



台灣安潔電子股份有限公司  
Taiwan Anjie Electronics Co., Ltd

# 承認書

## APPROVAL SHEET

Customer: 研華  
Customer Model No.: 1751000195-01  
Part No.: AJDQ1J-G0001  
Product Description: Antenna Internal WIFI 1.13/460mm(Green)IPEX\_IV  
Issue Date: 20210406  
REV.: A

客戶承認用印	安潔承認用印

核准	審核	承辦
		Anders

Taiwan Anjie Electronics Co., Ltd  
台灣安潔電子股份有限公司

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## Table of Contents

### Item

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#### 1. Drawing

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#### 2. Test Report

- Electrical test
  - Antenna Gain and Efficiency
- 

#### 3. Material Certifications

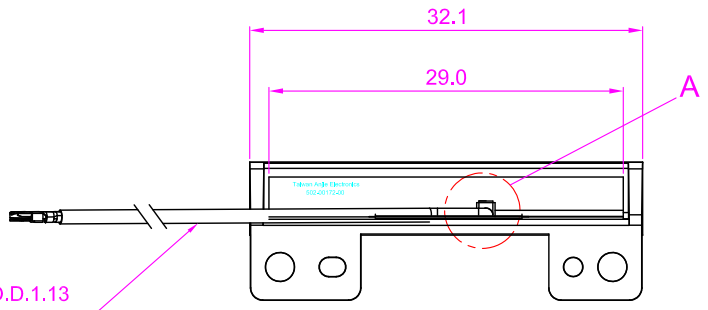
- Antenna
  - Connector
-



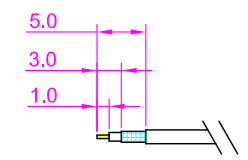
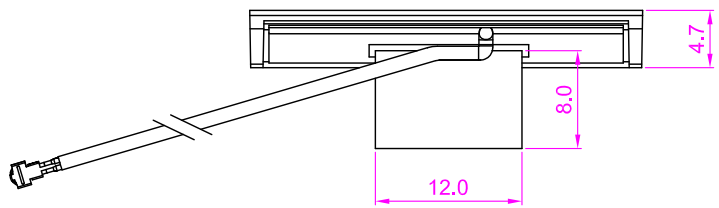
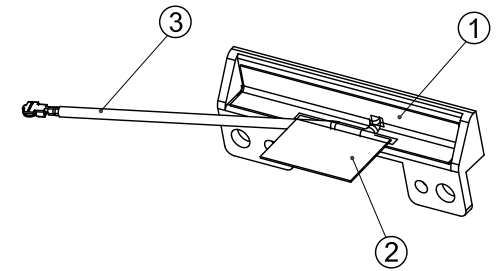
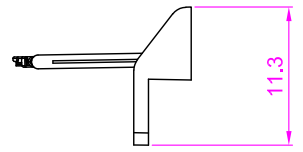
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**Taiwan Anjie Electronics Co., Ltd**

<b>SPECIFICATION</b>	
<b>Frequency Range</b>	<b>2400~5850MHz</b>
<b>Impedance</b>	<b>50Ω</b>
<b>V.S.W.R</b>	<b>≤ 2.5</b>
<b>Radiation</b>	<b>Omni</b>
<b>Gain</b>	<b>2.4G&lt;4.25dBi 5G&lt;2.02 dBi</b>
<b>Type</b>	<b>PIFA</b>
<b>Polarization</b>	<b>Vertical</b>
<b>Mechanical Properties</b>	
<b>Connector</b>	<b>I-PEX_IV</b>

REV	DATE	DESCRIPTION
X1	2021.01.07	New Release



L=460.0±5.0 O.D.1.13  
IPEX\_IV (Green)



