



PRODUCT SPECIFICATION



LANGUAGE

JAPANESE
ENGLISH

【1. 適用範囲 SCOPE】

本仕様書は、_____ 殿 に納入する
 0.3 mm ピッチ FPC用 コネクタ _____ について規定する。
 This specification covers the 0.3 mm PITCH FPC CONNECTOR series.

【2. 製品名称及び型番 PRODUCT NAME AND PART NUMBER】

製品名称 Product Name	製品型番 Part Number
ハウジング アッセンブリ Housing Assembly R/A (Bottom Contact Type)	無鉛 LEAD FREE 501912-**-10
501912-**-10 テーピング梱包品 Embossed Tape Package for 501912-**-10	無鉛 LEAD FREE 501912-**-90

* : 図面参照 Refer to the drawing.

【3. 定格 RATINGS】

項目 Item	規格 Standard	
最大許容電圧 Rated Voltage(MAXIMUM)	50 V	[AC(実効値 rms) / DC]
最大許容電流 Rated Current (MAXIMUM)	0.2A	
使用温度範囲 Ambient Temperature Range (Operating and Non-operating)	-20°C ~ +85°C*1	

*1 : 通電による温度上昇分を含む。
 Including terminal temperature rise.

REV.	A	B	C	D																
SHEET	1-10	1-10	1-10	8																
REVISE ON PC ONLY					TITLE:															
D	変更 REVISED ECN No. J2008-3156 '08/3/3 H.TAGAMI				0.3 FPC CONNECTOR E/O GOLD PLATING (Hgt=1.8mm) — LEAD FREE — 製品仕様書															
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					J					Y.MAEDA		M.TANAKA		N.UKITA		2006/07/17				
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【4. 性能 PERFORMANCE】

4-1. 電気的性能 Electrical Performance

項目 Item	条件 Test Condition	規格 Requirement
4-1-1 接触抵抗 Contact Resistance	適合FPCを嵌合させ、開放電圧 20mV 以下、短絡電流 10mAにて測定する。 (JIS C5402 5.4) Mate applicable FPC and measure by dry circuit , 20mV MAXIMUM, 10mA (JIS C5402 5.4)	奇数極 ODD CIRCUIT 80 milliohm MAXIMUM 偶数極 EVEN CIRCUIT 40 milliohms MAXIMUM
4-1-2 絶縁抵抗 Insulation Resistance	適合FPCを嵌合させ、隣接するターミナル間及びターミナル、アース間に、DC 500Vを印加し測定する。 (JIS C5402 5.2/MIL-STD-202 試験法 302) Mate applicable FPC and apply 500V DC between adjacent terminal and ground. (JIS C5402 5.2/MIL-STD-202 Method 302)	50 Megaohm MINIMUM
4-1-3 耐電圧 Dielectric Strength	適合FPCを嵌合させ、隣接するターミナル間及びターミナル、アース間に、AC 250V (実効値) を1分間印加する。 (JIS C5402 5.1/MIL-STD-202 試験法 301) Mate applicable FPC, apply 250V AC for 1 minute between adjacent terminal or ground. (JIS C5402 5.1/MIL-STD-202 Method 301)	異常なきこと No Breakdown

4-2. 機械的性能 Mechanical Performance

項目 Item	条件 Test Condition	規格 Requirement
4-2-1 FPC保持力 FPC retention Force	アクチュエータ挿入状態にて、毎分 25±3 mm の速さでFPCを引き抜く。 Insert the actuator,pull the FPC at a rate of 25±3 mm per minute.	第6項参照 Refer to paragraph 6
4-2-2 ターミナル保持力 Terminal Retention Force	毎分 25±3mm の速さで各端子を引き抜く。 Apply axial pull out force at the rate of 25±3mm/minute on the terminal assembled in the housing.	0.5 N {0.05 kgf} MINIMUM

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4-3. その他 Environmental Performance and Others

項目 Item		条件 Test Condition	規格 Requirement	
4-3-1	繰り返し動作 Repeated Actuator Insertion/ Withdrawal	無通電状態にて1分間に10回以下の速さで、挿入、抜去を20回繰り返す。 Insert and withdraw actuator up to 20 cycles at the a rate of less than 10 cycles/minute.	接触抵抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
4-3-2	温度上昇 Temperature Rise	適合FPCを嵌合させ、最大許容総電流を通電し、コネクタの温度上昇分を測定する。 (UL 498) Mate applicable FPC and measure the temperature rise of contact when the maximum AC rated current is passed. (UL 498)	温度上昇 Temperatur e Rise	30 °C MAXIMUM
4-3-3	耐振動性 Vibration	DC 1mA 通電状態にて、嵌合軸を含む互いに垂直な3方向に掃引割合 10~55~10 Hz/分、全振幅 1.5mm の振動を各 2時間 加える。 (MIL-STD-202試験法 201) Amplitude : 1.5 mm P-P Frequency : 10-55-10 Hz / minute. Duration : 2 hours in each X.Y.Z. axes. (MIL-STD-202, Method 201)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
			瞬 断 Discontinuity	1.0 microsecond MAXIMUM

