Panasonic

To: _____

No.: SAR-05-1878

Date: 29TH. DEC '05

☐ ISSUED (新規)
☑ REVISED (変更) R6

SPECIFICATION
納入仕様書

Title	VARIABLE RESISTOR
Panasonic Part No.	EVN D8A A03 B**
Customer Part No.	
Model	

Remarks: Please destroy the previous copy due to revisions as indicate △6

"This product has not been manufactured with any ozone depleting chemical controlled under the Montreal Protocol"
「本製品は、モントリオール議定書で規制されているオゾン層破壊物質（ODC）を製造工程で一切使用していません」

Customer's Approval Requested　　LEAD FREE

Please return this copy as a certification of your approval.

Checked by : _____ Date: _____

Approved by: _____ Date: _____

パナソニックエレクトロニックデバイスマレーシア（株）
PANASONIC ELECTRONIC DEVICES MALAYSIA SDN. BHD.
(PEDMA)
(Company Reg. No. 13394-M)
No.1, JALAN SS 8/4, SUNGAI WAY FREE INDUSTRIAL ZONE,
47300 PETALING JAYA, SELANGOR, MALAYSIA.
P.O.BOX 8126, 46872 PETALING JAYA.

REVISION ITEM LIST

△6

PANASONIC PART NO. : EVN D8A A03 B**
CUSTOMER : AVINDA

DATE	REV.CODE	REVISION ITEM	REMARKS	REVISED	CHECKED
24.12.99	△1	Resistance value → Added	Page 4/7	JARIAH	WOON P.N.WONG