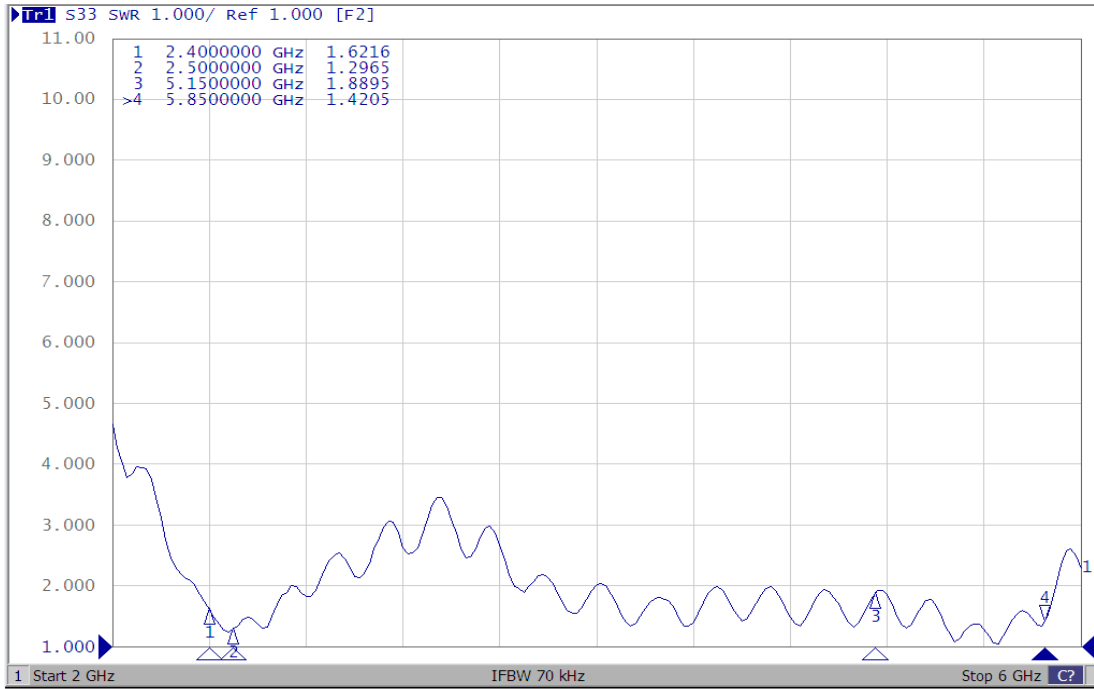
DETAIL A

No.	Part No.	Description	Q'ty
3	901-02700-00	O.D. 1.13mm IPEX_IV Part No. 20565-001R-13 ; Lengh=460mm(Green)	1
2	801-03369-00	銅箔 12*8mm	1
1	502-00172-00	FPCB 29*6*0.15mm	1

UNLESS OTHERWISE SPECIFIED Tolerance ON:									
X.X	±0.5	X°					±1.0	Customer Model: AIM78	
X.XX	±0.2							Customer Number: --	
APP BY			CHK BY	DES BY	PART NO.: AJDQ1J-G0001				
					Sheet	UNITS	SCALE	REV	
					1 of 1	mm	2 / 1	X1	



## Electrical test





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**Antenna Gain and Efficiency**

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<b>Frequency(MHz)</b>	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
<b>Gain (dBi)</b>	4.19	4.09	4.25	4.12	4.07	3.95	3.86	3.86	3.71	3.46	3.43
<b>Directivity (dBi)</b>	7.87	7.74	7.89	7.76	7.61	7.43	7.34	7.25	7.03	6.82	6.67
<b>Efficiency (dB)</b>	-3.68	-3.66	-3.64	-3.64	-3.54	-3.48	-3.48	-3.39	-3.32	-3.37	-3.24
<b>Efficiency (%)</b>	42.82	43.09	43.23	43.22	44.3	44.86	44.91	45.87	46.59	46.07	47.43

