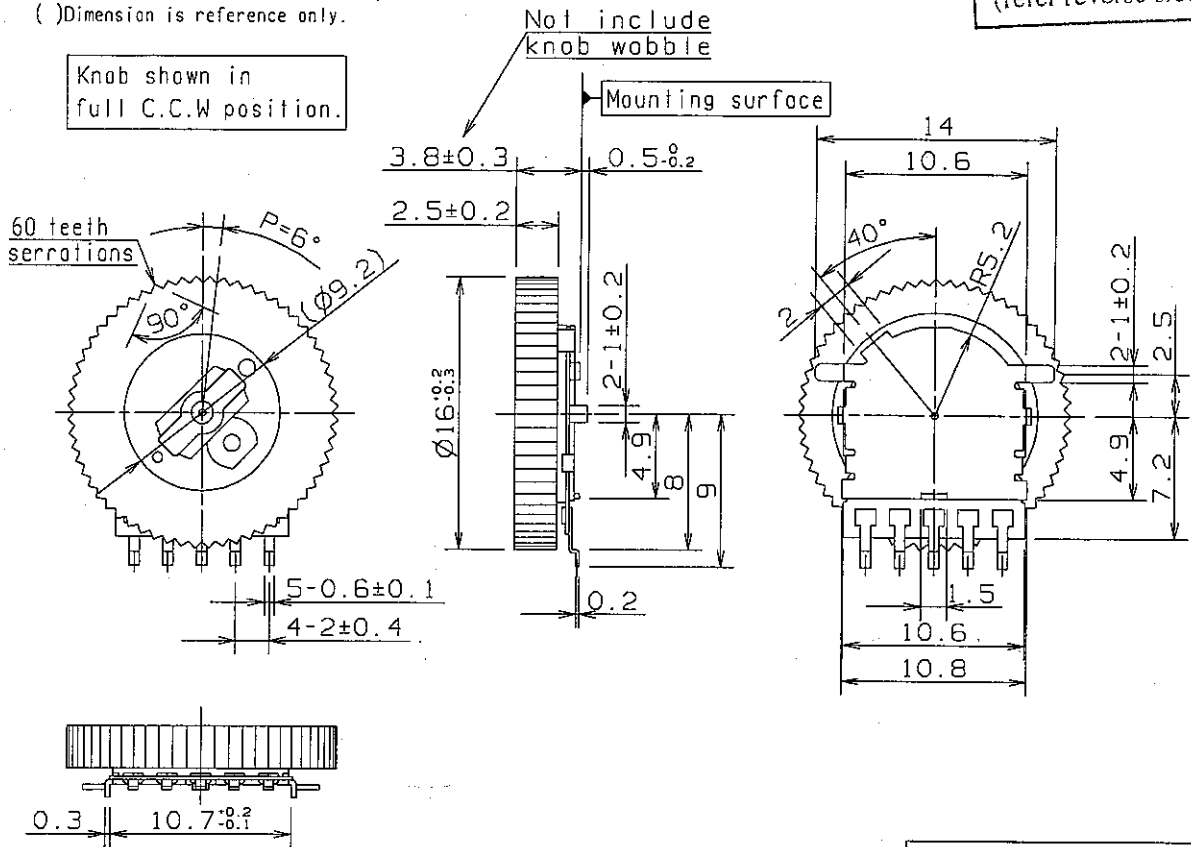


3rd Angle System Unit : mm Drawing Not to Scale

Tolerance unless otherwise specified ± 0.5
 () Dimension is reference only.

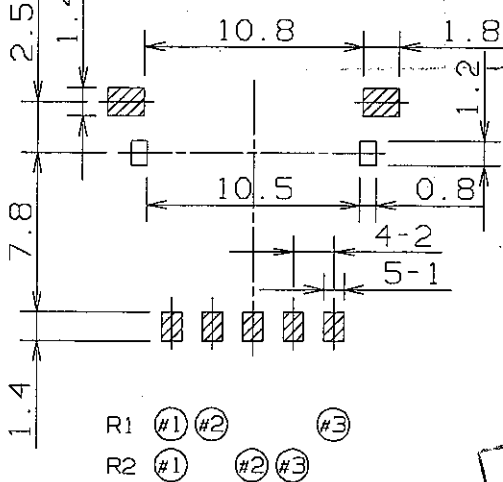
Adopted Document
 (refer reverse side)



Knob color : BLACK

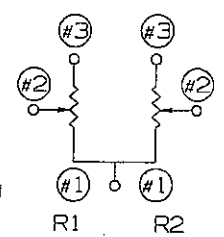
P.W.B. piercing plan.(Tolerance: ± 0.1)

(View from mounting side)
 (Recommended land pattern)



26 MAR 2001
 TSCM, TSCM, TSCM

Element circuit diagram



REFERENCE ONLY
 EMCD - TECHNICAL
 THIS DOCUMENT WILL
 BE UPDATED
 NON CONTROL DOCUMENT

DESIGN	Y. Sakamoto	Mar 26, 2001	NAME	VARIABLE RESISTOR	REVISIONS	DATE
DRAW			TYPE NO.	EVU TUA B16-B54		
CHECK	A. Inamoto	Mar 26, 2001	DRAWING NO.	RV-H- 02443		
APPROVAL	Cf. Oama	Mar 26, 2001				1 / 5

Scope :

- Control shown is designed in reference with our specifications.
- Also see samples attached.

