

**Confidential**

Customer:

SHENZHEN YATE UNITED TECHNOLOGY

No. : KK-2018-3574

Date: Jan. 15, 2018

Attention:

Your Ref. No.:

Your Part No.: RKJXS1004003-SANER

## SPECIFICATIONS

ALPS Model : RKJXS1004003

ALPS Spec. No. :

ALPS Sample No.: 0 0 2 3 9 9 5 1 9 6

RECEIPT STATUS

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By. Date

Signature

Name

Title

**ALPS**  
ALPS ELECTRIC CO., LTD.

DSG'D

APP'D

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**S P E C I F I C A T I O N S**

1. THIS SPECIFICATIONS APPLY TO RKJXS1004003 STICK CONTROLLER.

2. CONTENTS OF THIS SPECIFICATIONS.

5KJXS14-10

5KJXS14-8

KJXS14003

RKJXS-P1

3. MARKING

• MARKING ON ALL UNITS

DATE CODE

• CAUTION

There is a possibility that might be affected by contact resistance of resistive element and wiper in case of low impedance of output side in voltage regulation circuit.

For this reason, we require that you adjust to impedance of output side more than 100 times of total resistance.

1. 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.

2. 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.

3. 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. 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.

4. Before using products which were not specifically designed for use in automotive applications, please contact an Alps sales representative.

5. Please store the product without open package, keep same condition as delivery, under normal temperature and humidity, prevent direct sunlight, and corrosive gas exposure then use product as soon as you can within about six months after delivery. Once you open package, please use plastic bag which is used for packaging and prevent product from exposure of outside air then store the product under same condition as above.

6. About characteristics and conditions for test or measurement are not mentioned in this document should be examined by each product specification in order to specify them.

CLASS NO.	TITLE	小型スティックSW規格書 Compact switch specifications
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## 1. 一般事項 General

## 1-1 适用範囲 Scope

この仕様書は主として電子機器に用いる小型スティックスイッチに適用する。

This specification applies to the compact switch used in electronic equipment.

## 1-2 標準状態 Standard atmospheric conditions

試験及び測定は特に指定のない限り、次の状態で行なう。

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests is as follows:

温度	Ambient temperature	: 15°C to 35°C
相対湿度	Relative humidity	: 25% to 85%
気圧	Air pressure	: 86kPa to 106kPa

但し、疑義を生じた場合は、次の基準状態で行なう。

If there is any doubt about the results, measurements shall be made within the following limits:

温度	Ambient temperature	: 20 ± 1°C
相対湿度	Relative humidity	: 63% to 67%
気圧	Air pressure	: 86kPa to 106kPa

## 1-3 使用温度範囲

Operating temperature range : -20°C to +70°C

## 1-4 保存温度範囲

Storage temperature range : -40°C to +85°C

## 2. 構造 Construction

## 2-1 尺寸 Dimensions

添付組立図による。

Refer to attached drawing.

## 3. 機能 Function

3-1 8方向スイッチ(センター復帰機構付)  
Push on switch8 Directional switch (With return to center position)  
Push on switch

## 4. 定格 Rating

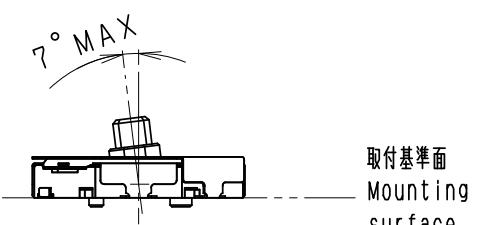
## 4-1 定格容量 Rating

: D.C. 5V 10mA (1mA MIN)

## 5. 電気的性能 Electrical characteristics

項目 Item	条件 Conditions	規格 Specifications
5-1 8方向分解能 8 direction resolution	軸をa・b・c・d・e・f・g・h方向に倒す Push the shaft for a・b・c・d・e・f・g・h direction.	出力チャートによって規定される出力 (ON)があること Shall be ON-Position shown in OUT-PUT chart
5-2 ON角度 On position	レバーを各方向に倒しP-C間がONするまでの操作角度。(8方向) Apply operating angle in each direction to the terminal P-C ON position. (8 direction) <Fig1>	7°以下 7° MAX  タクティル感触付き with tactile feeling

レバー傾倒中心は別紙 "5KJXS14-8" 参照  
Please refer to "5KJXS14-8" about the tilting fulcrum  
of lever.




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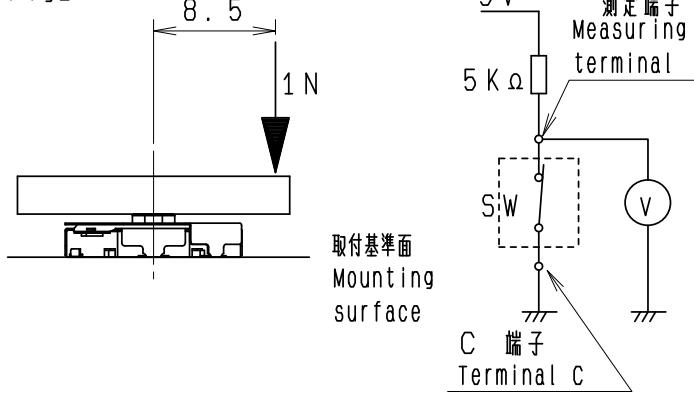
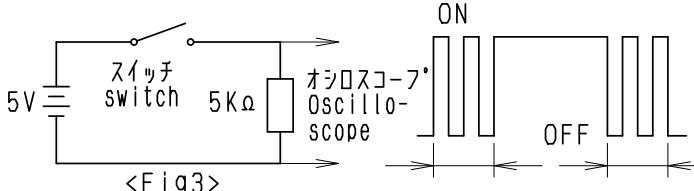
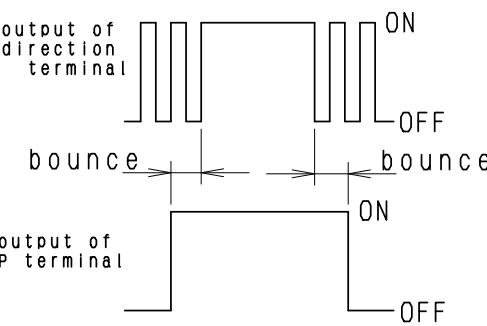
APPD.	CHKD.	DSGD.	TITLE		
C-ENG2	C-ENG2	C-ENG2			
2017-10-23	2017-10-23	2017-10-23			
S.URUSHIHARA	J.YASHIRO	H.MIURA	DOCUMENT NO.		
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TITLE

