

【4. 性能 PERFORMANCE】

4 - 1. 電気的性能 Electrical Performance

| 項目 Item | | 条件 Condition | 規格 Standard |
|------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 4-1-1 | 接触抵抗 Contact Resistance | 適合FPCを装着し、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, measure by dry circuit, 20mV MAX., 10mA. (JIS C5402 5.4) | 20 milliohm MAX. |
| 4-1-2 | 絶縁抵抗 Insulation Resistance | 適合FPCを装着し、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, apply 500V DC between adjacent terminal or ground. (JIS C5402 5.2/MIL-STD-202 Method 302) | 50 Megohm MIN. |
| 4-1-3 | 耐電圧 Dielectric Strength | 適合FPCを装着し、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 (rms) for 1 minute between adjacent terminal or ground. (JIS C5402 5.1/MIL-STD-202 Method 301) | 異状なきこと No Breakdown |

4 - 2. 機械的性能 Mechanical Performance

| 項目 Item | | 条件 Condition | 規格 Standard |
|------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 4-2-1 | アクチュエータ 挿抜力 Actuator and 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6項参照 Refer to paragraph 6 |
| 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7項参照 Refer to paragraph 7 |

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| 項目 Item | | 条件 Condition | 規格 Standard |
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| 4-2-3 | 端子保持力 Terminal / Housing Retention Force | 端子を 毎分 25±3mm の速さで引張る。 Apply axial pull out force at the speed rate of 25±3mm/minute on the terminal assembled in the housing. | 3.0 N {0.30 kgf} MIN. |
| 4-2-4 | 金具保持力 Fitting nail/ Housing Retention Force | 金具を 毎分 25±3mm の速さで引張る。 Apply axial pull out force at the speed rate of 25±3mm/minute on the fitting nail assembled in the housing. | 3.0 N {0.30 kgf} MIN. |

4-3. その他 Environmental Performance and Others

| 項目 Item | | 条件 Condition | 規格 Standard | |
|------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------|
| 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 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 speed rate of less than 10 cycle per minute. | 接触抵抗 Contact Resistance | 40 milliohm 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 10~55~10Hz/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 : 1.5mm P-P Sweep time : 10~55~10Hz in 1 minute Duration : 2 hours in each X, Y, Z axes (MIL-STD-202 Method 201) | 外観 Appearance | 異状なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm MAX. |
| | | | 瞬断 Discontinuity | 1.0 microsecond MAX. |

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| 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 C60068-2-27/MIL-STD-202 試験法 213) 490m/s ² {50G}, 3 strokes in each X,Y,Z axes. (JIS C60068-2-27/MIL-STD-202 Method 213) | 外観 Appearance | 異常なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm MAX. |
| | | | 瞬断 Discontinuity | 1.0 microsecond MAX. |
| 4-3-5 | 耐熱性 Heat Resistance | 適合FPCを嵌合させ、85±2℃ 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 C60068-2-2/MIL-STD-202 試験法 108) 85±2℃, 96 hours (JIS C60068-2-2/MIL-STD-202 Method 108) | 外観 Appearance | 異常なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm MAX. |
| 4-3-6 | 耐寒性 Cold Resistance | 適合FPCを嵌合させ、-40±3℃ 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 C60068-2-1) -40±3℃, 96 hours (JIS C60068-2-1) | 外観 Appearance | 異常なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm MAX. |
| 4-3-7 | 耐湿性 Humidity | 適合FPCを嵌合させ、60±2℃、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 C60068-2-3/MIL-STD-202 試験法103) Temperature : 60±2℃ Relative Humidity : 90~95% Duration : 96 hours (JIS C60068-2-3/MIL-STD-202 Method 103) | 外観 Appearance | 異常なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm 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 | 20 Megohm MIN. |

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| 4-3-8 | 温度サイクル Temperature Cycling | 適合FPCを嵌合させ、-55℃ に 30分、+85℃ 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 1時間以内 とする。試験後、1~2時間 室温に放置する。 (JIS C0025) 5 cycles of: a) -55℃ 30 minutes b) +85℃ 30 minutes (JIS C0025) | 外 観 Appearance | 異常なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm MAX. |
| 4-3-9 | 塩水噴霧 Salt Spray | 適合FPCを嵌合させ、35±2℃ 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101) 48±4hours exposure to a salt spray from the 5±1% solution at 35±2℃. (JIS C5028/MIL-STD-202 Method 101) | 外 観 Appearance | 異常なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm MAX. |
| 4-3-10 | 亜硫酸ガス SO ₂ Gas | 適合FPCを嵌合させ、40±2℃ にて 50±5ppm の亜硫酸ガス中に 24時間 放置する。 24hours exposure to 50±5ppm. SO ₂ gas at 40±2℃. | 外 観 Appearance | 異常なきこと No damage |
| | | | 接触抵抗 Contact Resistance | 40 milliohm 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 milliohm MAX. |
| 4-3-12 | 半田付け性 Solderability | 端子先端より 0.3mm、金具先端より 0.3mm の位置まで 245±3℃ の半田に 3±0.5秒 浸す。 Dip terminal and fitting nail (held at 245±3℃) up to 0.3mm from the tip for 3±0.5 seconds | 濡れ性 Solder Wetting | 浸漬面積の 90%以上 90% of immersed area must show no voids, pin holes |

