

27mm Size Metal Shaft Potentiometer

RK27 Series

High-grade potentiometer featuring good control feel and superior features.

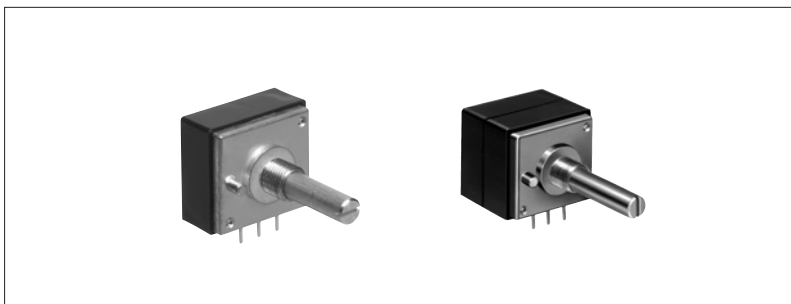
Rotary
Potentiometers

Slide
Potentiometers

Trimmer
Potentiometers

Multi Control
Devices

Position Sensors



Features

- These highgrade potentiometers offer comfortable operation and possess high, precise features (gang error, resistance taper, etc.), ideal for audio applications.

Applications

- Level controls for high grade audio sets
- Controls for audio mixing console

Metal
Shaft

Insulated
Shaft

Knob
Operating

Typical Specifications

Items	Specifications
Total resistance tolerance	$\pm 20\%$
Maximum operating voltage	30V AC
Total rotational angle	$300 \pm 3^\circ$
Rotational torque	5 to 35 mN·m
Operating life	15,000 cycles
Operating temperature range	-10°C to $+70^\circ\text{C}$

Recommended Products List

Number of resistor elements	Mounting direction	Products No.	Shaft type	Length of the shaft (mm)	Center detent	Total resistance (k Ω)	Resistance taper	Minimum packing unit (pcs.)	Drawing No.
Single-unit	Horizontal type	RK2711120026	Slotted	25	31	100	15A	100	1
		RK271111001T			Without				
Dual-unit		RK27112A00AK		20					2
		RK27112A00CC	25						
		RK27112A0A16	20	3					
		RK27112A00B9	25						
		Flat							

Note

Additional product specifications in response to those not included in the above recommended products are also available. For inquiries, contact our sales department.

For product specifications, see **P.39**
For other detailed specifications, see **P.48, 49**

Product Varieties

In addition to the recommended products, the following specifications can also be accommodated.

Products Specification

Type	Model	Mounting height (mm)	Detent variety	Gang error
Single-shaft, single-unit	RK27111	12.5	Center 21 31 41	—————
Single-shaft, dual-unit	RK27112			—60dB to 0dB within 3dB
Single-shaft, quad-unit	RK27114			—80dB to —60dB within 5dB possible depending on total resistance and taper.

Rotary Potentiometers

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Total Resistance Variety

Total resistance (kΩ)	10	20	50	100	250
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Resistance Taper

Resistance taper	15A	3B
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Metal Shaft

