

Customer : ALPS ELECTRIC EUROPA GmbH

No. F3852578M

Date : Nov. 16, 1994

Attention :

Your ref. No :

Your Part. No : STRSA0N08

## SPECIFICATIONS

STÜCK ANGEBOTSMUSTER BEIGEFÜGT ALPS ;  
PIECES QUOTATION SAMPLE(S) ATTACHED

MODEL RSA0N1211  
(10KB X 2)

Spec. No. :

Sample No. : F3852578M

RECEIPT STATUS

RECEIVED

By. Date

Signature

Name

Title

ALPS ELECTRIC CO., LTD.

HEAD OFFICE  
1-7, YUKIGAYA-OHTSUKA-CHO,  
OHTA-KU, TOKYO 145 JAPAN

DSG'D Id. Fujita

APP'D H. Ito

ENG. DEPT. DIVISION

Sales

## SPECIFICATIONS

1. THIS SPECIFICATIONS APPLY TO RSA0N1211 POTENTIOMETERS.

2. CONTENTS OF THIS SPECIFICATIONS.

4SA02R-002  
4S0001-200M  
4S0001-202M  
SA02RG102

3. MARKING

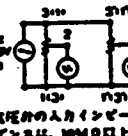
• MARKING ON ALL UNITS  
DATE CODE, RESIST. VALUE, TAPER, TRADE MARK

4. REMARKS

• NOTES

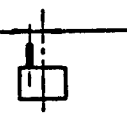
• Marking  $\Rightarrow$  in specifications shows standard and condition for application.



|      | Item<br>項 目                                      | Conditions<br>条 件                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Specifications<br>規 格                                                                                                                     |                                                                            |
|------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 3. 5 | Attenuation and insertion loss<br><br>最大減衰量と挿入損失 | The attenuation and insertion loss at each end of lever travel shall be measured.<br>しゅう動子を移動距離の各終端に置いたとき 最大減衰量、挿入損失を測定する。<br><br>The voltage of 2 Vr.m.s. to 15 Vr.m.s. shall be applied between terminal 1 and 3 by measuring frequency at 1 kHz. The output voltage shall be measured between terminals 1 and 2 and between terminals 2 and 3. If there is not any doubt about the results, DC voltage shall be used as the test voltage.<br>端子1-3間に1kHzで2~15V (正弦波実効値)の電圧を加え、端子1-2間、端子2-3間の出力電圧を測定する。なお、判定に疑義が生じなければ、試験電圧として直流を用いてもよい。<br>                                                                                                                    | Nominal total resistance<br>公称全抵抗値 (kΩ)                                                                                                   | Attenuation<br>最大減衰量<br>(dB or more)<br>dB 以上                              |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5 ≤ Ra ≤ 10                                                                                                                               | 70                                                                         |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 10 < Ra ≤ 50                                                                                                                              | 80                                                                         |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 50 < Ra ≤ 100                                                                                                                             | 90                                                                         |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 100 < Ra ≤ 500                                                                                                                            | 100                                                                        |
| 3. 6 | Noise<br>しゅう動雑音                                  | DC 20V, when the rated voltage is 20V or less, its rated voltage shall be applied to the terminals between 1 and 3. And then the noise shall be measured by the specified speed. For other procedures, refer to IEC Pub. 383-1-6. Test Method B.<br>Traveling speed: 20mm/sec<br>端子1-3間に直流電圧20V (定格が20V以下の時は、その電圧)を加え、レバーを20mm/秒の速さで移動させ、このときに発生する雑音電圧を測定する。その他 JIS C 5261A 法による。                                                                                                                                                                                                                                                                                                                                                                    | Nominal total resistance<br>公称全抵抗値 (kΩ)                                                                                                   | (mVP-P)<br>未測                                                              |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5 ≤ Ra ≤ 50                                                                                                                               | 47                                                                         |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 50 < Ra ≤ 500                                                                                                                             | 85                                                                         |
| 3. 7 | Insulation resistance<br>絶縁抵抗                    | A voltage of 250V DC shall be applied for 1 min., after which measurement shall be made.<br>D.C. 250V の電圧を印加して測定。(1分間)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Between individual terminals and frame/lever<br>Between adjacent terminals<br>端子-レバー間<br>端子-枠間<br>独立した抵抗素子の端子間<br><br>100MΩ or more<br>以上 |                                                                            |
| 3. 8 | Dielectric strength<br>耐電圧                       | Trip current: 2mA<br>Measuring frequency: 50/60Hz<br>250V AC for 1 min.<br>A.C. 250Vr.m.s. 1分間。<br>感度電流 2mA (周波数50/60Hz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Between individual terminals and frame/lever<br>Between adjacent terminals                                                                | Without damage to parts, arcing or breakdown etc.<br>損傷、アークおよび絶縁破壊を生じないこと。 |
| 3. 9 | Tracking error<br>相互偏差                           | The voltage of 2 Vr.m.s. to 15 Vr.m.s. shall be applied between terminals 1 and 3 and between terminals 1 to 3 by measuring frequency at 1 kHz. The output voltage shall be measured between terminals 1 and 2 and between terminals 1 and 3 (for the C and RO taper, the measurement shall be made between terminals 2 and 3 and between terminals 2 and 3) units the first of these shall be the standard one. If there is not any doubt about the results, DC voltage shall be used as the test voltage.<br>端子1-3間、端子1'-3'間にそれぞれ1kHzで2~15V (正弦波実効値)の電圧を加え、前段を基準として端子1-2間、端子1'-2'間(3端子基準の場合は、端子2-3間、端子2'-3'間)の出力電圧を測定する。なお、判定に疑義が生じなければ、試験電圧として直流を用いてもよい。<br> | At 50% of lever travel<br>移動距離の50%の位置                                                                                                     | ± 2 dB                                                                     |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <del>dB - dB</del>                                                                                                                        | <del>± dB</del>                                                            |
|      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <del>dB - dB</del>                                                                                                                        | <del>± dB</del>                                                            |

