



**SPECIFICATIONS**

1. THIS SPECIFICATIONS APPLY TO R560N119 POTENTIOMETERS.

2. CONTENTS OF THIS SPECIFICATIONS.

4S602R-001  
4S0001-200  
4S0001-202M  
S602RN901

3. MARKING

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

4. REMARKS

· NOTES

· Marking => in specifications shows standard and condition for application.

N.º. SS-96-1114

1. Environment 一般事項

1.1 Operating temperature range 使用温度範囲 -10~60°C

1.2 Storage temperature range 保存温度範囲 -30~70°C

1.3 Test conditions 試験条件

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

Ambient temperature: 5°C to 35°C  
 Relative humidity: 45% to 85%  
 Air pressure: 860mbar to 1060 mbar.

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

Ambient temperature: 20±2°C  
 Relative humidity: 50 to 70%  
 Air pressure: 860mbar to 1060 mbar.

2. Appearance 外觀

The potentiometer shall be well done and not have any excessive rust, crack, split, poor plating and discolor in any portion.

各部の仕上げは良好で機械上劣化せず、また、7%以下の不具合及び腐蝕を認めない。

3. Electrical characteristics 電気的特性

3.1 Nominal total resistance and tolerance 公称全抵抗値とその許容差

Measurement shall be made by the resistance between terminal 1 and 3 with lever set at terminal 1 or 3.

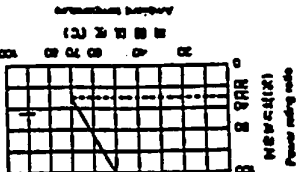
レバーを端子1又は3の位置に合せ、抵抗値の端子1-3間

の抵抗値を測定する。

項目	条件	規格
3.1	A, B (VOL)	0.1W
		0.2W
3.2	B	0.2W
		C, D, K
3.3	A, B (VOL)	D, C 10V
		A, C 200V

Power rating is based on continuous full load operation at the maximum voltage between terminals 1 and 3. Power rating vs. ambient temperature shall be denoted on the following graph.

端子1と3の間に連続負荷をかけることができる最大電力、周囲温度に対する電力降下曲線は右図とする。



3.2 Rated voltage

$$E = \sqrt{PR} \text{ (V)}$$

P: Power rating 定格電力 (W)  
 R: Nominal total resistance 公称全抵抗値 (Ω)

When the rated voltage exceeds the maximum operating voltage, the maximum operating voltage shall be the rated voltage.

ただし、定格電圧が最高使用電圧を超える場合は、この最高使用電圧を定格電圧とする。

3.4 Resistance law (Taper)

Measurement shall be made by the resistance law method. Voltage is set at the position of right diagram from the edge at the side of terminal 1.

When based on terminal 3, from the edge at the side of terminal 3.

Output voltage between terminals 1 and 2 (dB)  
 1-2端子間出力電圧 (dB)  
 Applied voltage between terminals 1 and 3 (100%)  
 1-3端子間印加電圧 × 100 (%)

Output voltage between terminals 1 and 3 (100%)  
 1-3端子間出力電圧 × 100 (%)  
 Applied voltage between terminals 1 and 2 (dB)  
 1-2端子間出力電圧 (dB)

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APPD. CHKD. DSCD.	TITLE SPECIFICATIONS	