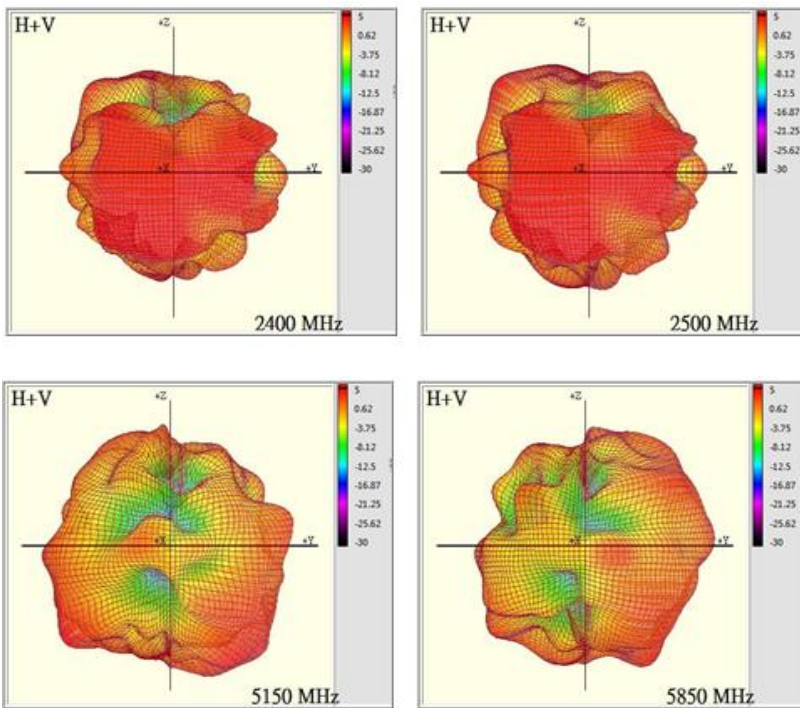
<b>Frequency(MHz)</b>	5150	5250	5350	5450	5550	5650	5750	5850
<b>Gain (dBi)</b>	0.97	1.81	2.02	1.08	1.63	1.95	0.3	0.41
<b>Directivity (dBi)</b>	4.63	5.5	5.56	4.68	4.94	5.53	3.96	4.33
<b>Efficiency (dB)</b>	-3.66	-3.69	-3.54	-3.59	-3.32	-3.58	-3.66	-3.93
<b>Efficiency (%)</b>	43.01	42.78	44.26	43.71	46.58	43.87	43.05	40.46

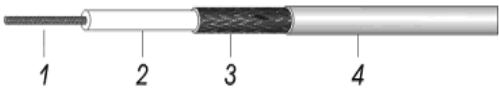


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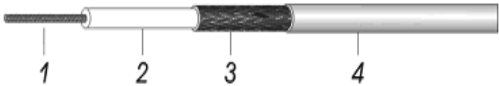
## Antenna 3D Pattern