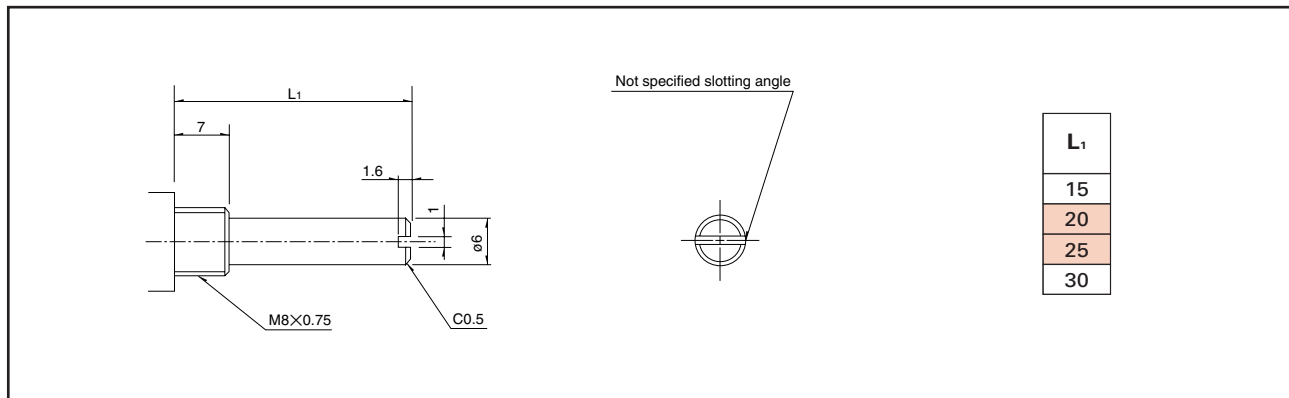
Insulated Shaft

Knob Operating

Dimensions of Shaft

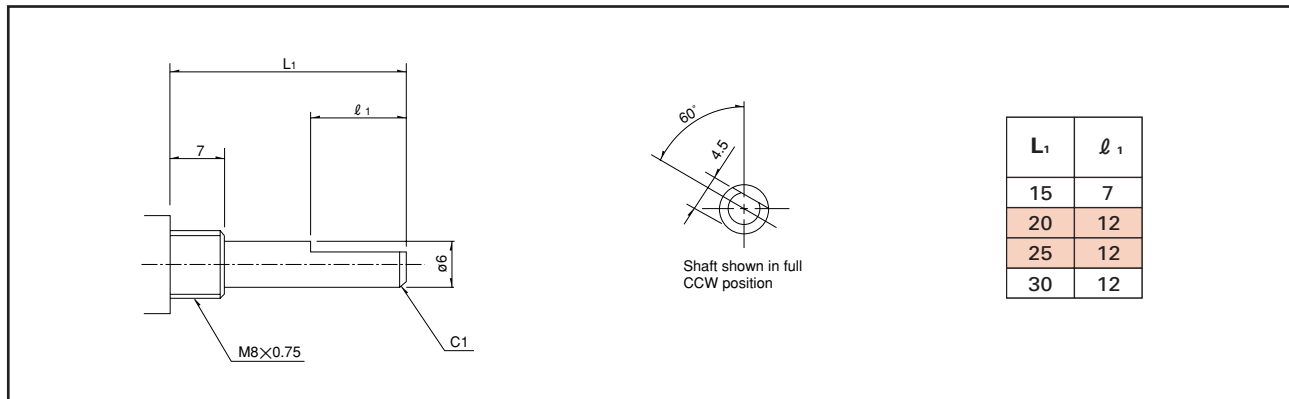
1 Slotted type

Unit:mm



2 Flat type

Unit:mm



For resistance taper, see **P.40, 224**
For attached parts, see **P.50**

Orders Other Than Recommended Products

Specify orders for varieties that are not listed in the Recommended Product List, referring to the following example.

Sample part number

R K 2 7 1 1 2 A — S 2 5 — C 0 — A 1 0 4

Model type

Code	Model type
111	Single unit
12A	Dual unit for vol.

Shaft type

Code	Shaft type
F	Flat
S	Slotted

Length of the shaft (L₁) (mm)

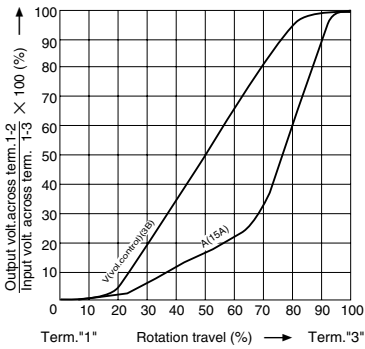
Code	Length of the shaft	Code	Length of the shaft
15	15	25	25
20	20	30	30