12.6.00	△2	Dimension changed: 0.6 → 0.8	Standardization Page 1/7	JARIAH	WOON P.N.WONG
24.5.02	△3	Strengthen material, lock paint →Added	Standardization Page 6/7	JARIAH	WOON P.N.WONG
21.5.03	△4	EVN D8A A03 BE4 & BS3 → Added	Page 4/7	JARIAH	WOON P.N.WONG
10.12.03	△5	Lead free: Added .Solder condition	Page 2/7	JARIAH	WOON P.N.WONG
	△	.Whisker test (termianl) .Country origin.	Page 3/7		
	△	.Sectional drawing	Page 7/7		
29.12.05	△6	P.C.B. thickness → Added	Page 1/7	JARIAH	
	△	Precaution: When adjusting the back knob →Added	Page 1/7		
	△	Unit: gf. cm → Omitted	Page 2/7		
	△	Content soldering condition → Change	Page 2/7		
	△	Content for Power rating & Maximum Operating Voltage → Change	Page 2/7		
	△	Normal condition room temp. for a period of 6 months → Added	Page 3/7		
	△	Storage condition →Added	Page 5/7		
	△	Ag plating → Omitted	Page 7/7		
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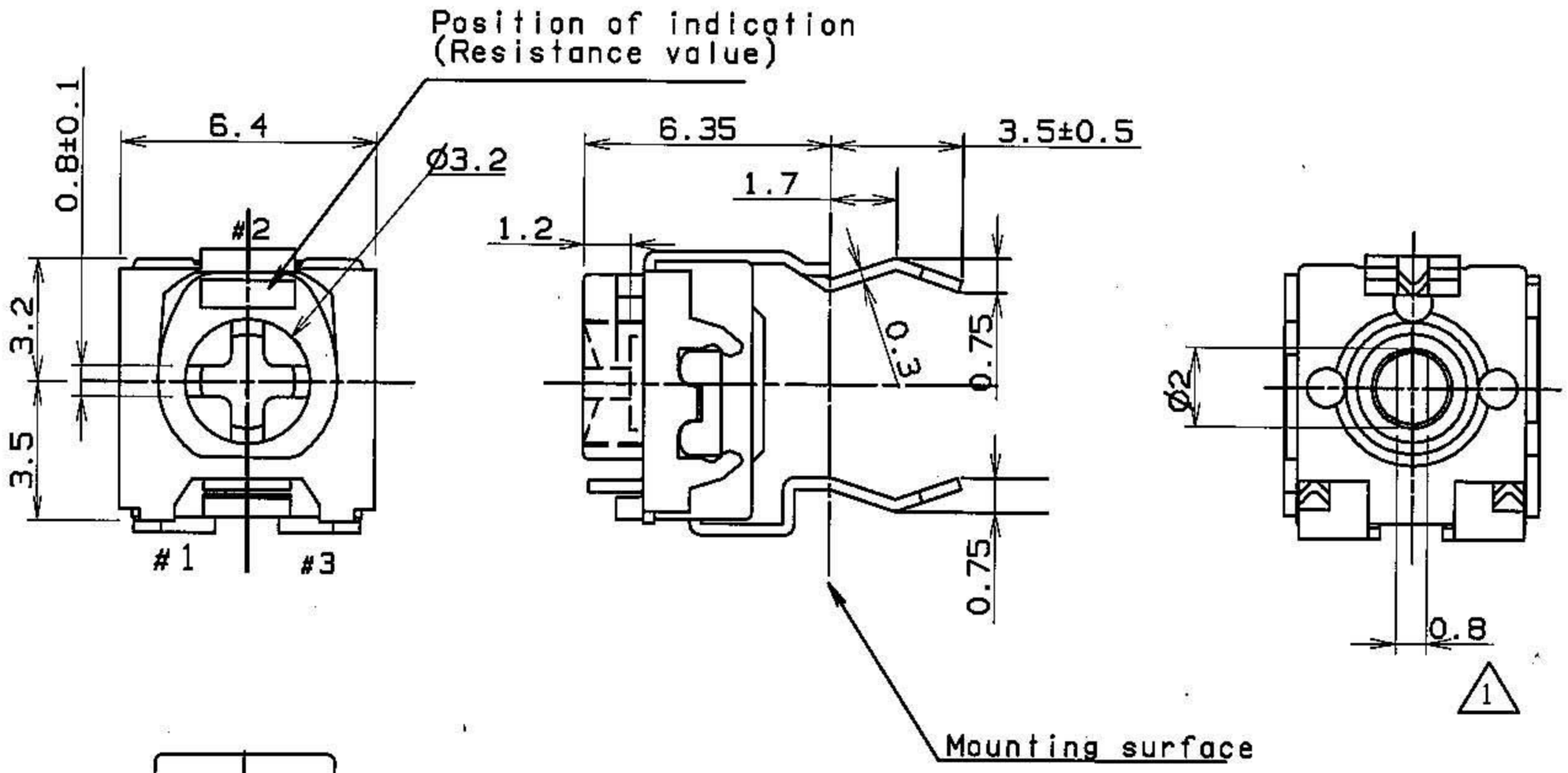
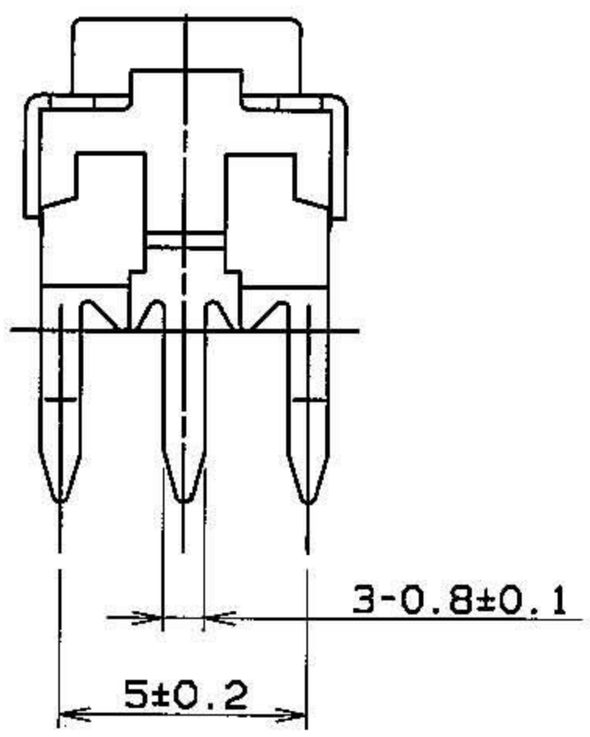
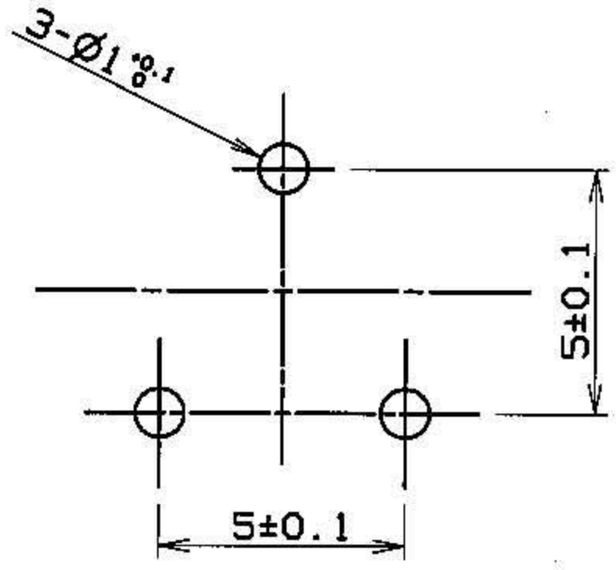
THIRD ANGLE PROJECTION | ALL DIMENSIONS ARE IN MILLIMETERS. | DO NOT SCALE DRAWING

