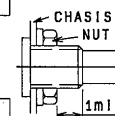


ELECTRICAL	(R 1 , R 2)	(R 3)
1. Total resistance:	5 k Ω \pm 20%	10 k Ω \pm 20%
2. Rated power:	0.05W	0.05W
3. Rated voltage:	See "4K09-16".	
4. Resistance taper:	See (K09-D05)	See (K09-B01)
5. Tap position:		
6. Tap resistance between terminals:		
7. Residual resistance between terminals:	1&2, 2&3 : 20 Ω max.	1&2, 2&3 : 20 Ω max.
8. Sliding noise : (Measured by JIS C 6443)	Less than 100mV (Except click point)	Less than 100mV (Except click point)
9. Insulation resistance :	More than 100 M Ω at 250V D.C.	
10. Withstand voltage:	300V A.C. for 1 minute.	
11. Gang error :	3 dB max. at click position.	
12. switch rating:(Resistor load)		
13. Switch contact resistance:		
14. Circuit:		
MECHANICAL	(R 1 - R 3)	
1. Total rotational angle :	300° \pm 5°	
2. Rotational torque: (Rotational speed 60°/sec.)	2-25 mN·m	
3. Stopper strength :	No damages with an application of 0.5 N·m.	
4. Resistance to soldering heat :	See "5K09-3". *Pay attention otherwise the strength may not be assured.	
5. Bushing nut tightening strength :	(M6) Tightening torque to be no greater than 1.2N·m. (M7) Tightening torque to be no greater than 1 N·m.	
6. Push / pull strength :	No damages with an application of Push or pull force 100N for 10 sec.	
7. Shaft wobble :	See "5K09-3".	
8. Operation force of shaft:		
9. Click position :	150° \pm 5°	
10. Click torque:	Rotational torque + (3-20)mN·m	
11. Rotation play at the click position:	5° max.	
12. Contact arrangement :		
13. Switching angle :		
14. Switch operation torque :		
ENDURANCE		
1. Rotational life :	More than 15,000 cycles.	
NOTES 1. The items except above mentioned items shall meet or exceed JIS C 6443. 2. This type is protected against sulfides. 3. Operating temperature range : -20°C to +70°C 4. Storage temperature range : -40°C to +85°C		
4K09-16 5K09-3		
ALPS ELECTRIC CO., LTD.		
TITLE	SPECIFICATIONS	
SYMB	DATE	APPD
CHKD	DSGD	APPD.
DSGD	2012-12-18	S. MIZOBUCHI
CHKD.	DSGD.	NO.
Y. ASHIDA	2012-12-18	5K093T0020



Rated voltage :

The rated voltage shall be the voltage of D.C. or A.C. (commercial frequency ,effective value)corresponding to the rated power (dissipation),and be obtained from the following formula. When the obtained rated voltage exceeds the maximum working voltage given in the following, however, the maximum working voltage of the following shall be the rated voltage:

$$E = \sqrt{P \cdot R} \text{ (V)}$$

- Where
- E : Rated voltage (V)
 - P : Rated power (dissipation) (W)
 - R : Nominal total resistance (Ω)

Maximum working voltage : 50V A.C. 10V D.C.

Resistance to soldering heat

There shall be no evidence of poor contact between resistance element and terminals. or any physical damages as a result of soldering.

• Dip soldering

- Condition of soldering :
Soldering shall be certified with following condition.
- Substrate to be soldered :
Copper clad laminated phenol board in one surface of 1.6 mm thickness.
- Solder flux :
Flux of 0.82 specific weight in bubbling type solder fluxcoating apparatus shall be used and bubbling surface height shall be defined substantially as half thickness of substrate.
- Flux shall not flow up on substrate surface.
- Preheating :
Surface temperature of substrate shall be settled within 100 C in 2 minutes.
- Dip soldering :
To be performed in 260±5°C. 5±1 sec.

Please use the above process only 1 or 2 times.

• Manual soldering

- To be performed in 3 seconds within $\Delta 350^{\circ}\text{C}$ ~~300°C~~.

Shaft wobble

The shaft play of the both sides with the moment 50mN·m ~~(500gf·cm)~~ at the point of 30 mm from the mounting surface shall assure followings. (If the shaft length is less than 30 mm, the value shall be calculated proportionally.)

Bushing length	Wobble
5 mm	0.6 mmp - p max.
7 mm	0.5 mmp - p max.
10 mm min.	0.4 mmp - p max.