Detent

Code	Detent	Code	Detent
C0	Without	31	31
C1	Center	41	41
21	21		

Resistance taper

Code	Resistance taper
A	15A
V	3B



Total resistance

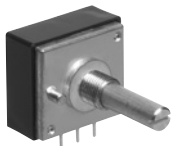
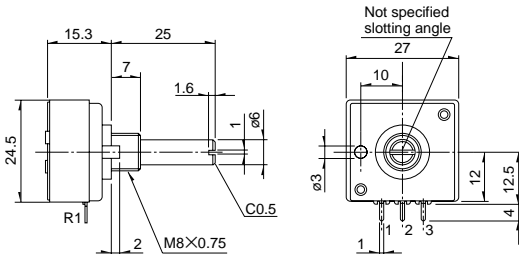
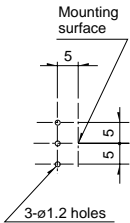
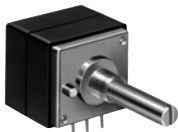
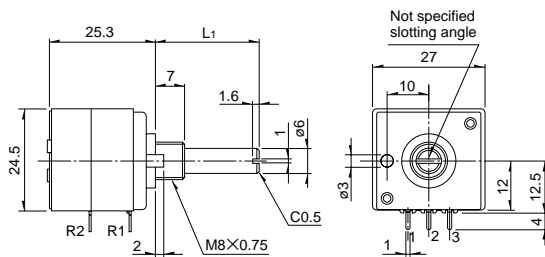
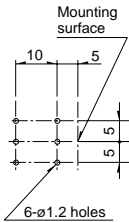
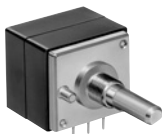
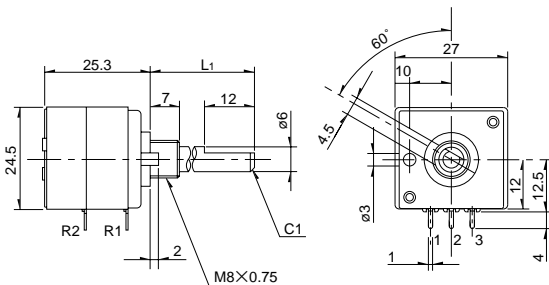
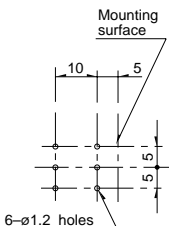
Code	Total resistance (kΩ)	Code	Total resistance (kΩ)
502	5	503	50
103	10	104	100
203	20	254	250

Note

Shows the specification recommended by us.



Unit:mm

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	Single-shaft, single-unit RK27111	 	
2	Single-shaft, dual-unit RK27112	 	
3	Single-shaft, dual-unit RK27112	 	

Rotary Potentiometers

Slide Potentiometers

Trimmer
Potentiometers

Multi Control Devices

Position Sensors

Metal Shaft

Insulated Shaft

Knob Operating

Products Specifications

Model			RK20B	RK25T	RK271	RK501
Items						
Operating temperature range			−10℃ to +105℃	−10℃ to +60℃	−10℃ to +70℃	
Electrical performance	Total resistance tolerance		±20%			
	Rated power		0.06W	0.05W		0.1W
	Maximum operating voltage		20V DC	5V DC	30V AC	150V AC
	Residual resistance				R≤10kΩ 20Ω max. 10kΩ<R≤50kΩ 30Ω max. 50kΩ<R 0.1% or less of nominal total resistance	
	Maximum attenuation (Volume control)				5kΩ≤R<10kΩ 70dB min. 10kΩ≤R<50kΩ 80dB min. 50kΩ≤R<100kΩ 90dB min. 100kΩ≤R 100dB min.	120dB min.
	Insulation resistance		100MΩ min. 250V DC		100MΩ min. 500V DC	
	Voltage proof		1 minute 300V AC		1 minute 500V AC	
Mechanical performance	Total rotational angle		360°	300±5°	300±3° Motor-driven 300±5°	300±3°
	Rotational torque (mN·m)		20 to 80	0.5 to 7.5	5 to 35 Motor-driven 15 to 45	13 to 43
	Stopper strength (N·m)		—	0.5	0.9	1.5
	Push-pull strength		100N max.			150N max.
	Vibration		10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z and for 2 hours respectively			
	Solder heat resistance	Manual soldering	350℃ max. 3s max.			
		Dip soldering (Dip available products)	260±5℃ 4±1s			
Endurance	Operating life		15,000 cycles	100,000 cycles	15,000 cycles	
Environmental test	Cold		−10℃ for 96h			
	Long-term heat resistance		+105℃ for 96h	+70℃ for 96h		
	Moisture resistance		+40±2℃, 90 to 95%RH for 96h			