General dimension toleranace : ± 0.3
( )Dimensions is reference only.



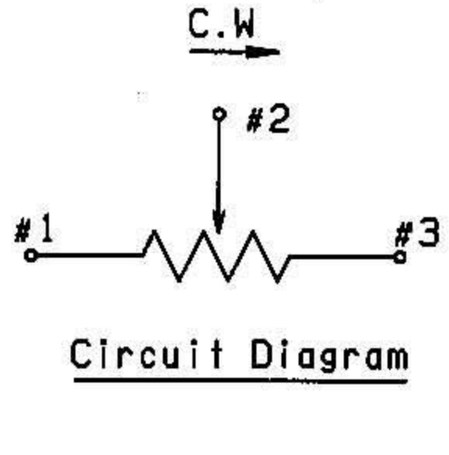




6 P.C.B Piercing Plan
(View from mounting side)
(P.C.B thickness t=1.6)

Knob colour: ORANGE

LEAD FREE



Circuit Diagram

Precaution 6
When adjusting the back knob:
When the P.C.B hole is open, please take measures to prevent flux from entering

DESIGN	JARIAH	6.10.99	NAME VARIABLE RESISTOR			
DRAW	JARIAH	6.10.99		ISSUE	REVISIONS	DATE
CHECK	P.N.WONG	8.10.99	TYPE NO. EVN D8A A03 B**	DRAWING NO. RV-M-EVN-90136		1/7
APPROVAL	WOON	11.10.99				

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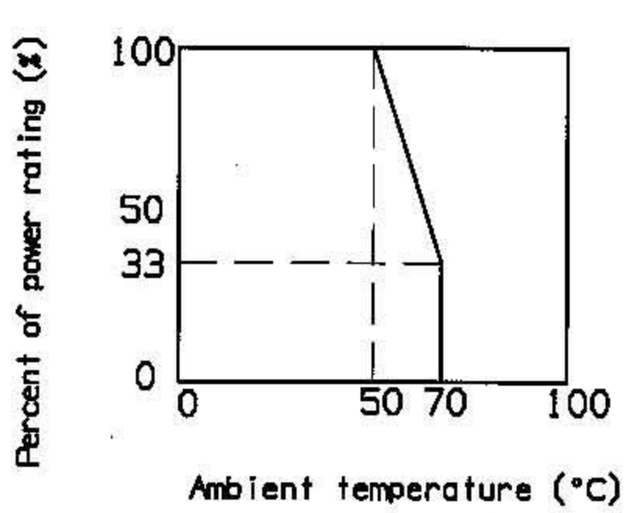
Specifications :

1) Nominal total resistance value : 100Ω ~ 1MΩ
2) Tolerance of nominal total resistance : ± 30 %
3) Rotation angle : 210° ± 20°
4) Rotation torque : 2 ~ 25 mN.m
5) Rotation stop strength : Knob side ..... 75 mN.m min.
   △6 P.C board side ... 35 mN.m min.
6) Soldering condition (Lead free solder) △5 : Test condition:-
   △6 1) Pre-heat 120 ± 10°C for 2 min.
   Solder temperature 260 ± 5°C
   Immersion time 5 ± 1 sec.
   △6 2) Soldering iron shall be allowed 350°± 10°C
   Immersion time 3(+1~0) sec.
   (Allowed 2 time but cool down first before conducting again)
   △6 Maximum resistance variation from initial: ± 5%
   . Over 90% of the immersion surface shall be covered with solder.
   (use alloy composition 3% Ag. 0.5% Cu, balance Sn for test condition.)
7) Taper : Linear. Our code "B".
8) Power rating & Maximum Operating Voltage △6 : 0.1 (W) at 50°C max.
   Voltage rating $E=\sqrt{P.R}$
   E: Rated voltage (V)
   P: Power rating (W)
   R: Nominal total resistance (Ω)
   When the rated voltage exeeds the maximum opearing voltage, the maximum operating voltage shall be 50V maximum.