Mechanical Specifications :

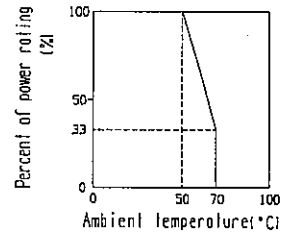
- Knob rotation angle : $270^\circ \pm 5^\circ$
- Knob stopper strength : 60.0 mN·m min. (State of mounting a volume on the P.W.B.)
- Knob rotation torque : 0.5 mN·m to 10.0 mN·m (At 5 °C to 35 °C)
(Knob shall be rotated at -10 °C)
- Knob wobble : Inclination of the knob shall be ± 0.3 mm max.
(Without external force.)

Electrical Specifications :

*1

Resistor No.s	Nominal total res. value and tolerance	Taper (Our code)	Minimum resistance between terminals		Rated power (W)	Rated Voltage(V)	Noise level (mV)
			#1 & #2	#2 & #3			
R1	50k $\Omega \pm 30\%$	B	10 Ω max.	25 Ω max.	0.01	AC 20	100max.
R2	50k $\Omega \pm 30\%$	B	10 Ω max.	25 Ω max.	0.01	AC 20	100max.

Power Derating Curve



*1 For potentiometers operated in ambient temperatures above 50 °C, Power Rating shall be derated in accordance with the Power Derating Curve.

- Taper : Output voltage ratio is 40 % to 60 % at $135^\circ \pm 3^\circ$ position. Percentage of input voltage between terminal 1 and 3 versus output voltage between terminal 1 and 2.
- Tracking : An AC voltage of 2 V at 1 kHz shall be applied between terminals 1 and 3 of each resistor. The ratio of the out-put between terminals 1 and 2 to the applied voltage shall be within 3 dB from -20 dB to 0 dB within 3 dB from -40 dB to -20 dB regarding the resistor as
- Insulation resistance : 100 M Ω min. (At DC 100 V)
- Withstand voltage : AC 100 V , 1 min min.

Durability :

- Rotation life : 10000 T min.
- Soldering heat : No intermittent and breakdown after soldering.
In case of hand soldering
... 260 °C max. , 3 s max. , 30 W max.
In case of reflow soldering
... Refer to the clause of Soldering conditions. (Only 1 time)

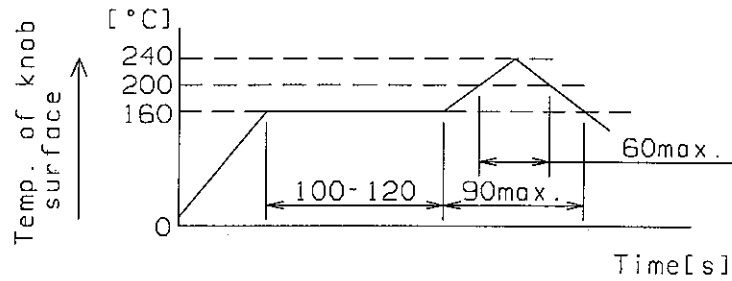
Notes :

- Marking :
 - Our identification mark **(M)**
 - Nominal resistance value
 - Taper code and Nominal resistance value · Date code
→ (Last 3 characters of our part No.)
 - (Packing case only)
- Caution :
 - Do not use in D C voltage condition.
 - Please give consideration for providing construction to hold knob in order to prevent knob from side force.
 - Please don't apply excessive stress to terminals to avoid electric intermittence.
 - Please don't place the products in a location where corrosive gas may be generated.
- Others : Correspond to JIS-C-6448 requirements.

REFERENCE ONLY

NAME	VARIABLE RESISTOR	ISSUE	EMCD - TECHNICAL RESISTORS	DATE
TYPE NO.	EVU TUA B16 B54	DRAWING NO.	THIS DOCUMENT WILL NOT BE UPDATED	2 / 5

Soldering conditions :

