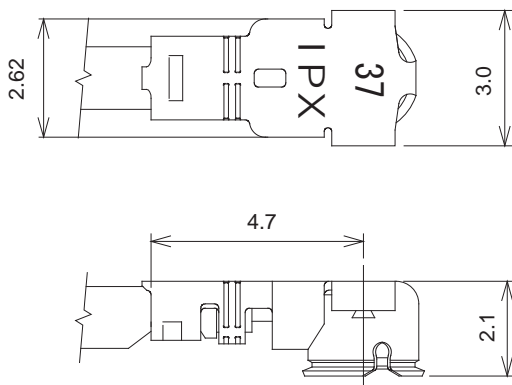
20351-1 * 2 R- 37

① ②

①	Tool	0	for Hand Tool (with Notch)
		1	for Semi-Auto (without Notch)
②	Packing	R	Reel 1reel : 2,000pcs

【Applicable Cable Size】

Part No. (Au)	20351-1*2R-37
Part No. (Ag)	-
	for AWG#30
Applicable Cable Nominal Dimension	
Braided Shield of Outer Conductor	Single Braided Shield



【Material and Finish】

Parts	Material	Plating / Color
HOUSING	PBT UL94V-0	NATURAL
CONTACT	COPPEER ALLOY	Au
GROUND CONTACT	COPPEER ALLOY	Au

MHF[®] Receptacle

3pad type

【Part Number】

Ground Contact : **Au** Plating

20279-001 E- * *

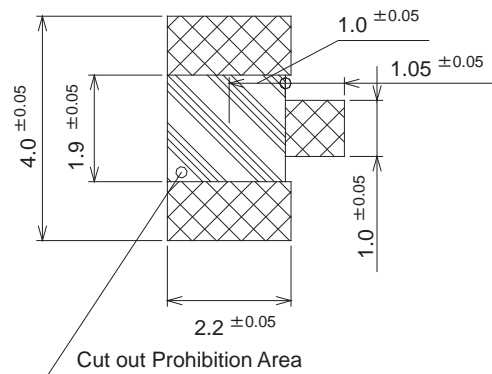
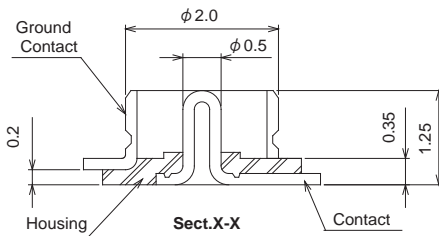
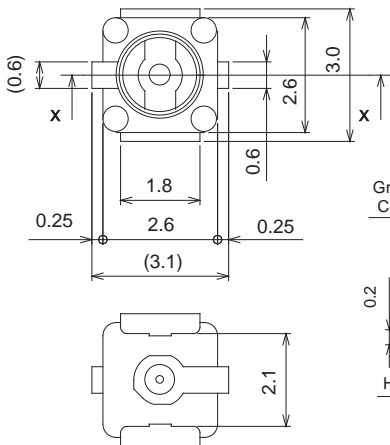
① ②

Ground Contact : **Ag** Plating

20314-001 E- 01

①

①	Packing : Emboss Tape		
②	1reel	01	2,500pcs
		03	5,000pcs
		05	10,000pcs



RECOMMENDED FOOTPRINT PATTERN

4pad type

【Part Number】

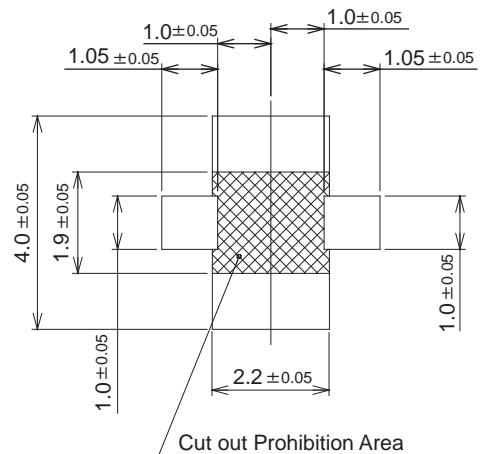
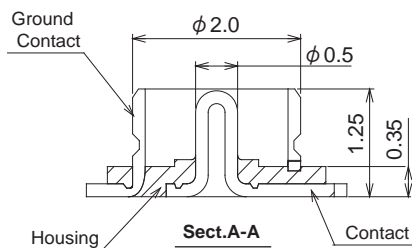
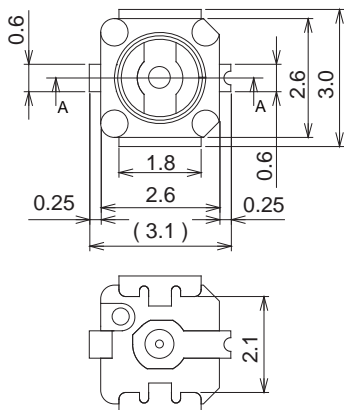
Ground Contact : **Au** Plating

20441-001 E- 01

※

※ Packing : Emboss Tape

1reel : 5,000pcs



RECOMMENDED FOOTPRINT PATTERN

【Material and Finish】

Parts	Material	Plating / Color (3pad)	Plating / Color (4pad)
HOUSING	LCP UL94V-0	NATURAL	BLACK
CONTACT	COPPER ALLOY	Au	Au
GROUND CONTACT	COPPER ALLOY	Au or Ag	Au

MHF[®] II Plug Cable Assembly

Mating Profile : **2.1mm MAX.**

Applicable for AWG36(ϕ 0.81mm), AWG33(ϕ 0.95mm) Cable

【Part Number】

Ground Contact : **Au** Plating

20311-011 R- * *

① ②

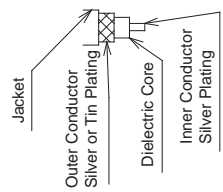
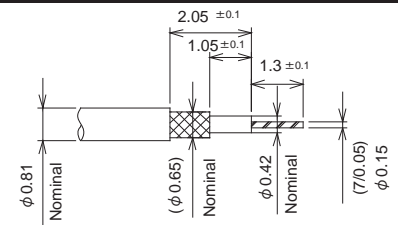
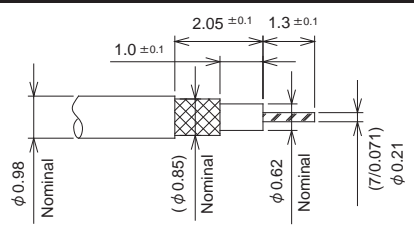
Ground Contact : **Ag** Plating

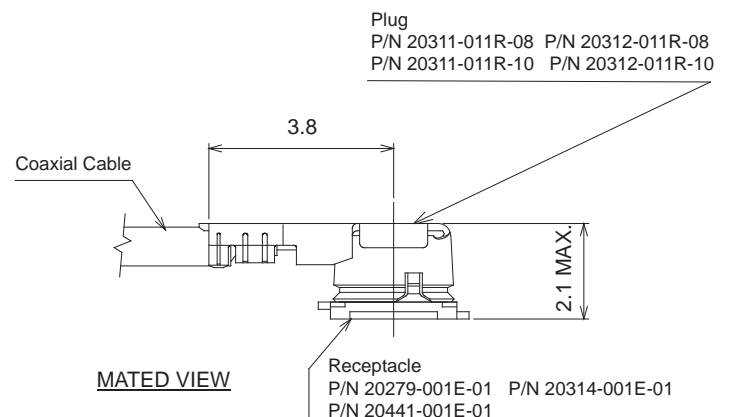
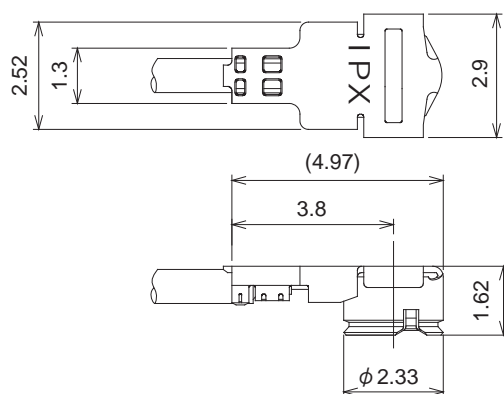
20312-011 R- * *

