Standard Type Slide Potentiometers

Japan Malaysia

Type: EWAK/EWAM/EWAN EWAP/EWAQ

■ Features

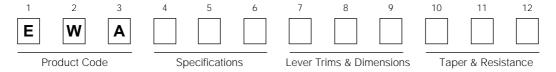
- Compact size and wave-soldering available
- A large variety: 15.0, 20.0, 30.0, 45.0 and 60.0 mm travel



■ Recommended Applications

- Audio Equipment
- Video Equipment
- Home Electrical Appliances
- Electronic Musical Instruments

■ Explanation of Part Numbers



■ Product Chart

Classification		Standard	Functions						
Travel	Single/Dual	part numbers	Metal lever	Mounting screw hole	Midpoint detent	Midpoint tap			
15.0 mm	Single	EWAKF	0	0	0	0			
15.0 111111	Dual	EWAKA	0	0	0	0			
20.0 mm	Single	EWAMF	0	0	0	0			
20.0 mm	Dual	EWAMA	0	0	0	0			
30.0 mm	Single	EWANF	0	0	0	0			
30.0 111111	Dual	EWANA	0	0	0	0			
4F.O. mm	Single	EWAPF	0	0	0	0			
45.0 mm	Dual	EWAPA	0	0	0	0			
400 mm	Single	EWAQF	0	0	0	0			
60.0 mm	Dual	EWAQA	0	0	0	0			

Notes:

■ Minimum Quantity/Packing Unit

	EWAK	100 pcs. (Tray Pack)	
	EWAM	100 pcs. (Tray Pack)	Lever length < 20.0 mm
Minimum Quantity/	EVVAIVI	50 pcs. (Tray Pack)	Lever length > 21.0 mm
•	EWAN	100 pcs. (Tray Pack)	
Packing Unit	EWAP	50 pcs. (Tray Pack)	
	EWAQ	50 pcs. (Tray Pack)	Lever length < 20.0 mm
	EWAQ	25 pcs. (Tray Pack)	Lever length > 21.0 mm
	EWAK	1000 pcs.	
	FWAM	1000 pcs.	Lever length < 20.0 mm
	EVVAIVI	500 pcs.	Lever length > 21.0 mm
Quantity/Carton	EWAN	1000 pcs.	
	EWAP	500 pcs.	
	EWAQ	500 pcs.	Lever length < 20.0 mm
	LVVAQ	250 pcs.	Lever length > 21.0 mm

^{1.} Standard part numbers are insulated lever types.

^{2.} O=available

■ Specifications

Electrical Specifications

1. Power Rating

Maximum load which can be continuously applied under 50 °C, is per following chart. For potentiometers operated in ambient temperatures above 50 °C, Power Rating shall be derated in accordance with the figure below.

Туре	15.0	mm	20.0	mm	30.0 mm		45.0 mm		60.0 mm	
		EWAKF EWA EWAKA EWA			EWANF EWANA		EWAPF EWAPA		EWAQF EWAQA	
Taper	Power	Max. operating voltage	Power	Max. operating voltage	Power	Max. operating voltage	Power	Max. operating voltage	Power	Max. operating voltage
В	0.03 W	75 V	0.04 W	150 V	0.06 W	150 V	0.10 W	200 V	0.12 W	200 V
A, C, D, G	0.02 W	75 V	0.02 W	150 V	0.03 W	150 V	0.05 W	150 V	0.06 W	200 V

2. Residual Resistance

The minimum resistance at each end of sliding position is the residual resistance (hop-off) (see Chart 1). The minimum resistance at tap position between tap terminal and contactor is the tap residual resistance (See Chart 2.).