小型スティックSW規格書  
Compact switch specifications

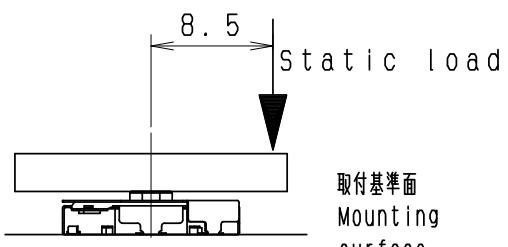
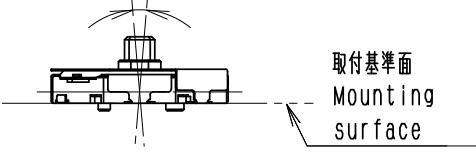
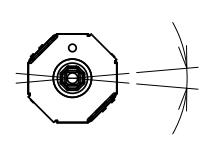
項目 Item	条件 Conditions	規格 Specifications
5-3 出力電圧 Output Voltage	<p>D. C. 5V 1mA電圧降下法にて測定する。 Measured by the 1mA 5V D.C. 操作力: ツマミセンターから8.5mmの位置に1Nの静止荷重を加える Operation force: 1N at 8.5mm from center of Knob</p> <p>&lt;Fig2&gt;</p> 	1V以下 or less
5-4 P端子のハ'ウンス Bounce of P terminal	<p>下記測定回路&lt;Fig3&gt;を用いレバ'ーを3~4回/秒の速さにて操作し測定する。 Measurement shall be made under the condition as follows. 1) Lever operation speed: 3~4push/s 2) Test circuit : &lt;Fig3&gt;</p>  <p>&lt;Fig3&gt;</p>	5ms以下 or less
方向端子の ハ'ウンス Bounce of direction terminal	<p>下記条件にて測定する。 Measurement shall be made under the condition as follows 1) Lever operation speed: 3~4push/s 2) Test circuit : &lt;Fig3&gt;</p> 	5ms以下 or less
5-5 絶縁抵抗 Insulation resistance	端子と取付板・レバ'ー間にD.C. 50V印加し測定する。 Measurement shall be made under the condition which a voltage of 50V.D.C. is applied between terminals and frame, and between terminals and lever.	50MΩ以上 or more
5-6 耐電圧 Dielectric strength	端子と取付け板・レバ'ー間にAC 50V 1分間又はAC 60V 2秒間印加し測定する。(リーク電流1mA) A voltage of 50V.A.C. shall be applied for 1min or a voltage of 60V.A.C. shall be applied for 2s between terminals and frame, and between terminals and lever (Leak current:1mA)	損傷・アーク・絶縁破壊がないこと。 Without damage to parts arcing or breakdown.



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								DOCUMENT NO.
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CLASS NO.	TITLE 小型スティックSW規格書 Compact switch specifications		
6. 機械的性能 Mechanical characteristics			
項目 Item	条件 Conditions	規格 Specifications	
6-1 レバー作動力 Lever operating force	<p>レバーを各方向に倒しONするまでの最大力を測定する。(8方向) Apply operating force in each 8 directions to the lever until switch ON position and measure the maximum force.</p> <p>測定点: ツマミセンターから8.5mm Measuring point: 8.5mm from center of knob.</p> <p>&lt;Fig5&gt;</p> 	0.8±0.5N	
6-2 フラッシュON移動量 Push operating stroke	<p>スラスト方向力"夕は除く Except thrust free play</p> <p>Push SWがONするまでの移動量 Distance from initial position to ON position</p>	0.3±0.2mm	
6-3 フラッシュ作動力 Push operating force	Push SWがONする力 Maximum force from initial position to ON position	2.5±1.5N	
6-4 レバー遊び Lever free play	<p>回転方向、振れ方向: 1mN・mの力を加え測定。 スラスト方向: 0.1Nの力を加え測定。 Rotational and shaft wobble: it will be measured with 1mN・m. Thrust: it will be measured with 0.1N.</p> <p>&lt;Fig8&gt;</p>  <p>静止時(軸振れ) Lever wobble</p> <p>&lt;Fig9&gt;</p>  <p>回転方向の遊び Rotational free play</p> <p>レバー傾倒中心は別紙 "5KJXS14-8" 参照 Please refer to "5KJXS14-8" about the tilting fulcrum of lever.</p>	<p>静止時(軸振れ): 2° 以下 (p-p) Wobble: 2° or less</p> <p>回転方向: 8° 以下 (p-p) Rotational: 8° or less</p> <p>スラスト方向: 0.4 mm以下 Thrust: 0.4 or less</p>	

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CLASS NO.	TITLE 小型スティックSW規格書 Compact switch specifications	
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項目 Item	条件 Conditions	規格 Specifications
6-5 レバー強度 Lever strength	<p><math>t = 1\text{mm}</math> の力" ラエホ" 基板に半田付けし, 力を10秒間加える After solder on P.C.B. (<math>t=1</math>) add static force shown as below for 10s.</p> <p>1) 押し方向: 30N Push: 2) 引張り方向: 10N Pull: 3) 操作方向: 20N/ツマミセンターから8.5mmの位置 Operate: 8.5mm from center of knob 4) 回転方向: 30mN·m Rotational:</p>	<p>レバー一遊び: Lever free play: 静止時(軸振れ): 2° 以下 (p-p) Wobble: 2° or less 回転方向: 8° 以下 (p-p) Rotational: 8° or less</p> <p>レバー一操作角度及び ア'ッシュON移動量, ブッシュ作動力 Operating angle and Push operating stroke, Push operating force</p> <p>*ON角度 ON position 7° 以下 MAX</p> <p>*ア'ッシュON移動量 Push operating stroke 0.3±0.2mm</p> <p>*ブッシュ作動力 Push operating force 2.5±1.5N</p>

## 7. 耐久性能 Endurance characteristics

項目 Item	条件 Conditions	規格 Specifications
7-1 動作寿命特性 Operating life	<p>《方向SW》 無負荷にて0.8~2Nの力をツマミのセンターから8.5mmの位置に加える。 任意の方向に傾け復帰した状態を1サイクルとし, 各方向に50万回の断続動作を行う。 但し, 試験途中25万サイクルにて中間測定を行う。</p> <p>《Direction SW》 Load : without load Adding force : 0.8~2N 1 cycle : center position - end position -center position Direction : optional one direction Life : 500,000 cycles for each 8 direction However, an interim measurement shall be made immediately after 250,000 cycles.</p> <p>《センターブッシュSW》 Push方向に3~5Nの荷重を加える。 Pushして復帰した状態を1サイクルとし, 50万回の断続動作を行う。 但し, 試験途中25万サイクルにて中間測定を行う。</p> <p>《Push SW》 Load : without load Adding force : 3~5N 1 cycle : initial position - ON position -initial position Life : 500,000 cycles However, an interim measurement shall be made immediately after 250,000 cycles.</p>	<p>出力電圧 : 1V 以下 Output Voltage or less</p> <p>ハ'ウンス: 10ms以下 bounce 10ms or less</p> <p>レバー一遊び: Lever free play: 静止時(軸振れ): 2° 以下 (p-p) Wobble: 2° or less 回転方向: 8° 以下 (p-p) Rotational: 8° or less</p> <p>レバー作動力: 初期規格値に対し±30%以内 Lever operation force: initial spec±30%</p> <p>ア'ッシュON移動量 Push operating stroke 0.3±0.2mm</p> <p>ブッシュ作動力 Push operating force 2.5±1.5N</p>