|                                                                                                                    |      |       |       |       |                                  |
|--------------------------------------------------------------------------------------------------------------------|------|-------|-------|-------|----------------------------------|
|  <b>ALPS ELECTRIC CO., LTD.</b> |      |       |       |       |                                  |
| SYMB.                                                                                                              | DATE | APPD. | CHKD. | DSGD. | TITLE<br>SPECIFICATIONS          |
|                                                                                                                    |      |       |       |       | DOCUMENT NO.<br>4SA02R-002 (2/6) |
|                                                                                                                    |      |       |       |       |                                  |

#### 4. Mechanical characteristics 機械的性能

| Item | Item<br>項目                                          | Conditions<br>条件                                                                                                                                                                                                                                                                                                  | Specifications<br>規格                                                                                                                                                        |
|------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.1  | Lever travel.<br>レバー<br>移動距離                        |                                                                                                                                                                                                                                                                                                                   | 100±1mm                                                                                                                                                                     |
| 4.2  | Operating force<br>作動力                              | Traveling speed: 20mm/sec<br>Operating position: Tip of the lever<br>移動速度は20mm/秒とする。<br>操作位置はレバー先端部とする。                                                                                                                                                                                                           | 80gf±50gf                                                                                                                                                                   |
|      | Starting force<br>始動力                               | Traveling speed: 20mm/sec<br>Operating position: Tip of the lever<br>移動速度は20mm/秒とする。<br>操作位置はレバー先端部とする。                                                                                                                                                                                                           | Operating force<br>+100gf max.<br>作動力+100gf以下                                                                                                                               |
| 4.3  | Lever travel stop strength<br>レバーの移動<br>止強度         | A static load of 10Kgf shall be applied at the point 5mm from top surface of the case for both ends in the direction of lever travel for 10sec.<br>しゅう動距離の両末端において、枠上面より5mmの位置に10Kgfの静荷重を10秒間加える。                                                                                                                  | Without excessive play or poor contact<br>著しいガタ、および接触不良を生じないこと。                                                                                                             |
| 4.4  | Side thrust of the lever<br>レバーの横押し強度               | A static load of 2Kgf shall be applied at the point 5mm from top surface of the case in a direction perpendicular to the axial direction for 10sec. with the potentiometer mounted in assembly conditions.<br>本体をシャーシに固定し、枠上面より5mmの位置にレバー移動方向に対して直角方向に2Kgfの静荷重を10秒間加える。                                           | Without deformation or breaks in the sliding part and contact part.<br>操作部および関連部品に変形、破損がないこと。                                                                               |
| 4.5  | Thrust and tensile lever<br>レバーの押し引き強度              | Thrust and tensile static load of 5 kgf shall be applied to the potentiometer in the lever direction for 10 sec.<br>レバーの押し方向および引張り方向に5kgfの静荷重を10秒間加える。                                                                                                                                                            | Without damage such as bad sliding and braking or play in the lever. Electrical characteristics shall be satisfied.<br>レバーのガタ、および破損、しゅう動ムラ等がなく、電気的性能を満足すること。                |
| 4.6  | Displacement of lever<br>レバーの横振れ                    | A torsion moment of 250gf.cm shall be applied at the lever in a direction perpendicular to the axial direction and then the displacement shall be measured.<br>レバーに250gf.cmの曲げモーメントを移動方向に対して直角に加えレバー先端で測定する。                                                                                                      | or less<br>2(2 x L/25)mm-P 以下<br>L=Length of lever<br>レバー長さ                                                                                                                 |
| 4.7  | Lever inclination and torsion<br>レバーの傾きおよびねじれ       |                                                                                                                                                                                                                                | θ shall be 2° or less.<br>Return to the same position after torsion.<br>θは2度以下。また、ひねりを加えた時、元に戻ることを。                                                                         |
| 4.8  | Distance from the center of the lever<br>レバーのセンターズレ | After sliding lever as far as it will go in each direction, the distance from the center of the lever to the middle of the mounting screw hole shall be measured at the both ends.<br>取付けネジ穴中心に対するレバーのセンターからのずれを片側ごとに測定する。<br> | 0.5mm or less on each end.<br>片側0.5mm以下。                                                                                                                                    |
| 4.9  | Resistance to soldering heat<br>はんだ耐熱               | Bit temperature: 350°C or less<br>Application time of soldering iron: 5 sec or less<br>温度350°C以下。時間5秒以内。<br>ただし、端子に異常加圧のないこと。                                                                                                                                                                                     | Change in total resistance is relative to the value before test: 5% Without excessive looseness of terminals and failure contact.<br>全抵抗値の変化は初期値の±5%以内。<br>著しいガタ、接触不良を生じない。 |

