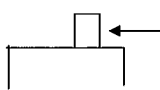
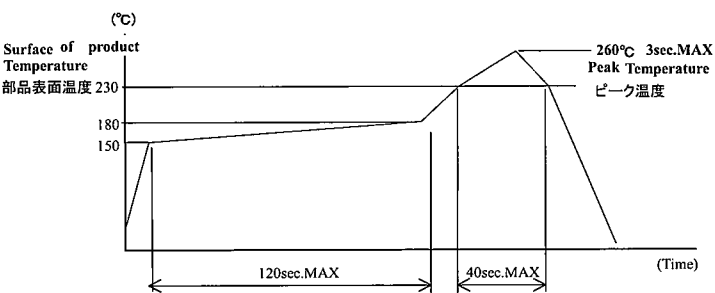


|                                                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
|-----------------------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------------|------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|---------|
| DOCUMENT No.<br>SSSS8-S-626                         |                                 | TITLE<br>PRODUCT SPECIFICATIONS<br>製品仕様書                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |      |      |      |      |      |            |      |      | PAGE<br>1/6                                                                                                                                                                                                                                                                         |             |             |             |         |
| BACKGROUND                                          |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      | S                                                                                                                                                                                                                                                                                   |             |             |             |         |
| 1. General 一般事項                                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 1.1 Application 適用範囲                                |                                 | This specification is applied to low current circuit (Secondary circuit) slide switch used for electronic equipment.<br>この仕様書は主として電子機器に用いる低電流回路用(2次側回路用)スライドスイッチに適用する。                                                                                                                                                                                                                                                                                                            |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 1.2 Operating temperature range                     |                                 | 使用温度範囲 : -40 ~ 85°C<br>At high temperature and low temperature, this shall be according to operating life with load (Cold - Dry heat) in item 7.1 and 7.2.<br>但し、高温・低温においては、7.1項 耐寒性 7.2項 耐熱性 の条件による。                                                                                                                                                                                                                                                                             |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 1.3 Storage temperature range                       |                                 | 保存温度範囲 : -40 ~ 85°C(テーピングは除く)                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 1.4 Test conditions 試験状態                            |                                 | Unless otherwise specified, the atmospheric conditions for making measurements and tests are as follows.<br>試験及び測定は特に規定がない限り以下の標準状態のもとで行う。<br>Ambient temperature 温度 : 5~35°C<br>Relative humidity 相対湿度 : 25~85%<br>Air pressure 気圧 : 86~106kPa<br>Should any doubt arise in judgement, tests shall be conducted at the following conditions.<br>ただし、判定に疑義を生じた場合は以下の基準状態で行う。<br>Ambient temperature 温度 : 20±2°C<br>Relative humidity 相対湿度 : 60~70%<br>Air pressure 気圧 : 86~106kPa |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 2. Appearance, construction and dimensions 外観、構造、寸法 |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 2.1 Appearance 外観                                   |                                 | Switch shall have good finishing, and no rust, crack or plating failures.<br>各部の仕上げは良好で、機能上有害な錆、傷、割れ、めっき不良及び剥離等があってはならない。                                                                                                                                                                                                                                                                                                                                                         |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 2.2 Construction and dimensions 構造、寸法               |                                 | Refer to individual product drawing. 個別製品図による。                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 3. Rating 定格                                        |                                 | Maximum 最大定格 5 V DC 0.3 A (Resistive load)(抵抗負荷)<br>Minimum 最小定格 3 V DC 50 μA (Resistive load)(抵抗負荷)                                                                                                                                                                                                                                                                                                                                                                              |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
| 4. Electrical specification 電気的性能                   |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
|                                                     | Items 項目                        | Test conditions 試験条件                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |      |      |      |      |      |            |      |      | Criteria 判定基準                                                                                                                                                                                                                                                                       |             |             |             |         |
| 4.1                                                 | Contact resistance<br>接触抵抗      | Shall be measured at 1 kHz±200 Hz (20 mV MAX, 50 mA MAX)<br>1 kHz±200 Hz、電圧 20 mV 以下、電流 50 mA 以下による方法。                                                                                                                                                                                                                                                                                                                                                                            |      |      |      |      |      |      |            |      |      | 70 mΩ MAX                                                                                                                                                                                                                                                                           |             |             |             |         |