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CLASS NO.		TITLE		多操作SW共通規格書 Compact switch specifications										
7. 耐久性能 Endurance characteristics														
項目 Item	条件 Conditions		規格 Specifications											
7-2 耐湿性 Damp heat	<p>温度<math>60\pm 2^{\circ}\text{C}</math>, 湿度90~95%の恒温槽中に<math>96\pm 10</math>時間放置後取り出し、表面の水分をふき取り常温常湿中に1.5時間放置後測定する。</p> <p>The switch shall be stored at a temperature of <math>60\pm 2^{\circ}\text{C}</math> with relative humidity of 90% to 95% for <math>96\pm 10</math> hours in a thermostatic chamber.</p> <p>Then the switch shall be taken out of the chamber and its surface moisture shall be removed.</p> <p>And then the switch shall be subjected to standard atmospheric conditions for 1.5 hours, after which measurements shall be made.</p>		初期規格を満足すること Shall not deviate from the previously specified value.											
7-3 耐熱性 Dry heat	<p>温度<math>85\pm 2^{\circ}\text{C}</math>の恒温槽中に<math>96\pm 10</math>時間放置し、常温常湿中に1.5時間放置後測定する。</p> <p>The switch shall be stored at a temperature of <math>85\pm 2^{\circ}\text{C}</math> for <math>96\pm 10</math> hours in a thermostatic chamber.</p> <p>Then the switch shall be maintained at standard atmospheric conditions for 1.5 hours, after which measurements shall be made.</p>		初期規格を満足すること Shall not deviate from the previously specified value.											
7-4 耐寒性 Cold	<p>温度<math>-40\pm 2^{\circ}\text{C}</math>の恒温槽中に<math>96\pm 10</math>時間放置後取り出し、表面の水分をふき取り常温常湿中に1.5時間放置後測定する。</p> <p>The switch shall be stored at a temperature of <math>-40\pm 2^{\circ}\text{C}</math> for <math>96\pm 10</math> hours in a thermostatic chamber.</p> <p>Then the switch shall be taken out of the chamber and its surface moisture shall be removed.</p> <p>And then the switch shall be subjected to standard atmospheric conditions for 1.5 hours, after which measurements shall be made.</p>		初期規格を満足すること Shall not deviate from the previously specified value.											
7-5 耐振性 Vibration	<p>周波数<math>8.3\pm 1\sim 200\pm 4\sim 8.3\pm 1\text{Hz}</math>, 加速度4.4G一定, 1サイクル15分間, 対数掃引又は一様掃引にてX. Y. Z. 各方向に8サイクル(2時間)行う。</p> <p>Frequency : <math>8.3\pm 1\sim 200\pm 4\sim 8.3\pm 1\text{Hz}</math> Acceleration: 4.4G 15 min 1 cycle Direction : X. Y. Z.</p>		初期規格を満足すること Shall not deviate from the previously specified value.											
7-6 耐衝撃性 Shock	<p>加速度: 981 m/s<sup>2</sup> Peak acceleration: 981 m/s<sup>2</sup> 作用時間: 6 ms Duration of the pulse: 6 ms</p> <p>6面 x 10回(計60回) Ten successive shock shall be applied both directions of 3 mutually perpendicular axes (a total of 60 shocks).</p>		初期規格を満足すること Shall not deviate from the previously specified value.											
7-7 温度サイクル Change of temperature	<p>下表に示した温度サイクルを連続 10回行う。表面の水分をふき取り常温常湿中に1.5時間放置後測定する。</p> <p>The switch shall be subjected to 10 successive change of temperature cycles, each as shown in the table below. Then its surface moisture shall be removed. And then the switch shall be subjected to standard atmospheric conditions for 1.5 hours, after which measurements shall be made.</p> <table border="1"> <thead> <tr> <th>段階 Step</th> <th>温度 Temperature</th> <th>放置時間 Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>-40\pm 2^{\circ}\text{C}</math></td> <td>30分 min</td> </tr> <tr> <td>2</td> <td><math>85\pm 2^{\circ}\text{C}</math></td> <td>30分 min</td> </tr> </tbody> </table>			段階 Step	温度 Temperature	放置時間 Duration	1	$-40\pm 2^{\circ}\text{C}$	30分 min	2	$85\pm 2^{\circ}\text{C}$	30分 min	初期規格を満足すること Shall not deviate from the previously specified value.	
段階 Step	温度 Temperature	放置時間 Duration												
1	$-40\pm 2^{\circ}\text{C}$	30分 min												
2	$85\pm 2^{\circ}\text{C}$	30分 min												
7-8 耐硫化特性 Damp heat	<p>硫化力*<sup>1</sup>中 96時間放置(硫化力*<sup>1</sup>は<math>\text{H}_2\text{S}</math>, 濃度1ppm, 温度<math>40^{\circ}\text{C}</math>, 湿度75%とする) 96 hours in sulfur gas ( Density: 1ppm, Temperature: <math>40^{\circ}\text{C}</math>, Humidity: 75% )</p>		初期規格を満足すること Shall not deviate from the previously specified value.											