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型号 Type	RF-1.13/50	料号 P/N	SY113/50-023(Green)	
结构图 Structure drawing				
<b>结构特性 Structure characteristics</b>				
<b>结构 Structure</b>	<b>项目 Item</b>		<b>标准值 Standard value</b>	
①内导体 Inner conductor	材料 Material		镀银铜线 Silverplated copper wire	
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)		7/0.08	
	(绞合)标称外径(mm) (Intertwist)NOM.O.D.(mm)		0.24±0.02	
②绝缘层 Insulation	材料 Material		聚全氟乙烯 FEP	
	颜色 Color		透明 Clarity	
	标称外径(mm) NOM.O.D.(mm)		0.7±0.03	
③外导体 Outer conductor	材料 Material		镀锡铜线 Tinned copper wire	
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)		4/0.05	
	标称外径(mm) NOM.O.D.(mm)		0.92±0.05	
	覆盖率(%) Coverage ratio(%)		90±5	
④护套层 Jacket	材料 Material		聚全氟乙烯 FEP	
	颜色 Color		绿Green	
	标称外径(mm) NOM.O.D.(mm)		1.13±0.05	
<b>电性能特性 Electrical characteristics</b>				
<b>项目 Item</b>	<b>标准值 Standard value</b>	<b>项目 Item</b>	<b>频率 Frequency</b>	<b>标准值 Standard value 单位 Unit:dB/m</b>
电容(pF/m) Capacitance(pF/m)	98	衰减 Attenuation	1GHz	≤2.2
速率(%) Velocity(%)	70		2GHz	≤3.1
阻抗(Ω) Impedance(Ω)	50±2		3GHz	≤3.8
驻波比 Standing wave ratio	≤1.3@0-6GHz		4GHz	≤4.4
最大工作电压(V) Max.operating voltage(V)	1000		5GHz	≤4.9
最大工作频率(GHz) Max.operating frequency(GHz)	6		6GHz	≤5.4
<b>可靠性 Dependability</b>				
<b>项目 Item</b>	<b>单位 Unit</b>	<b>标准值 Standard value</b>		
最小弯曲半径(一次) Min.bending radius static	mm	4		
最小弯曲半径(重复) Min.bending radius repeated	mm	—		
工作温度范围 Operating temperature	℃	-55~+200		
<b>包装 Packing</b>				
<b>项目 Item</b>	<b>单位 Unit</b>	<b>标准值 Standard value</b>		
包装方式 Packing mode	/	纸盘 Papery plate		
每盘长度 The length of each plate	m	500		
每盘接头数 Each connector plate number	/	≤3		
每段最短长度 The shortest length of each root	m	≥10		
<b>使用提示 Use tips</b>				
存储环境 Storage environment	温度: 30℃以下; 湿度: 20%~65%			
保质期 Quality guarantee period	1年(上锡效果除外)			
最佳保存周期 The best save cycle	2个月; 2个月以上作业性下降, 如上锡效果变差, 但电性能不受影响。夏季高温高湿环境开剥后需尽快流转			
加工温度 Processing temperature	260℃的极限情况下, 可短时间承受; 300℃以上分子通常带有的等端基会分解; 400℃以上发生显著的热分解			
铁氟龙收缩 Teflon Shrink	固有材料特性。绝缘: 0.2mm以下; 护套: 0.3mm以下			
护套窜动 Jacket traverse	加工长度(护套残留长度)低于5cm易发生			
<b>其他 Other</b>				
特殊加工工艺, 请与供方协商后使用				



