



PRODUCT SPECIFICATION



LANGUAGE

JAPANESE
ENGLISH

【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 measured by dry circuit, 20mV MAX., 10mA. (JIS C5402 5.4)	20 milliohms MAX.
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302B) Mate applicable FPC and apply 500V DC between adjacent terminal or ground. (JIS C5402 5.2/MIL-STD-202 Method 302B)	100 Megohms MIN.
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、AC500V(実効値) を 1分間 印加する。 (JIS C5402 5.1/MIL-STD-202 試験法 301に準拠) Mate applicable FPC and apply 500V AC (rms) 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 アクチュエータ 挿抜力 Actuator Insertion / Withdrawal Force	適合FPCを嵌合させ、アクチュエータを毎分25±3mmの速さで挿入、抜去を行う。 Mate applicable FPC and insert and withdraw actuator at the speed rate of 25±3mm/minute.	第7項参照 Refer to paragraph 7
4-2-2 FPC保持力 FPC Retention Force	アクチュエータ挿入状態にて、毎分25±3mmの速さでFPCを引き抜く。 Insert the actuator, pull the FPC at the speed rate of 25±3mm/minute.	第8項参照 Refer to paragraph 8
4-2-3 端子保持力 Terminal / Housing Retention Force	各端子毎の引き抜きは、毎分25±3mmの速さで行う。 Apply axial pull out force at the speed rate of 25±3 mm/minute on the terminal assembled in the housing.	5.9 N {0.6 kgf} MIN.

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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 アクチュエータ 繰返し動作 Repeated Actuator Insertion / Withdrawal	無通電状態にて、1分間1に10回以下の速さで挿入、抜去を 30回繰り返す。 Insert and withdraw actuator up to 30 cycles at the speed rate of less than 10 cycles/minute.	接触抵抗 Contact Resistance	40 milliohms MAX.
4-3-2 温度上昇 Temperature Rise	適合FPCを嵌合させ、最大許容電流を通電し、コネクタの温度上昇分を測定する。 (UL 498) Carrying rated current load. (UL 498)	温度上昇 Temperature Rise	30 °C MAX.
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 201A) Amplitude: 1.5mm P-P Sweep time: 10~55~10 Hz in 1 minute Duration: 2 hours in each X.Y.Z. axes (MIL-STD-202 Method 201A)	外観 Appearance	異常なきこと No Damage
		接触抵抗 Contact Resistance	40 milliohms MAX.
		瞬断 Discontinuity	1.0 microsec. MAX.
4-3-4 耐衝撃性 Shock	DC 1mA 通電状態にて、嵌合軸を含む互いに垂直な 6方向 に 490m/s ² {50G} の衝撃を 各3回 加える。 (JIS C0041/MIL-STD-202 試験法 213B) 490m/s ² {50G}, 3 strokes in each X.Y.Z. axes. (JIS C0041/MIL-STD-202 Method 213B)	外観 Appearance	異常なきこと No Damage
		瞬断 Discontinuity	1 microsecond MAX.
4-3-5 耐熱性 Heat Resistance	適合FPCを嵌合させ、85±2°C の雰囲気中に2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 108A) 85±2°C, 2 hours (JIS C0021/MIL-STD-202 Method 108A)	外観 Appearance	異常なきこと No Damage
		接触抵抗 Contact Resistance	40 milliohms MAX.
4-3-6 耐寒性 Cold Resistance	適合 FPC を嵌合させ、-40±2°C の雰囲気中に2時間 放置後取り出し、1~2時間 室温に放置する。 (JIS C0020) -40±2°C, 2 hours (JIS C0020)	外観 Appearance	異常なきこと No Damage
		接触抵抗 Contact Resistance	40 milliohms MAX.

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-7	耐湿性 Humidity	適合FPCを嵌合させ、40±2°C、相対湿度90~95%の雰囲気中に96時間放置後取り出し、30分以内に測定。水滴は拭き取る。 (JIS C0022/MIL-STD-202 試験法 103B) Temperature: 40±2°C Relative Humidity: 90~95% Duration: 96 hours (JIS C0022/MIL-STD-202 Method 103B)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	40 milliohms MAX.
			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	50 Megohms MIN.
4-3-8	温度サイクル Temperature Cycling	適合 FPC を嵌合させ、-55±3°C に 30分、+85±2°C 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5分以内とする。試験後 1~2時間 室温に放置する。(JIS C0025) 5 cycles of: a) - 55±3°C 30 minutes b) +85±2°C 30 minutes Transit time shall be within 5 minutes. (JIS C0025)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	40 milliohms MAX.
4-3-9	塩水噴霧 Salt Spray	適合FPCを嵌合させ、35°C±2°Cにて5±1%重量比の塩水を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 C5028/MIL-STD-202 試験法101D) 48±4 hours exposure to a salt spray from the 5±1% solution at 35±2°C. (JIS C5028/MIL-STD-202 Method 101D)	外観 Appearance	割れ、著しい腐食等 異常なきこと No Damage
			接触抵抗 Contact Resistance	40 milliohms MAX.
4-3-10	亜硫酸ガス SO ₂ Gas	適合FPCを嵌合させ、40±2°Cにて50±5ppmの亜硫酸ガス中に24時間放置する。 24 hours exposure to 50±5ppm SO ₂ gas at 40±2°C.	接触抵抗 Contact Resistance	40 milliohms MAX.
4-3-11	耐アンモニア性 NH ₃ Gas	適合FPCを嵌合させ、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	40 milliohms MAX.