|                                                                                                                    |      |       |       |       |                                  |
|--------------------------------------------------------------------------------------------------------------------|------|-------|-------|-------|----------------------------------|
|  <b>ALPS ELECTRIC CO., LTD.</b> |      |       |       |       |                                  |
| SYMB.                                                                                                              | DATE | APPD. | CHKD. | DSGD. | TITLE<br>SPECIFICATIONS          |
|                                                                                                                    |      |       |       |       | DOCUMENT NO.<br>4SA02R-002 (3/6) |
|                                                                                                                    |      |       |       |       |                                  |

(規格・仕様書用紙) W7306 A4 89.9. 2,000 R=

|           |                                   |      |
|-----------|-----------------------------------|------|
| CLASS.NO. | TITLE                             | 8/12 |
|           | MASTER TYPE POTENTIOMETER (SLIDE) |      |

Note 1) For noise specification after the test, refer to the list below.

注記 1) 試験後のしゅう動雑音規格は、下表による。

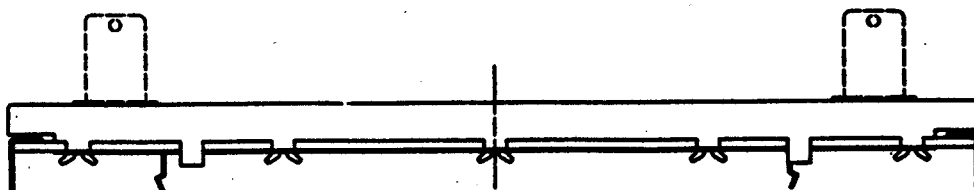
|                                                                 |                                                                |
|-----------------------------------------------------------------|----------------------------------------------------------------|
| Nominal total resistance<br>公称全抵抗値 (KΩ)<br>$5 \leq R_a \leq 50$ | Nominal total resistance<br>公称全抵抗値 (KΩ)<br>$50 < R_a \leq 500$ |
| Less than 150mVP-P 未満                                           | Less than 300mVP-P 未満                                          |

2) Measurement of the endurance characteristic shall be made after 5 cycles' slide of moving contact