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| 項目 Item | | 条件 Condition | 規格 Standard | |
|------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------|
| 4-3-13 | 半田耐熱性 Resistance to Soldering Heat | (リフロー時) 第8項の条件を2回繰り返す。 (When reflowing) Repeat paragraph 8, condition two times. | 外 観 Appearance | 端子ガタ、割れ等 異状なきこと No Damage |
| | | (手半田時) 端子先端より 0.3mm、金具先端まで 0.3mm の 位置まで、370~400℃ の半田ゴテにて 最大5秒 加熱後。 Dip terminal and fitting nail (held at 370~400℃) up to 0.3mm from the tip for 5 seconds MAX. | | |

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

【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. アクチュエータ挿抜力 ACTUATOR INSERTION AND WITHDRAWAL FORCE】

| 極数 No. of CIRCUIT | 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 | 20回目 20th | 初回 1st | 6回目 6th | 20回目 20th |
| 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} |
| 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} | 46.1 {4.7} | 42.2 {4.3} | 42.2 {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} |
| 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} |

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【7. 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 |
| 4 | N {kgf} | 1.5 {0.15} | 1.4 {0.14} | 13 | N {kgf} | 5.9 {0.60} | 4.1 {0.41} |
| 6 | N {kgf} | 2.5 {0.25} | 2.0 {0.20} | 14 | N {kgf} | 6.4 {0.65} | 4.4 {0.44} |
| 7 | N {kgf} | 3.0 {0.30} | 2.3 {0.23} | 15 | N {kgf} | 6.9 {0.70} | 4.6 {0.47} |
| 8 | N {kgf} | 3.5 {0.35} | 2.6 {0.26} | 16 | N {kgf} | 7.4 {0.75} | 4.9 {0.50} |
| 9 | N {kgf} | 4.0 {0.40} | 2.9 {0.29} | 17 | N {kgf} | 7.9 {0.80} | 5.2 {0.53} |
| 10 | N {kgf} | 4.5 {0.45} | 3.2 {0.32} | 18 | N {kgf} | 8.4 {0.85} | 5.5 {0.56} |
| 11 | N {kgf} | 4.9 {0.50} | 3.5 {0.35} | 19 | N {kgf} | 8.9 {0.90} | 5.8 {0.59} |
| 12 | N {kgf} | 5.4 {0.55} | 3.8 {0.38} | 20 | N {kgf} | 9.4 {0.95} | 6.1 {0.62} |

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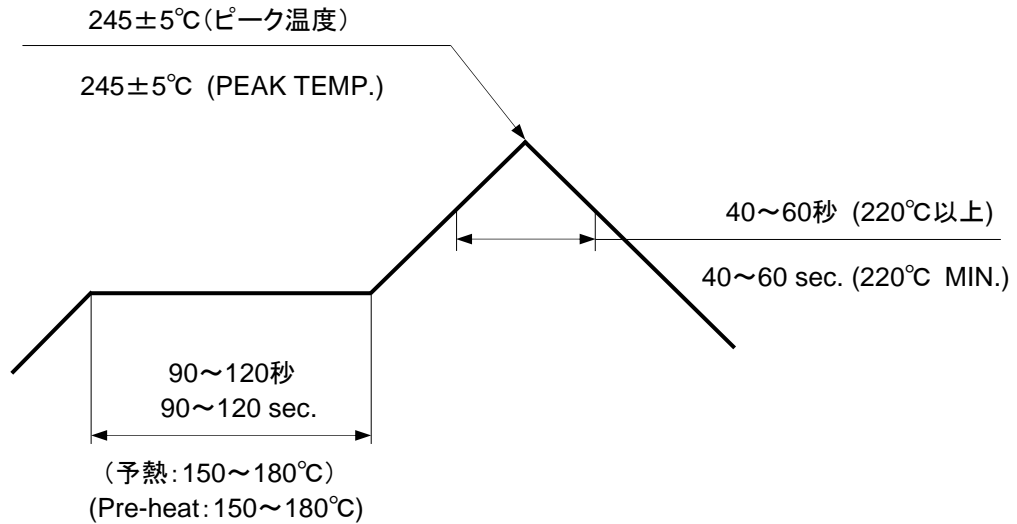
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【8. リフロー条件 REFLOW CONDITION】



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の確認をお願い致します。
また吸湿などの前処理は行わないで下さい。

NOTE; 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.
No moisture treatment before reflow process.

【9. 環境指令への適合 COMPLIANCE WITH ENVIRONMENTAL DIRECTIVE】

- 1. ELV及びRoHS適合品
ELV and RoHS Compliant

【10. 取り扱いの注意事項 INSTRUCTION UPON USAGE】

- 1. 防湿梱包開封後は防湿効果を失うため、すみやかにご使用下さい。効果維持を考慮すると、開梱後の使用目安は48時間以内です。
Please use it promptly after opening a packing. The recommendation is within at 48 hours.

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