The rated voltage should be max. operating voltage when E shall exceed max. operating voltage shown in the table.



9) Minimum resistance value

Nominal total resistance	1kΩ max.	1kΩ to 2kΩ	Over 2kΩ
Minimum resistance	30Ω max.	60Ω max.	200Ω max.or 3% of N.T.R

10) Temperature characteristics : Subject the sample potentiometer to 70 ± 3°C environment in a test chamber without load for a period of 5 hours.

Resistance variation after test
R ≤ 100kΩ ..... Within +0%, -15%
R > 100kΩ ..... Within +0%, -20%

11) Humidity test : Subject the sample potentiometer to a test chamber environment controlled to 90 - 95% RH and 40 ± 2°C temperature for a period of 350 ± 10 hours and then, out of chamber, leave it in normal atmospheric condition for 1.5 hours.

Resistance variation after test
R ≤ 100kΩ ..... Within +15%, -0%
R > 100kΩ ..... Within +20%, -0%

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APPROVAL	WOON	11.10.99				

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12) Load life in humidity test : Subject the sample potentiometer to a test chamber environment controlled to 90-95%RH and 40±2°C temperature under an intermittent load of rated voltage for a total of 350 ± 10 hours. The cycling rate is defined as a 90-minutes load application and a 30-minutes interruption.
Then, out of chamber, leave it in normal atmospheric condition of room temperature and humidity without load for not less than 5 hours.

Resistance variation after test : R ≦ 100kΩ ..... Within ±15%
R > 100kΩ ..... Within ±20%

13) Long time heat test(250 ± 12h) : Expose the sample potentiometer to a 70 ± 3°C environment in a test chamber, leave it in normal atmospheric condition for 1.5 hours.

Resistance variation after test : Within +5%, -15%

14) Rotation life test : The potentiometer shall be rotated without load over 90% of total effective rotation for a total of 100 ± 10 cycles.

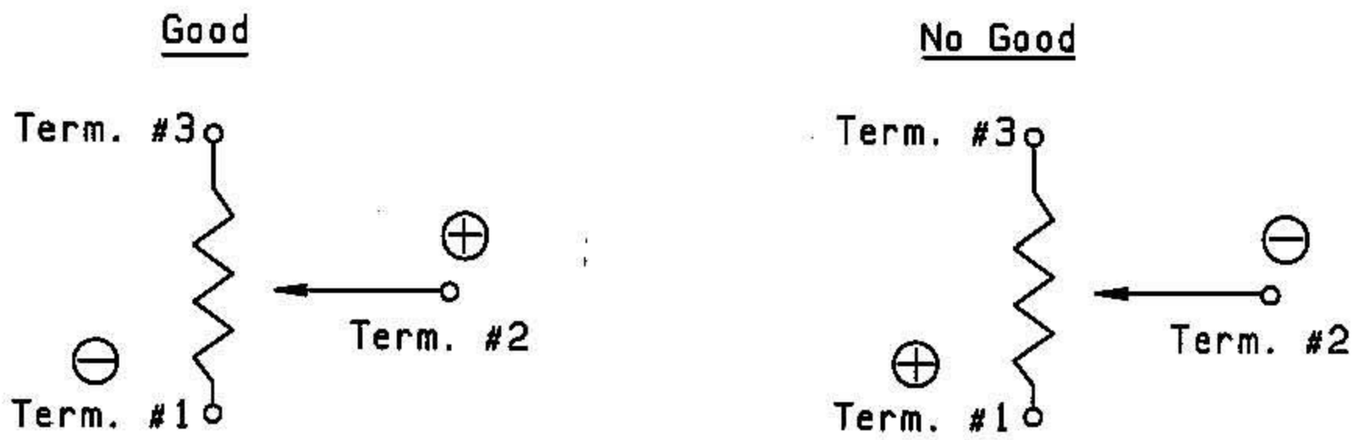
Resistance variation after test : Within ±15%

15) Whisker test (terminal) △5 : . Test shall be done in condition of mounting on P.C.B. (t=1.6mm)
Humidity +60 ± 2°C, RH 90-95% for 350 ± 10hrs
Outbreak of whisker length after test 200 μm max.

△6 . Normal condition room temperature for a period of 6 months minimum, whisker outbreak distance 200μm maximum.