型号 Type	RF-1.37/50	料号 P/N	SY137/50-044(Green)	
结构图 Structure drawing				
<b>结构特性 Structure characteristics</b>				
结构 Structure	项目 Item		标准值 Standard value	
①内导体 Inner conductor	材料 Material		镀锡铜线 Tinned copper wire	
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)		7/0.102	
	(绞合)标称外径(mm) (Intertwist)NOM.O.D.(mm)		0.306±0.02	
②绝缘层 Insulation	材料 Material		聚全氟乙烯 FEP	
	颜色 Color		透明 Clarity	
	标称外径(mm) NOM.O.D.(mm)		0.9±0.03	
③外导体 Outer conductor	材料 Material		镀锡铜线 Tinned copper wire	
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)		5/0.05	
	标称外径(mm) NOM.O.D.(mm)		1.13±0.05	
	覆盖率(%) Coverage ratio(%)		90±5	
④护套层 Jacket	材料 Material		聚全氟乙烯 FEP	
	颜色 Color		绿 Green	
	标称外径(mm) NOM.O.D.(mm)		1.37±0.05	
<b>电性能特性 Electrical characteristics</b>				
项目 Item	标准值 Standard value	项目 Item	频率 Frequency	标准值 Standard value 单位 Unit: dB/m
电容(pF/m) Capacitance(pF/m)	96	衰减 Attenuation	1GHz	≤1.82
速率(%) Velocity(%)	70		2GHz	≤2.67
阻抗(Ω) Impedance(Ω)	50±2		3GHz	≤3.21
驻波比 Standing wave ratio	≤1.3@0~6GHz		4GHz	≤3.74
最大工作电压(V) Max.operating voltage(V)	1000		5GHz	≤4.27
最大工作频率(GHz) Max.operating frequency(GHz)	6		6GHz	≤4.80
<b>可靠性 Dependability</b>				
项目 Item	单位 Unit	标准值 Standard value		
最小弯曲半径(一次) Min.bending radius static	mm	5		
最小弯曲半径(重复) Min.bending radius repeated	mm	—		
工作温度范围 Operating temperature	℃	-55~+150		
<b>包装 Packing</b>				
项目 Item	单位 Unit	标准值 Standard value		
包装方式 Packing mode	/	纸盘 Papery plate		
每盘长度 The length of each plate	m	500		
每盘接头数 Each connector plate number	/	≤3		
每段最短长度 The shortest length of each root	m	≥10		
<b>使用提示 Use tips</b>				
存储环境 Storage environment	温度: 30℃以下; 湿度: 20%~65%			
最佳保存周期 The best save cycle	2个月; 2个月以上作业性下降, 如上锡效果变差, 但电性能不受影响。夏季高温高湿环境开剥后需尽快流转			
加工温度 Processing temperature	260℃的极限情况下, 可短时间承受; 300℃以上分子通常带有的等端基会分解; 400℃以上发生显著的热分解			
铁氟龙收缩 Teflon Shrink	固有材料特性。绝缘: 0.2mm以下; 护套: 0.3mm以下			
护套窜动 Jacket traverse	加工长度(护套残留长度)低于5cm易发生			
<b>其他 Other</b>				
特殊加工工艺, 请与供方协商后使用				

# Micro RF Coax Connector

## MHF<sup>®</sup> Series

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

RoHS Compliance

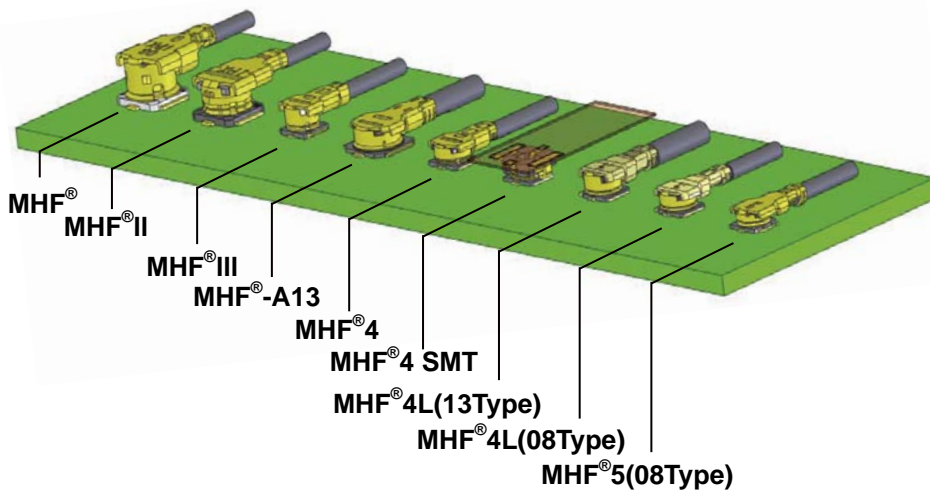
Halogen - Free<sup>\*1</sup>



Easy Cable termination by “i-Fit<sup>®</sup>” Technology

# MHF<sup>®</sup> 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<sup>®</sup>” technology
- ▶ Applicable Technology :  
IEEE802.11 a/b/g/n, WiMAX, Zigbee, Bluetooth, MIMO, WiGig, M.2(MHF<sup>®</sup> 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