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-12	半田付け性 Solderability	端子先端より1.5mm、金具側面より ^① の位置まで、 245±5°C の半田に 3±0.5秒 浸す。 Soldering Time: 3±0.5秒 Solder Temperature: 245±5°C 1.5mm from terminal tip, 1mm from the side of the fitting nail.	濡れ性 Solder Wetting	浸漬面積の 75%以上 75% of immersed area must show no voids, Pinholes
4-3-13	半田耐熱性 Resistance to Soldering Heat	(リフロー時) 第6項参照 リフロー回数: 2回 (When reflowing) See paragraph 6 Reflowing: 2 times.	外観 Appearance	端子ガタ、割れ等 異常なきこと No Damage
		(手半田時) 端子先端より1.5mm、金具側面下部 ^② より 1mm の位置まで、 370~400°C の半田ゴテにて 最大5秒 加熱する。 Soldering Time: 5 sec MAX. Solder Temperature: 370~400°C 1.5 mm from terminal tip, 1 mm from the bottom side of the fitting nail.		

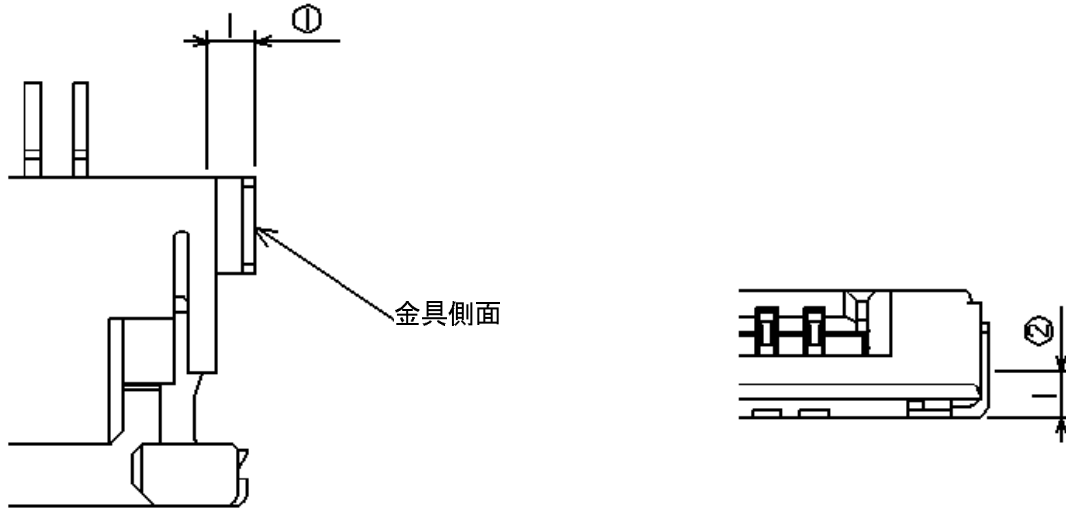
(): 参考規格 Reference Standard
{ }: 参考単位 Reference Unit

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

図面参照 Refer to the drawing.