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項目 Item	条件 Conditions	規格 Specifications
7-9 はんだ耐熱性 Resistance to soldering heat リフローの場合 Applied for reflow soldering	<p>下記のほかは、JIS C 0050(ただし試験方法は1Aまたは2による)に準拠する。 For procedures other than those specified below, refer to IEC Pub. 68-2-20, Test Tb Method 1A or 2.</p> <p>(下図プロファイルは、温風リフロー式を用いた場合のスイッチ端子部の最高温度とする) (Profile sa shown below is the maximum terminal temperature of switch soldered with reflow soldering by hot wind blasting.)</p> <p>最高温度 MAX. temp. 予熱温度 Preheat temp. 室温 Room temp.</p> <p>MAX. 2min. 2分以内</p> <p>MAX. 10s. 10秒以内</p> <p>MAX. 40s. 40秒以内</p> <p>MAX. 4min. 4分以内</p> <p>洗浄 : 当SWは洗浄を行えません。 Washing : No washing.</p> <p>使用はんだ : 使用されるクリームはんだはフラックス含有量10~15wt%のものを 使用してください。 Solder to be used: Use creamy solder with rosin flux 10~15 wt%.</p> <p>*注記 : 当製品は、赤外線のみのリフロー炉では、はんだが付かない場合がありますので、 温風リフロー炉または、赤外線+温風リフロー炉で、ご使用願います。 Comment : Soldering is not sufficient only by reflow furnace of infrared rays, so use reflow furnace by hot wind blasting or reflow furnace of infrared rays with hot wind blasting.</p>	<p>電気的性能を満足すること。 外観の変形および端子等の著しい ガタのないこと。 Electrical characteristics shall be satisfied. Without deformation of case or excessive looseness of terminals.</p> <p>リフロー回数: 1回 Maximum frequency of reflow soldering is 1.</p>
7-10 手はんだの場合 Applied for manual soldering	<p>温 度 : <math>350 \pm 10^{\circ}\text{C}</math> 但し、端子に異常加圧のないこと。 Bit temperature Extensive pressure must not be applied to the terminal.</p> <p>時 間 : <math>3^{+1}_0</math> s Application time of soldering iron</p> <p>回 数 : 2 回(TIME)</p> <p>注記: はんだ付け時のはんだボール及びフラックス等がスイッチ内に入らない様ご注意下さい。 Note: Care must be taken not to allow foreign material such as solder ball or soldering flux penetrating into the encoder.</p>	<p>電気的性能を満足すること。 外観の変形および端子等の著しい ガタのないこと。 Electrical characteristics shall be satisfied. Without deformation of case or excessive looseness of terminals.</p>

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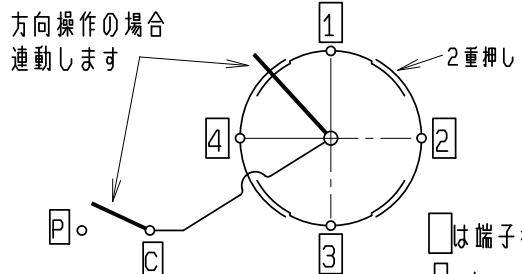
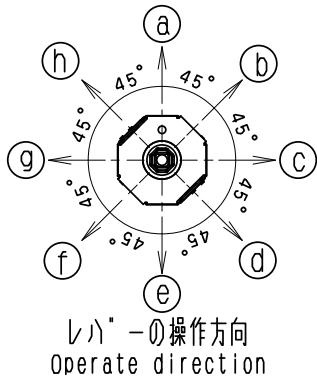
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小型スティックSW規格書  
Compact switch specifications

## 8. 注記 Note

8-1 レバ"ーの操作によるスイッチの出力(導通)形式について Operate direction and switch pattern

レバ"ーの操作によるスイッチの出力(導通)形式  
Operate direction and switch patternスイッチ回路模式図  
SW-circuit

- 1) 当SWは、方向指示・Push操作共にPがONとなります。
- 2) b. d. f. h方向については両隣端子の2重押しとなります。
- 3) 各端子の導通は下記の順番で行われます。

方向操作の決定は下記順番で導通した時のみ判定されるよう回路処理をお願いします。

&lt;方向-C端子間&gt; → &lt;方向-C-P端子間&gt;

( C-P端子間が導通した後で方向端子と導通した場合はセンタ-ONとなるような回路処理を行って下さい。 )

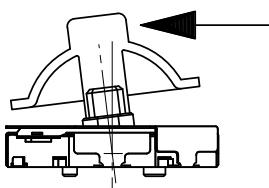
- 1) Push SW is on-state in both 4direction operations and push-sw operations.
- 2) When lever is operated to AB, BC, CD, DA directions, 2terminal that are near by operating direction are connected with Com terminal
- 3) The continuity of each terminal is done in the following turn.  
The decision of the direction operation asks for circuit treatment so that it may be judged only when continuity is done in the following turn.

&lt;Direction-C terminal&gt; → &lt;Direction-C-P terminal&gt;

( Do the circuit treatment which becomes center on when you do a direction terminal and continuity after the space of the C-P terminal does continuity. )

8-2 ←方向から操作する使用は機械的、電気的な保障は致しかねます。

8-2 As for use to operate from the ← direction, mechanically electric security is hard to do.

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APPD.  
C-ENG22017-10-23  
S.URUSHIHARACHKD.  
C-ENG22017-10-23  
J.YASHIRODSGD.  
C-ENG22017-10-23  
H.MIURA

TITLE

DOCUMENT NO.

5KJXS14-9 (7/10)

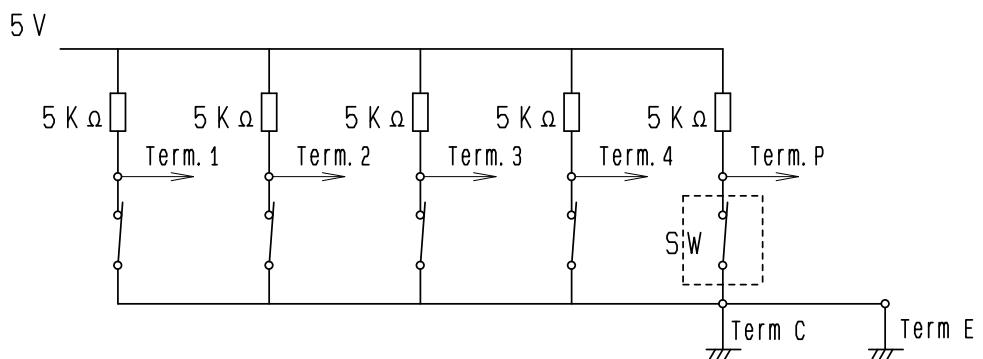
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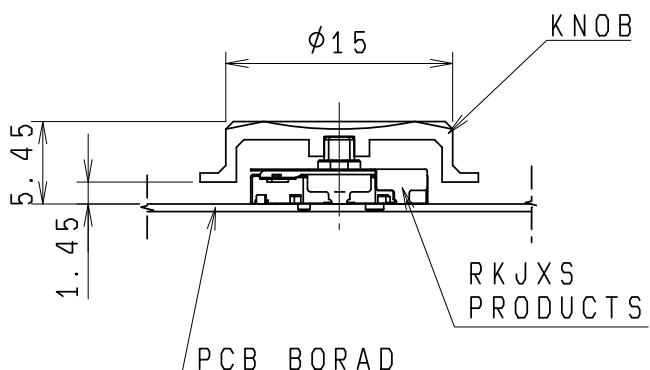
TITLE

小型スティックSW規格書  
Compact switch specifications

8-3 推奨回路模式図について Recommended circuit imitative figure



8-4 推奨寸法図 Recommended switch dimensional drawing



SYMB	DATE	APPD	CHKD	DSGD

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C-ENG2

2017-10-23

S.URUSHIHARA

CHKD.  
C-ENG2

2017-10-23

J.YASHIRO

DSGD.  
C-ENG2

2017-10-23

H.MIURA

TITLE

DOCUMENT NO.