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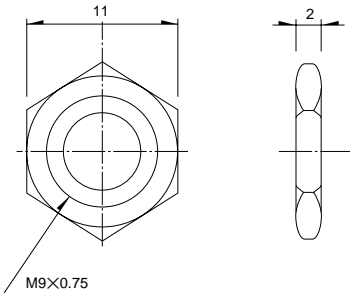
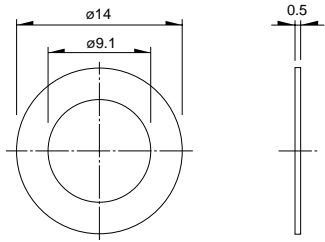
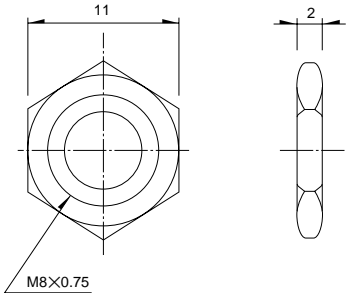
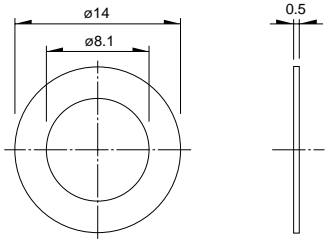
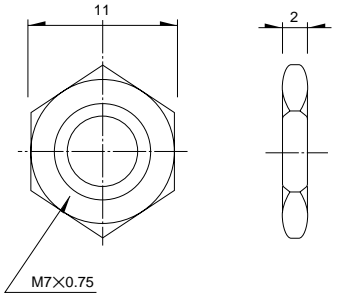
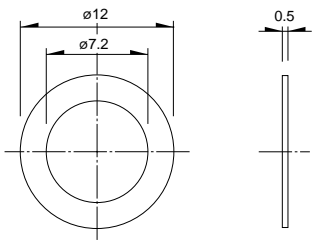
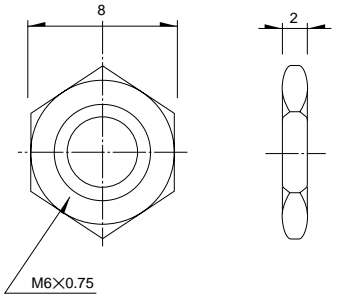
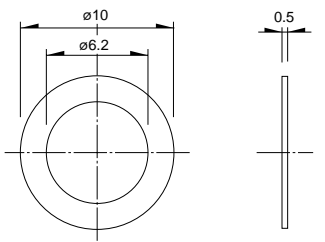
Insulated Shaft

Knob Operating

Attached Parts

These parts are attached to the following products.

Unit:mm

Applicable products	Bearing screw diameter	Hexagonal nut	Flat washer
RK09L RK168 RK097	M9		
RK271	M8		
RK097 RK098 RK163	M7		
RK097 RK098	M6		

Customer: ALGE GERMAN DISTRIBUTER

No. KK-2005-9459

Date: Jun. 23, 2005

Attention:

Your ref. No.:

Your Part No.: 401618

SPECIFICATIONS

ALPS' ;

MODEL: RK2711210A03
(10kMN)

Spec. No.:

Sample No.: E 3 8 7 0 3 5 2 0

RECEIPT STATUS

RECEIVED

By Date

Signature

Name

Title

ALPS
ALPS ELECTRIC CO., LTD.

Head Office

1-7, Yukigaya-otsuka-cho, Ota-ku, Tokyo, 145-8501 Japan
Phone, +81(3)3726-1211

DSG'D

APP'D

ENG. DEPT. DIVISION

Sales

24678

Q1003#03A (EA)

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

1. THIS SPECIFICATIONS APPLY TO RK2711210A03 POTENTIOMETER.

2. CONTENTS OF THIS SPECIFICATIONS.

W38703520

K272A004D

3. MARKING

- MARKING ON ALL UNITS

DATE CODE, RESIST. VALUE, TAPER

4. REMARKS

- FURNISH PACKAGE

NUT:1 WASHER:1

- NOTES

• Silver printed patterns are coated with carbon as a protection against sulphuration.

- CAUTION

Regardless of the suggested applications of these products being introduced in the specifications, when using them for equipment and devices requiring a high degree of safety, respective manufacturers will please preserve safety of the planned equipment and devices by providing necessary protective circuits and redundancy circuits and reconfirm if safety is being duly preserved.