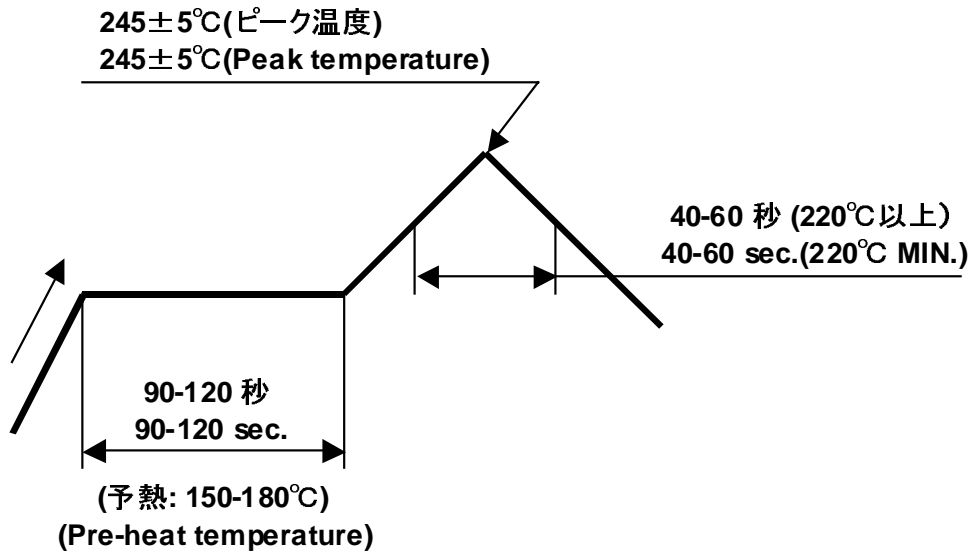
半田付け性、半田耐熱性

金具位置

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



温度条件グラフ
(温度は基板パターン面)

Temperature Condition Graph
(Temperature On The Surface of P.C. Board Pattern)

注記：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をお願い致します。

NOTE : Please check the reflow soldering condition by your own devices beforehand. Because the condition changes by the soldering devices, p.c board, and so on.

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【7. アクチュエータ挿抜力 Actuator Insertion / Withdrawal Force】

極数 No. of CKT	単位 Unit	挿入力(最大値) Insertion Force (MAX.)			抜去力(最大値) Withdrawal Force (MAX.)		
		初回 1st	6回目 6th	30回目 30th	初回 1st	6回目 6th	30回目 30th
3	N {kgf}	27.4 {2.8}	25.4 {2.6}	25.4 {2.6}	36.2 {3.7}	32.3 {3.3}	32.3 {3.3}
4	N {kgf}	28.4 {2.9}	26.4 {2.7}	26.4 {2.7}	37.2 {3.8}	33.3 {3.4}	33.3 {3.4}
5	N {kgf}	29.4 {3.0}	27.4 {2.8}	27.4 {2.8}	38.2 {3.9}	34.3 {3.5}	34.3 {3.5}
6	N {kgf}	30.3 {3.1}	28.4 {2.9}	28.4 {2.9}	39.2 {4.0}	35.2 {3.6}	35.2 {3.6}
7	N {kgf}	31.3 {3.2}	29.4 {3.0}	29.4 {3.0}	40.1 {4.1}	36.2 {3.7}	36.2 {3.7}
8	N {kgf}	32.3 {3.3}	30.3 {3.1}	30.3 {3.1}	41.1 {4.2}	37.2 {3.8}	37.2 {3.8}
9	N {kgf}	33.3 {3.4}	31.3 {3.2}	31.3 {3.2}	42.1 {4.3}	38.2 {3.9}	38.2 {3.9}
10	N {kgf}	34.3 {3.5}	32.3 {3.3}	32.3 {3.3}	43.1 {4.4}	39.2 {4.0}	39.2 {4.0}
11	N {kgf}	35.2 {3.6}	33.3 {3.4}	33.3 {3.4}	44.1 {4.5}	40.1 {4.1}	40.1 {4.1}
12	N {kgf}	36.2 {3.7}	34.3 {3.5}	34.3 {3.5}	45.0 {4.6}	41.1 {4.2}	41.1 {4.2}
13	N {kgf}	37.2 {3.8}	35.2 {3.6}	35.2 {3.6}	46.0 {4.7}	42.1 {4.3}	42.1 {4.3}
14	N {kgf}	38.2 {3.9}	36.2 {3.7}	36.2 {3.7}	47.0 {4.8}	43.1 {4.4}	43.1 {4.4}
15	N {kgf}	39.2 {4.0}	37.2 {3.8}	37.2 {3.8}	48.0 {4.9}	44.1 {4.5}	44.1 {4.5}
16	N {kgf}	40.1 {4.1}	38.2 {3.9}	38.2 {3.9}	49.0 {5.0}	45.0 {4.6}	45.0 {4.6}
17	N {kgf}	41.1 {4.2}	39.2 {4.0}	39.2 {4.0}	49.9 {5.1}	46.0 {4.7}	46.0 {4.7}
18	N {kgf}	42.1 {4.3}	40.1 {4.1}	40.1 {4.1}	50.9 {5.2}	47.0 {4.8}	47.0 {4.8}