5KJXS14-9 (8/10)

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CLASS NO.	TITLE 小型スティックSW規格書 Compact switch specifications		
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## 8-5. はんだ付けに関するその他注意事項

## Other precautions for Soldering

- 1) 基板に挿入される金属足ははんだ付けしてご使用願います。  
Please solder all inserted metal terminals and bracket to a PWB.
- 2) はんだ付け後、溶剤などで製品を洗浄しないで下さい。  
After soldering, please not to wash or clean products by liquid such as solvent or any similar.
- 3) はんだ付けを2回行う場合、1回目のはんだ付け部が常温に戻ってから行って下さい。  
If you solder this product twice, second time solder should be started after product temperature back to normal temperature.
- 4) クリック付タイプは、クリック位置ではんだ付けして下さい。  
軸の回転をクリックとクリックの途中で止めた状態ではんだ付けされると、クリック機構部が変形する恐れがあります。  
If product has detent (mechanical click feeling), solder has to be done at detent stable position. If the shaft is stopped at inbetween detent stable position, detent mechanism might deform by soldering.  
As a result, deterioration to the feeling might be caused.

## 8-6. ご使用上の注意 precautions in use

- 1) 本製品は車載用途でのご使用をお避けください。(車載用途での環境、強度、ロバストネス性は保障いたしかねます)  
This product is to avoid use with the car use. (An environment with the car use, strength, robustness are hard to guarantee.)
- 2) 当製品は密閉構造ではありませんので、使用環境によって外部ガスが製品内部に侵入し接点障害を起こす場合があります。  
同一セット内に以下の様な部材を使用しないで下さい。  
  - ・硫化、酸化ガスを発生する部材(例:ゴム材、接着剤、合板、潤滑剤、梱包材)
  - ・低分子シロキサンガスを発生する部材(例:シリコン系ゴム、潤滑剤、接着剤)
As this product does not have hermetical structure, it is possible gas from outside get inside of product and may cause contact failure depends on using environment.  
Please avoid using following materials. If you have to use any of material in parentheses, please pay special attention and confirm it does not influence to products through tests under actual using conditions.
  - materials which may generate sulfide gas or oxidized gas.  
(rubber, glue, adhesive, plywood, packaging material)
  - materials which may generate low-molecular-weight siloxane gas.  
(silicone base rubber, lubricant, glue)
- 3) 高湿度環境下、又は結露する環境下、液体が製品にかかる環境下では、端子間の電流リークが発生する恐れがありますのでご使用にならないで下さい。  
Please not to use this product under the atmosphere with high humidity, with possibility of dew condensation or of direct splash of liquid. Because it may cause leak between terminals.

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APPD.		CHKD.		DSGD.		TITLE _____		
C-ENG2		C-ENG2		C-ENG2				
2017-10-23		2017-10-23		2017-10-23				
SYMB	DATE	APPD	CHKD	DSGD	S.URUSHIHARA	J.YASHIRO	H.MIURA	DOCUMENT NO. 5KJXS14-9 (9/10)

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CLASS NO.	TITLE 小型スティックSW規格書 Compact switch specifications		
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4) ツマミを挿入する際に、軸に規定荷重以上の力や衝撃荷重が加わると製品が破壊する場合があります。  
ツマミの寸法や挿入治具の圧力管理は、規定荷重以下で挿入できる設定の配慮をお願いします。  
The product may have malfunction if excessive stress or impact than specified value is applied when insert knob to the shaft.  
Please fix appropriate dimension for knob or fix insertion force of knob of mounting equipment which can avoid excessive stress to the product than specified value.

5) 使用温度範囲の上限、下限付近で長期間の連続使用はできません。  
動作寿命の規定は常温15℃～35℃、常湿25%～85%の環境条件に限ります。  
使用温度範囲の上限、下限付近で長期間の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確認が必要になります。  
This product can't be continuously used under high operating temperature or low operating temperature specified in this document.  
Unless otherwise specified, the durability is specified only under normal conditions, temperature 15 to 35 degree Celsius and related humidity 25 to 85%.  
When this product is operated at temperature near from upper or lower limit of operating temperature range, feasibility must be examined by each product specification.

6) 製品本体を規定の取付面まで挿入して水平になるように取付けて下さい。  
水平にならないまま取付けますと、動作不良の要因となります。  
Insert these switches to the specified mounting surface and mount them horizontally.  
If not mounted horizontally, these switches will malfunction.

7) 塵埃が多い環境で使用されると塵埃が開口部から入り出力不良や動作不良の原因となることがありますのでセット設計時に予めご配慮ください。  
If this product is used under dusty conditions, dust or debris may get inside of product from openings and possible to cause output failure or malfunction. Please consider protections against dust when surrounding parts of the product are designed.

8) プッシュスイッチ付きの製品は、軸が押されたままの状態で梱包や保管をされるとスイッチ部に支障をきたす恐れがありますのでご配慮下さい。  
For product variety with push switch, please pay attention to storage condition because if shaft is being pushed for long time during storage or after built in final products, the switch function may have malfunction.

9) プッシュスイッチ付きの製品は、軸をプッシュした状態で軸を回転するとスイッチ部に支障をきたす恐れがあります。  
For product variety with push switch, if shaft is rotated while shaft is pushed, it may cause deterioration to push switch functions.

10) プッシュスイッチ付きの製品は、軸に挿入したツマミの中心を押すようにして下さい。  
ツマミの直径が大きい場合、ツマミの縁を押すと感触が変化したり、作動力が過大に強くなる恐れがあります。  
For product variety with push switch, please design knob to encourage end-user to push center of knob which is fixed to the shaft of product. Because if the area near from edge of knob is pushed, it may bring a bad influence, such as unexpected heavy operating force to switch operation feeling especially knob has large diameter.