Item 項目	Conditions 条件	Specifications 規格	
		Nominal total resistance 公称全抵抗値 (kΩ)	Attenuation 最大減衰量 or more dB 以上
3.5 Attenuation and insertion loss 最大減衰量と 挿入損失	<p>The attenuation and insertion loss at each end of lever travel shall be measured. 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。</p> <p>The voltage of 2 V<sub>r.m.s.</sub> to 15 V<sub>r.m.s.</sub> 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.</p> <p>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。</p>	5 ≤ R <sub>a</sub> ≤ 10	70
		10 < R <sub>a</sub> ≤ 50	80
		50 < R <sub>a</sub> ≤ 100	90
		100 < R <sub>a</sub> ≤ 500	100
	Insertion loss 挿入損失 within 0.1 dB以内		
3.6 Noise しゅう動雑音	<p>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. 353-1-8. Test Method B.</p> <p>Traveling speed: 20mm/sec</p> <p>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。</p>	Nominal total resistance 公称全抵抗値 (kΩ)	(mVP-P) 未測
		5 ≤ R <sub>a</sub> ≤ 50	47
	50 < R <sub>a</sub> ≤ 500	85	
3.7 Insulation resistance 絶縁抵抗	<p>A voltage of 250V DC shall be applied for 1 min, after which measurement shall be made. D.C. 250Vの電圧を印加して測定。(1分間)</p>	Between individual terminals and frame/lever Between adjacent terminals: 端子-レバー間 端子-枠間 隣接した抵抗素子の端子間	100MΩ or more 以上
3.8 Dielectric strength 耐電圧	<p>Trip current : 2mA Measuring frequency : 50/60Hz 250V AC for 1 min. A.C. 250V<sub>r.m.s.</sub> 1分間。 感度電流 2mA (周波数 50/60Hz)</p>	Between individual terminals and frame/lever Between adjacent terminals	Without damage to parts, arcing or breakdown etc. 損傷、アークおよび絶縁破壊を 生じないこと。
3.9 Tracking error 運動誤差	<p>The voltage of 2 V<sub>r.m.s.</sub> to 15 V<sub>r.m.s.</sub> 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 2 and 3 (for the C and RD 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.</p> <p>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。</p>	At 50% of lever travel 移動距離の 50%の位置	± dB
		dB - dB	± dB
		dB - dB	± dB
		dB - dB	± dB

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					SPECIFICATIONS
					DOCUMENT NO.
					4S602R-001 (7/E)





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。

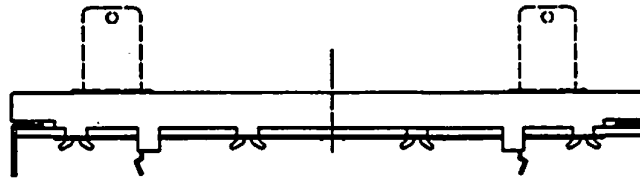
Nominal total resistance 公称全抵抗値 (KΩ) $5 \leq R_a \leq 50$	Nominal total resistance 公称全抵抗値 (KΩ) $50 < R_a \leq 500$
Less than 150mVP-P 未満	Less than 300mVP-P 未満