Products being introduced in the specifications have been designed and manufactured for applications to ordinary electronic equipment and devices such as the AV equipment, electric home appliances, office machines and communications equipment. Consequently, when employing these products for applications requiring a high degree of safety and reliability such as the medical equipment, aviation and aircraft equipment, space equipment and burglar alarm equipment, the using manufacturers will please thoroughly study the proprieties of these products for the planned applications.

Although we are exerting our best efforts to maintain the quality of these products, we cannot guarantee that they will never cause short circuiting and open circuitry. Therefore, when designing an equipment or device with which the priority is given to the safety, you will please carefully study the influences to the whole equipment of a single function failure of Potentiometers and Encoders in advance to make out a fail-safe design providing.

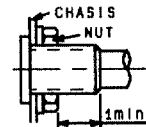
SPECIFICATIONS

ELECTRICAL

1. Total resistance : 10k Ω (nominal) \pm 20%
2. Rated voltage :
The rated voltage shall be the voltage of A.C. (commercial frequency, effective value)
Maximum working voltage : 30V A.C. (A.C. Use only)
3. Resistance taper : MN
4. Residual resistance between terminals
between terminal 1 & 2 : 20 Ω max.
between terminal 2 & 3 : 20 Ω max.
5. Sliding noise : Less than 47mV (Measured by JIS C 6443.)
(Neglected a impulsive noise at the c.w. and c.c.w. ends of position)
6. Insuration resistance : More than 100M Ω at 500V D.C.
7. Withstand voltage : 500V A.C. for 1 minute.
8. Gang error : Not specified.

MECHANICAL

1. Total rotational angle : 300° \pm 3°
2. Rotational torque : 8~35mN·m (Rotational speed : 60°/sec)
3. Stopper strength : No damage with an application of 0.9N·m.
4. Resistance to soldering heat :
After soldering (Less than 350 $^{\circ}$ C and within 5sec), there shall be no evidence of poor contact between resistance element and terminal, or any physical damages as a result of the test.
5. Bushing nut tightening strength : Tightening torque
to be no greater than 1.5N·m.
Pay attention to tighten as shown right.
Otherwise, the strength may not be assured.
6. Push / pull strength :
No damages with an application of push or pull force 100N for 10 sec.