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		2017-10-23	2017-10-23	2017-10-23	DOCUMENT NO.		S.URUSHIHARA J.YASHIRO H.MIURA	
SYMB	DATE	APPD	CHKD	DSGD				5KJXS14-9 (10/10)

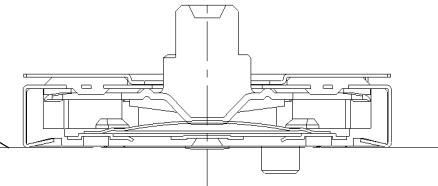
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CLASS NO.	TITLE	小型スティックSW規格書 Compact switch specifications
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## 1. レバーハ回転中心について About a rotational lever of center

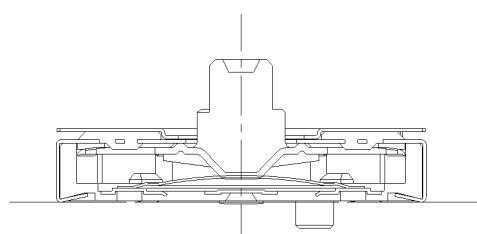
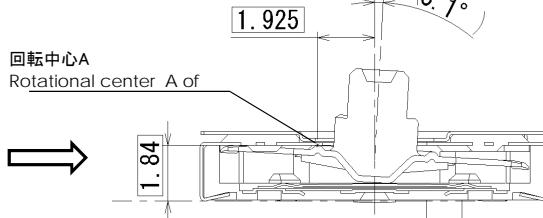
レバー傾倒操作時の回転中心は以下のように変化致します。

The rotation center of lever during operation is moved as shown in figure below.

1) 中立位置  
Neutral position△ 取付基準面  
Mounting surfaceFig.1 中立位置  
Neutral position

## 2) 中立位置(Fig.1)から方向端子ON位置(Fig.2)まで

From the neutral position (Fig.1) to the direction terminal ON position (Fig.

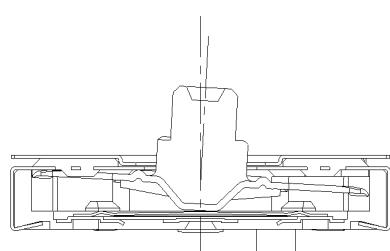
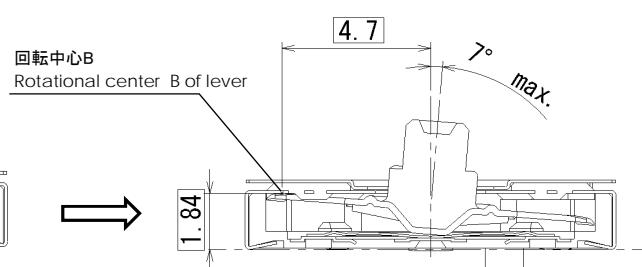
Fig.1 中立位置  
Neutral positionFig.2 方向端子ON位置  
Direction terminal ON position

## 3) 方向端子ON位置(Fig.2)からP端子ON位置(Fig.3)まで。回転中心はAからBに変化する。

△ 保証ON角度(MAX7°)にはCOPLANARITY保証値(MAX0.1mm)が含まれます。

From the Direction terminal ON position to P terminal ON position. Rotational center of lever moves from A to B.

△ The guaranteed angle Max.7 degree in below include angle which is brought by coplanarity (guaranteed Max.0.1mm).

Fig.2 方向端子ON位置  
Direction terminal ON positionFig.3 P端子ON位置  
P terminal ON position

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	APPD.	CHKD.	DSGD.	TITLE
△ 1 2017-04-11	C2-2G 15.Feb.17	C2-2G 15.Feb.17	C2-2G 15.Feb.17	-
△ 2 2017-03-27	S.U S.Urushihara	K.S K.SASAKI	H.M H.Murakami	DOCUMENT NO. 5KJXS14-8
SYMB	DATE	APPD	CHKD	DSGD

# ALPS ELECTRIC CO., LTD.

D

PART NO.	MATERIAL	SPEC./NAME	FINISH	Output Chart													
				1	2	3	4	C	P	E	a	b	c	d	e	f	g
				●	●	●	●	●	●	●	●	●	●	●	●	●	●
				△	△	△	△	△	△	△	△	△	△	△	△	△	△
				○	○	○	○	○	○	○	○	○	○	○	○	○	○

指定なき部分の許容差  
TOLERANCES UNLESS OTHERWISE SPECIFIED

$L \leq 10$	$\pm 0.3$
$10 \leq L \leq 100$	$\pm 0.5$
$100 \leq L \leq 1000$	$\pm 0.8$

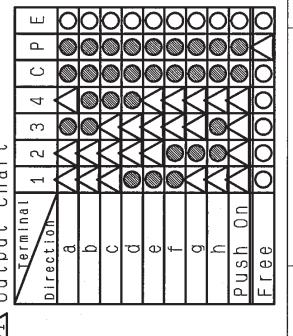
NO pattern  
area  
(90°)

記録不可範囲  
(90°)

記録不可範囲  
(90°)

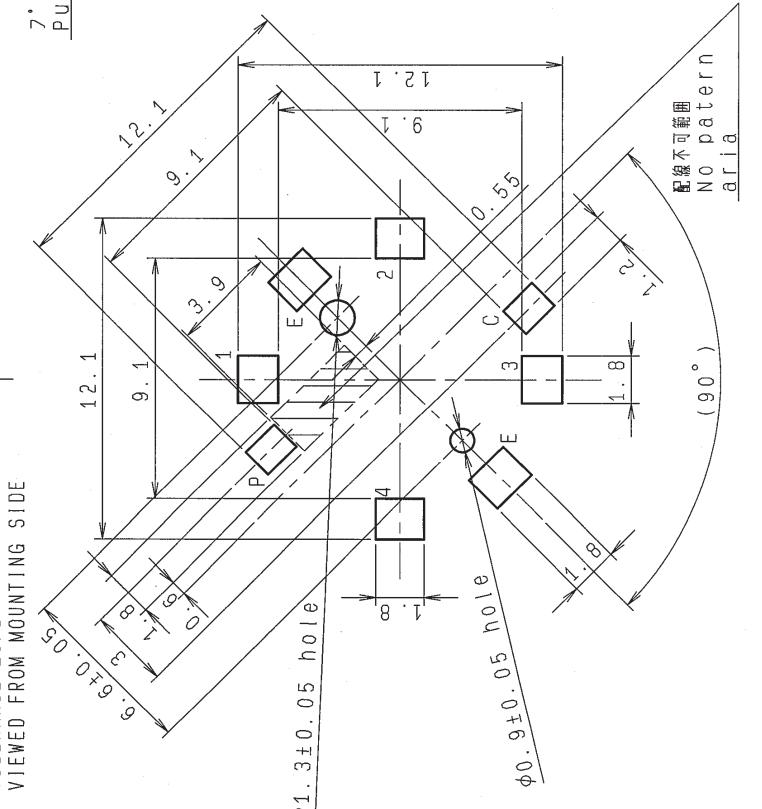
記録不可範囲  
(90°)

●印 ON ● mark shows 'on'  
△印 OFF △ mark shows 'off'  
○印表示せず(少し)印ぎでONする場合があります  
Status of ○ marked position is not specified  
※ Term. E: 7番端子  
△※ Term. EとTerm. Cはアース端子へ接続する回路で  
使用下さい  
Use Term. E and Term. C with  
a circuit to connect to the  
ground side.