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

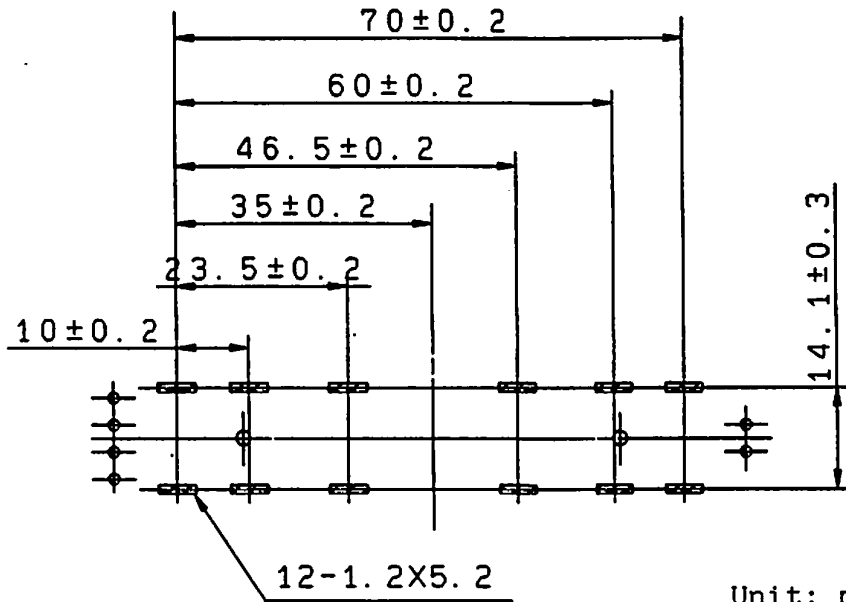
2) 耐久性能後の測定は、レバーを5サイクルしゅう動後とする。

△ 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

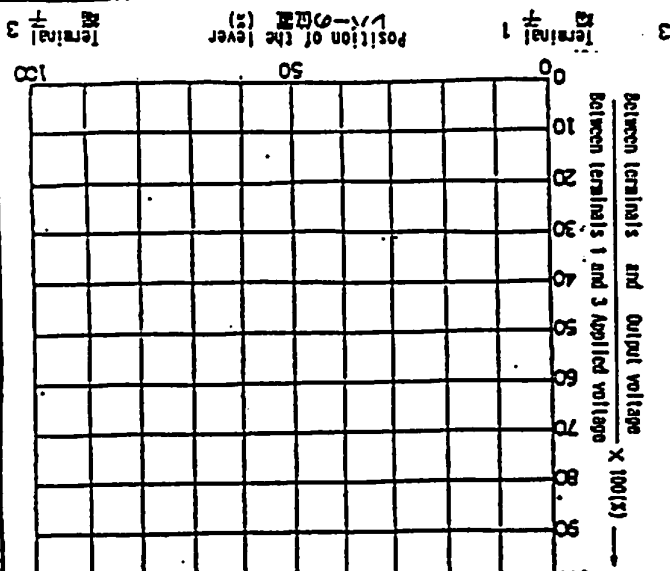