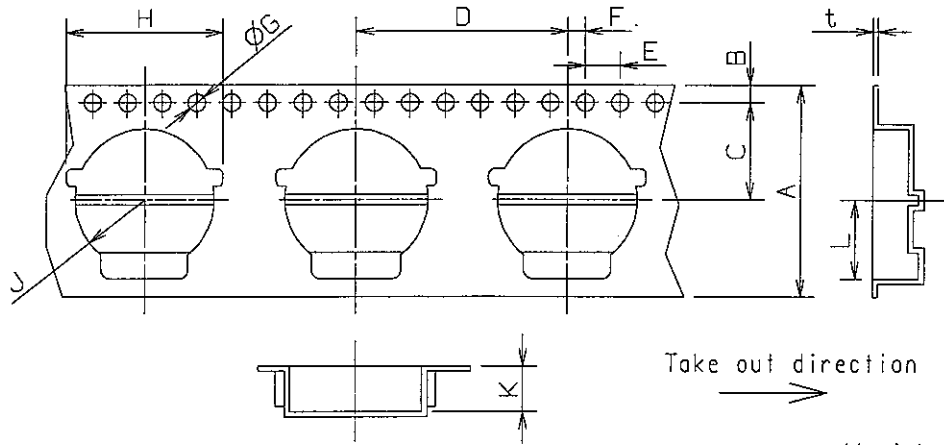


- Please solder mounting metal certainly.
- Re-soldering by soldering iron shall be allowed under 260 °C max. , 3 s max. , 1 time. Soldering iron for re-soldering have to be 30 W max.
- Please avoid washing after soldering, it may cause electrical contact failure.
- However the reflow temperature curve is the same as above profile, real thermal stress for part(s) and solderability are depend on each reflow system.
Please do enough pre-checking for the reflow conditions on your system.

REFERENCE ONLY
 EMCD - TECHNICAL
 THIS DOCUMENT WILL
 NOT BE UPDATED
 NON CONTROL DOCUMENT.

NAME	VARIABLE RESISTOR	ISSUE	REVISIONS	DATE
		DRAWING NO.		
TYPE NO.	EVU TUA B16 B54	RV-H- 02443	3 / 5	

Carrier tape



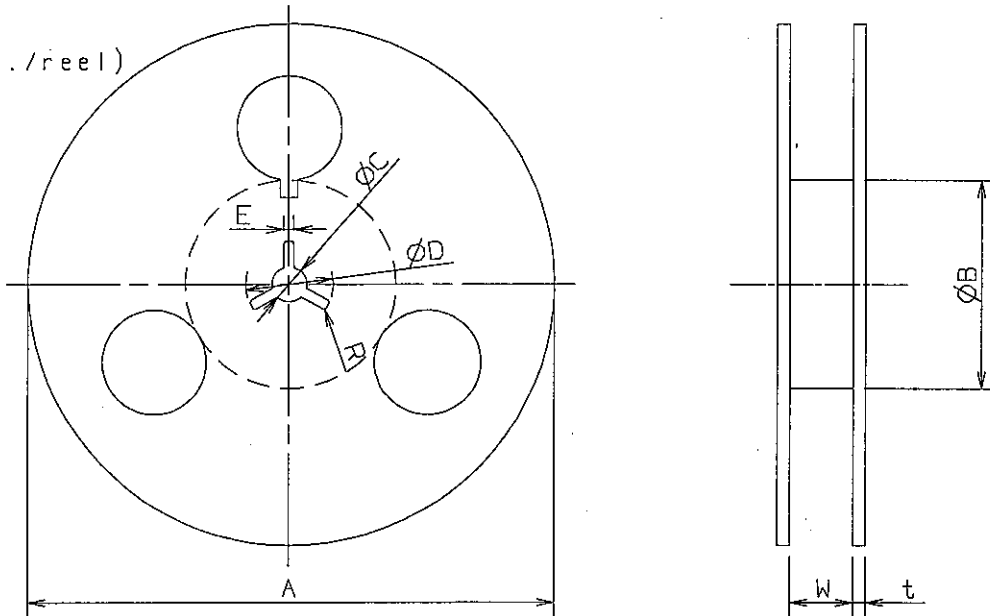
Unit : mm

A	B	C	D	E	F	G	H	J	K	L	t
±0.3	±0.2	±0.1	±0.2	±0.1	±0.1	±0.1	±0.3	±0.3	±0.3	±0.3	±0.1
24	1.75	11.5	24	4	2	1.5	18	8.1	4.8	9.3	0.4

* Top tape (sheet tape) strip strength : 0.3 N to 1.0 N

* Dimension "H" and "J" should be defined of the bottom face.

Reel
(800 pcs./reel)



Unit : mm

A	B	C	D	E	W	t	R
±2	Ø50min	±0.5	±1	±0.5	±2	±1	±0.5
Ø380		Ø13	Ø21	2	26	3	1

REFERENCE ONLY

NAME	VARIABLE RESISTOR	EMCD - TECHNICAL		DATE
		ISSUE	THIS DOCUMENT REVISIONS WILL	
TYPE NO.	EVU TUA B16 B54	DRAWING NOT BE UPDATED		4 / 5
		RV-H-02443	CONTROL DOCUMENT.	

Prohibitions and precautions for handling.

1) Prohibited items on fire and smoking

- Absolutely avoid use of a 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 circuits, 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: -10 °C to +70 °C
 - Preservative temperature range: -40 °C to +70 °C

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 can not be supplied.

The terms to return back us after receipt of this product specificatin shall be one year from the issued date. In case more than one year past, please request us new specifications again before ordering this product.

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

REFERENCE ONLY	
EMCO - TECHNICAL	
THIS DOCUMENT WILL	
ISSUE	NOT BE UPDATED REVISTONS
DRAWING NO.	DATE
NON CONTROL DOCUMENT.	

NAME	VARIABLE RESISTOR
TYPE NO.	EVU TUA B16 B54
RV-H- 02443	