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極数 No. of CKT	単位 Unit	挿入力(最大値) Insertion Force (MAX.)			抜去力(最大値) Withdrawal Force (MAX.)		
		初回 1st	6回目 6th	30回目 30th	初回 1st	6回目 6th	30回目 30th
19	N {kgf}	43.1 {4.4}	41.1 {4.2}	41.1 {4.2}	51.9 {5.3}	48.0 {4.9}	48.0 {4.9}
20	N {kgf}	44.1 {4.5}	42.1 {4.3}	42.1 {4.3}	52.9 {5.4}	49.0 {5.0}	49.0 {5.0}
21	N {kgf}	45.0 {4.6}	43.1 {4.4}	43.1 {4.4}	53.9 {5.5}	49.9 {5.1}	49.9 {5.1}
22	N {kgf}	46.0 {4.7}	44.1 {4.5}	44.1 {4.5}	54.8 {5.6}	50.9 {5.2}	50.9 {5.2}
23	N {kgf}	47.0 {4.8}	45.0 {4.6}	45.0 {4.6}	55.8 {5.7}	51.9 {5.3}	51.9 {5.3}
24	N {kgf}	48.0 {4.9}	46.0 {4.7}	46.0 {4.7}	56.8 {5.8}	52.9 {5.4}	52.9 {5.4}
25	N {kgf}	49.0 {5.0}	47.0 {4.8}	47.0 {4.8}	57.8 {5.9}	53.9 {5.5}	53.9 {5.5}
26	N {kgf}	49.9 {5.1}	48.0 {4.9}	48.0 {4.9}	58.8 {6.0}	54.8 {5.6}	54.8 {5.6}
27	N {kgf}	50.9 {5.2}	49.0 {5.0}	49.0 {5.0}	59.7 {6.1}	55.8 {5.7}	55.8 {5.7}
28	N {kgf}	51.9 {5.3}	49.9 {5.1}	49.9 {5.1}	60.7 {6.2}	56.8 {5.8}	56.8 {5.8}
29	N {kgf}	52.9 {5.4}	50.9 {5.2}	50.9 {5.2}	61.7 {6.3}	57.8 {5.9}	57.8 {5.9}
30	N {kgf}	53.9 {5.5}	51.9 {5.3}	51.9 {5.3}	62.7 {6.4}	58.8 {6.0}	58.8 {6.0}
34	N {kgf}	57.8 {5.9}	55.8 {5.7}	55.8 {5.7}	66.6 {6.8}	62.7 {6.4}	62.7 {6.4}

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【8. FPC保持力 FPC Retention Force】

極数 No. of CKT	単位 Unit	保持力(最小値) Retention Force (MIN.)		極数 No. of CKT	単位 Unit	保持力(最小値) Retention Force (MIN.)	
		初回 1st	10回目 10th			初回 1st	10回目 10th
3	N {kgf}	2.0 {0.20}	1.5 {0.15}	17	N {kgf}	8.9 {0.90}	8.4 {0.85}
4	N {kgf}	2.5 {0.25}	2.0 {0.20}	18	N {kgf}	9.4 {0.95}	8.9 {0.90}
5	N {kgf}	3.0 {0.30}	2.5 {0.25}	19	N {kgf}	9.8 {1.00}	9.4 {0.95}
6	N {kgf}	3.5 {0.35}	3.0 {0.30}	20	N {kgf}	10.3 {1.05}	9.8 {1.00}
7	N {kgf}	4.0 {0.40}	3.5 {0.35}	21	N {kgf}	10.8 {1.10}	10.3 {1.05}
8	N {kgf}	4.5 {0.45}	4.0 {0.40}	22	N {kgf}	11.3 {1.15}	10.8 {1.10}
9	N {kgf}	4.9 {0.50}	4.5 {0.45}	23	N {kgf}	11.8 {1.20}	11.3 {1.15}
10	N {kgf}	5.4 {0.55}	4.9 {0.50}	24	N {kgf}	12.3 {1.25}	11.8 {1.20}
11	N {kgf}	5.9 {0.60}	5.4 {0.55}	25	N {kgf}	12.8 {1.30}	12.3 {1.25}
12	N {kgf}	6.4 {0.65}	5.9 {0.60}	26	N {kgf}	13.3 {1.35}	12.8 {1.30}
13	N {kgf}	6.9 {0.70}	6.4 {0.65}	27	N {kgf}	13.8 {1.40}	13.3 {1.35}
14	N {kgf}	7.4 {0.75}	6.9 {0.70}	28	N {kgf}	14.3 {1.45}	13.8 {1.40}
15	N {kgf}	7.9 {0.80}	7.4 {0.75}	29	N {kgf}	14.7 {1.50}	14.3 {1.45}
16	N {kgf}	8.4 {0.85}	7.9 {0.80}	30	N {kgf}	15.2 {1.55}	14.7 {1.50}
				34	N {kgf}	17.2 {1.75}	16.7 {1.70}

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