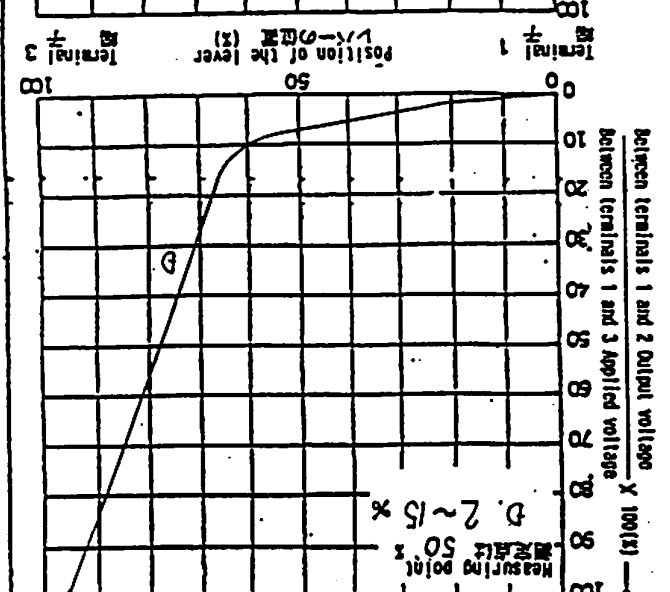
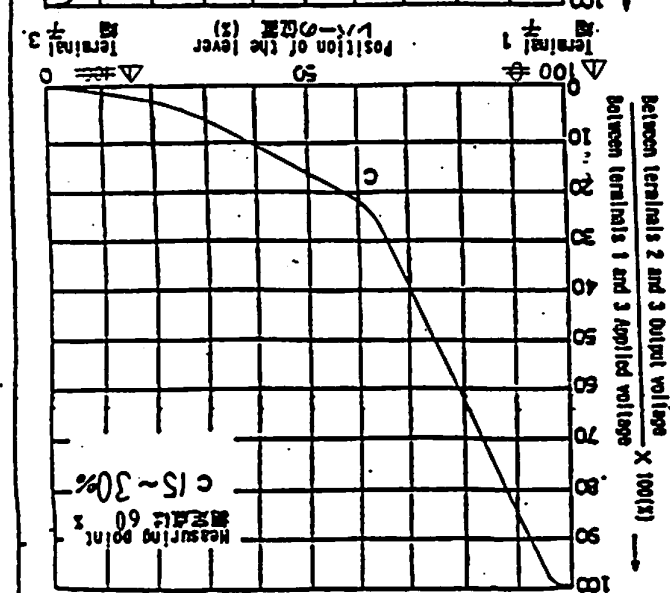
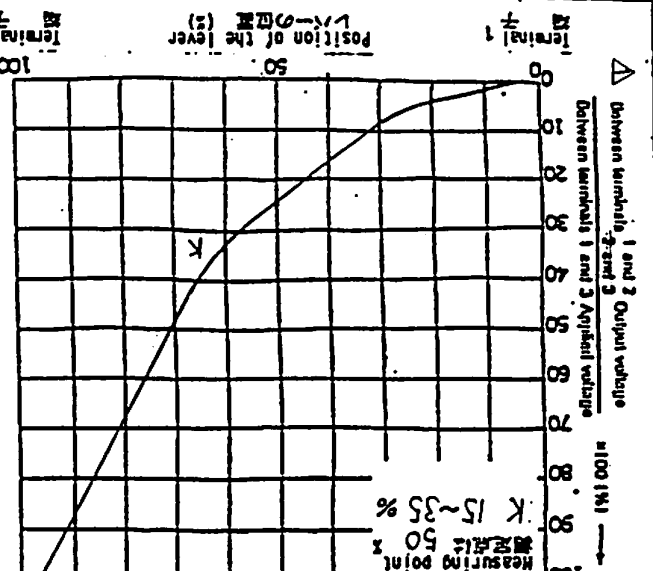
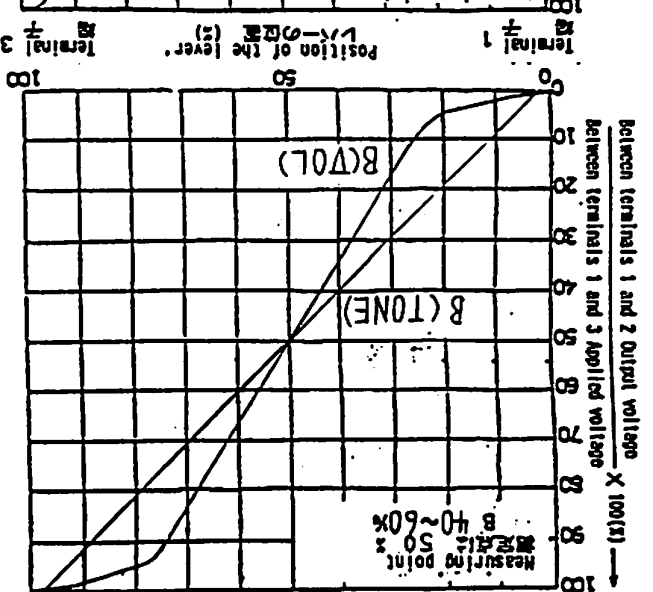
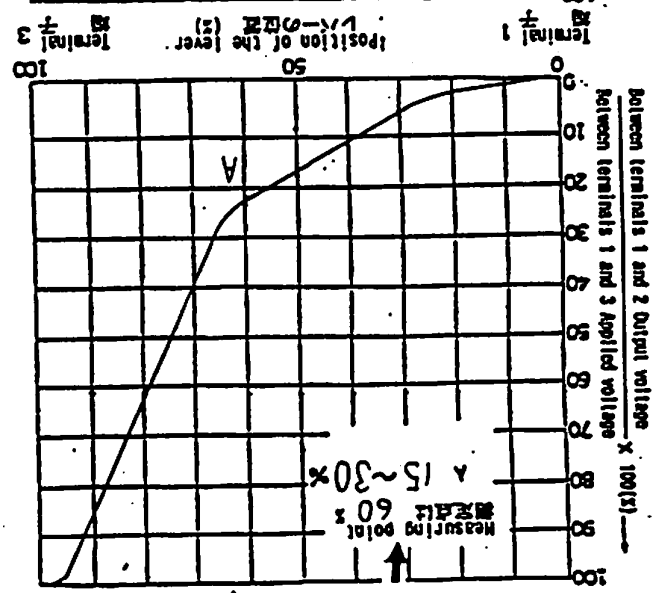