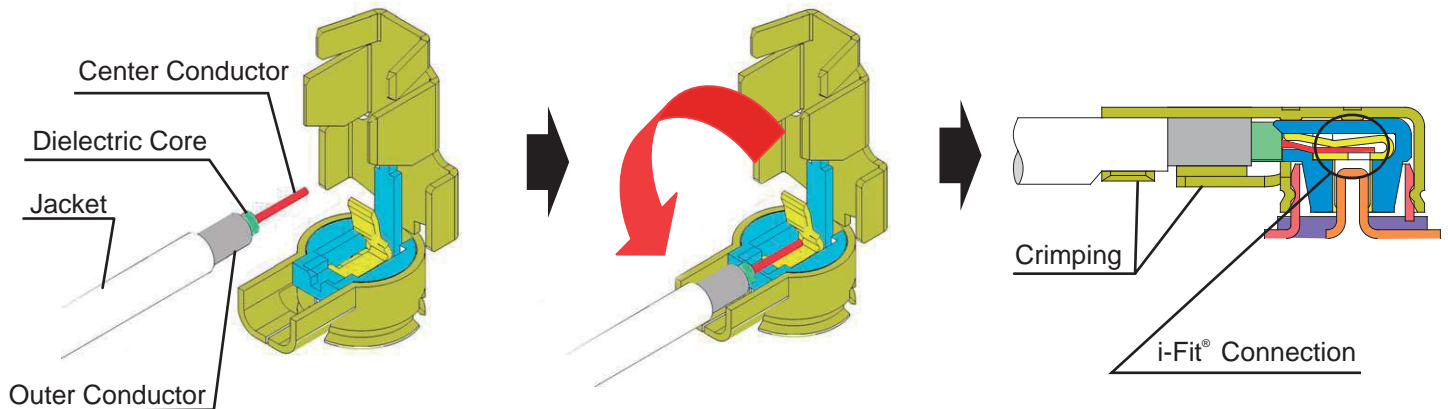
\* 1..... [ Halogen-Free ]

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

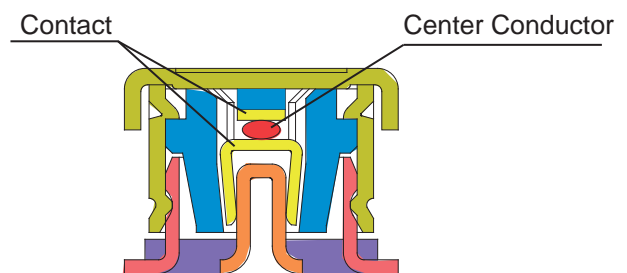
- ▶ Bromine < 900ppm
- ▶ Chlorine < 900ppm
- ▶ Bromine + Chlorine < 1,500ppm

## 【i-Fit<sup>®</sup> Termination mechanism】

**i-Fit<sup>®</sup> : One action, instant termination without soldering process.**  
**Stable electric performance by special assembling machine.**