① ②

①	Packing	R	Reel 1reel : 2,000pcs
②	Applicable Cable Size	-	08, 10

【Applicable Cable gauge】

Part No. (Au)	20311-011R-08	20311-001R-10
Part No. (Ag)	20312-011R-08	20312-011R-10
	for AWG#36	for AWG#33
Applicable Cable Nominal Dimension 		
Braided Shield of Outer Conductor	Single Braided Shield	Single Braided Shield



【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	NATURAL
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au or Ag

MHF[®] Receptacle

3pad type

【Part Number】

Ground Contact : **Au Plating**

20279-001 E- * *

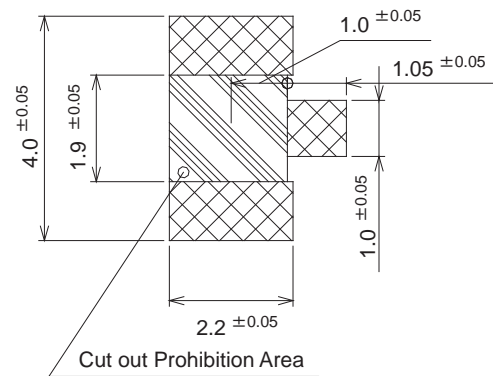
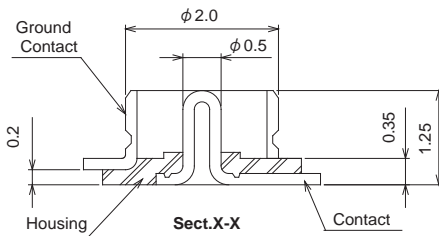
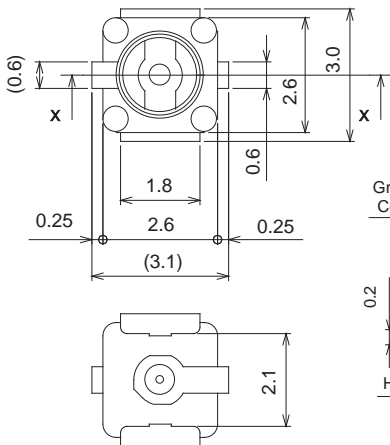
① ②

Ground Contact : **Ag Plating**

20314-001 E- 01

①

①	Packing : Emboss Tape		
②	1reel	01	2,500pcs
		03	5,000pcs
		05	10,000pcs



RECOMMENDED FOOTPRINT PATTERN

4pad type

【Part Number】

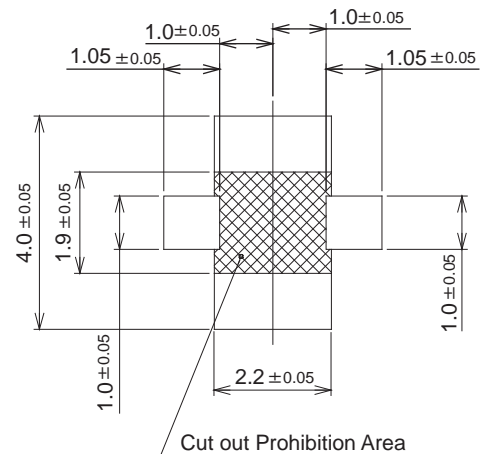
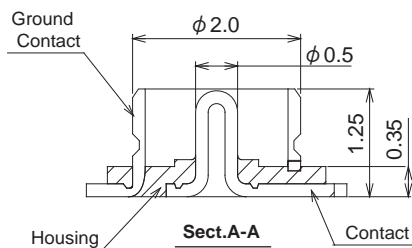
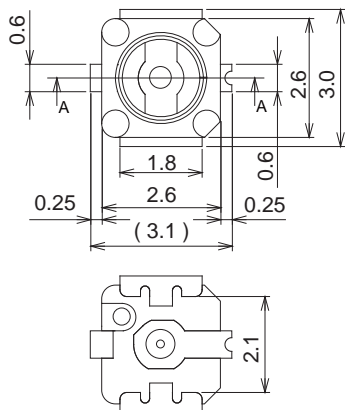
Ground Contact : **Au Plating**

20441-001 E- 01

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※ Packing : Emboss Tape

1reel : 5,000pcs



RECOMMENDED FOOTPRINT PATTERN

【Material and Finish】

Parts	Material	Plating / Color (3pad)	Plating / Color (4pad)
HOUSING	LCP UL94V-0	NATURAL	BLACK
CONTACT	COPPER ALLOY	Au	Au
GROUND CONTACT	COPPER ALLOY	Au or Ag	Au

MHF[®] III Plug Cable Assembly

Mating profile : **1.6mm MAX.**

Applicable for AWG36 (ϕ 0.81mm / ϕ 0.64mm) Cable

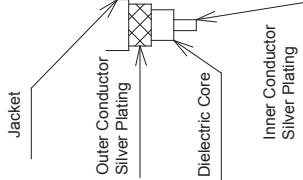
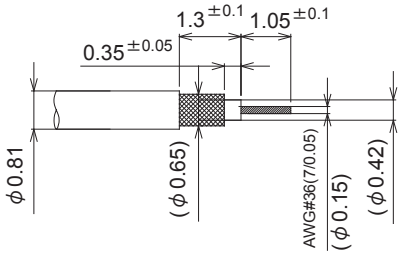
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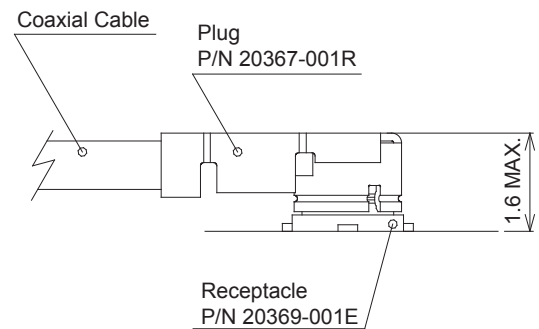
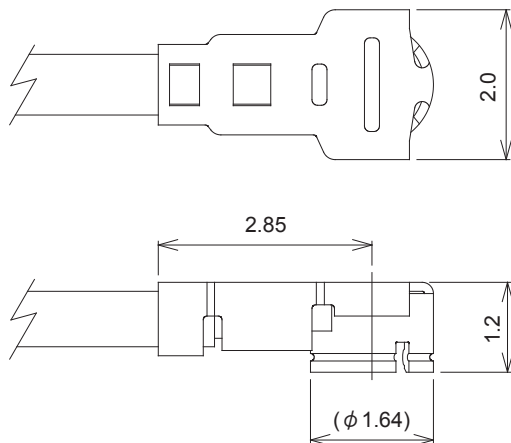
Ground Contact : **Au Plating**

20367 - 001 R

Packing : Reel
1 reel : 2,000pcs

【Applicable Cable gauge】

Part No. (Au)	20367-001R
Part No. (Ag)	-
for AWG#36	
Applicable Cable Nominal Dimension 	
Braided Shield of Outer Conductor	Single Braided Shield