Unit: mm

<b>ALPS ALPS ELECTRIC CO., LTD.</b>					
SYMB.	DATE	APPD.	CHKD.	DSGD.	TITLE SPECIFICATIONS
△ 1	Feb. 10 1992	Y.Y	G.A	K.S	DOCUMENT NO. 4S602R-001 (5/6)
		S. Ahe		X. Narizawa	



RESISTANCE LAW (TAPER) 抵抗炭化特性規格



DATE	APPD.	CSDD.	DSCD.
1991.9.6	Y. Y.		

APPD. CHUD. DSCD. TITLE  
 16.9.91  
 1991.9.6  
 H. Inoue  
 T. Kikugawa

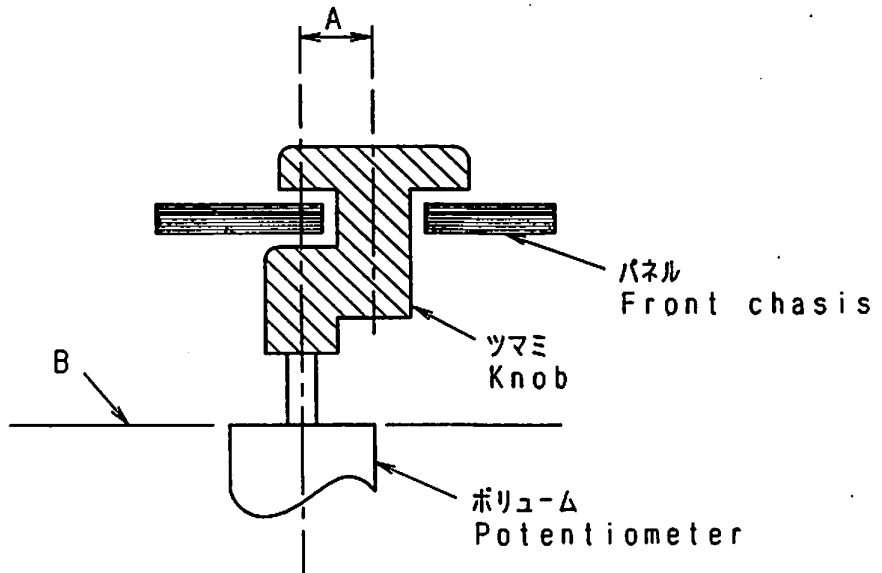
DOCUMENT NO. 4S602R-001  
 SPECIFICATIONS  
 (3/)



**ご使用上の注意**  
**PRECAUTION IN USE**

1. 偏心ツマミをご使用になる場合  
 レハ-の中心より離れたところを作用点としてご使用になる場合、可能な限り  
 下図A寸法を短くしてご使用下さい。  
 If it will be used the operating point away from the center line of the lever, it should be shorter as possible.

2. レハ-長さについて  
 レハ-長さについては、ツマミを含めて、下図B面より極力短いものをご使用願います。レハ-長さについては、作用点までの距離が短いほどしゅう動感が良好となり、長いほど好ましくない感になります。  
 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.



