Customer :

No.

Date :

Attention :

Your ref. No. :

Your Part No. :

SPECIFICATIONS

ALPS' ;

MODEL:	See REMARKS
Fig.No. :	See REMARKS
Spec. No. :	See REMARKS
Sample No. :	See REMARKS

REMARKS:
MARKING
ON ALL UNITS

DATE CODE
RESIST, VALUE
TRADE MARK
JAPAN

FURNISH PACKAGE

NUT	1
WASHER	1

Your Part No.	MODEL	Fig.No. / Spec.No.	Sample No.
180762	RK40312A0 (10K x 2) log	K402A003N / 4K402A0236	G4205781M
180763	RK40312A0 (100K x 2) log	K402A003N / 4K402A-22	GG205803M
180764	RK40312A0 (10K x 2) Lin	K402A003N / 4K402A0225	G4205811M
180765	RK40312A0 (50K x 2) Lin	K402A003N / 4K402A-24	G4205838M

ausverkauft sold out ausverkauft sold out

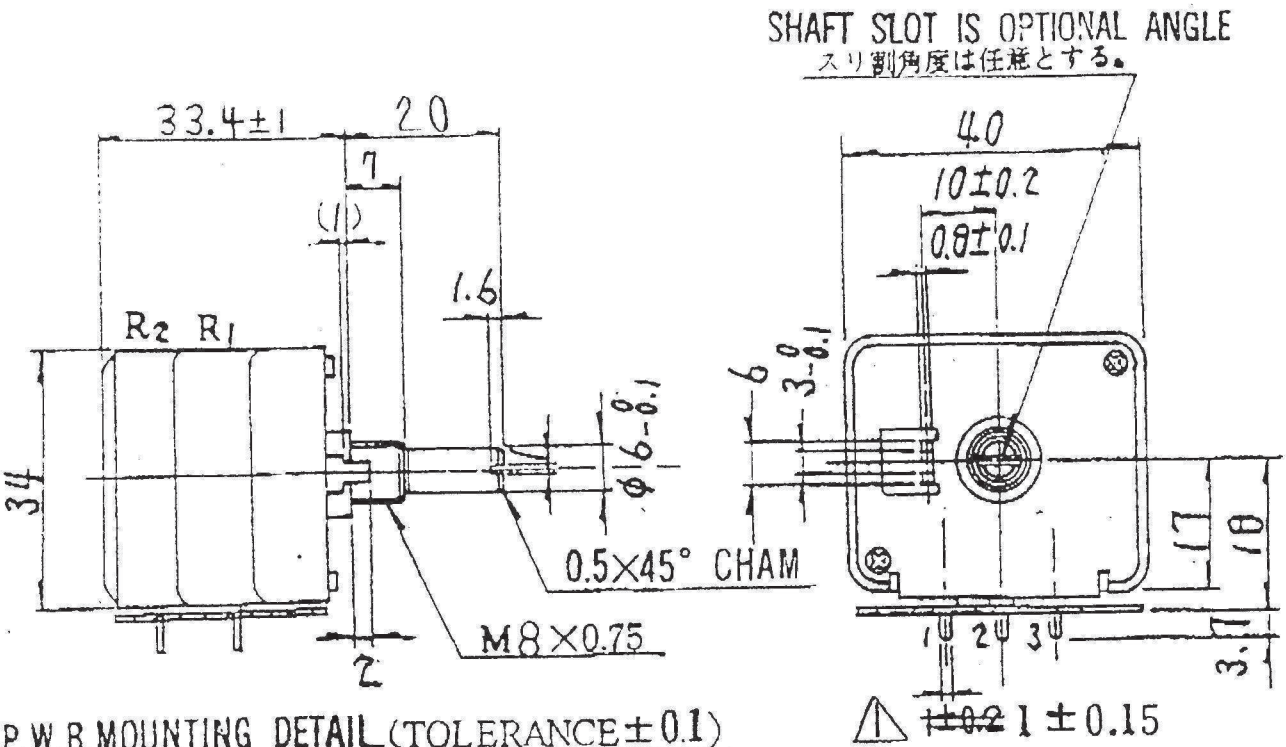
ALPS ELECTRIC CO., LTD.

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

DSG'D T. Yamaguchi

APP'D K. Sato.

ENG. DEPT. WAKUYA DIVISION

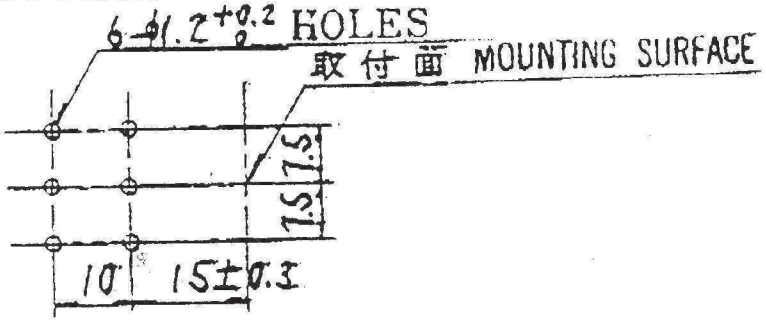


P.W.B.MOUNTING DETAIL (TOLERANCE±0.1)