MATED VIEW

【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	NATURAL
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

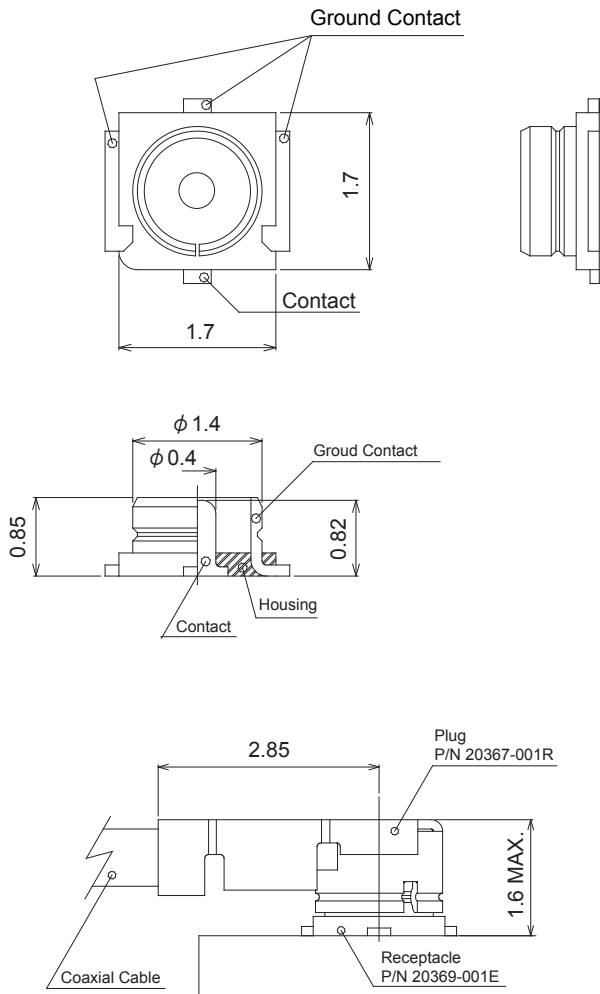
MHF[®] III Receptacle

【Part Number】

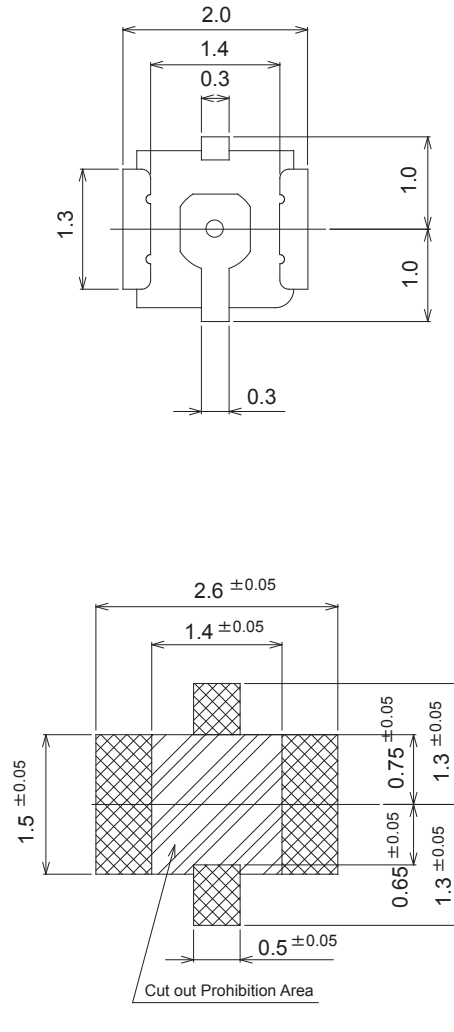
Ground Contact : **Au Plating**

20369-001 E

Packing : Emboss Tape
1reel : 5,000pcs



MATED VIEW



RECOMMENDED FOOTPRINT PATTERN

【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

MHF[®]-A13 Plug Cable Assembly

Mating profile : 1.45mm MAX.

Applicable for AWG32 (ϕ 1.13mm) Cable

【Part Number】

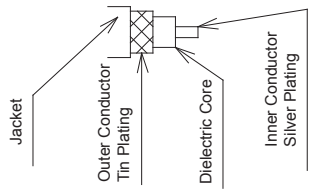
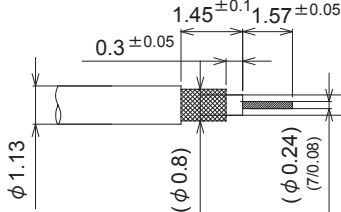
Ground Contact : **Au** Plating

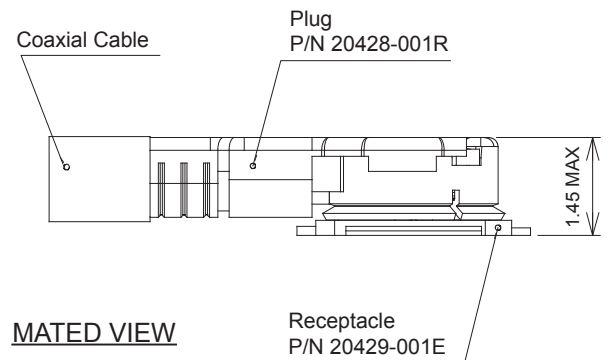
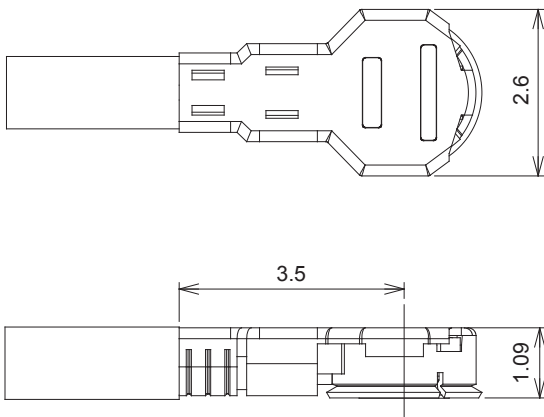
20428 - 001 R

Packing : Reel

1 reel : 2,000pcs

【Applicable Cable gauge】

Part No. (Au)	20428-001R
Part No. (Ag)	-
	for AWG#32
Applicable Cable Nominal Dimension 	
Braided Shield of Outer Conductor	Single Braided Shield



【Material and Finish】

Parts	Material	Plating / Color
HOUSING	PBT UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

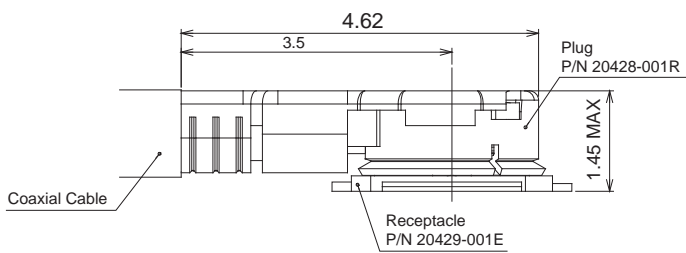
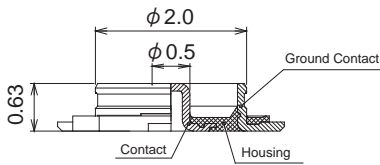
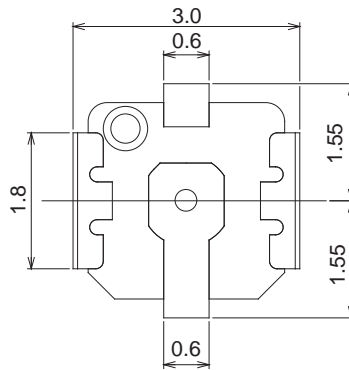
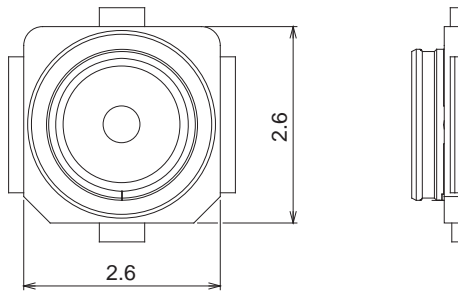
MHF[®]-A Receptacle