Application notes :

In application where a direct current is allowed the potentiometer's contact wiper, there could be problem of anodized resistance element with an unusual increase in resistance value. In such a case, good practice is to connect the negative line to the resistance element and the positive line to the contact wiper.



Notes :

Marking : - Our identification mark Ⓜ.
- Nominal resistance value.
- Date code

△5 Country origin : Malaysia

DESIGN	JARIAH	6.10.99	NAME VARIABLE RESISTOR			
DRAW	JARIAH	6.10.99		ISSUE	REVISIONS	DATE
CHECK	P.N.WONG	8.10.99	TYPE NO. EVN D8A A03 B**	DRAWING NO. RV-M-EVN-90136		3/7
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Nominal total resistance : Customer's part no. is packing case only

No.	Customer's Part No.	⚠6 Panasonic Part No.	Nominal total resistance (Ω)	Remarks
1.		EVN D8A A03 B53	5k	
2.		EVN D8A A03 B55	500k	
3.		EVN D8A A03 B13	1k	
4.		EVN D8A A03 B14	10k	
5.		EVN D8A A03 B15	100k	
6.		EVN D8A A03 B23	2k	
7.		EVN D8A A03 B24	20k	
8.		EVN D8A A03 B25	200k	
9.		EVN D8A A03 B33	3k	
10.		EVN D8A A03 B52	500	
11.		EVN D8A A03 B54	50k	
12.		EVN D8A A03 BQ4	47k	
13.		EVN D8A A03 B34	30k	
14.		EVN D8A A03 BY5	330k	
15.		EVN D8A A03 BQ3	4.7k	
16.		EVN D8A A03 B16	1M	
17.		EVN D8A A03 BE4	22k	⚠4
18.		EVN D8A A03 BS3	6.8k	⚠4
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DESIGN	JARIAH	6.10.99	NAME VARIABLE RESISTOR		
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Prohibitions and precautions for handling.

1) Prohibited items on fire and smoking

. Absolutely aviod use of potentiometer beyond its rated range because doing so may cause a fire. If misuse or abnormal use may result in conditions in which the potentiometer is used out of its rated range, take proper measures such as current interruption using a protective circuit.

. The grade of nonflammability for resin used in potentiometers is "94HB," which is based on UL94 Standards (flammability test for plastic materials). Prohibit use in a location where a spreading fire may be generated or prepare against a spreading fire.

2) For use in equipment for which safety requested

. Although care is taken to ensure potentiometer quality, inferior characteristics, short circuit, open circuits are some problems that might be generated. To design a set which places maximum emphasis on safety, review the affect of any single fault of a potentiometer in advance and preform virtually fail-safe design to ensure maximum safety by;

. Preparing a protective circuit or a protective device to improve system safety, and

. Preparing a redundant circuit to improve system safety so that the single fault of a potentiometer does not cause a dangerous situation.

3) Reliability

. The item designed mainly corresponds to JIS (Japan Industry Standard) on the reliability conditions.

. Operation temperature range: -20°C to +70°C
. Preservative temperature range: -40°C to +75°C

Storage condition : △6

. Do not store products under high temperature and humidity or in a location where corrosive gas may be generated.

. Store at room temperature and humidity in a packed condition and use them within 6 months time maximum.

. If unpacked products must be stored as inventory, store them in a plastic bag to keep out air.

Handling of approval specification.

. This specification form specify this item only. Please perform your approval test in the actual application conditions beforehand.

. Please return one copy of this specification form with your approval stamp or signature to us.
Otherwise, it might be happened that the item cannot be supplied.

. Writings in this specification form are subject to change through precautions.

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1. Subject:-

△1 Strengthen material, lock paint

2. Design caution

In case of using adhesive, wax (parafin), lock paint, there are possiblity of contact unstable due to these material flow in splash ect.

3. Explanation and handling condition.

1. Basically please dont use adhesive, wax, lock paint etc.
   Please discuss to us first in case of using.

2. If usage is unavoidable:
   1) If adhesive is not dry enough, there are possibility of corrosive accour. Please be confirm.
   2) Please use adhesive type that doesn't effecting metal and plastic.
   3) Please make sure that adhesive, wax(parafin), lock paint etc. do not flow in or splash into Variable Resistor product.
   4) In the case of preset volume, the following lock paint is proposed.