VIEWED FROM MOUNTING SIDE

取付穴寸法図

許容差±0.1



許容差の指定なき寸法の公差 TOLERANCES UNLESS OTHERWISE SPEC	
BASIC DIMENSIONS	TOLERANCE
L≦10	±0.3
10<L<100	±0.5
100≦L	±0.8
角度 ANGULAR DIMENSION	±5°

記号	年月日	変更	承認	設計
1	6.12.29	1.0		大和

記事	名称	材料	寸法	処理

三角法	単位 mm	尺度	300°±3°
承認	照査	設計 58.12.-8 佐々木	図名 1軸2連ニューデテントVR組立図
			図番 K402A003N

(A4・図面用紙)

CLASS NO.	TITLE	
	SPECIFICATIONS	

ELECTRICAL

1. Total resistance tolerance: 10 KΩ ± 20%
2. Maximum operating voltage: 30V A.C.
3. Attenuation level:

Measuring point(°)	0	15	30	45	60	75	90	105	120	135	150
Att. level(-dB)	∞	50	42	36	31	27	24	22	20	18	16
Measuring point(°)	165	180	195	210	225	240	255	270	285	300	
Att. level(-dB)	14	12	10	8	6	5	4	3	1.5	0	

But allowable angle on each measuring point is ± 3°

Taper value tolerance: ± 2 dB max. between 50 dB ~ 0dB

4. Maximum attenuation level on full C.C.W. position: 80 dB min.
5. Insertion loss on full C.W. position: 0.1dB max.
6. Slider noise: less than 47mV(by method of JIS C 6443)
7. Insulation resistance: 100MΩ min. at 500V D.C.
8. Dielectric strength: Units shall be designed to withstand 500V A.C. 50Hz R.M.S. between resistance element and case for a period of one minute without damage or arcing
9. Gang error :

1.5dB max.between − 60 dB ~ 0 dB

Measure between R1&R2

(term 1-2 output V / term 1-3 in out V)

MECHANICAL

1. Total rotation angle: 300° ± 3°
2. Operation torque: 100 ~ 400gf·cm(at 20°C)
3. Shaft end stop strength: 12kgf·cm min.
4. Resistance to soldering heat: After soldering (less than 350°C and quicker than 5 seconds)there shall be no evidence of poor contact between resistance element and terminals, or any physical damages as a result of the test

5. Nut tightening strength: 15kgf·cm min.
(Pay attention as following otherwise the strength may not be assured)
6. Shaft push / pull strength:
No damages with an application of push or pull force 10kgf for 10 seconds

DURABILITY PERFORMANCE

CLASS NO. | TITLE

SPECIFICATIONS

ELECTRICAL

1. Total resistance tolerance: Nominal ± 20% (1) (50KΩ ≦ R ≦ 250KΩ)
2. Maximum operating voltage: 30V A.C.
3. Attenuation level:

Measuring point(°)	0	15	30	45	60	75	90	105	120	135	150
Att.level(-dB)	∞	54	40	32	25	20	15	12	9	7	6
Measuring point(°)	165	180	195	210	225	240	255	270	285	300	
Att.level(-dB)	5	4	3.5	3	2.5	2	1.5	1	0.5	0	

But allowable angle on each measuring point is ± 3°

Taper value tolerance: ± 3dB max. between - 54 dB less than - 20 dB
± 2dB max. between - 20 dB ~ 0 dB

4. Maximum attenuation level on full C.C.W. position:

Nominal total resistance value	Max.att.level
Ra ≧ 100 KΩ	100dB min.
100KΩ > Ra ≧ 50 KΩ	90dB min.

(2) ~~-54dB ~ -20dB~~ ~~-15dB ~ 0dB~~

5. Insertion loss on full C.W. position: 0.1dB max.
6. Slider noise: less than 47mV(by method of JIS C 6443)
7. Insulation resistance: 100MΩ min. at 500V D.C.
8. Dielectric strength: Units shall be designed to withstand 500V A.C. 50Hz R.M.S. between resistance element and case for a period of one minute without damage or arcing
9. Gang error : 1.5dB max. between -60dB less than -40dB
   1dB max. between -40dB ~ 0dB

MECHANICAL

1. Total rotation angle: 300° ± 3°
2. Operation torque: 100 ~ 400gf·cm (at 20°C)
3. Shaft end stop strength: 12kgf·cm min.
4. Resistance to soldering heat: After soldering (less than 350°C and quicker than 5 seconds) there shall be no evidence of poor contact between resistance element and terminals, or any physical damages as a result of the test
5. Nut tightening strength: 15kgf·cm min.
   (Pay attention as following otherwise the strength may not be assured)

6. Shaft push / pull strength:
   No damages with an application of push or pull force 10kgf for 10 seconds

DURABILITY PERFORMANCE

1. Rotation life: 15000 cycles min.

NOTE

1. Other performance characteristics shall conform to JIS C 6443, Variable Carbon Resistors for General Use.

					ALPS ELECTRIC CO., LTD.	
					APPD.	CHKD.	DSGD.	TITLE
(2)	1	NOV 1988	K.S	T.Y		Jul 31 '89		2B
(1)	1				T.Y			DOCUMENT NO.