| 4.2                                                 | Insulation resistance<br>絶縁抵抗   | Test voltage: 100 V DC, measured after 1 min ± 5 s<br>Applied position: Between all terminals<br>Between terminals and ground(frame)<br>DC 100 V の電圧を 1分±5秒間端子相互間、端子フレーム間に印加し、測定する。                                                                                                                                                                                                                                                                                               |      |      |      |      |      |      |            |      |      | 100 MΩ MIN                                                                                                                                                                                                                                                                          |             |             |             |         |
| 4.3                                                 | Voltage proof<br>耐電圧            | Test voltage: 100 V AC (50~60Hz, cut-off current 2 mA)<br>Duration: 1 min<br>Applied position: Between all terminals<br>Between terminals and ground(frame)<br>AC 100 V (50~60Hz、感度電流 2 mA) の電圧を 1分間端子相互間、端子フレーム間に印加する。                                                                                                                                                                                                                                                           |      |      |      |      |      |      |            |      |      | No dielectric breakdown shall occur.<br>絶縁破壊のないこと。                                                                                                                                                                                                                                  |             |             |             |         |
| 4.4                                                 | Changeover timing<br>切換タイミング    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      | Refer to individual product drawing.<br>個別製品図による。                                                                                                                                                                                                                                   |             |             |             |         |
| 5. Mechanical specification 機械的性能                   |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     |             |             |             |         |
|                                                     | Items 項目                        | Test conditions 試験条件                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |      |      |      |      |      |            |      |      | Criteria 判定基準                                                                                                                                                                                                                                                                       |             |             |             |         |
| 5.1                                                 | Operating force<br>作動力          | A static load shall be applied to the root of actuator in operating direction.<br>操作部の根元に作動方向へ静荷重を加えて測定する。<br>                                                                                                                                                                                                                                                                                |      |      |      |      |      |      |            |      |      | Refer to individual product drawing.<br>個別製品図による。                                                                                                                                                                                                                                   |             |             |             |         |
| 5.2                                                 | Robustness of terminal<br>端子強度  | A static load of 3 N shall be applied to the tip of terminal in a Desired direction for 1 min. The test shall be done once per terminal.<br>端子先端の一方方向へ 3 N の静荷重を1分間加える。<br>ただし、回数は1端子当たり1回とする。                                                                                                                                                                                                                                                                                    |      |      |      |      |      |      |            |      |      | Shall be free from terminal looseness, damage and breakage of terminal holding portion.<br>Terminals may be bent after test.<br>Electrical performance requirement specified in item 4 shall be satisfied.<br>端子の脱落、破損及び端子保持部の破損のないこと。ただし、端子の曲がりは差し支えないものとする。また、試験後 4項の電気的性能を満足すること |             |             |             |         |
| 5.3                                                 | Robustness of actuator<br>操作部強度 | A static load of 10 N shall be applied in the operating direction at the root of actuator for 15 s.<br>操作部の根元に作動方向に 10 N の静荷重を 15 秒間加える。<br>A static load of 10 N shall be applied in the pull direction of actuator for 15 s.<br>操作部の引張方向に 10 N の静荷重を 15 秒間加える。<br>A static load of 5 N shall be applied in the perpendicular direction of operation at the tip of actuator for 15 s.<br>操作部の先端に作動方向と直角に 5 N の静荷重を 15 秒間加える。                                                     |      |      |      |      |      |      |            |      |      | Shall be free from pronounced wobble, deformation and mechanical abnormalities.<br>著しいガタ及び曲がりのないこと。<br>また、機械的に異常のないこと。                                                                                                                                                              |             |             |             |         |
|                                                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     | APPD.       | CHKD.       | DSGD.       |         |
|                                                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |      |      |      |      |            |      |      |                                                                                                                                                                                                                                                                                     | Feb.23,2012 | Feb.23,2012 | Feb.23,2012 |         |
| PAGE                                                | SYMB                            | BACKGROUND                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | DATE | APPD | CHKD | DSGD | PAGE | SYMB | BACKGROUND | DATE | APPD | CHKD                                                                                                                                                                                                                                                                                | DSGD        | F.Yasuda    | F.Yasuda    | T.Umezu |