【Part Number】

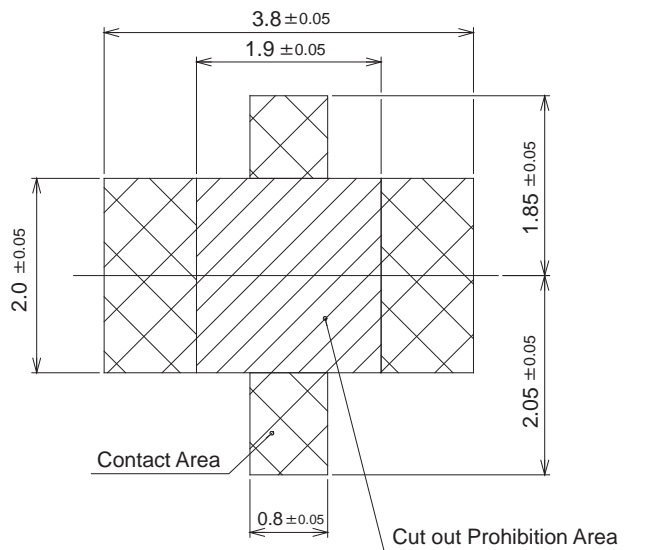
Ground Contact : **Au** Plating

20429-001 E

Packing : Emboss Tape
1reel : 5,000pcs



MATED VIEW



RECOMMENDED FOOTPRINT PATTERN

【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

MHF[®] 4 Plug Cable Assembly

Mating profile : **1.2mm MAX.**

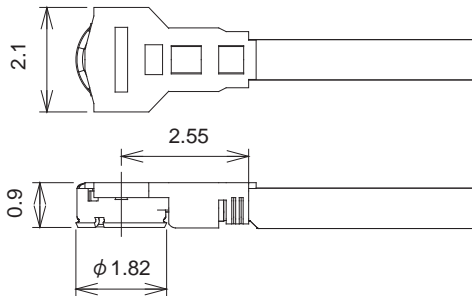
Applicable for AWG36 (ϕ 0.81mm) Cable

【Part Number】

Ground Contact : **Au Plating**

20448 - 001_R -081

Packing : Reel
1 reel : 2,000pcs



【Applicable Cable gauge】

Part No. (Au)	20448-001R-081
Part No. (Ag)	-
for AWG#36	
Braided Shield of Outer Conductor	Single Braided Shield

MHF[®] 4 SMT Plug

Mating profile : **1.2mm MAX. + FPC**

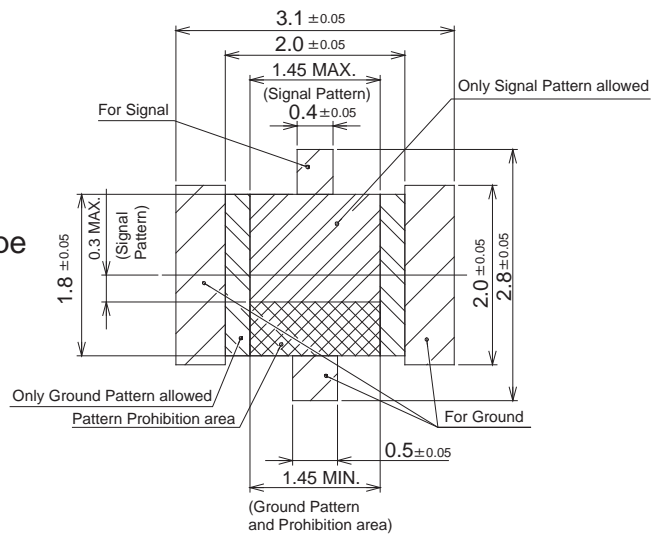
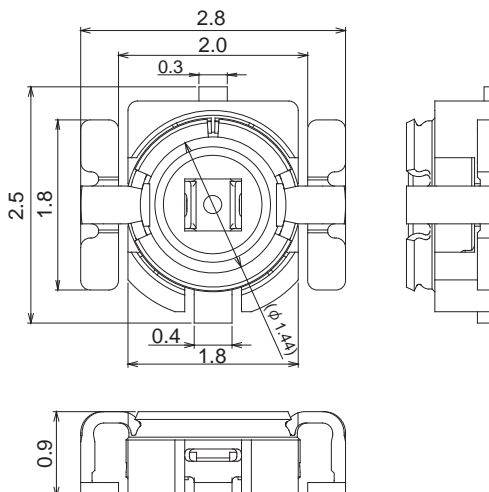
Applicable for FPC

【Part Number】

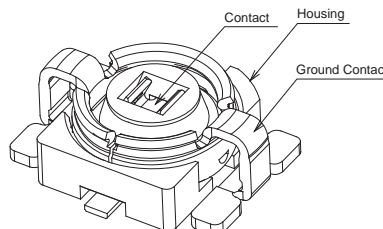
Ground Contact : **Au Plating**

20462 - 001_E

※ Packing : Emboss Tape
1 reel : 5,000pcs



RECOMMENDED FOOTPRINT PATTERN



【Material and Finish】

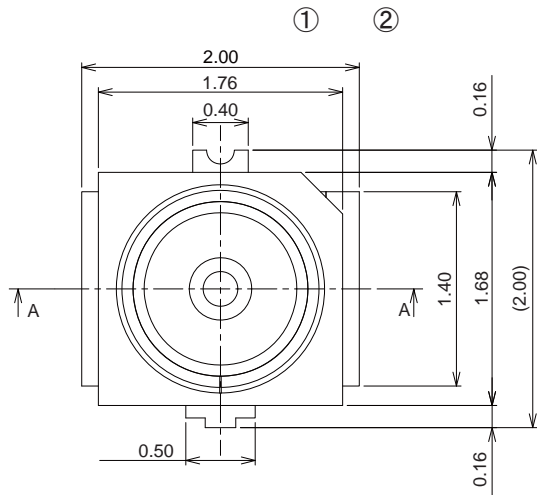
Parts	Material (Plug)	Material (SMT Plug)	Plating / Color
HOUSING	PBT UL94V-0	LCP UL94V-0	BLACK
CONTACT	COPPER ALLOY	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	COPPER ALLOY	Au