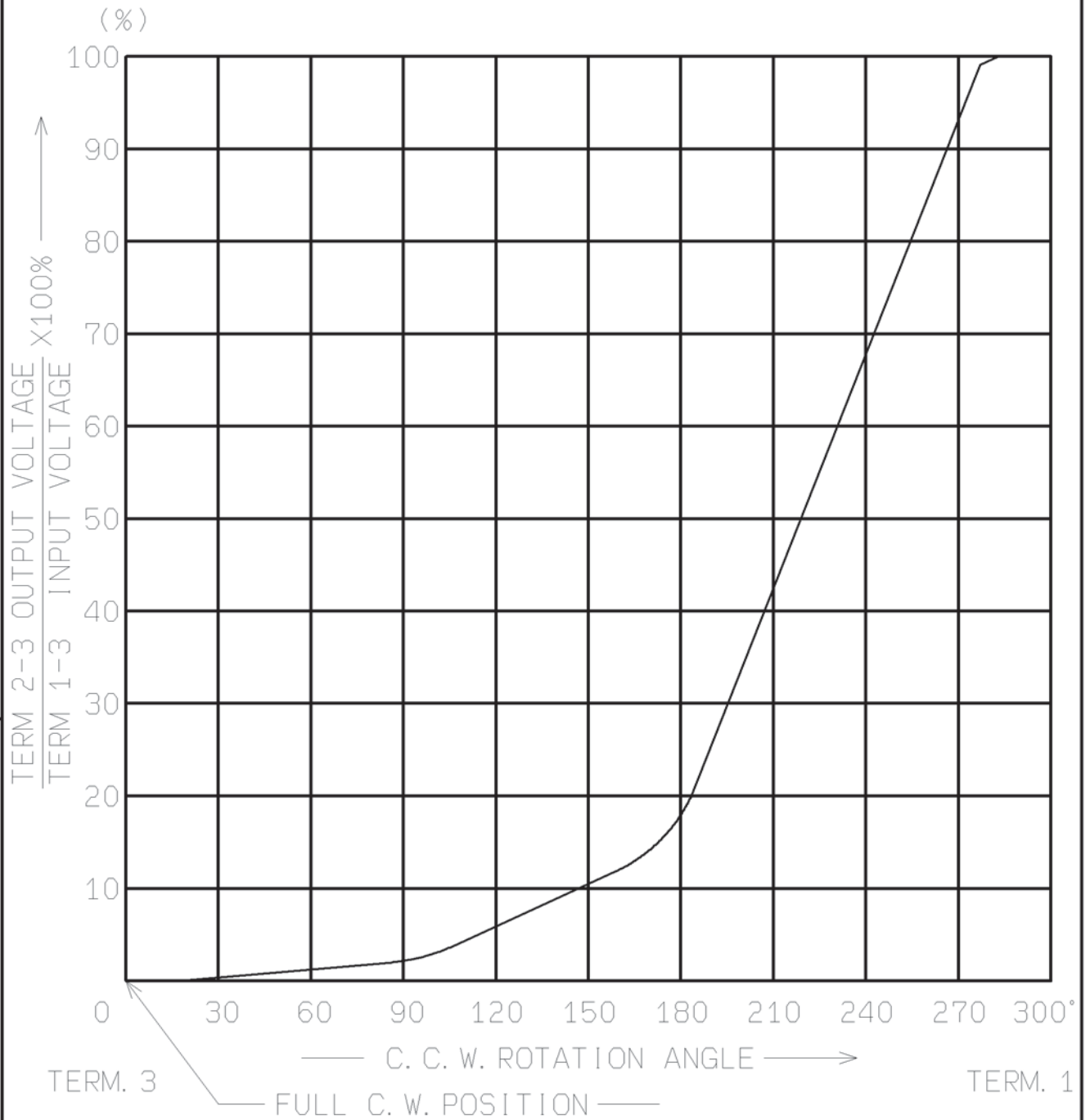
ALPSALPINE CO.,LTD.				
APPD.	CHKD.	DSGD.	TITLE	
Jun. 15 '93	Jun. 14 '93	Jun 12 '93		
DOCUMENT NO.				
4K09-16 (/)				
SYMB.	DATE	APPD.	CHKD.	DSGD.
		M. Endo	R. Kusaka	



APPD.	CHKD.	DSGD.	NAME	
1-ENGI		1-ENGI		
99.8.03		99.8.03		
DOCUMENT NO.				
5K09-3				
SYMB.	DATE	APPD.	CHKD.	DSGD.
△1	Oct. 30 '03	Y.S.		
△1	Sep. 9 '99	Y.S.		



ALPSALPINE CO., LTD.