| DOCUMENT No.<br>SSSS8-S-626 |                                        | TITLE<br>PRODUCT SPECIFICATIONS<br>製品仕様書                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                  | PAGE<br>2/6 |
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| Items 項目                    |                                        | Test conditions 試験条件                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Criteria 判定基準                                                                                                                                                                                                                                                                                                                                                                                    |             |
| 5.4                         | Wobble of actuator<br>操作部の振れ           | Run-out(P-P) shall be measured by applying a static load of 1 N in the perpendicular direction of operation at the tip of actuator.<br>操作部の先端に作動方向と直角に 1 N の静荷重を加え、振れ幅(最大値)を測定する。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | P-P: 1 mm MAX                                                                                                                                                                                                                                                                                                                                                                                    |             |
| 5.5                         | Vibration<br>耐振性                       | Switch shall be secured to a testing machine by a normal mounting device and method.<br>Switch shall be measured after following test.<br>スイッチを正規の取付用具、取付方法で試験機に固定し、下記条件で試験を行い、試験後測定する。<br>(1)Vibration frequency range 振動数範囲: 10~55 Hz<br>(2)Total amplitude 全振幅: 1.5 mm<br>(3)Sweep ratio 掃引の割合: 10~55-10 Hz Approx. 1 min 約1分<br>(4)Method of changing the sweep vibration frequency: Logarithmic or linear 対数又は直線近似<br>掃引振動数の変化方法<br>(5)Direction of vibration: Three perpendicular directions including actuator 振動の方向 操作部を含む垂直3方向<br>(6)Duration 振動時間: 2 h each (6 h in total) 各 2時間 (計 6時間)<br><br>※ 前処理としてリフロー半田耐熱ストレスを加えるものとする。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Contact resistance 接触抵抗 (Item 4.1):<br>70 mΩ MAX<br>Insulation resistance 絶縁抵抗 (Item 4.2):<br>100 MΩ MIN<br>Voltage proof 耐電圧 (Item 4.3):<br>Apply 100 V AC for 1 min.<br>No dielectric breakdown shall occur.<br>絶縁破壊のないこと。<br>Operating force 作動力 (Item 5.1):<br>Within specified value.<br>規格値内とする。<br>No abnormalities shall be recognized in appearance and construction.<br>外観、構造に異常がないこと。 |             |
| 5.6                         | Shock<br>耐衝撃性                          | Switch shall be measured after following test.<br>下記条件で試験を行い、試験後測定する。<br>(1)Mounting method 取付方法: Normal mounting method 正規の方法で取り付ける。<br>(2)Acceleration 加速度: 980 m/s <sup>2</sup><br>(3)Duration 作用時間: 11 ms<br>(4)Test direction 試験方向: 6 directions 6 面<br>(5)Number of shocks 試験回数: 3 times per direction (18 times in total) 各方向各3回 (計18回)<br><br>※ 前処理としてリフロー半田耐熱ストレスを加えるものとする。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Contact resistance 接触抵抗 (Item 4.1):<br>70 mΩ MAX<br>Insulation resistance 絶縁抵抗 (Item 4.2):<br>100 MΩ MIN<br>Voltage proof 耐電圧 (Item 4.3):<br>Apply 100 V AC for 1 min.<br>No dielectric breakdown shall occur.<br>絶縁破壊のないこと。<br>Operating force 作動力 (Item 5.1):<br>Within specified value.<br>規格値内とする。<br>No abnormalities shall be recognized in appearance and construction.<br>外観、構造に異常がないこと。 |             |
| 5.7                         | Solderability<br>はんだ付け性                | Switch shall be checked after following test.<br>下記条件で試験を行い、試験後確認する。<br>(1)Solder はんだ: Sn-3.0Ag-0.5Cu<br>(2)Flux フラックス: EC-19S-8<br>(3)Soldering temperature はんだ温度: 245±5 °C<br>Immersing time 浸漬時間: 5±1 s<br>Flux immersing time shall be 5~10 s in normal room temperature.<br>ただし、フラックス浸漬は常温で5~10秒とする。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | More than 90 % of immersed part shall be covered with solder.<br>Cutting section of frame shall not be applied<br>浸漬した部分の 90 % 以上がはんだで覆われていること。<br>ただし、枠の破断面は適用しない。                                                                                                                                                                                                                              |             |
| 5.8                         | Resistance to soldering heat<br>はんだ耐熱性 | Switch shall be measured after following test.<br>下記条件で試験を行い、試験後確認する。<br>(1)Solder はんだ: Sn-3.0Ag-0.5Cu<br>(2)Flux フラックス: EC-19S-8<br><br><u>Re-flow soldering リフローはんだの場合</u><br><br>1. Heating method: Double heating method with infrared heater<br>加熱方式 遠赤外線加熱による上下加熱方式とする。<br>2. Temperature measurement: Thermocouple φ0.1~0.2 CA(K) or CC(T) at switch body.<br>温度測定方法: φ0.1~0.2 の CA(K) または CC(T) を用い測定。位置はSW本体表面とする。<br>3. Temperature profile: Twice, however it shall be going back to normal room temperature between each test.<br>温度プロファイル 2回リフローとする。但し、1回リフロー後、常温に戻すこと。<br><br><br><br><u>Manual soldering 手はんだの場合</u><br>Wattage of soldering iron こて容量: 15 W<br>Diameter of soldering iron tip こて先径: φ1 mm<br>Temperature of soldering iron tip こて先温度: 330±5°C<br>Soldering time はんだ付け時間: 3s MAX<br>Above conditions shall be applied to Glass fabric base, epoxy resin P.C.B of 0.3~0.8 mm thick.<br>Soldering iron shall be put at the tip of terminals and prevented excessive force to the terminals.<br>上記の条件は、t0.3~0.8 mm のガラス基材エポキシ樹脂積層板について適用する。<br>また、はんだごてでは端子先端に当て、端子に異常加圧のないこと。 | No abnormalities shall be observed in appearance and operation. The electrical performance requirements specified in item 4 shall be satisfied.<br>外観に著しい変形のないこと。<br>また、動作に異常がなく、4項の電気的性能を満足すること。                                                                                                                                                                                                |             |