MHF[®] 4 Receptacle

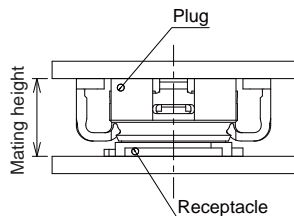
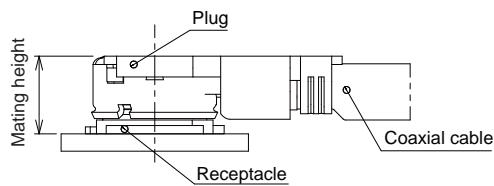
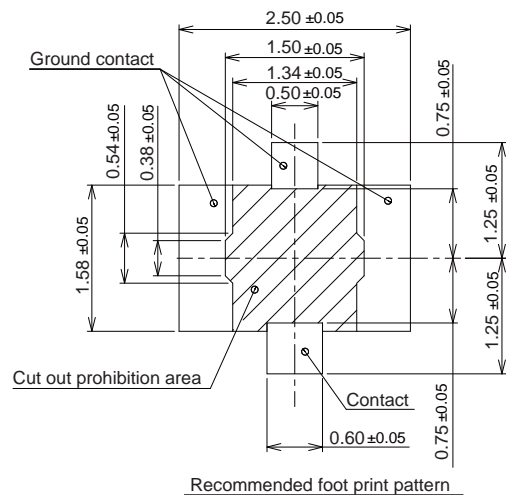
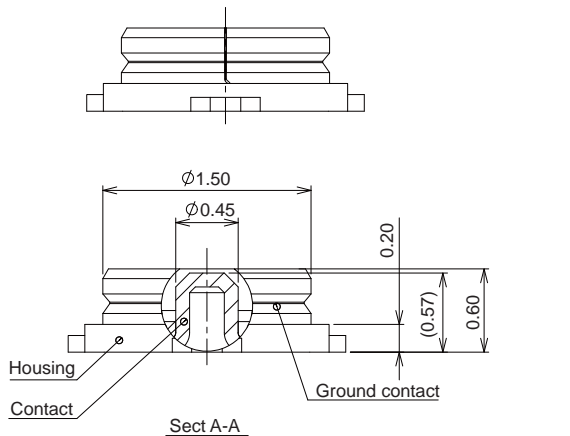
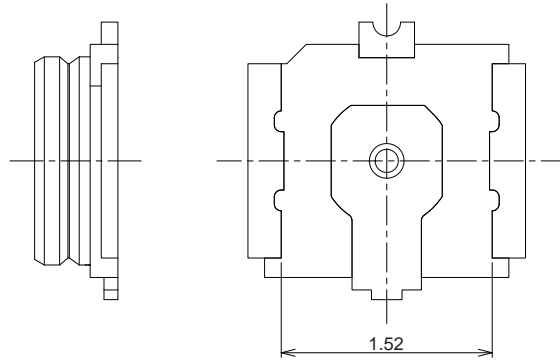
【Part Number】

Ground Contact : Au Plating

20449-001 E - **



①	Packaging	E	Emboss Tape 1reel : 10,000pcs
②	Plating	—	Au over Ni
		- 03	Au over Pd-Ni over Ni



Mating partner part No.

Receptacle	Plug	Mating Height
20449-001E-**	20448-001R-081	1.2 max.
	20448-002R-081	
	20572-001R-08	
	20565-001R-13	1.4 max.

Receptacle	SMT Plug	Mating Height
20449-001E-**	20462-001E	1.2 max.

【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

MHF[®] 4L Plug Cable Assembly

Mating profile : 1.40mm MAX. for AWG32 (O.D. 1.13mm) Cable
 1.40mm MAX. for AWG33 (O.D. 0.95mm) Cable
 1.20mm MAX. for AWG36 (O.D. 0.81mm / O.D. 0.64mm) Cable

【Part Number】

O.D. 1.13mm / 0.95mm type

20565 - 001 R - 13

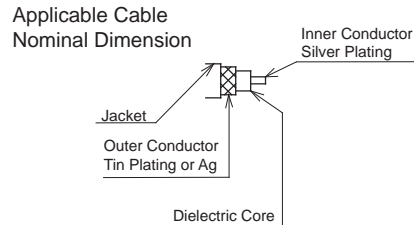
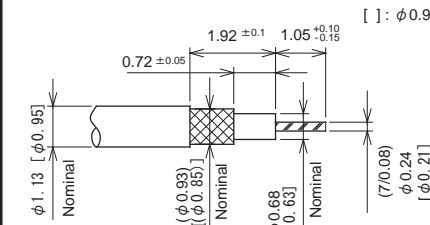
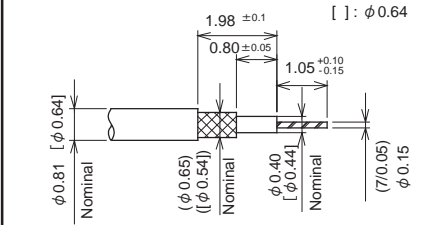
Packing : Reel
 1 reel : 2,000pcs

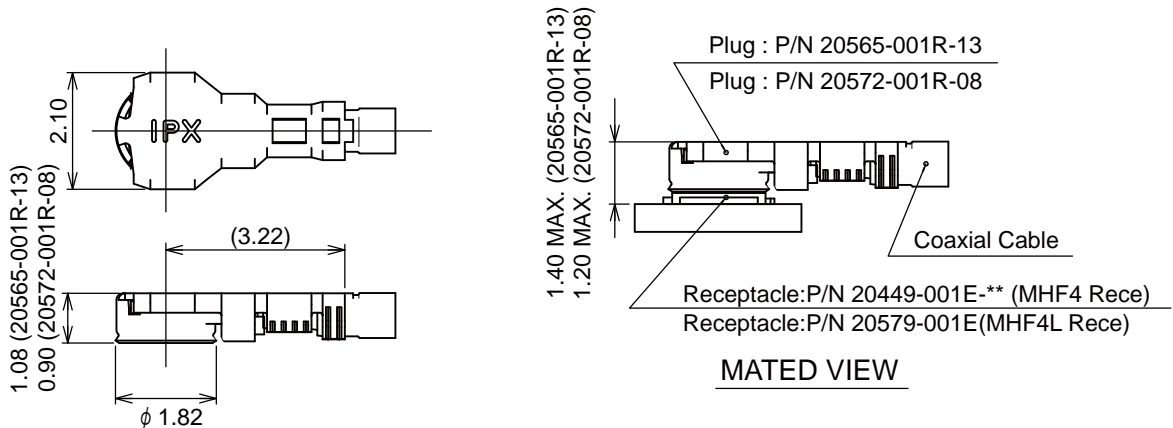
O.D. 0.81mm / 0.64mm type

20572 - 001 R - 08

Packing : Reel
 1 reel : 2,000pcs

【Applicable Cable gauge】

Part No. (O.D. 1.13mm 0.95mm)	20565-001R-13	-
Part No. (O.D. 0.81mm 0.64mm)	-	20572-001R-08
	for AWG#32 [AWG#33]	for AWG#36
 <p>Applicable Cable Nominal Dimension</p>		
Coaxial Cable	Single Braided Shield	Single Braided Shield [Spiral Shield]



【Material and Finish】

Parts	Material	Plating / Color
HOUSING	PBT UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Partial Au

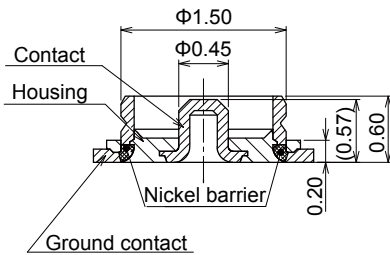
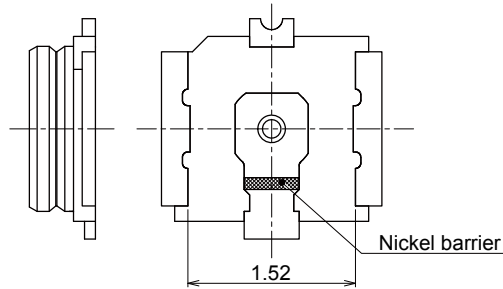
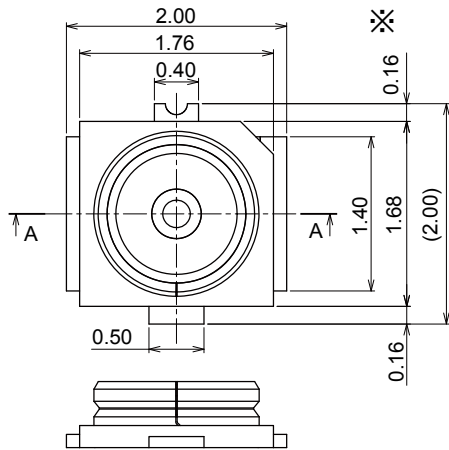
MHF[®] 4L Receptacle