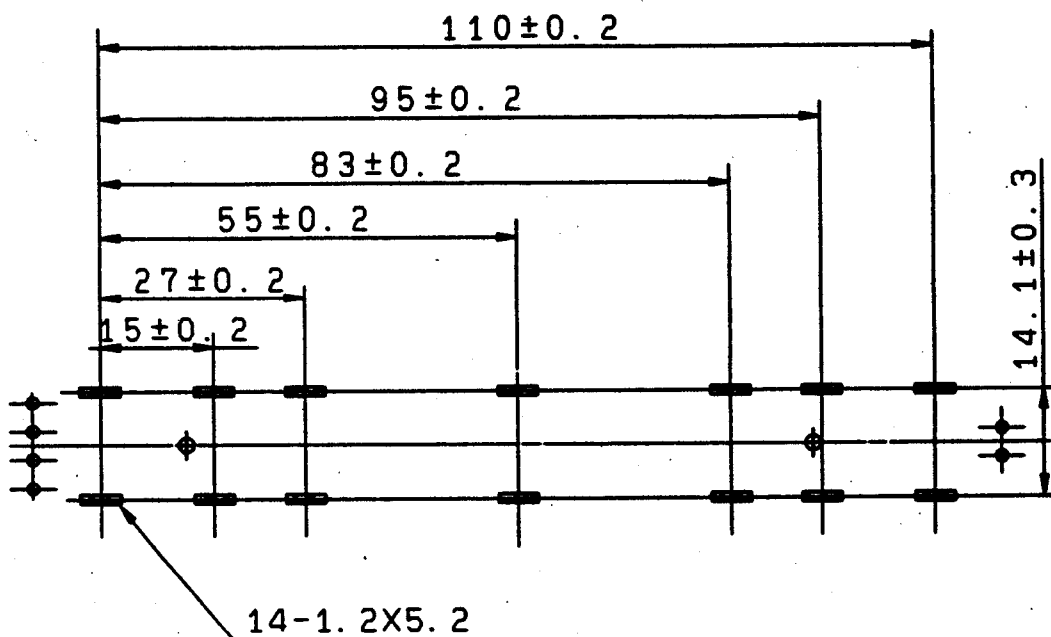
2) 耐久性能後の測定は、レバーを5サイクルしゅう動後とする。

△ 3) Prohibition of patten wiring for oblique line department.