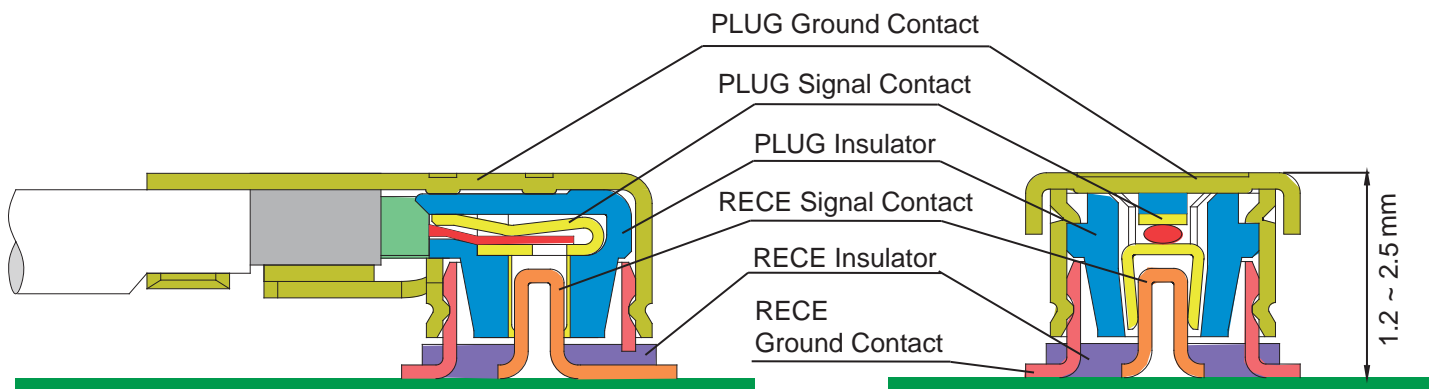


i-Fit<sup>®</sup> PATENT NO.  
U.S.A. PAT.6,790,082  
JAPAN PAT.4148339



i-Fit<sup>®</sup> 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<sup>®</sup> 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**

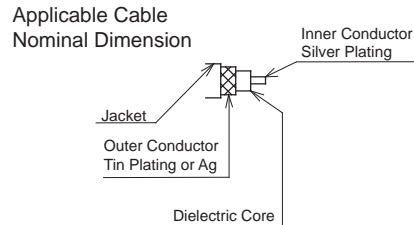
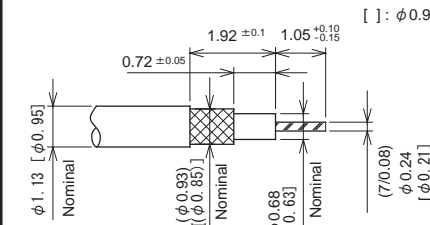
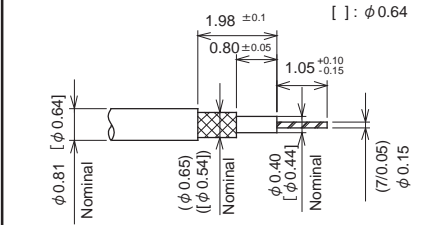
Packing : Reel  
 1 reel : 2,000pcs

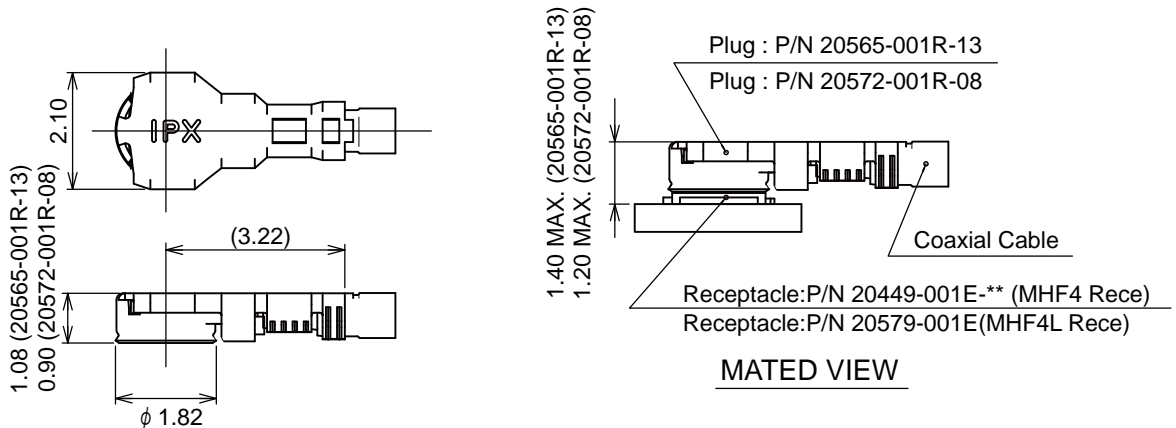
O.D. 0.81mm / 0.64mm type

**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