【Part Number】

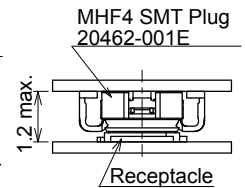
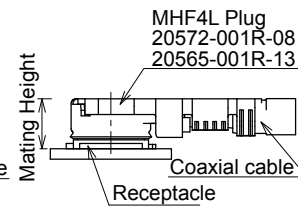
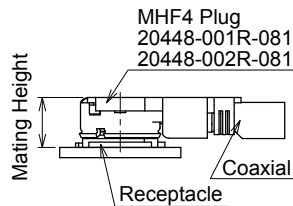
Ground Contact : **Au Plating**

20579-001 E

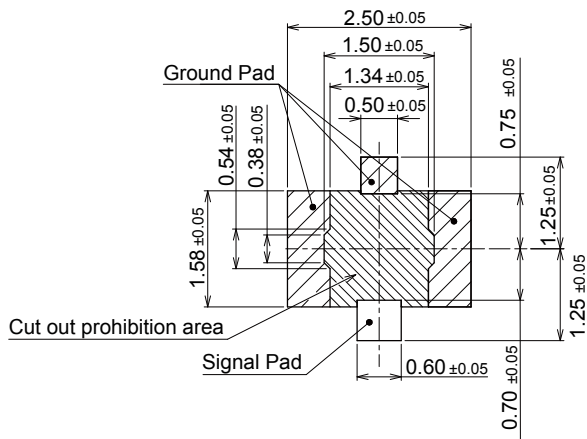
※Packing : Emboss Tape
1reel : 10,000pcs



Sect. A-A



Mating



Recommended footprint pattern

Mating partner part No.

Receptacle	Plug	Mating height
20579-001E	20448-001R-081 20448-002R-081 20572-001R-08	1.2 max.
	20565-001R-13	1.4 max.
	SMT Plug	
20579-001E	20462-001E	1.2 max.

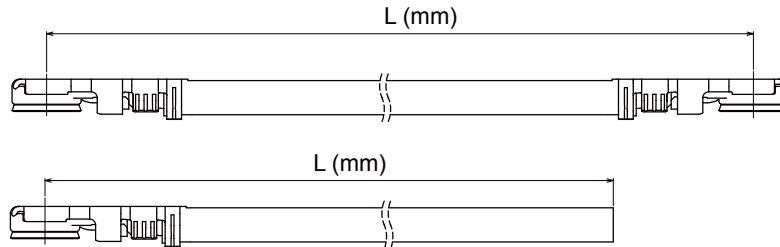
【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

MHF[®] 5 Plug Cable Assembly

Mating profile : 1.00mm MAX. for AWG36 (O.D. 0.81mm / O.D. 0.64mm) Cable
for AWG38 (O.D. 0.48mm) Cable

【Cable Assembly】



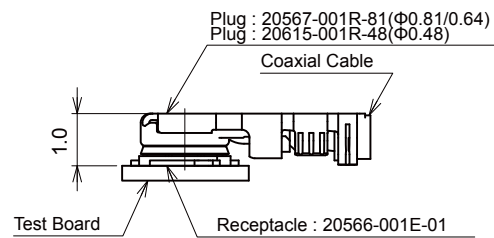
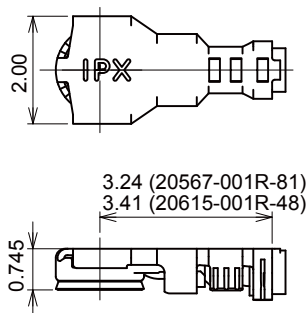
【Part Number】

20567-001 R- 81

20615-001 R- 48

【Applicable Cable gauge】

Part No.	20567-001R-81	20615-001R-48
	ϕ 0.81mm [ϕ 0.64mm]	ϕ 0.48mm
<p>Applicable Cable Nominal Dimension</p>		
Coaxial Cable	Single Braided Shield [Spiral Shield]	Spiral Shield