●印 ON ● mark shows 'on'  
△印 OFF △ mark shows 'off'  
○印表示せず(少し)印ぎでONする場合があります  
Status of ○ marked position is not specified  
※ Term. E: 7番端子  
△※ Term. EとTerm. Cはアース端子へ接続する回路で  
使用下さい  
Use Term. E and Term. C with  
a circuit to connect to the  
ground side.

7番端子用  
PUSH SW travel



取付穴寸法図 許容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 許容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 許容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
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PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

取付穴寸法図 訸容差: ±0.1  
PWB MOUNTING DETAIL  
TOLERANCE: ±0.1  
VIEWED FROM MOUNTING SIDE

A

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1 The tape package specification

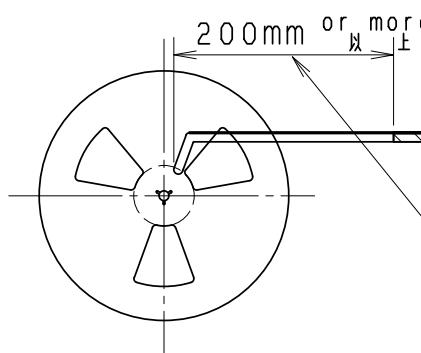
1-1 Size refer to a drawing (3/3)

1-2 Reeling of tape package

1) When carrier tape is reeled in, feed round holes shall be set right side to feed direction.

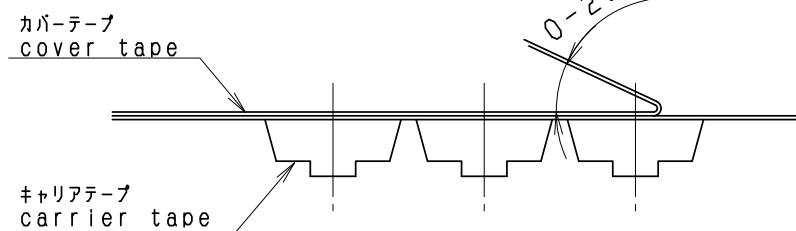
2) Cover tape shall not hide the feed round holes more than 0.5mm, and it shall not jut out sideways of carrier tape.

3) Start portion and end portion to feed direction shall be set as shown below :



4) End portion of cover tape shall be stick to reel by adherent tape (80~120mm)

5) Peeling force of cover tape from carrier tape: 155 to 180.  
 - Peeling back force of cover tape shall be 0.1~0.7N  
 - Peeling speed of cover tape shall be 300mm/min.



6) Standard quantity is 950pcs  
 one reel.  
 (Except fractional quantity)

7) Marking on reel side  
 Below items be marked on reel surface. Marking shall be discriminated clearly and shall not be erased easily.

Marking requirement:

Your part No.  
 Our product No.  
 Quantity  
 Date code

1 テーピング仕様

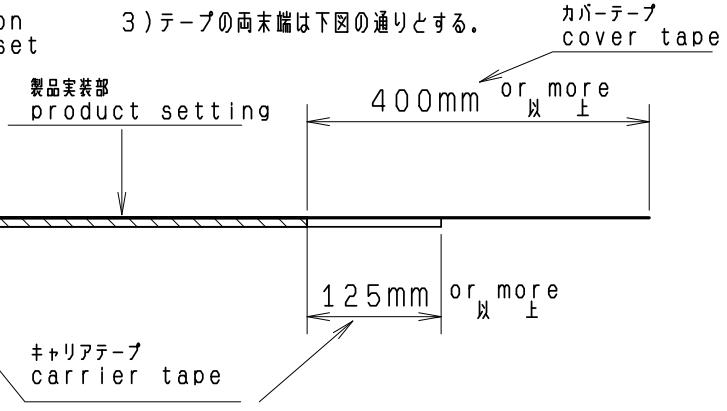
1-1 キャリアテープ外形寸法図 (3/3)による。

1-2 テーピング方法

1) テープは右巻き(テープの端を手前に取り出した時、送り穴が右側になる)とする。

2) カバーテープはキャビティテープの送り穴に0.5mmをこえてかからないこと。  
 又、キャビティテープからはみださないこと。

3) テープの両末端は下図の通りとする。



4) テープの巻き終わりは接着テープ(80~120mm)でカバーテープのリーダ部をリールに貼り付けること。

5) カバーテープの反転引きはがし角度は155~180°

・反転引きはがし強度は0.1~0.7Nとする。

・反転引きはがし速度は300mm/分とする。

6) 製品は端数を除いて1リール950個収納とする。

7) リール側面に、御社部品番号、当社部品番号、数量、製造密番、を記入する。

SYMB	DATE	APPD	CHKD	DSGD



**ALPS ELECTRIC CO., LTD.**

APPD.	CHKD.	DSGD.	TITLE THE TAPE PACKING SPEC.	
AUG. 10, '04	AUG. 10, '04	AUG. 11, '04	テーピング仕様書	
S. IKENOUYE	K. SASAKI	Y. KANZAKI	DOCUMENT NO.	R K J X S - P 1 (1/3)

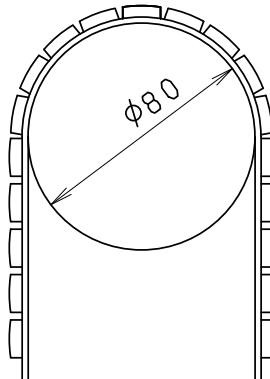
1-3 Resistance of cover tape to atmosphere:

Following exposure for 500Hr to 90-95% R. H. and 40±2°, in condition avoid the direct rays of the sun, cover tape shall not be peeled from carrier tape.

1-4 Minimum bending radius:

a) Minimum bending radius shall be 40mm and no potentiometer dropping or no damage when carrier tape is bended to round rod by  $\phi 80$ mm. (See Fig. 1)  
Such bending is limited one time.  
Bending side is both face and back.