      Part name: RTV Rubber
      Part no. : KE347 or KE348
      Maker name: Shintetsu Chamical Industry

DESIGN	JARIAH	24.5.02	NAME			
DRAW	JARIAH	24.5.02	VARIABLE RESISTOR	ISSUE	REVISIONS	DATE
CHECK	P.N.WONG	24.05.02	TYPE NO.	DRAWING NO.		
APPROVAL	WOON	28.05.02	EVN D8A A03 B**	RV-M-EVN-90136		6/7

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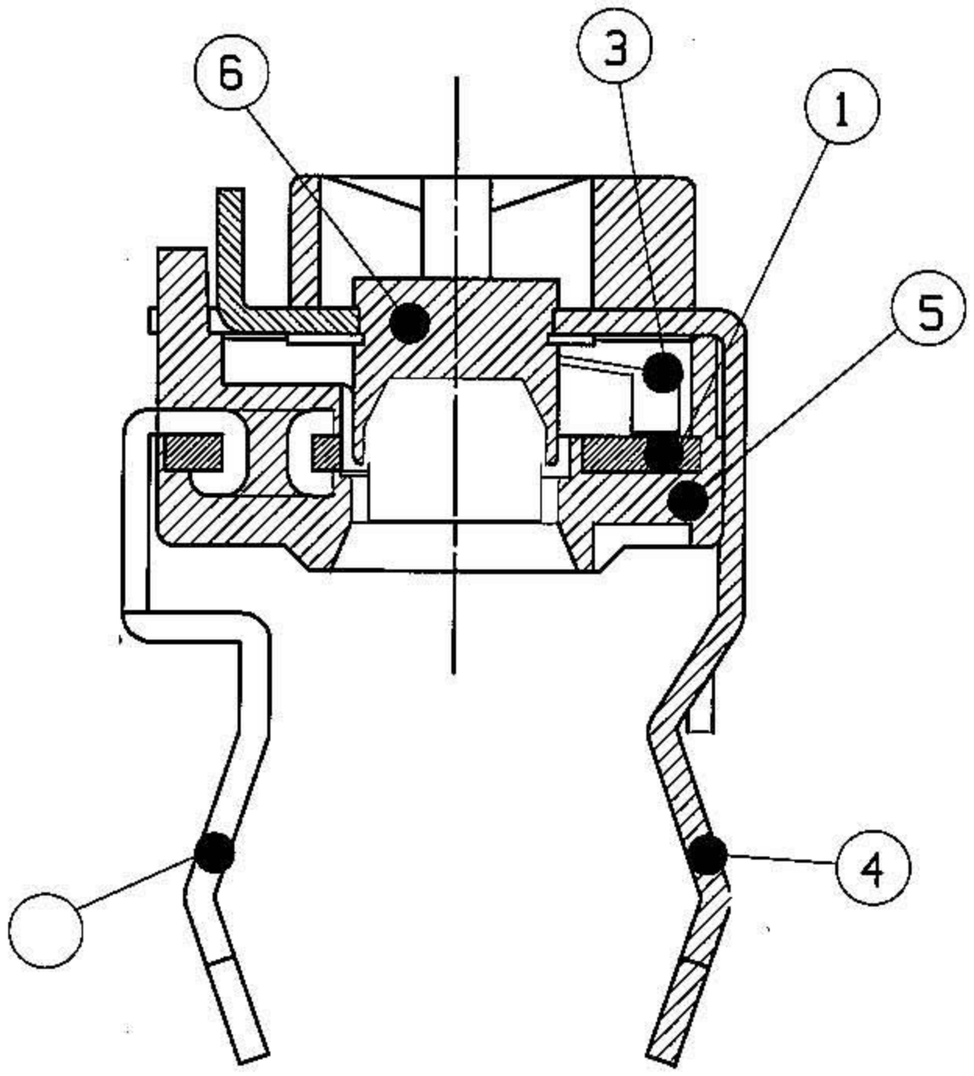
SECTIONAL DRAWING △5



PART LIST :

No.	Parts name	Material	Finishing
1	Resistance element	Phenol laminated plate	
2	Outer terminal	Cold rolled steel sheet	Tin plating(Sn 100%)
3	Brush	Nickel silver sheet	△6
4	Center terminal	Cold rolled steel sheet	Tin plating(Sn 100%)
5	Case	P.B.T	
6	Knob	P.B.T	
	Oil	Silicone oil	

NAME VARIABLE RESISTOR			
	ISSUE	REVISIONS	DATE
TYPE NO. EVN D8A A03 B**	DRAWING NO. RV-M-EVN-90136		7/7

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