3) 斜線部は、パターン配線を禁止します。



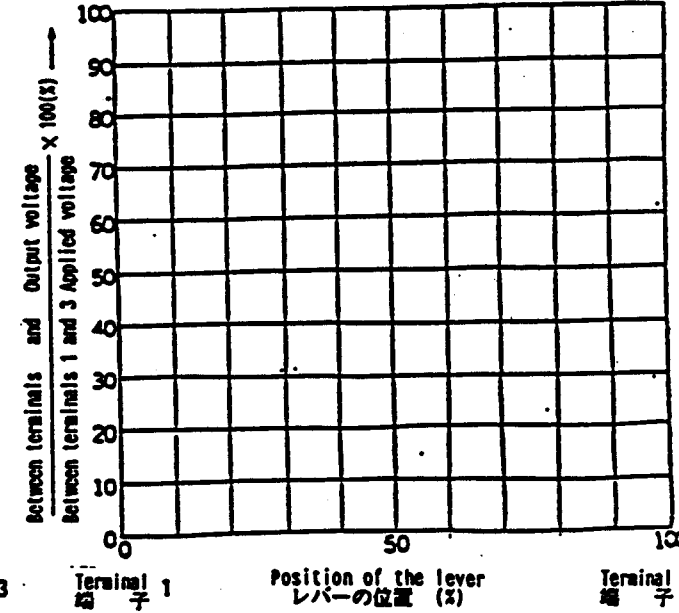
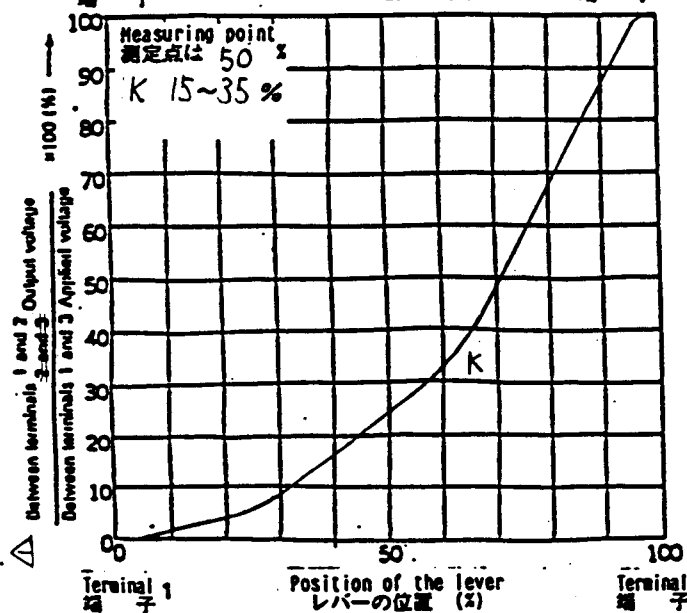
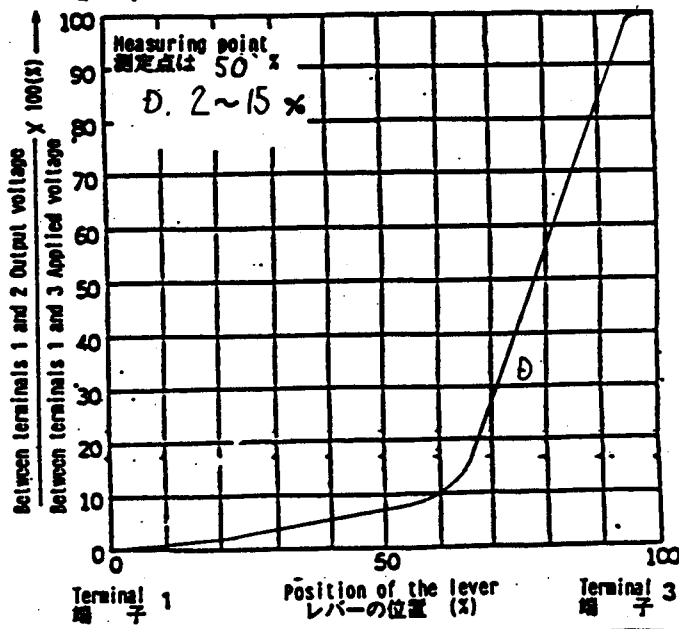
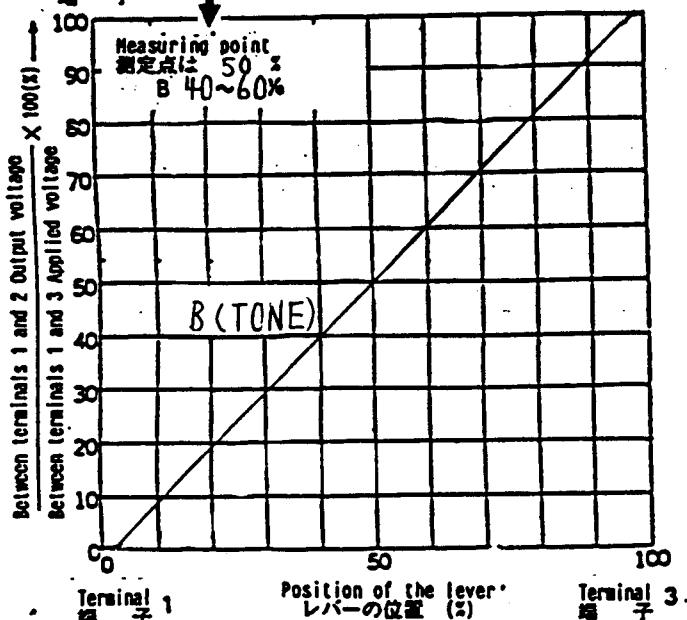
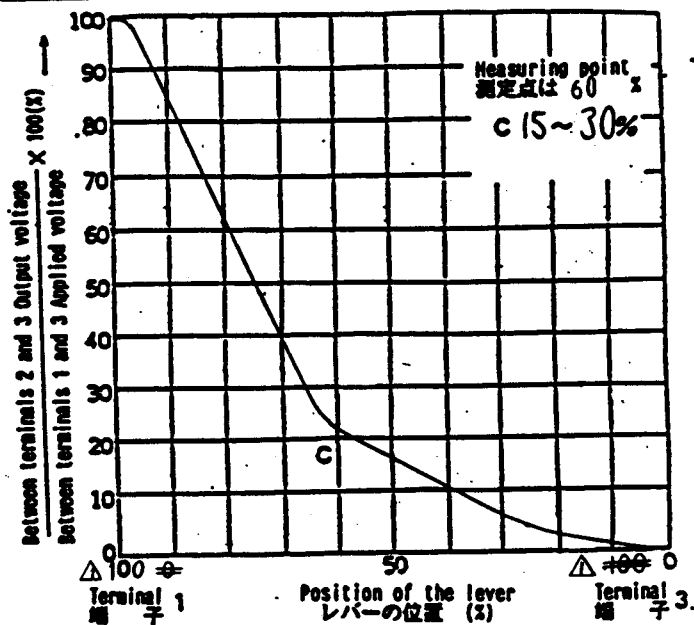
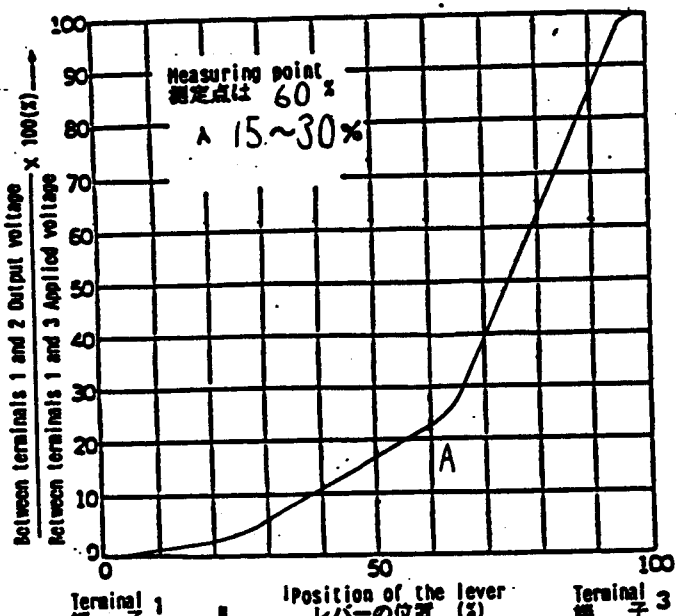
Viewed from mounting side  
挿入側より