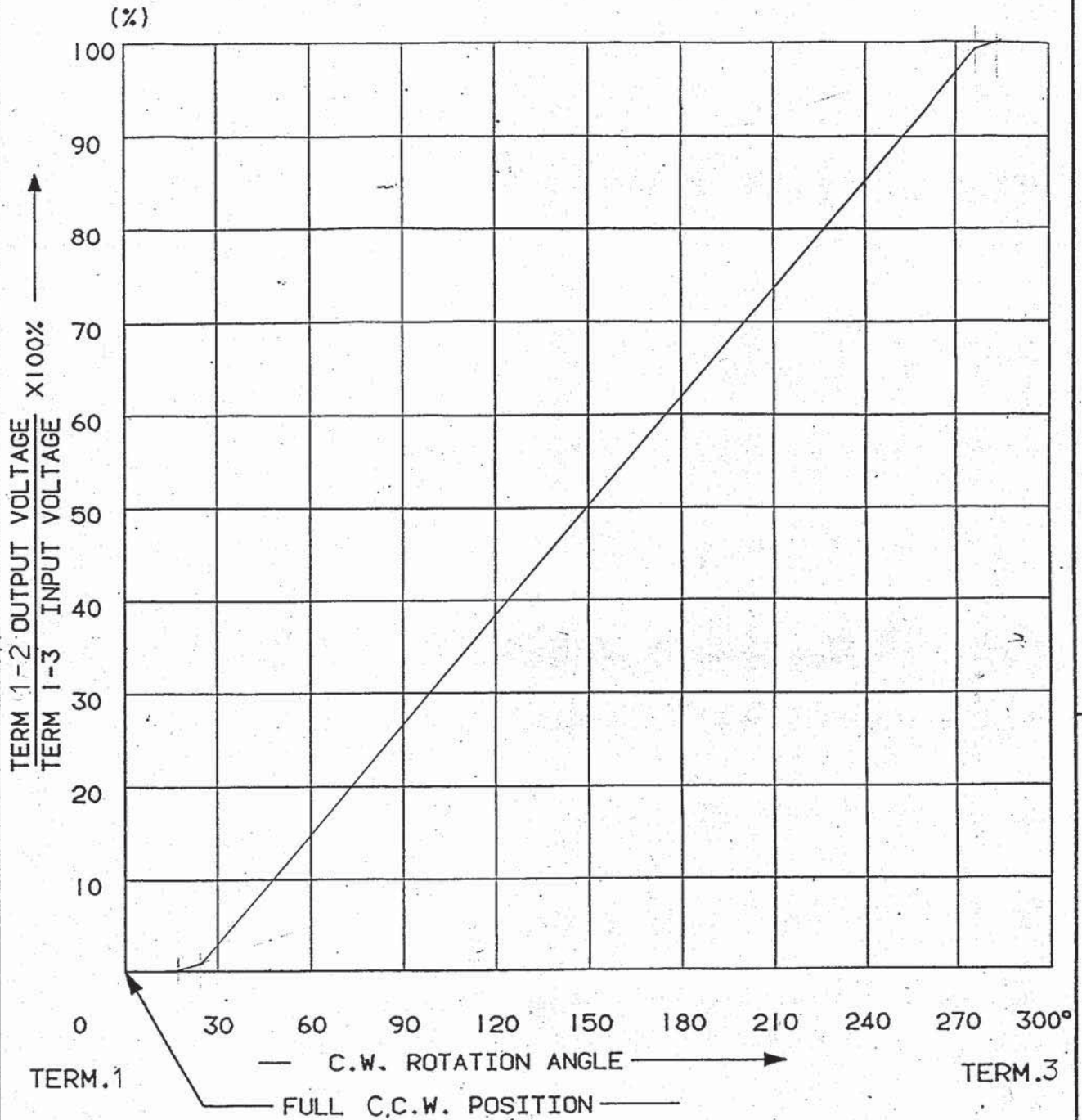


AT 150° C. C. W. SHAFT ROTATION FROM FULL C. W. POSITION, VOLTAGE PERCENT SHALL FALL WITHIN THE LIMITS OF 6~15 PERCENT.

					DSGD. K. SUZUKI Jul. 08' 94		TITLE RESISTANCE TAPER
					CHKD. S. SASAKI Jul. 08' 94		DOCUMENT NO. K09-D05
ORG	' 83-12-08	T. S	K. M	K. S	APPD. Y. OHNO Jul. 08' 94	UNIT m m	
SYMB	DATE	APPD	CHKD	DSGD			

Confidential

ALPSALPINE CO., LTD.