ENDURANCE

1. Rotational life : 15,000 cycles min.

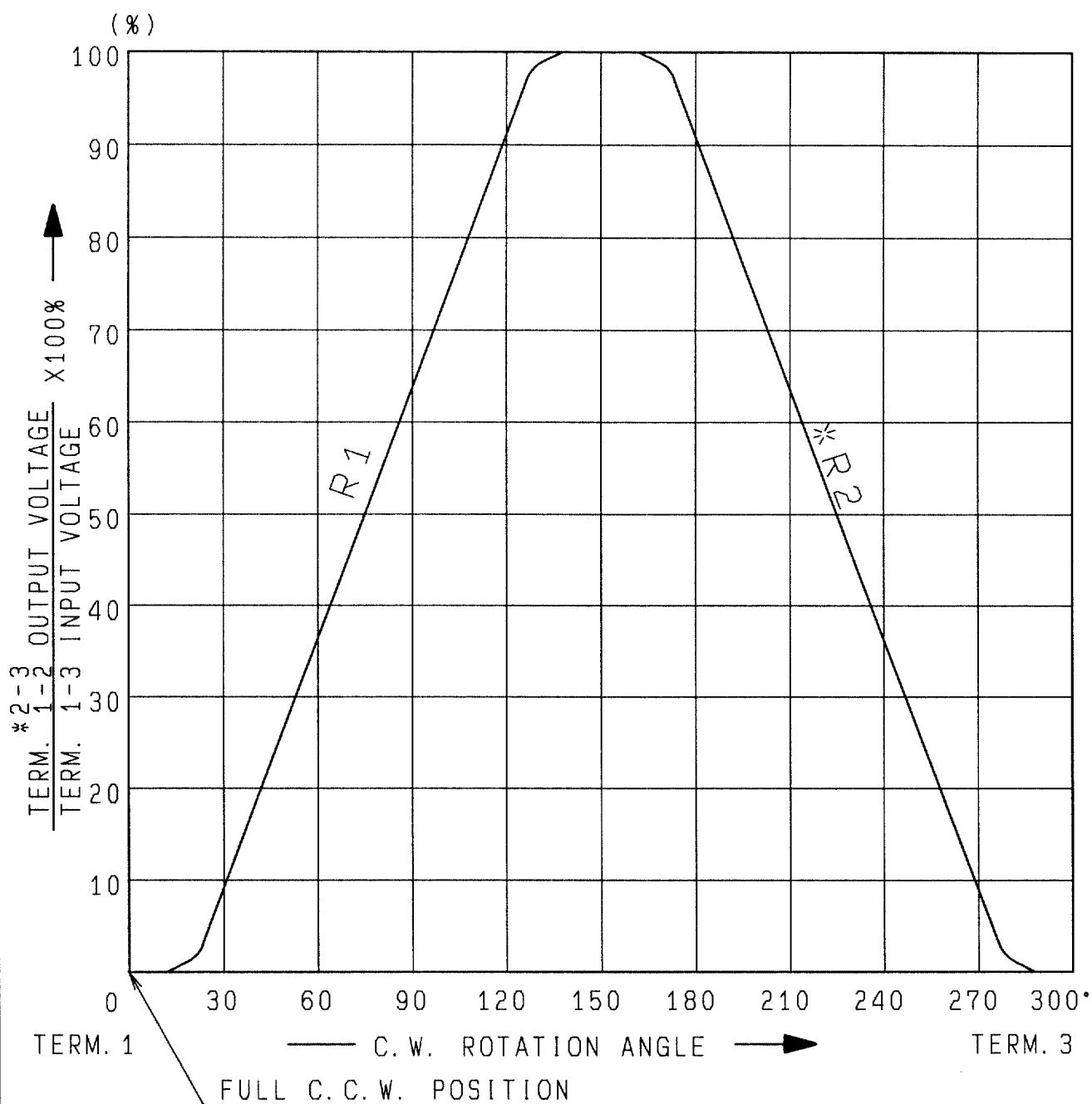
NOTE

1. The items except above mentioned items shall meet or exceed JIS C 6443.
2. This type is protected against sulfides.

					ALPS ELECTRIC CO., LTD.				
					APPD.	CHKD.	DSGD.	TITLE	
					NOV. 22, '96	NOV. 22, '96	NOV. 22, '96	W38703520	
					Y. Yoshioka	M. Satoh	Y. Saitoh	DOCUMENT NO.	
SYMB	DATE	APPD	CHKD	DSGD					



ALPS ELECTRIC CO., LTD
1-7 YUKIGAYA OTSUKA-CHO OTA-KU TOKYO JAPAN



(R1)
AT $75 \pm 3^\circ \text{C.W.}$ SHAFT ROTATION FROM FULL C.C.W. POSITION VOLTAGE PERCENT SHALL FALL WITHIN THE LIMITS OF 40-60 PERCENT.
AT 150° ----- 98-100%

*(R2)
AT $75 \pm 3^\circ \text{C.C.W.}$ SHAFT ROTATION FROM FULL C.W. POSITION VOLTAGE PERCENT SHALL FALL WITHIN THE LIMITS OF 40-60 PERCENT.
AT 150° ----- 98-100%

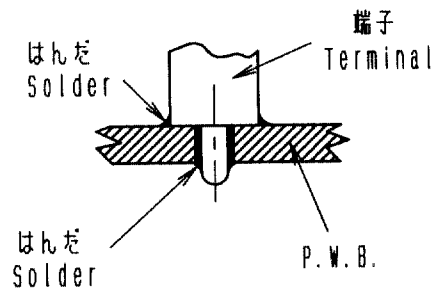
					APPD.	CHKD.	DSGD.	NAME
					Nov. 15, '96		Nov. 15, '96	RESISTANCE TAPER (MN)
					S. Sasaki		K. Tuunan	DOCUMENT NO.
SYMB	DATE	APPD	CHKD	DSGD				W38703520

< はんだ付け時の注意事項 >

図のようにP.W.B.の上面に はんだ付けをする配線は、
お避け下さい。

Caution for soldering

Please avoid soldering on upper surface of P.W.B. as shown



					ALPS ELECTRIC CO., LTD.			
					APPD.	CHKD.	DSGD.	TITLE
					Apr. 14, '93	Apr. 14, '93	Apr. 14, '93	W38703520
					S. Aizawa	M. Satoh	Y. Saitoh	DOCUMENT NO.
SYMB	DATE	APPD	CHKD	DSGD				