Unit: mm

|       |            |       |       |       |                                |  |
|-------|------------|-------|-------|-------|--------------------------------|--|
|       |            |       |       |       | <b>ALPS ELECTRIC CO., LTD.</b> |  |
| SYMB. | DATE       | APPD. | CHKD. | DSGD. | TITLE                          |  |
| △1    | Feb. 09/92 | Y.Y   | K.A   | K.S   | SPECIFICATIONS                 |  |
|       |            |       |       |       | DOCUMENT NO.                   |  |
|       |            |       |       |       | 4SA02R-002(5/6)                |  |

# RESISTANCE LAW (TAPER) 抵抗変化特性規格

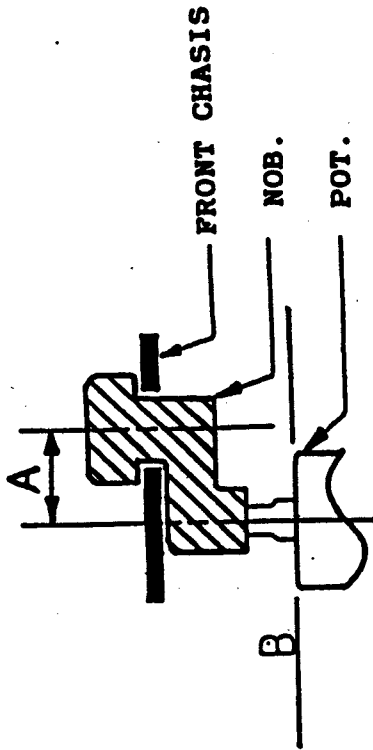


| SYMB | DATE     | APPD. | CHKD. | DSGD.    | TITLE            |
|------|----------|-------|-------|----------|------------------|
| △3   | May 9/92 | G.A.  | K.S.  | M. Inoue | SPECIFICATIONS   |
|      |          |       |       |          | DOCUMENT NO.     |
|      |          |       |       |          | 4SA02R-002 (6/6) |

# PRECAUTION IN USE

1.If it will be used the operating point away from the center line of the lever, it should be shorter as possible.

2.About the length of lever  
If conditions permit, it is advisable to use the shortest possible lever.The longer the length up to operating point. the more unfavorable slide feeling will be given.



3.Regarding the operation of the lever,please consider the above mentioned,and make sure nothing is wrong with the operation under installing in your appliance that you plan to use our products actually.

10/12

**ALPS ELECTRIC CO., LTD.**

|             |            |            |                     |
|-------------|------------|------------|---------------------|
| APPD.       | CHKD.      | DSGD.      | TITLE               |
| Aug. 10 '91 | Aug. 9 '91 | Aug. 9 '91 | SLIDE POTENTIOMETER |
| 11/1/1991   | 11/1/1991  | 11/1/1991  | DOCUMENT NO.        |
| 11/1/1991   | 11/1/1991  | 11/1/1991  | 450001-200M         |
| 11/1/1991   | 11/1/1991  | 11/1/1991  | 10-12               |

OR

## FOLLOW THE NEXT CONDITIONS FOR SOLDERING

## 1. Solder

**63 % Sn solder specified in JIS Z3282.**

## 2. Board in Use

**Single-face copper laid laminate board.**

Plate thickness (t) = 1.6 mm

### 3. In the Case of Dip Soldering

### (1) State of potentiometer

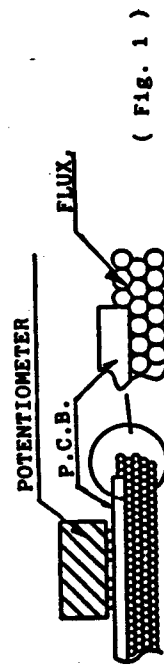
**Position a lever in the vicinity of center.**

## (2) Specific Gravity of Flux

 $0.83 \pm 0.01$  (foaming type)

### (3) Height of Flux face

A level of the upper face of flux for reaching the position at a half of the plate thickness of printed board. ( Fig.1) Further, no flow of flux invading on the surface of printed board on the side of installing potentiometer is allowed.