SPECIFICATIONS

ELECTRICAL

1. Total resistance tolerance: 10 KΩ ± 20%
2. Maximum operating voltage: 30V A.C.
3. Attenuation level:

Measuring point(°)	0	15	30	45	60	75	90	105	120	135	150
Att. level(-dB)	∞	(54)	40	32	25	20	15	12	9	7	6
Measuring point(°)	165	180	195	210	225	240	255	270	285	300	
Att. level(-dB)	5	4	3.5	3	2.5	2	1.5	1	0.5	0	

But allowable angle on each measuring point is ± 3°

Taper value tolerance: ± 3 dB max. between -40 dB ~ -20 dB

± 2 dB max. between -15 dB ~ 0 dB

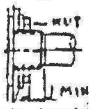
4. Maximum attenuation level on full C.C.W. position: 80 dB min.
5. Insertion loss on full C.W. position: 0.1dB max.
6. Slider noise: less than 47mV(by method of JIS C 6443)
7. Insulation resistance: 100MΩ min. at 500V D.C.
8. Dielectric strength: Units shall be designed to withstand 500V A.C. 50Hz R.M.S. between resistance element and case for a period of one minute without damage or arcing
8. Gang error :

1.5 dB max. between -40 dB ~ 0dB

Measure between R1&R2 (term 1-2 output V / term 1-3 in out V)

MECHANICAL

1. Total rotation angle: 300° ± 3°
2. Operation torque: 100 ~ 400gf·cm(at 20°C)
3. Shaft end stop strength: 12kgf·cm min.
4. Resistance to soldering heat: After soldering (less than 350°C and quicker than 5 seconds)there shall be no evidence of poor contact between resistance element and terminals, or any physical damages as a result of the test
5. Nut tightening strength: 15kgf·cm min.



(Pay attention as following otherwise the strength may not be assured)

6. Shaft push / pull strength:
No damages with an application of push or pull force 10kgf for 10 seconds

DURABILITY PERFORMANCE

1. Rotation life: 15000 cycles min.

NOTE

1. Other performance characteristics shall conform to JIS C 6443, Variable Carbon Resistors for General Use.

SYMB.	DATE	APPD.	CHKD.	DSGD.

ALPS ELECTRIC CO., LTD.

APP'D	CHKD.	DSGD.	TITLE
			2B

DOCUMENT NO. 4K402A0225 (/)

CLASS.NO. | TITLE

SPECIFICATIONS

ELECTRICAL

1. Total resistance tolerance: Nominal ± 20% (5 0 KΩ ≦ R ≦ 2MΩ)
2. Maximum operating voltage: 30V A.C.
3. Attenuation level:

Measuring point(°)	0	15	30	45	60	75	90	105	120	135	150
Att.level(-dB)	∞	66	54	45	38	32	28	25	22	19	16
Measuring point(°)	165	180	195	210	225	240	255	270	285	300	
Att.level(-dB)	14	12	10	8	6	4	3	2	1	0	

But allowable angle on each measuring point is ± 3°
Taper value tolerance: ± 2dB max. between -66dB ~ 0dB

4. Maximum attenuation level on full C.C.W. position:

Nominal total resistance value	Max.att.level
Ra ≧ 100KΩ	100dB min.
100KΩ > Ra ≧ 50KΩ	90dB min.

5. Insertion loss on full C.W. position: 0.1dB max.
6. Slider noise: less than 47mV(by method of JIS C 6443)
7. Insulation resistance: 100MΩ min. at 500V D.C.
8. Dielectric strength: Units shall be designed to withstand 500V A.C. 50Hz R.M.S. between resistance element and case for a period of one minute without damage or arcing
9. Gang error : 1.5dB max. between -70dB less than -60dB
   1dB max. between -60dB ~ 0dB

Measure between R1&R2 (term 1-2 output V / term 1-3 in out V)

MECHANICAL

1. Total rotation angle: 300° ± 3°
2. Operation torque: 100 ~ 400gf·cm(at 20°C)
3. Shaft end stop strength: 12kgf·cm min.
4. Resistance to soldering heat: After soldering (less than 350°C and quicker than 5 seconds)there shall be no evidence of poor contact between resistance element and terminals, or any physical damages as a result of the test
5. Nut tightening strength: 15kgf·cm min.
   (Pay attention as following otherwise the strength may not be assured)

6. Shaft push / pull strength:
   No damages with an application of push or pull force 10kgf for 10 seconds

DURABILITY PERFORMANCE

1. Rotation life: 15000 cycles min.

NOTE

1. Other performance characteristics shall conform to JIS C 6443, Variable Carbon Resistors for General Use.

SYMB	DATE	APPD.	CHKD.	DSGD.

ALPS ELECTRIC CO., LTD.

APPD.	CHKD.	DSGD.	TITLE
Oct.26'87		Oct.23'87 T. Kawasaki	

DOCUMENT NO. 4K402A-22 (1)

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