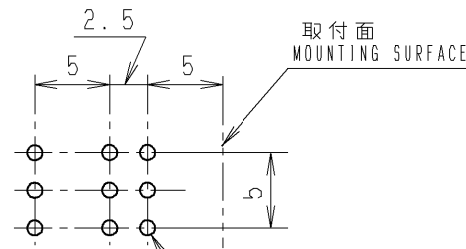
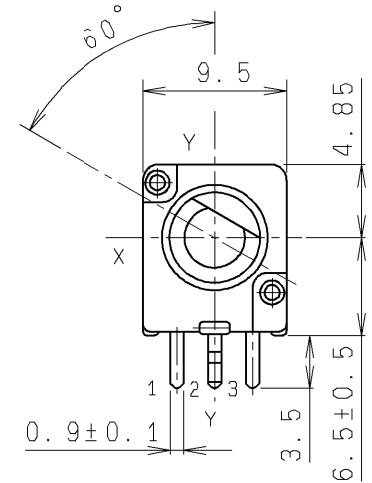
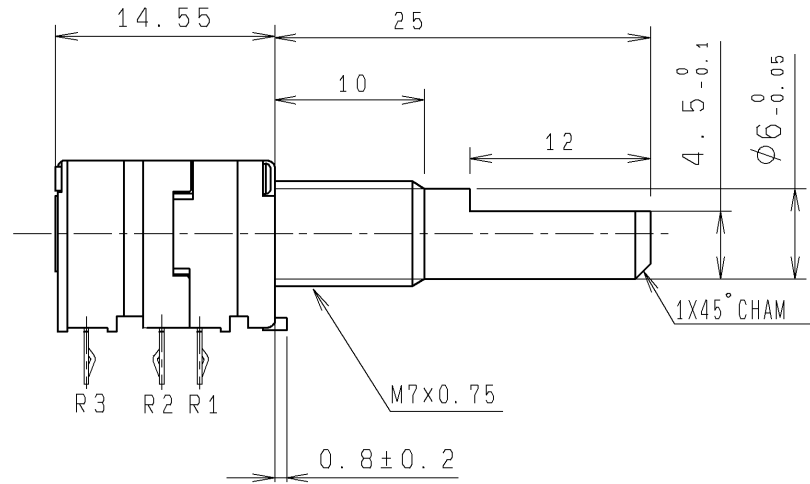
AT 150° C.W. SHAFT ROTATION FROM FULL C.C.W. POSITION, VOLTAGE PERCENT SHALL FALL WITHIN THE LIMITS OF 40 - 60 PERCENT.

B7-7
TONE
⑤

					DSGD K. Suzuki Jul. 25 '95	SCALE	
					CHKD. N. Saschi Jul. 25 '95		TITLE RESISTANCE TAPER
Original	84-05-28	k, M	k, S	k, S	APPD. Y. Ohno Jul. 25 '95	UNIT m m	DOCUMENT NO. K09-B01
SYMB	DATE	APPD	CHKD	DSGD			

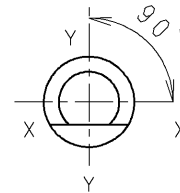
Confidential

NOTES
 BUSHING MATERIAL ----- ZINC ALLOY DIE CASTING
 SHAFT MATERIAL ----- ALUMINUM



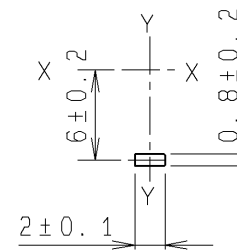
端子取付穴寸法図(挿入側より見た図)
 (許容差±0.1)
 MOUNTING HOLE DETAIL
 (TOLERANCE±0.1)
 VIEWED FROM
 MOUNTING SIDE

9-φ1^{+0.1} 穴 HOLES



センタークリック位置に
 おける軸角度詳細図
 SHAFT SHOWN IN
 CENTER CLICK POSITION

シャフト止め詳細図
 LOCATING LUG DETAIL



上図は軸を反時計方向に
 回し切った状態を示す。
 SHAFT SHOWN IN
 FULL CCW POSITION

ALPS ELECTRIC CO., LTD.

推定なま部分の許容差 TOLERANCES UNLESS OTHERWISE SPEC	
L ≤ 10	±0.3
10 < L < 100	±0.5
100 ≤ L	±0.8
角度 ANGULAR DIMENSION	±5°

SYMB	DATE	APPD	CHKD	DSGD

DSGN. Y. ASHIDA 2012-12-07	SCALE X
CHKD.	TITLE 9形1軸3連VR組立図
APPD. S. MIZOBUCHI 2012-12-07	UNIT m m
	DOCUMENT NO. K093T0A0F

5.8g

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[GA2L040S103UC](#) [GS1G044P103UA](#) [GS1N048P103UA](#) [GS1T032S103UA](#) [A43-1500](#) [A43-20K](#) [A47-200K](#) [A4720K](#) [132-2-0-202](#)
[RK14K1220-F25-C0-A103](#) [RK14K1220F25C0C104](#) [RK14K1220-F25-C1-B103](#) [14910FBGLFY00103KA](#) [14910AABHSX10103KA](#)
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[3217-02 \(MW22S-3217-500\)](#) [GS1G052F103UA-A](#) [GS1G056S502UA](#)