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-4	耐 衝 撃 性 Shock	<p>適合FPCを嵌合させ、DC 1mA 通電状態にて、嵌合軸を含む互いに垂直な 6方向 に、490 m/s² (50G) の衝撃を 各3回 加える。 (JIS C0041/MIL-STD-202 試験法 213) Mate applicable FPC and subject to the following shock conditions. 3 times of shocks shall be applied for each 6 directions along 3 mutually perpendicular axes, passing DC 1 mA current during the test. (Total of 18 shocks) Peak value : 490 m/s² (50 G) (JIS C0041/MIL-STD-202 Method 213)</p>	外 観 Appearance	異状なきこと No Damage
			接 触 抵 抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
			瞬 断 Discontinuity	1.0 microsecond MAXIMUM
4-3-5	耐 熱 性 Heat Resistance	<p>適合FPCを嵌合させ、85±2°C の雰囲気中に 96時間 放置後取り出し、1~2時間 室温に放置する。 (JIS C0021/MIL-STD-202 試験法 108) Mate applicable FPC and expose to 85±2°C for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (JIS C0021/MIL-STD-202 Method 108)</p>	外 観 Appearance	異状なきこと No Damage
			接 触 抵 抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-6	耐寒性 Cold Resistance	適合FPCを嵌合させ、 $-40\pm 2^{\circ}\text{C}$ の雰囲気中に96時間放置後取り出し、1~2時間室温に放置する。 (JIS C0020) Mate applicable FPC and expose to $-40\pm 2^{\circ}\text{C}$ for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (JIS C0020)	外 観 Appearance	異常なきこと No Damage
			接 触 抵 抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
4-3-7	耐湿性 Humidity	適合FPCを嵌合させ、 $60\pm 2^{\circ}\text{C}$ 、相対湿度90~95%の雰囲気中に 96時間 放置後取り出し、1~2時間室温に放置する。 (JIS C0022/MIL-STD-202 試験法 103) Mate applicable FPC and expose to $60\pm 2^{\circ}\text{C}$, relative humidity 90 to 95% for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (JIS C0022/MIL-STD-202 Method 103)	外 観 Appearance	異常なきこと No Damage
			接 触 抵 抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
			耐電圧 Dielectric Strength	4-1-3項 満足のこと Must meet 4-1-3
			絶縁抵抗 Insulation Resistance	20 megaohm MINIMUM

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-8	温度サイクル Temperature Cycling	適合FPCを嵌合させ、-55±3℃に30分、+85±2℃に30分、これを1サイクルとし、5サイクル繰り返す。但し、温度移行時間は、3分以内とする。試験後1~2時間室温に放置する。(JIS C0025) 5 cycle a) -55±3℃ 30 minutes b) +85±3℃ 30 minutes (Transit time shall be with in 3 minutes) (MIL-STD-202 Method 107)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
4-3-9	塩水噴霧 Salt Spray	適合FPCを嵌合させ、35±2℃にて、重量比 5±1%の塩水を48±4時間噴霧し、試験後常温で水洗いした後、室温で乾燥させる。 (JIS C0023/MIL-STD-202 試験法 101) Mate applicable FPC and expose to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dip in running water, after which the specified measurements shall be performed. NaCl solution Concentration : 5±1% Spray time : 48±4 hours Ambient temperature : 35±2℃ (JIS C0023/MIL-STD-202 Method 101)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
4-3-10	亜硫酸ガス SO ₂ Gas	適合FPCを嵌合させ、40±2℃にて、50±5 ppm の亜硫酸ガス中に24時間放置する。 Mate applicable FPC and expose them to the following SO ₂ gas atmosphere. Temperature 40±2 °C Gas Density 50±5 ppm Duration 24 hours	外 観 Appearance	異常なきこと No Damage
			接 触 抵 抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-11	耐アンモニア性 NH ₃ Gas	適合FPCを嵌合させ、水素イオン濃度28%のアンモニア水を入れた容器中に40分間放置する。(1Lに対して25mLの割合) 40 minutes exposure to NH ₃ gas evaporating from 28% Ammonia solution	外 観 Appearance	異常なきこと No Damage
			接 触 抵 抗 Contact Resistance	奇数極 ODD CIRCUIT 100milliohms MAXIMUM 偶数極 EVEN CIRCUIT 60milliohms MAXIMUM
4-3-12	半田付け性 Solderability	端子先端より0.2mm、金具先端より0.2mmの位置まで245±3°Cの半田に2~3秒漬す。 Dip solder tails and fitting nail into the molten solder(held at 245±3°C)up to 0.2mm from the bottom of the housing for 2~3 seconds.	濡れ性 Solder Wetting	浸水面積の75%以上 75% of immersed area must show no voids, pin holes.
4-3-13	半田耐熱性 Resistance to Soldering Heat	(リフロー時) 第7項参照 (When reflowing) See paragraph 7.	外 観 Appearance	端子ガタ割れ等 異常無きこと No Damage
		(手半田時) 端子先端より0.2mm、金具先端より0.2mmの位置まで370~400°Cの半田に3±1秒加熱後。 Dip solder tails and fitting nail into the molten solder(held at 350±5°C)up to 0.2mm from the bottom of the housing for 3±1seconds.		