MATED VIEW

【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

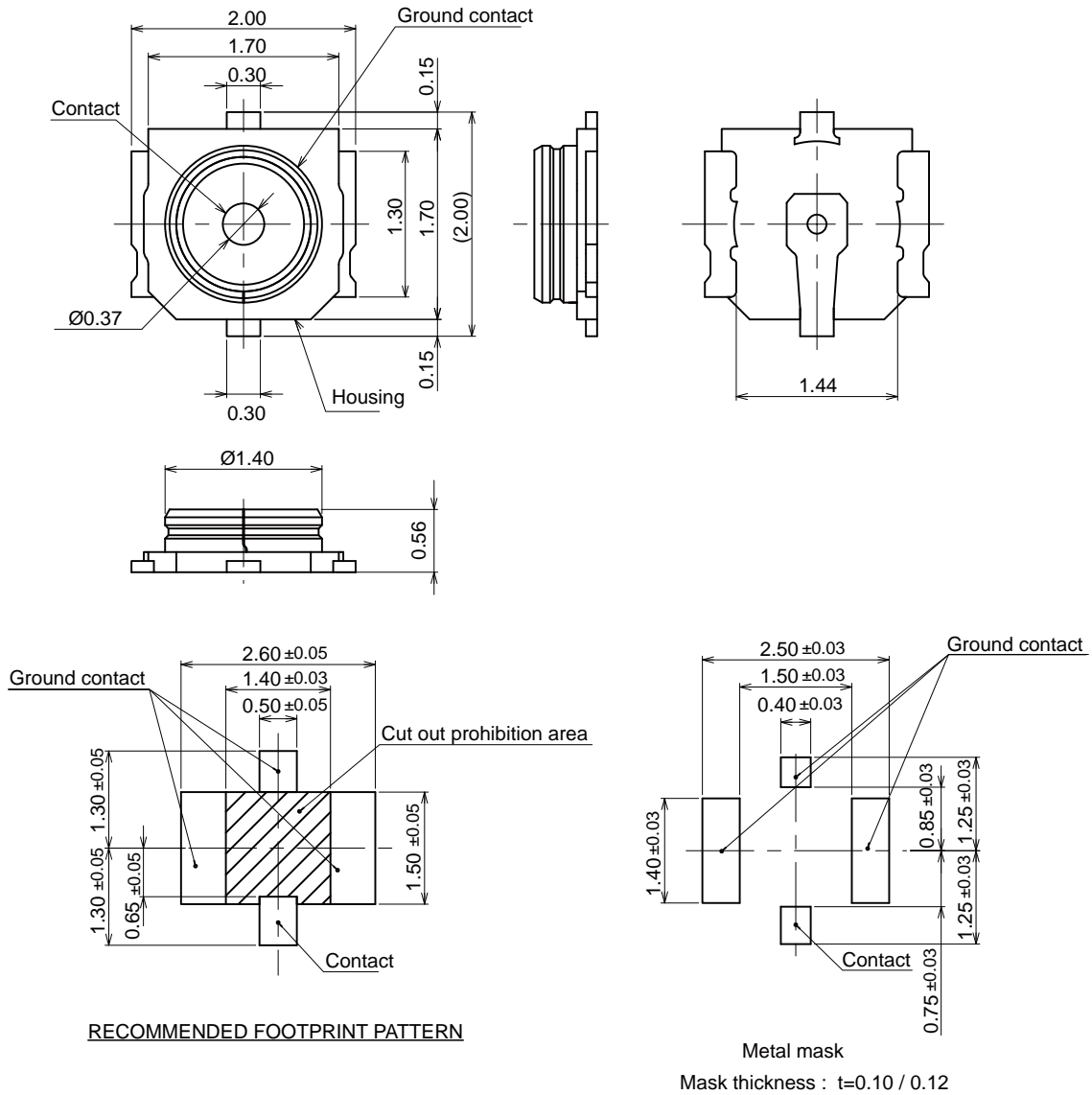
MHF[®] 5 Receptacle

【Part Number】

Ground Contact : **Au Plating**

20566-001 E -01

Packing : Emboss Tape
1reel : 10,000pcs



【Material and Finish】

Parts	Material	Plating / Color
HOUSING	LCP UL94V-0	BLACK
CONTACT	COPPER ALLOY	Au
GROUND CONTACT	COPPER ALLOY	Au

MHF[®]-SW18

RF inspection switch



- Ultra Low Profile : Height=0.85mm
Small size : 1.8mm x 1.8mm
- I-PEX original contact structure for high contact reliability.
- Anti flux / flux wicking structure.
- Variety of test probes available.

【Number of Position】

20608-001E ***
① ②

①		E	Emboss Tape
②	Packaging	Non	2,500pcs / reel
		-01	15,000pcs / reel

Product	Parts	Material	Plating / Color
MHF [®] -SW18	HOUSING	LCP	BLACK
	CONTACT A	COPPER ALLOY	Au over Ni
	CONTACT B	COPPER ALLOY	Au over Ni
	GROUND CONTACT	COPPER ALLOY	Au over Ni

【Test prove tool】

For manual inspection (with Lock)



90708-0*00

L
Durability 500 cycle

For automatic inspection



90709-0001

Durability 10,000 cycle

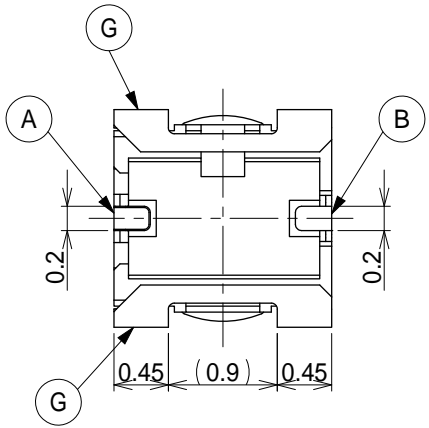
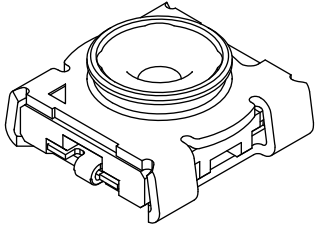
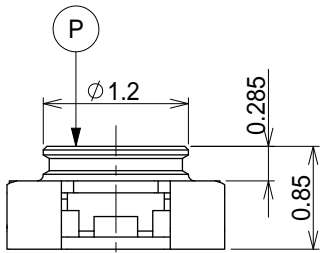
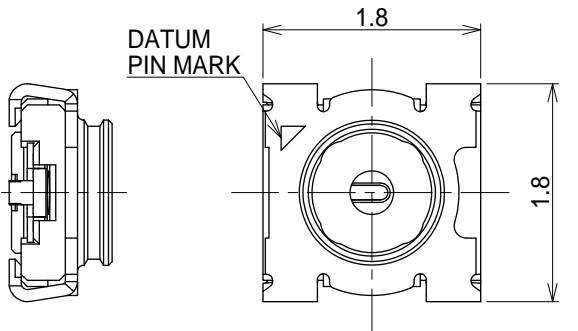
For automatic inspection (with floating function)



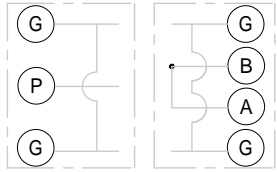
90710-0001

Durability 100,000 cycle

L : Please contact to our sales about cable length.

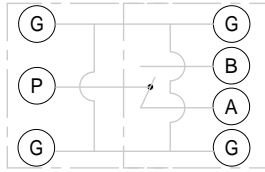


ON STATE
(NOT MATED WITH THE
CONVERSION ADAPTER)

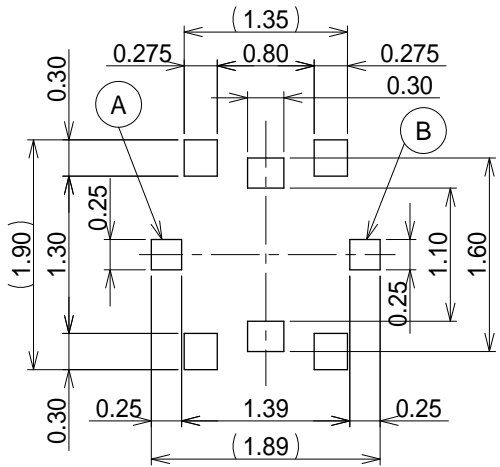
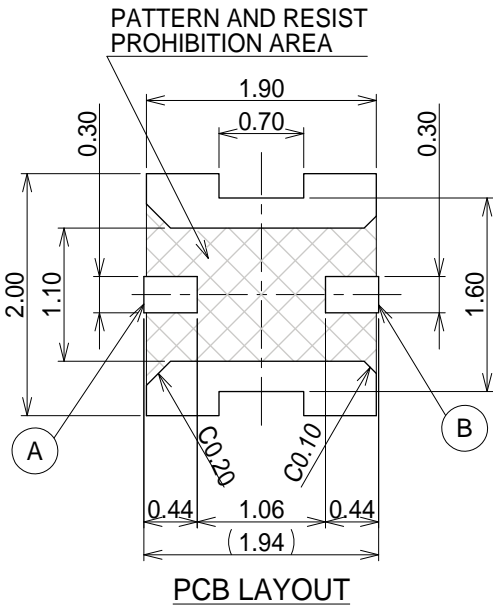


CONVERSION ADAPTER MHF-SW18 ASS'Y

OFF STATE
(MATED WITH THE
CONVERSION ADAPTER)



CONVERSION ADAPTER MHF-SW18 ASS'Y



MHF[®]-SW23

RF inspection switch



- Small size for smart phones, mobile phones and other small applications.
- I-PEX original contact structure for high contact reliability.
- Anti flux / flux wicking structure.
- Wide contact stroke to provide high reliability inspection.
- Variety of test probes available.