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| DOCUMENT No.<br>SSSS8-S-626                             |                                      | TITLE<br>製品仕様書                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                    | PAGE<br>3/6 |
| 6.Durability 耐久性能 (前処理としてリフロー半田耐熱ストレスを加えるものとする。)        |                                      |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                    |             |
|                                                         | Items 項目                             | Test conditions 試験条件                                                                                                                                                                                                                                                                              | Criteria 判定基準                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 6.1                                                     | Operating life without load<br>無負荷寿命 | 10,000 cycles of operation shall be performed continuously at a rate of 15~20 cycles/min without load<br>無負荷にて10,000サイクル(動作速度 15~20 サイクル/分)連続動作を行う。                                                                                                                                               | Contact resistance 接触抵抗 (Item 4.1):<br>100 mΩ MAX<br>Insulation resistance 絶縁抵抗(Item 4.2):<br>10 MΩ MIN<br>Voltage proof 耐電圧 (Item 4.3):<br>Apply 100 V AC for 1 min.<br>No dielectric breakdown shall occur.<br>絶縁破壊のないこと。<br>Operating force 作動力 (Item 5.1):<br>Within+10,-30% of specified value.<br>規格値の+10,-30% 以内。<br>No abnormalities shall be recognized in appearance and construction.<br>外観、構造に異常がないこと。 |             |
| 6.2                                                     | Operating life with load<br>負荷寿命     | 10,000 cycles of operation shall be performed continuously at a rate of 15~20 cycles/min with 5 V DC, 0.3 A.<br>DC 5 V, 0.3 A(抵抗負荷)にて10,000サイクル(動作速度15~20 サイクル/分)連続動作を行う。                                                                                                                         | Contact resistance 接触抵抗 (Item 4.1):<br>130 mΩ MAX<br>Insulation resistance 絶縁抵抗(Item 4.2):<br>10 MΩ MIN<br>Voltage proof 耐電圧 (Item 4.3):<br>Apply 100 V AC for 1 min.<br>No dielectric breakdown shall occur.<br>絶縁破壊のないこと。<br>Operating force 作動力 (Item 5.1):<br>Within+10,-30% of specified value.<br>規格値の+10,-30% 以内。<br>No abnormalities shall be recognized in appearance and construction.<br>外観、構造に異常がないこと。 |             |
| 7.Environmental test 耐候性 (前処理としてリフロー半田耐熱ストレスを加えるものとする。) |                                      |                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                    |             |
|                                                         | Items 項目                             | Test conditions 試験条件                                                                                                                                                                                                                                                                              | Criteria 判定基準                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| 7.1                                                     | Cold<br>耐寒性                          | After testing at -40±2℃ for 500 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h, and then measurement shall be made within 1 h. Water drops shall be removed.<br>-40±2℃にて500時間試験後、常温常湿中に1時間放置し1時間以内に測定する。<br>ただし、水滴は取り除く。                   | Contact resistance 接触抵抗 (Item 4.1):<br>100 mΩ MAX<br>Insulation resistance 絶縁抵抗(Item 4.2):<br>10 MΩ MIN<br>Voltage proof 耐電圧 (Item 4.3):<br>Apply 100 V AC for 1 min.<br>No dielectric breakdown shall occur.<br>絶縁破壊のないこと。<br>Operating force 作動力 (Item 5.1):<br>Within+10,-30% of specified value.<br>規格値の+10,-30% 以内。<br>No abnormalities shall be recognized in appearance and construction.<br>外観、構造に異常がないこと。 |             |
| 7.2                                                     | Dry heat<br>耐熱性                      | After testing at 85±2℃ for 500 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h, and then measurement shall be made within 1 h.<br>85±2℃にて500時間試験後、常温常湿中に1時間放置し1時間以内に測定する。                                                                   | Contact resistance 接触抵抗 (Item 4.1):<br>100 mΩ MAX<br>Insulation resistance 絶縁抵抗(Item 4.2):<br>10 MΩ MIN<br>Voltage proof 耐電圧 (Item 4.3):<br>Apply 100 V AC for 1 min.<br>No dielectric breakdown shall occur.<br>絶縁破壊のないこと。<br>Operating force 作動力 (Item 5.1):<br>Within+10,-30% of specified value.<br>規格値の+10,-30% 以内。<br>No abnormalities shall be recognized in appearance and construction.<br>外観、構造に異常がないこと。 |             |
| 7.3                                                     | Damp heat<br>耐湿性                     | After testing at 60±2℃ and 90~95%RH for 500 h, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h, and then measurement shall be made within 1 h. Water drops shall be removed.<br>60±2℃、相対湿度90~95%にて500時間試験後、常温常湿中に1時間放置し1時間以内に測定する。ただし、水滴は取り除く。 | Contact resistance 接触抵抗 (Item 4.1):<br>100 mΩ MAX<br>Insulation resistance 絶縁抵抗(Item 4.2):<br>10 MΩ MIN<br>Voltage proof 耐電圧 (Item 4.3):<br>Apply 100 V AC for 1 min.<br>No dielectric breakdown shall occur.<br>絶縁破壊のないこと。<br>Operating force 作動力 (Item 5.1):<br>Within+10,-30% of specified value.<br>規格値の+10,-30% 以内。<br>No abnormalities shall be recognized in appearance and construction.<br>外観、構造に異常がないこと。 |             |