【5. 外観形状、寸法及び材質 PRODUCT SHAPE, DIMENSIONS AND MATERIALS】

図面参照 Refer to the drawing.

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【6. FPC保持力 FPC RETENTION FORCE】

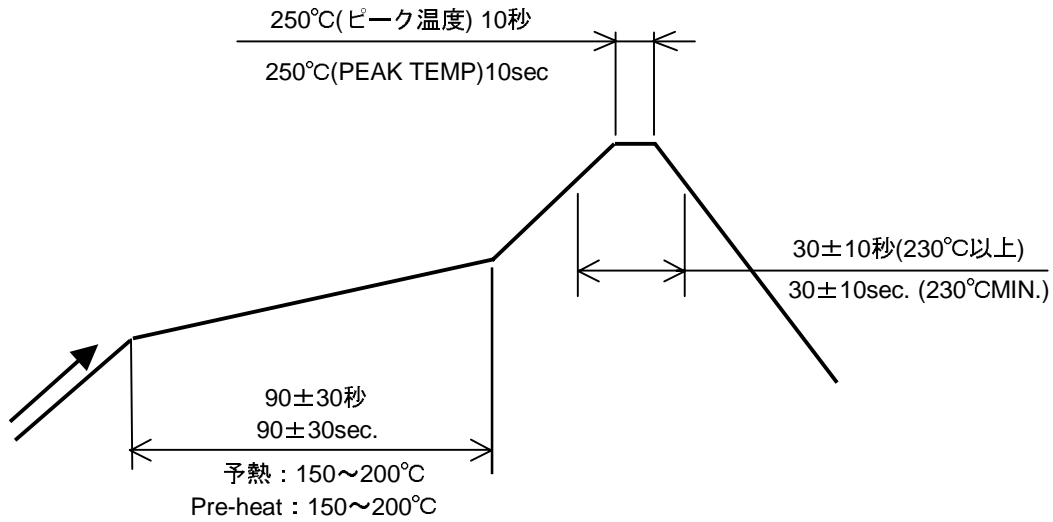
極数 No. of CKT	単位 UNIT	保持力 (最小値)			極数 No. of CKT	単位 UNIT	保持力 (最小値)		
		Retention Force (MIN.)					Retention Force (MIN.)		
		初回 1st	10回目 10th	20回目 20th			初回 1st	10回目 10th	20回目 20th
15	N {kgf}	3.3 {0.34}	1.8 {0.19}	1.8 {0.19}	35	N {kgf}	5.5 {0.56}	4.7 {0.48}	4.3 {0.44}
21	N {kgf}	3.9 {0.40}	2.6 {0.27}	2.6 {0.27}	37	N {kgf}	5.7 {0.58}	5.0 {0.51}	4.5 {0.46}
23	N {kgf}	4.2 {0.43}	3.0 {0.31}	2.8 {0.29}	39	N {kgf}	6.0 {0.61}	5.3 {0.54}	4.8 {0.49}
25	N {kgf}	4.4 {0.45}	3.3 {0.34}	3.0 {0.31}	45	N {kgf}	6.6 {0.68}	6.2 {0.63}	5.5 {0.56}
27	N {kgf}	4.6 {0.47}	3.6 {0.37}	3.2 {0.33}	47	N {kgf}	6.8 {0.69}	6.4 {0.65}	5.7 {0.58}
33	N {kgf}	5.3 {0.54}	4.4 {0.45}	4.0 {0.41}	51	N {kgf}	7.2 {0.73}	6.8 {0.69}	6.1 {0.62}

*FPCの仕様により保持力が影響を受ける為、規格を満たさない事があります。
There may be the case which the connector performance does not meet the above specification, because the different FPC manufacturers have their own unique specification.

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【 7. 赤外線リフロー条件 INFRARED REFLOW CONDITION 】



温度条件グラフ
TEMPERATURE CONDITION GRAPH
(基板表面温度)
(TEMPERATURE ON BOARD PATTERN SIDE)

リフロー可能回数 : 2回
Reflow possibility : 2 times

注記(NOTE) ;

- 本リフロー条件に関しては、リフロー装置及び基板などにより条件が異なりますので、事前にリフロー評価の確認をお願い致します。
Please check the reflow soldering condition by your own devices beforehand. Because the condition changes by the soldering devices, p.c.boards, and so on.
- クリーム半田の厚さは、リフロー後で 0.12mm 以上を維持して下さい。
Thickness of the cream solder shall be maintained 0.12mm MIN. after reflow process.

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C	REVISED	'07/10/17	J2008-1377	Y.MAEDA	N.UKITA
D	REVISED	'08/03/03	J2008-3156	H.TAGAMI	K.TAKAHASHI

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