【Number of Position】

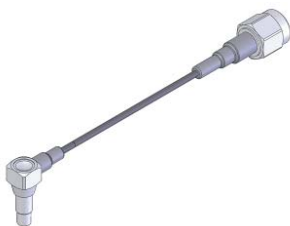
20549-001E ***
 ① ②

①		E	Emboss Tape
②	Packaging	Non	10,000pcs / reel
		-01	2,500pcs / reel

Product	Parts	Material	Plating / Color
MHF [®] -SW23	HOUSING	LCP	BLACK
	CONTACT A	COPPER ALLOY	Au over Ni
	CONTACT B	COPPER ALLOY	Au over Ni
	GROUND CONTACT	COPPER ALLOY	Au over Ni

【Test prove tool】

For manual inspection (with Lock)



90582-0*00

L
Durability 1,000 cycle

For automatic inspection



90604-0001

Durability 10,000 cycle

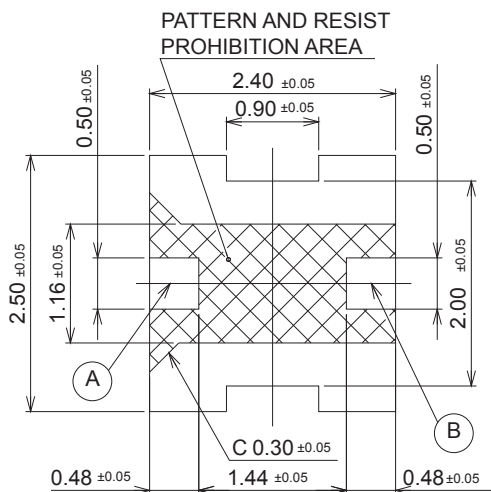
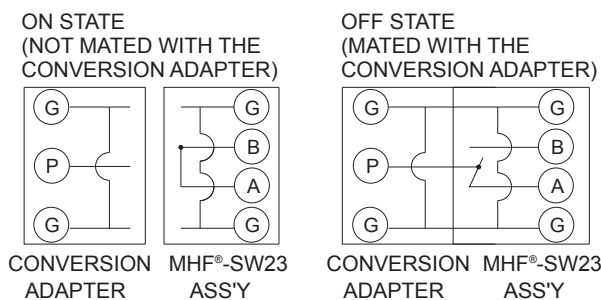
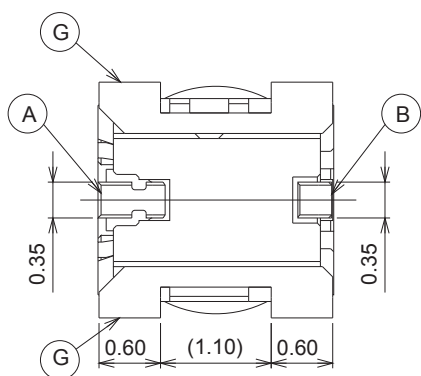
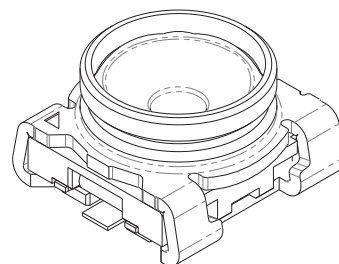
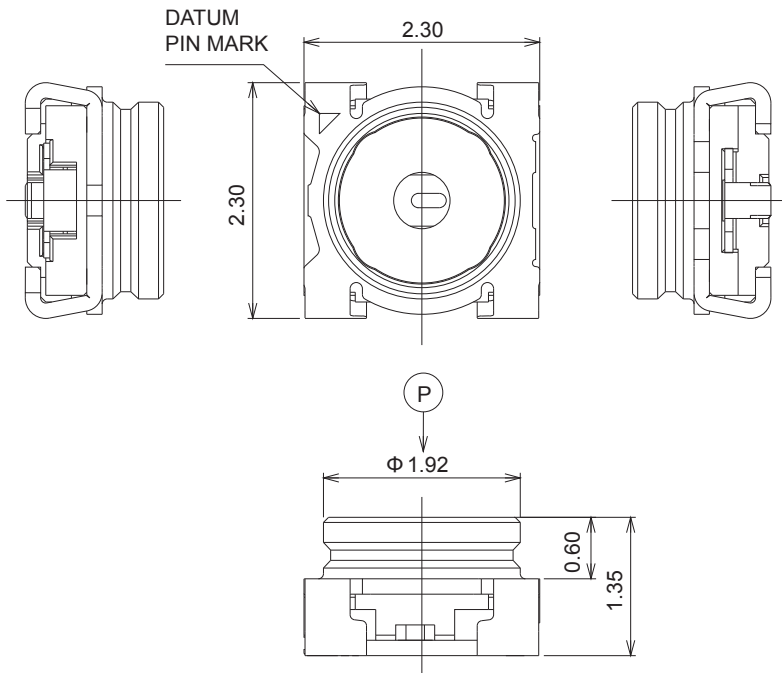
For automatic inspection (with floating function)



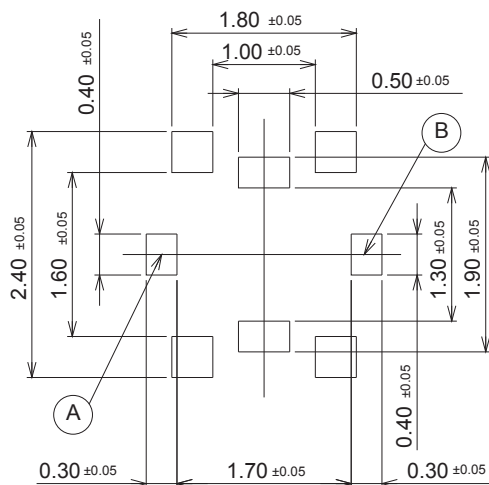
90605-0001

Durability 200,000 cycle

L : Please contact to our sales about cable length.



RECOMMENDED FOOTPRINT PATTERN



METAL MASK
THICKNESS : 0.1mm

[MEMO]



I-PEX DAI-ICHI SEIKO CO.,LTD.
I-PEX Business Company

TOKYO

DAI-ICHI SEIKO CO., LTD. TOKYO OFFICE
(I-PEX Business Company)
Machida ST Bldg., 1-33-10 Morino,
Machida-City, Tokyo, 194-0022, Japan
TEL 042-729-1670 FAX 042-729-1671

SHANGHAI

I-PEX (SHANGHAI) CO., LTD.
10F, Room 1002-1003, Tong Quan Tower,
NO.678, Gubei Road, Chang Ning District,
Shanghai 200336, China
TEL 86-21-5208-1611 FAX 86-21-5208-1612

OSAKA

DAI-ICHI SEIKO CO., LTD. OSAKA BRANCH
(I-PEX Business Company)
5F Chiyoda Bldg., Nishi-Kan,
2-5-4 Umeda, Kita-Ku, Osaka-City,
Osaka, 530-0001, Japan
TEL 06-6346-2022 FAX 06-6346-2023

KOREA

I-PEX KOREA CO., LTD.
D801, Digital Empire Bldg. 980-3, YoungTong dong,
YoungTong Gu Suwon si, KyeonGi-Do, 443-470 Korea
TEL 82-31-206-1492 FAX 82-31-206-1494

TAIWAN

DAI-ICHI SEIKO I-PEX CO., LTD. TAIWAN
BRANCH (JAPAN)
15F-6, No.700, Jung Jeng Rd., Jung He Dist.,
New Taipei City 235, Taiwan, R.O.C.
TEL 886-2-8227-9288 FAX 886-2-8227-8665

HONG KONG

I-PEX ELECTRONICS (H.K.) LTD.
Suite 1501A, 15/F, Skyline Tower, No.39 Wang Kwong
Road, Kowloon Bay, Kowloon, Hong Kong
TEL 852-2735-8077 FAX 852-2735-8099

U. S. A.

I-PEX USA LLC
2305 Donley Drive, Suite110, Austin, Texas 78758 U.S.A.
TEL 1-512-339-IPEX(4739) FAX 1-512-339-4745

SINGAPORE

I-PEX (SINGAPORE) PTE LTD.
55 Yishun Industrial Park A,
768728, Singapore
TEL 65-6333-0662 FAX 65-6333-0663

FRANCE

I-PEX FRANCE
Tour Sébastopol -3 quai Kléber, Strasbourg,
67000, France
TEL 33-3-8823-7152 FAX 33-3-8823-7000

<http://www.i-pex.com>

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