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| DOCUMENT No.<br>SSSS8-S-626                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   | TITLE<br>製品仕様書                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                     | PAGE<br>4/6 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Items 項目                                                                          | Test conditions 試験条件                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Criteria 判定基準                                                                                                                                                                                                                                                                                                                                                                                                                       |             |
| 7.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Change of temperature<br>温度サイクル                                                   | <p>After 100 cycles of following conditions, the switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h, and measurement shall be made within 1 h after that. Water drops shall be removed.<br/>下記条件で 100サイクル試験後、常温常湿中に1時間放置し1時間以内に測定する。ただし、水滴は取り除く。</p> <div><div>85±2℃</div><div>Normal room temperature<br/>常温</div><div>-40±3℃</div><div><div><div>30min</div><div>2~3min</div><div>30min</div><div>2~3min</div></div><div>1cycle</div></div></div> | <p>Contact resistance 接触抵抗 (Item 4.1):<br/>100mΩ MAX<br/>Insulation resistance 絶縁抵抗 (Item 4.2):<br/>100 MΩ MIN<br/>Voltage proof 耐電圧 (Item 4.3):<br/>Apply 100 V AC for 1 min.<br/>No dielectric breakdown shall occur<br/>絶縁破壊のないこと。<br/>Operating force 作動力 (Item 5.1):<br/>Within+10~30% of specified value.<br/>規格値の+10~30% 以内。<br/>No abnormalities shall be recognized in appearance and construction.<br/>外観、構造に異常がないこと。</p> |             |
| 7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Damp heat with load<br>(Resistance to silver migration)<br>耐湿負荷<br>(耐銀マイグレーション特性) | <p>DC voltage 1.5 times as much as rated voltage shall be applied continuously between adjacent terminals at 60±2℃ and 90~95%RH. After 500 h testing, switch shall be allowed to stand under normal room temperature and humidity conditions for 1 h, and measurement shall be made within 1 h after that.<br/>Water drops shall be removed.<br/>60±2℃、相対湿度90~95%にて隣接端子間に定格電圧の1.5倍の直流電圧を連続印加し、500時間試験後、常温常湿中に1時間放置し1時間以内に測定する。ただし、水滴は取り除く。</p>                                                  | <p>Insulation resistance 絶縁抵抗 (50V DC):<br/>10 MΩ MIN<br/>Voltage proof 耐電圧:<br/>Apply 100V AC for 1 min.<br/>No dielectric breakdown shall occur.<br/>AC 100V、1分間印加。<br/>絶縁破壊のないこと。</p>                                                                                                                                                                                                                                            |             |
| 7.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Salt mist<br>塩水噴霧                                                                 | <p>Switch shall be checked after following test.<br/>下記条件で試験を行い、試験後確認する。<br/>(1)Temperature 温度 : 35±2℃<br/>(2)Salt solution 塩水濃度 : 5±1% (Solids by mass) (質量比)<br/>(3)Duration 試験時間 : 24 ±1 h<br/>After the test, salt deposit shall be removed in running water.<br/>試験後試料に付着した塩堆積物を流水で落とす。</p>                                                                                                                                                                                                | <p>There shall be no remarkable corrosion which is functionally harmful.<br/>機能上有害な著しいさびがないこと。</p>                                                                                                                                                                                                                                                                                                                                  |             |
| 【Precaution in use】 ご使用上の注意                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A. General 一般項目                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A1. The content that this Products guarantees is a test conditions described in this specifications. Please actually confirm there is no problem in your set when you use it.<br>当製品の保証範囲は、当製品仕様書に記載の試験条件となります。実際にご使用の際は、貴社セットにて問題の無いことをご確認願います。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A2.For the export of products which are controlled items subject to foreign and domestic export laws and regulations, you must obtain approval and/or follow the formalities of such laws and regulations.<br>国内外の輸出関連法規により規制されている製品の輸出に際しては、同法規を遵守の上、必要な許可、手続き等をとってください。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A3. Products must not be used for military and/or antisocial purposes such as terrorism, and shall not be supplied to any party intending to use the products for such purposes.<br>軍用途又はテロ等の反社会活動目的では、当製品を一切使用しないでください。また、最終的にそれら用途・目的で使用されるおそれがある法人・団体・個人等へも当製品を一切供給しないでください。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A4. Unless provided otherwise, the products have been designed and manufactured for application to equipment and devices which are sold to end-users in the market, such as AV (audio visual) equipment, home electric equipment, office and commercial electronic equipment, information and communication equipment or amusement equipment. The products are not intended for use in, and must not be used for, any application of nuclear equipment, driving control equipment for aerospace or any other unauthorized use. With the exception of the above mentioned banned applications, for applications involving high levels of safety and liability such as medical equipment, burglar alarm equipment, disaster prevention equipment and undersea equipment, please contact an Alps sales representative and/or evaluate the total system on the applicability.<br>Also, implement a fail-safe design, protection circuit, redundant circuit, malfunction protection and/or fire protection into the complete system for safety and reliability of the total system.<br>当製品は、特に用途を指定していないかぎり、本来、AV、家電、事務機、情報機器、通信機器、アミューズメント機器等の一般電子機器用に設計、製造されたものです。したがって、原子力制御機器、宇宙・航空機で運行にかかわる機器等の用途では一切使用しないでください。<br>上記の使用禁止の用途以外で、医療機器、防犯機器、防災機器、海底用機器等の高度の安全性・信頼性を必要とする機器でのご使用の際は、弊社営業担当迄ご相談いただくか、またはセットでの十分な適合性の確認を行っていただいた上で、フェールセーフ設計、保護回路、冗長回路、誤動作防止設計、延焼対策設計等のセットでの安全対策設計を設けてください。 |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A5.Do not operate switches continuously at extremes of high and low temperatures of the specified temperature range. The maximum operating duration under the specific environmental conditions is specified in the part specifications.<br>使用温度範囲の上限付近及び下限付近での長時間の連続使用は出来ませんのでご注意ください。使用条件の規定は製品仕様書の各種環境試験の範囲内となりますのでご注意ください。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A6.The specified operation life is determined at the temperature between 5℃ and 35℃, not at temperature extremes.<br>動作寿命の規定は、常温（5～35℃）によるもので使用温度上限及び下限付近での連続動作は出来ませんのでご注意ください。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A7.When switches are to be operated at temperature extremes continuously, we need to examine each specification whether it is possible.<br>使用温度上限及び下限付近で連続動作を行う場合は、機種毎に仕様規定が可能かどうかの確認が必要となりますのでご注意ください。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A8. Before using products which were not specifically designed for use in automotive applications, please contact an Alps sales representative.<br>車載対応製品以外の製品を車載用にご使用される場合は、事前に弊社へご相談ください。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |
| A9. This product is designed and manufactured assuming that it is to be used with the resistance for direct current.<br>If you use other kinds of resistance (inductive (L) or capacitive (C)), please let us know beforehand.<br>本製品は直流の抵抗負荷を想定して設計・製造されています。その他の負荷（誘導性負荷 (L)、容量性負荷 (C)）で使用される場合は、別途ご相談ください。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |

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| <p>B. Soldering and assemble to P.C.Board process はんだ付, 基板実装工程</p> <p>B1.Note that if the load is applied to the terminals during soldering they might suffer deformation and defects in electrical performance.<br/>端子をはんだ付けされる場合、端子に荷重が加わりますと条件によりガタ、変形及び電気的特性劣化のおそれがありますのでご注意ください。</p> <p>B2.Use of water-soluble soldering flux shall be avoided because it may cause corrosion of the switch.<br/>はんだ付けの際、水溶性フラックスはスイッチを腐食させるおそれがありますのでご使用はお避けください。</p> <p>B3. Condition of re-flow soldering flux shall be confirmed with actual production conditions.<br/>リフローはんだ条件の設定については、実際の量産条件で確認されるようお願いいたします。</p> <p>B4. As this switch is designed for re-flow soldering, if you place it at the edge of PCB for convenience, then flux may get into the sliding.<br/>当スイッチはリフローはんだ対応ですが、スイッチ実装後にオートディップを行う場合にスイッチが基板の端にあるとフラックスが侵入する恐れがありますので、十分にご注意ください。</p> <p>B5. Following the soldering process, do not try to clean the switch with a solvent or the like.<br/>はんだ付け後、溶剤等でスイッチを洗浄しないでください。</p> <p>C.Mechanism design(switch layout) 機構設計</p> <p>C1.The switch will be broken, if you give larger stress than specified. Take most care not to let the switch be given larger stress than specified.<br/>(Refer to the strength of the stopper.)<br/>スイッチ操作部に規定以上の荷重が加わるとスイッチが破損する場合があります。スイッチに規定以上の荷重が加わらないようご注意ください。<br/>(操作部強度参照)</p> <p>C2.Designing printed pattern and parts layout shall be considered because the characteristics may change due to warp of P.C.Board.<br/>基板のソリによって特性が変化する場合がありますので、パターン設計・レイアウトについては十分考慮願います。</p> <p>C3. Please do not take the stress on the switch, when operate the switch.<br/>スイッチ使用時、スイッチ上面には荷重がかからない様ご配慮ください。</p> <p>C4. When chip components is soldered on the back side of PCB by automatic flow soldering, after this switch soldered by reflow soldering,flux will possibly creep up at the exterior wall of the housing and penetrate into the housing due to flux ejection.<br/>Therefore, when the PCB is designed, please do not locate through holes adjacent to the switch mounted area.<br/>本スイッチをリフロー半田後、プリント基板裏面をディップ半田して使用する場合は、ディップ時のフラックス吹き上げ等により、スイッチ側面より、フラックスがはい上がる場合がありますので、パターン設計にあたっては、スイッチ下面、周囲にスルーホールを設けないで下さい。</p> <p>C5. Note that the pattern or resist from on the switch mounting surface of the P.C.B may have an effect on the soldering because of those thickness.<br/>スイッチ取付面にあたるプリント基板のパターンやレジストの形状により、その厚み分が半田付け性に影響する場合がありますのでご注意ください。</p> <p>C6.Care should be taken to assure that excess force is not applied on the actuator because it is small and weak when P.C.B. are stacked or transported. For miniature or low profile switches, do not give impact or excess force on them during assemble processes.<br/>操作部は小さいため強度が弱っておりますので、工程内のP.C.B.の重ねや搬送時、操作部に力が加わらないようご注意ください。<br/>特に小形、薄型のスイッチはセット取付け工程において外力が加わらないようご注意ください。</p> <p>C7.Please note that the solder going up occurs if the pattern of ground terminal is set in the main body of the product.<br/>アース部のパターン設計においては、製品本体の内側に設定しますと、半田上がりの恐れがありますので、十分考慮願います。</p> <p>C8.Operate switches with full travel as much as possible.<br/>押し込み移動量は出来るだけ全移動量に近い位置で、ご使用していただくようご注意願います。</p> <p>D. Using environment 使用環境</p> <p>D1. Foreign matter invaded from outside. 外部侵入物<br/>Since this switch does not have sealed structure, it may have contact failure caused by the dust from outside up to the environment.<br/>当スイッチは完全密閉構造ではありませんので、使用環境によっては塵埃が内部に侵入し、接点障害を起こす場合があります。<br/>When you use this switch, precaution must be taken against the dust. The followings are examples of dust invasion:<br/>ご使用の際はスイッチに異物が侵入しないようご注意ください。以下に塵埃侵入例を示します。ご参考にして下さい。</p> <p>(1)Debris from the cut or hole of PCB in process, or wastes from the PCB protection material (e.g. newspaper, foamed polystyrene etc.) invaded the switch.<br/>工程内におけるPCB切断面や穴から発生するクズやPCB保護材(新聞紙、発泡スチロール等)から出るゴミがスイッチに侵入した。</p> <p>(2)Flux or powdered flux produced by stacking PCB's or excess foaming invaded the switch.<br/>基板重ねによりフラックス粉末がスイッチに侵入した。</p> <p>D2. If you use this product in one of the following environmental conditions, progress of sulfuration and oxidization on the contact part will be accelerated, which may cause contact failure. Therefore, be careful about the supposed environment.<br/>以下の様な環境下で使用されますと、当製品の性能に影響を及ぼすおそれがありますのでご使用を避けてください。</p> <p>(1) Around a sulfurate hot spring where sulfide gas is generated. And in case this products is always used in the place where the exhaust gas and the corrosion gases such as H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>x</sub>, Cl<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub> are generated.<br/>硫黄系温泉地や自動車の排気ガス等、H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>x</sub>, Cl<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub>等の腐食性ガスが発生する場所で常時使用する場合。<br/>In atmospheres of dew condensation, adhesive water drops.<br/>水滴が付着する環境や、結露が発生する環境。<br/>In liquid such as water, salt water, oil, chemicals and organic solvent.<br/>塩水や油、薬品、有機溶剤等の液体中。<br/>In location exposed to direct rays of the sun.<br/>直射日光の当たる場所。<br/>In dusty location.<br/>塵埃の多い場所。</p> <p>(2) Follow the directions if you have parts/materials described below within the module where the switch is installed.<br/>同一セット内に以下のような部材に関しましては以下の点にご注意願います。</p> <ul style="list-style-type: none"> <li>For parts, rubber materials, adhesive agents, plywood, packing materials and lubricant used for the mechanical part of the device, do not use those ones that may generate gas of sulfurization or oxidization.<br/>部品、ゴム材料、接着剤、合板、機器の梱包材、機器内の駆動部に使用される潤滑剤については、硫化、酸化ガスを発生しないものを採用して下さい。</li> <li>When you use silicon rubber, grease, adhesive agents and oil, use those that will not generate low molecular siloxane gas.<br/>The low molecular siloxane gas may form silicon dioxide coat on the SW contact part, resulting in the contact failure.<br/>シリコン系ゴム、グリース、接着剤、オイルを使用される場合は、低分子シロキサンガスを発生しないものを使用して下さい。<br/>低分子シロキサンガスが発生しますとSW接点部に2酸化珪素の皮膜を形成して接点障害を引き起こす場合があります。</li> </ul> |       |                        |      |