**(4) Preheat Condition**

100°C MAX., within 1 minute

( Temperature on the side of installing printed board is designated. )

### (5) Soldering Condition

**Solder temperature: 260°C MAX.**

**soldering period : within 5 seconds**

Time of soldering : only one time is permitted

#### 4. In the Case of Manual Soldering

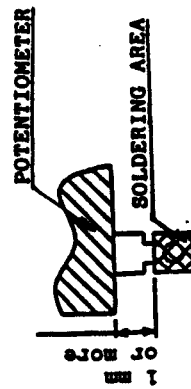
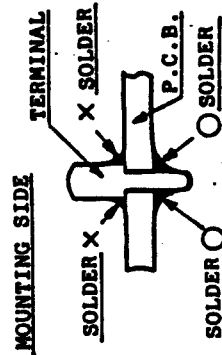
**Solder temperature : 300°C MAX.**

**solder temperature : within 3 seconds**

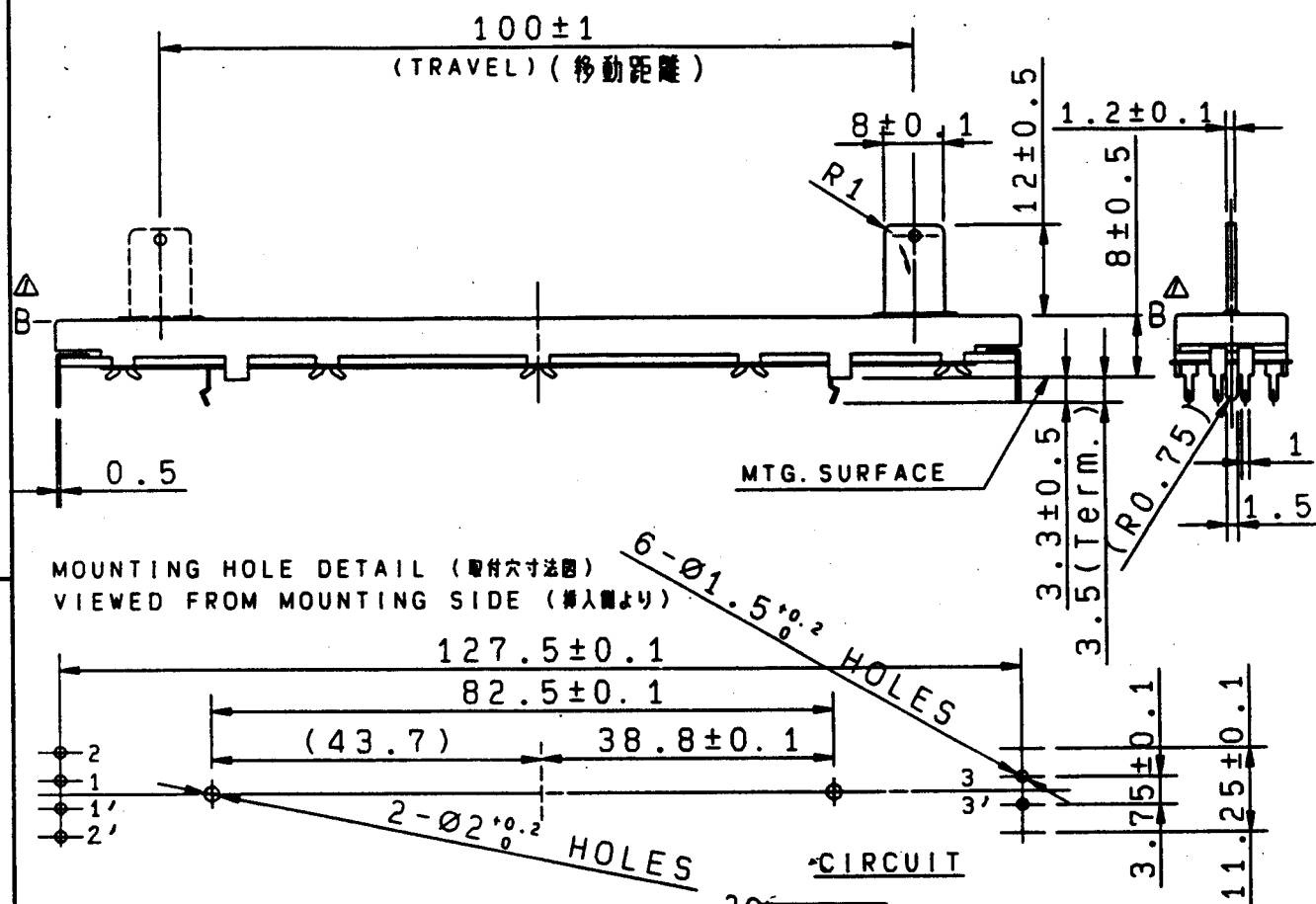
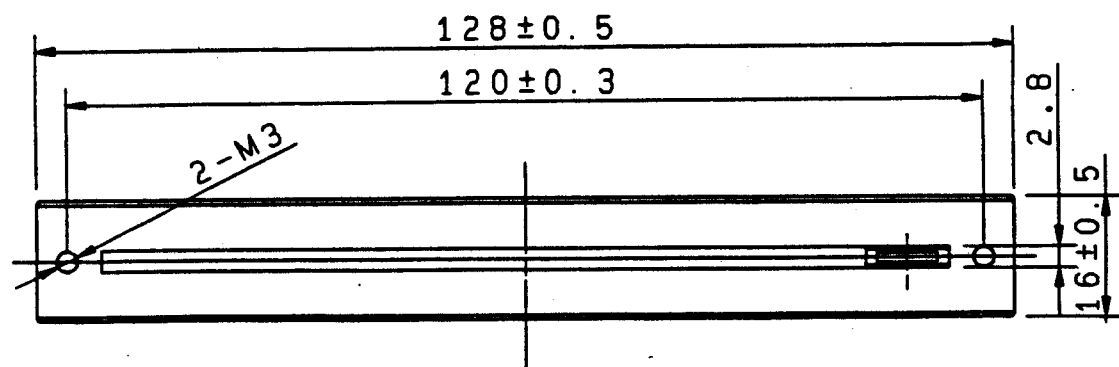
**Time of soldering : only one time is permitted**