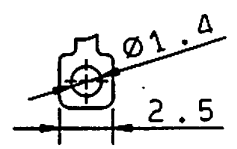
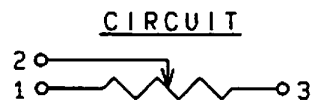
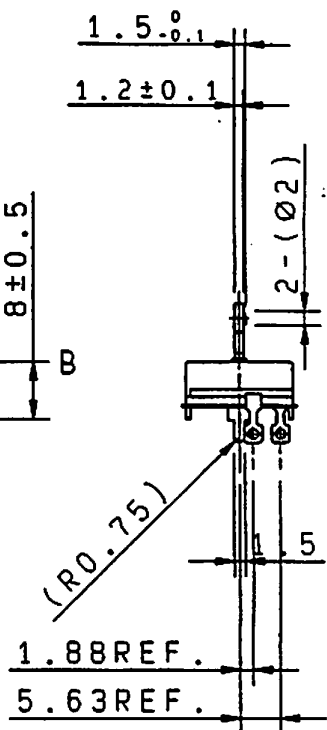
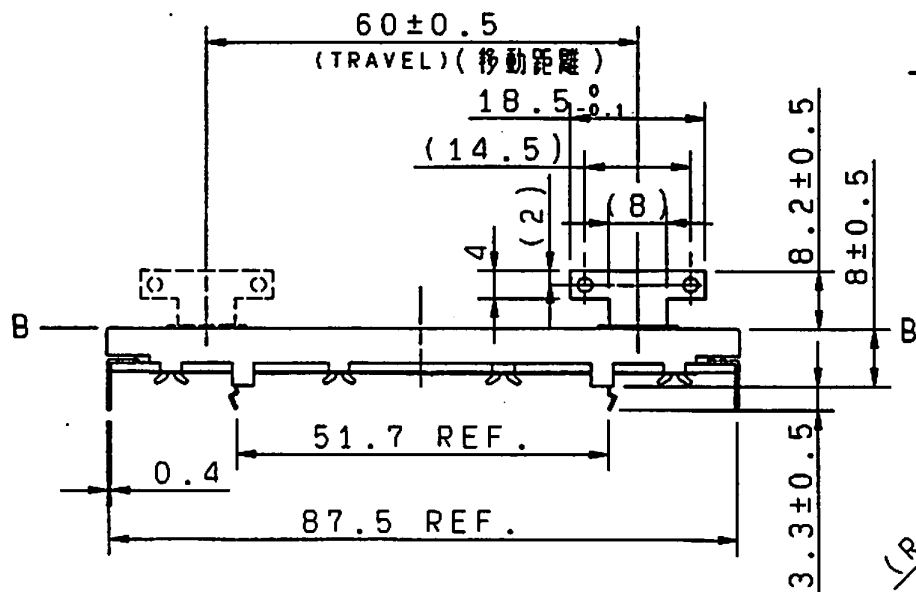
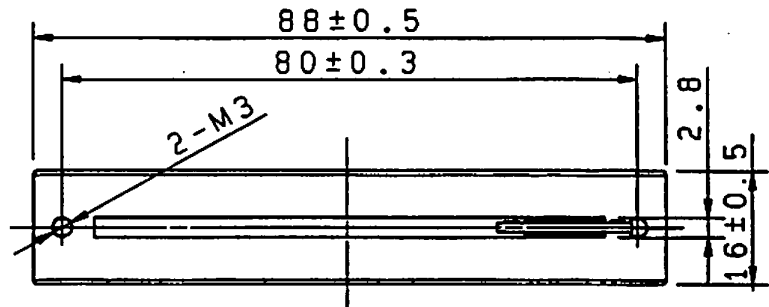
3. レハ-の駆動に関しては上記内容を考慮の上、セット実装を行い  
 あらかじめ異常のないことをご確認願います。  
 Regarding the operation of the lever, please consider the above mentioned, and make sure nothing is wrong with the operation under installing in your appliance that you plan to use our products actually.

4. ツマミ挿入及びレハ-操作は、ボリュームマウント基板に  
 ソリ(曲がり)のない状態で行って下さい。  
 Knob assembly on the lever and functioning the lever to be performed under the condition of P. C. B. without warp.

					<b>ALPS ALPS ELECTRIC CO., LTD.</b>				
					APPD.	CHKD.	DSGD.	TITLE	スライトボリューム仕様書
					PDI-ENGI '95.7.24 YOSHIOLA	PDI-ENGI '95.7.24 KIMURA	PDI-ENGI '95.7.24 Y.SAITOH	SPECIFICATIONS	
ORIGINAL	91-7-3	Y-Y	K-N	S-A				DOCUMENT NO.	4S0001-200
SYMB	DATE	APPD	CHKD	DSGD					

ORI





TERMINAL DETAIL  
(端子寸法図)

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 ANGULAR DIMENSION	$\pm 5^\circ$

PART NO.	NAME	MATERIAL NAME / CODE	FINISH
		<b>ALPS ALPS ELECTRIC CO., LTD.</b>	
		DSGD.セツキ13 K. NARISAWA 91-01-22	SCALE 1 : 1 S602RN901
		CHKD. Y. Hatanabe '91-01-23	FIGURE 60mm SLIDE POTENTIOMETER SINGLE UNIT 60mmスライドポテンショメータ
ORIGINAL	90-10-30	S. A Y. M. K. N APPD.	UNIT
SYMB	DATE	APPD. CHKD DSGD	m m RS60N1
		G. Abe. '91-01-23	

◎-8.2L  
リード  
単連

OR