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| SSSS8-S-626                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       | 製品仕様書                  | 6/6  |
| <p>E. Storage method. 保管方法</p> <p>E1. If you don't use the product immediately, store it as delivered in the following environment: with neither direct sunshine nor corrosive gas and in normal temperatures. However, it is recommended that you should use it as soon as possible before six months pass.<br/>製品は納入形態のまま常温、常湿で直射日光の当たらず腐食性ガスが発生しない場所に保管し納入から6ヶ月以内を限度として出来るだけ早くご使用下さい。</p> <p>E2. Storage conditions the switches packed before being mounted.<br/>実装前、梱包状態での保管条件<br/>Temperature 温度: -5~35℃<br/>Humidity 湿度: 35~85%RH</p> <p>E3. After you break the seal, you should put the remaining in a plastic bag to separate it from the outside and store it in the same environment mentioned above. You should use it up as soon as possible.<br/>開封後はポリ袋で外気との遮断を図り上記と同じ環境下で保管しすみやかにご使用下さい。</p> <p>E4. Do not stack too many switches for strafe.<br/>過剰な積み重ねは行わないで下さい。</p> <p>F. Others. その他</p> <p>F1. This specification will be invalid one year after it is issued, if you don't return it or don't place an order<br/>本仕様書は発行日より1年間を経過して、ご返却又は発注の無い場合は、無効とさせていただきます。</p> <p>F2. Please understand that the specifications other than electric and mechanical characteristics and outside dimensions may be changed at our own direction.<br/>電氣的、機械的特性、外観寸法および取付寸法以外につきましては、当社の都合により変更させて頂く事が有りますので、あらかじめご了承下さい。</p> <p>F3. Never use the product beyond the rating. It may catch fire. If you think that the product may be used beyond the rating due to some abnormal conditions, you must take certain protective measures, such as a protective circuit to shut down the current.<br/>定格を超えての使用は火災発生の恐れがありますので絶対に避けて下さい。また異常使用等で定格を超える恐れがある場合は保護回路等で電流遮断等の対策をして下さい。</p> <p>F4. It is recommended to install a protective or redundant circuit, or to perform safety tests when you use the switches for the equipment requiring expensive safety, whatever purposes the equipment is applied for.<br/>用途の如何にかかわらず、高い安全性が求められる機器にお使いになるときは、保護回路や冗長回路を設けて機器の安全を図られると同時に、お得意先において安全性のテストをされることをお勧めします。</p> <p>F5. Though we are confident in switch quality, we cannot deny the possibility that they could fail due to short or open circuit. Therefore, if you use a switch for a product requiring special safety, we would like you to verify in advance what effects your module would receive in case the switch alone should fail. And secure safety as a whole system by introducing that fail-safe design, i.e. a protection network.<br/>スイッチの品質には万全を尽くしてありますが故障モードとしてショート、オープンの発生が皆無とは言えません。安全性が重視されるセットの設計に際しては、SWの単品故障にたいしてセットとしての影響を事前にご検討いただき、保護回路等のフェールセーフ設計のご検討を十分にを行い安全を確保して頂きますようお願いいたします。</p> |       |                        |      |