(Fig. 1)



1-3 カバーテープの耐候性

温度40±2°C, 相対湿度90~95%, 直射日光に当たらない状態で500時間放置した場合、テープ強度、剥離強度等が変化し部品の脱落等の性能劣化がないこと。  
又、カバーテープのキャリアテープからの剥離がないこと。

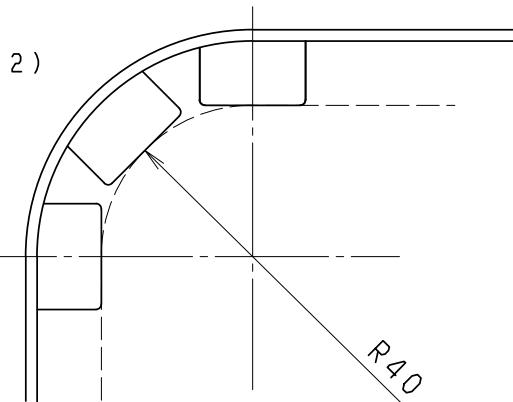
1-4 テーピング最小曲げ半径

a) テーピングの最小曲げ半径は、40mmとし、Fig. 1の様に  $\phi 80$ mmの丸棒へキャリアテープを巻き試験し、ボリュームの脱落やテーピングの折傷のないこと。  
尚、最小曲げは、1回を限度とする。又、キャリアテープの裏表は問わない。

b) Cavity of carrier tape must not contact each other, when carrier tape is bended by 40mm radius. (See Fig. 2)

b) Fig. 2の様にR40にキャリアテープを曲げた時、キャビティ同志の当りがないこと。

(Fig. 2)

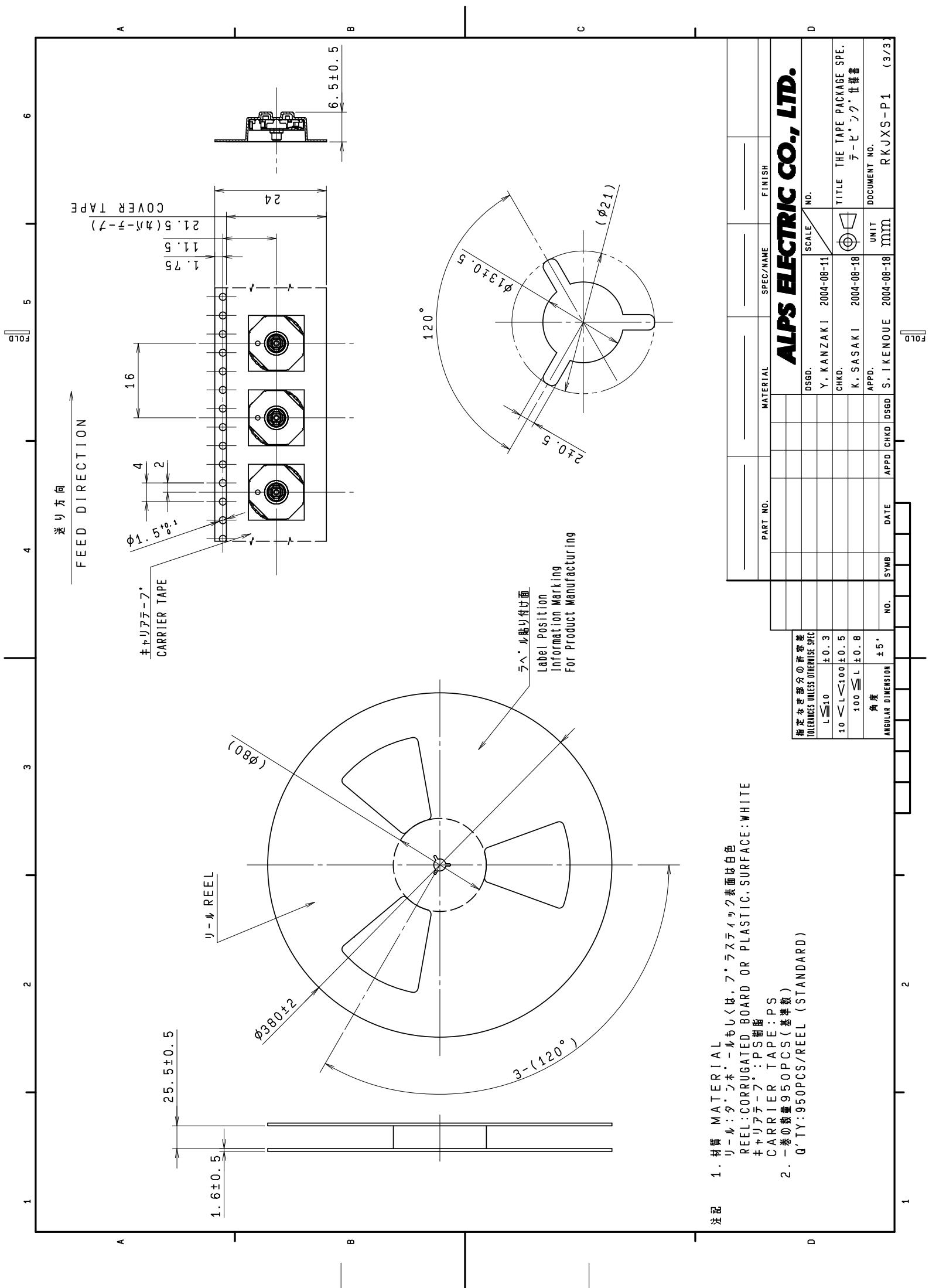


SYMB	DATE	APPD	CHKD	DSGD



**ALPS ELECTRIC CO., LTD.**

APPD.	CHKD.	DSGD.	TITLE THE TAPE PACKING SPEC.	
AUG. 10, '04	AUG. 18, '04	AUG. 11, '04	テーピング仕様書	
S. IKENOUYE	K. SASAKI	Y. KANZAKI	DOCUMENT NO.	



注記 1. 材質 MATERIAL : ターポネル : ポリウレタン、7°ラスティック表面は白色  
 REEL : CORRUGATED BOARD OR PLASTIC, SURFACE : WHITE  
 ナンバーテーブル : PS樹脂  
 CARRIER TAPE : PS  
 2. 一巻の数量 950PCS (基準数)  
 Q'TY: 950PCS/REEL (STANDARD)

指定なき部分の新規差 TOLERANCES UNLESS OTHERWISE SPEC'D	
$L \leq 10$	$\pm 0.3$
$10 < L \leq 100$	$\pm 0.5$
$100 \leq L$	$\pm 0.8$
角度	$\pm 5^\circ$
ANGULAR DIMENSION	

DSGD.	CHD.	APPD.	GD	SCALE NO.	TITLE THE TAPE PACKAGE SPE. テ-レ-ンク・仕様書	DOCUMENT NO.	UNIT MM	DATE 2004-08-18	DATE 2004-08-18	DATE 2004-08-11	Y. KANZAKI K. SASAKI S. IKENOUE

NO.	SYMB	DATE	APPD	CHKD	DSGD	S. I KENOUE	2004-08-18	UNIT	DOCUMENT NO.	TITLE	THE TAPE PACKAGE SPE.	SCALE NO.
					DSGD, Y. KANZAKI		2004-08-11			TITLE	THE TAPE PACKAGE SPE.	
					CHKD, K. SASAKI		2004-08-18			TITLE	THE TAPE PACKAGE SPE.	
					APPD,					UNIT		
										DOCUMENT NO.		
										RKJXS-P1		(3/3)