## 5. Matters to Be Noted

- (11) Do not add any stress on terminals in the case of soldering. For instance, forced movement of potentiometer with terminals being heated may probably deteriorate the electric features due to generation of looseness in connection between resistant board and terminals.
- (2) Use caution to soldering process so as to prevent solder from rising up to the surface of printed board on the side of installing potentiometer, because defective contact may take place in terminal connecting part due to soldering heat ( Fig. 2 )
- (3) In the case of lead wiring, solder it so that a gap of 1 mm or more may be reserved between the potentiometer body and soldering part. ( Fig. 3 )
- (4) The grade of influence of soldering exerted on the potentiometer depends upon the size of a printed board, installing position of the potentiometer, and the size of a solder bath etc. Therefore, make sure, in advance, of no abnormal state under the conditions of soldering to be carried out at present.

[illegible]

12/12



NOTE 1. MOUNTING SCREW THREAD LENGTH IS  
CHASSIS THICKNESS+3mm MAX.

△ 2. Within 30mm from B included knob's height.

注記 1. 取付ネジの首下長さはシャーシ板厚+3mm以下とする。

△ 2. レバーの長さは、ツマミも含めて30mm以内にてご使用願います。

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

|                         |               |
|-------------------------|---------------|
| $L \leq 10$             | $\pm 0.3$     |
| $10 < L \leq 100$       | $\pm 0.5$     |
| $100 < L$               | $\pm 0.8$     |
| 角度<br>ANGULAR DIMENSION | $\pm 5^\circ$ |

| PART NO.                       | NAME        | MATERIAL NAME / CODE | FINISH                                 |
|--------------------------------|-------------|----------------------|----------------------------------------|
| <b>ALPS ELECTRIC CO., LTD.</b> |             |                      |                                        |
| DSGD. 27743                    |             | SCALE                | 1 : 1                                  |
| S. ABE 90-07-24                |             | SA02RG102            |                                        |
| CHKD.                          |             | FIGURE               | 100mm SLIDE POTENTIOMETER<br>DUAL UNIT |
| APPD.                          |             | UNIT                 | 28274F493-4                            |
| △ 4                            | Jan. 17 '92 | G.D.                 | K.N.                                   |
| SYMB                           | DATE        | APPD                 | CHKD DSGD                              |
| J. Asedop 90-07-24             |             | RSA0N1               |                                        |

①-12L  
プリント  
2連

OR