1

2

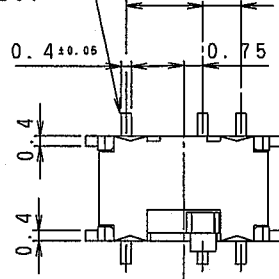
3

4

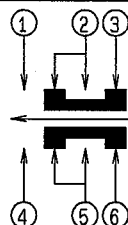
FOLD 5

6

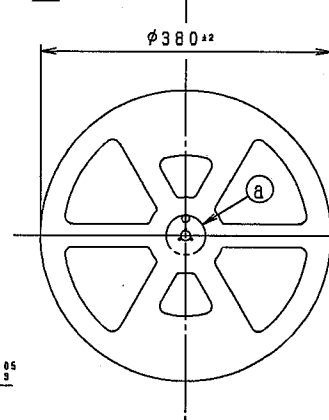
TERMINAL NO. ①  
(タンシ番号)



CIRCUIT DIAGRAM (回路図)  
SEE DIRECTION "A" (A方向より見る)



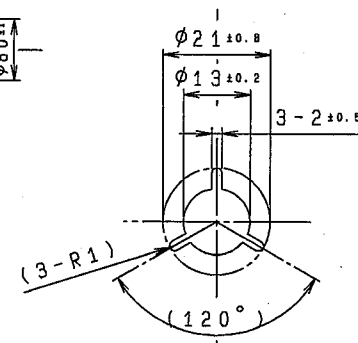
REEL リール



29.4±1  
25.4±1

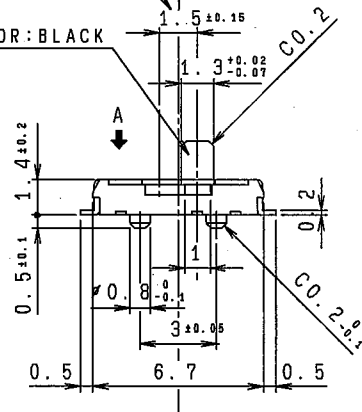
背景  
BACK GROUND  
U16063  
得意先要求  
SI単位化  
プラスチックリール

"A" DETAILS (詳細)

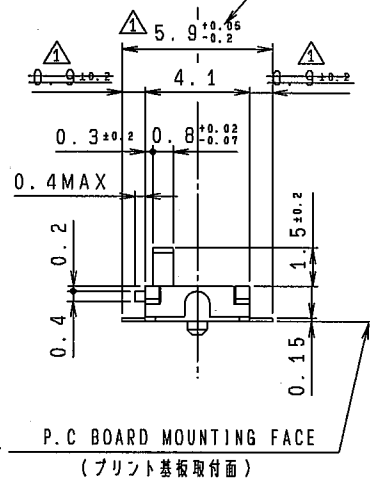


TRAVEL (移動量)  
WITH DETENT (節度付)

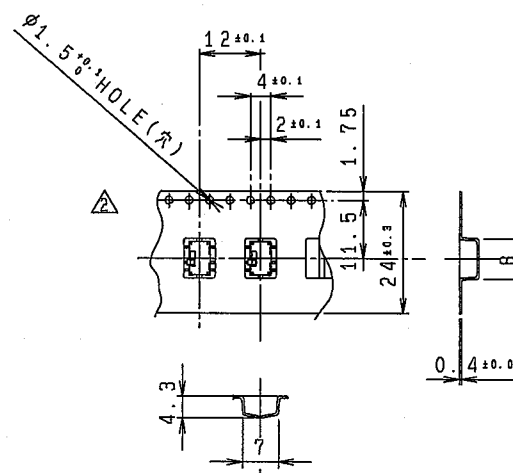
COLOR: BLACK



COMMON TERMINAL: 5.9±0.05



CARRIER TAPE (キャリアテープ)



COVER TAPE (カバーテープ)



3. SPECIFICATION OF TAPING: TAPE-S-001

(テーピングの仕様)

2. CONTACTS OF CHANGE OVER TIMING: NOT SPECIFIED

(接点の切換えタイミング: 規定なし)

NOTES 1. OPERATING FORCE: 2±1.5N (204±153gf)

(注記) (作動力)

TOLERANCES UNLESS OTHERWISE SPEC.

BASIC DIMENSION TOLERANCE

UP TO 4 ±0.2

ABOVE 4 TO 16 ±0.3

ABOVE 16 TO 63 ±0.4

ABOVE 63 TO 250 ±0.5

ABOVE 250 ±0.7

ANGULAR DIMENSION ±3°

ZONE

SYMB

DATE

APPD

CHKD

DSGD

ALPS ELECTRIC CO., LTD.

DSGD.

Sep. 19, '97

SCALE

MODEL NO. (製品番号)

SSSS820201

CHKD.

Sep. 19, '97

TITLE

PRODUCT DRAWING (製品図)

APPD.

Sep. 19, '97

UNIT

DOCUMENT NO.

H. Yoshizawa

mm

SSSS820201, AE11, 043