Chart 1. Residual Resistance

Taper A, C, D				B, G										
		Terminal	1 to 2	2 to 3	1 to 2					2 to 3				
Total Resistance		Travel	-	-	15.0 mm	20.0 mm	30.0 mm	45.0 mm	60.0 mm	15.0 mm	20.0 mm	30.0 mm	45.0 mm	60.0 mm
		R<50kΩ		25 Ω max.	10 Ω max.	10 Ω max.	15 Ω max.	20 Ω max.	25 Ω max.	10 Ω max.	10 Ω max.	15 Ω max.	20 Ω max.	25 Ω max.
	General (For tone)	R> 50 kΩ R<250 kΩ	25 Ω max.	50 Ω max.		25 Ω max.					25 Ω max.			
Standard		R>250kΩ	100 Ω max.	100 Ω max.		100 Ω max.				100 Ω max.				
		R<50kΩ	3 Ω max.	25 Ω max.		3 Ω max.				25 Ω max.				
	For volume	R> 50 kΩ R<250 kΩ	5 Ω max.	50 Ω max.		5 Ω max.				50 Ω max.				
		R>250kΩ	50 Ω max.	100 Ω max.		50 Ω max.					100 Ω max.			
		R<50kΩ	10 Ω max.	60 Ω max.	25 Ω	25 Ω max. 35 Ω max. 50 Ω max. 60 Ω max.			25 Ω	max.	35 Ω max.	50 Ω max.	60 Ω max.	
With LED & for dc use	R> 50 kΩ R<250 kΩ	60 Ω max.	100 Ω max.		60 Ω max.				60 Ω max.					
		R>250kΩ	100 Ω max.	100 Ω max.		100 Ω max.				100 Ω max.				

Chart 2. Tap Residual Resistance

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Total resistance	Residual resistance
R<50 kΩ	100 Ω max.
50 kΩ <r<500 kω<="" td=""><td>500 Ω max.</td></r<500>	500 Ω max.
R<500 kΩ	1 kΩ max.

3. Tracking

Tracking on dual slide potentiometer is measured by following formula with 2 V to 5 V applied voltage, at 1000 ± 200 Hz between terminal 1 and 3.

Tracking error (dB)=20 log (V_2/V_1)

Where:

 V_1 =output voltage of one side (between terminal 1 and 2)

V₂=output voltage of the other side (between terminal 1 and 2)

Тур	e For v	olume	Conoral nurnosa	
Range	15.0, 20.0 mm	30.0, 45.0, 60.0 mm	General purpose	
-40 dB to 0 dB		±3 dB		
-30 dB to 0 dB	±3 dB			
50 % of Sliding Position	n		±3 dB	

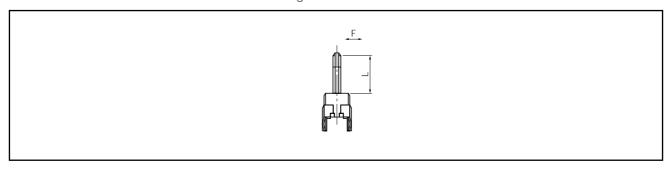
Mechanical Specifications

1. Sliding Force

In a room at 5 °C to 35 °C, apply a sliding force to the lever at a point of 5.0 mm from the mounting surface at a rate of 30.0 mm/1 to 2 seconds. The sliding force shall be 0.4 N to 3.5 N.

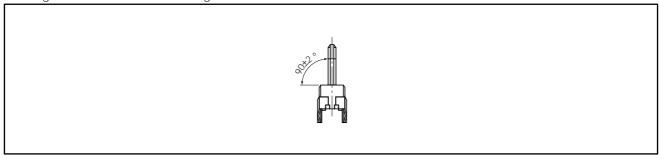
2. Lever Wobble

When a moment of 25 mN·m is applied perpendicularly on the top of the lever, the wobble of lever tip shall be within $3\times L/10$ mm max. for one side. Where: L=Length of lever



3. Lever Angle

The angle of lever from the mounting surface shall be 90 °±2 ° max.



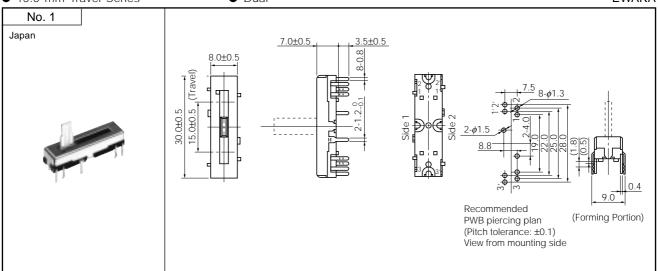
4. Detent Slip-out Force

In a room at 5 °C to 35 °C, detent slip-out force shall be 0.2 N to 1.5 N greater than the sliding force of lever.

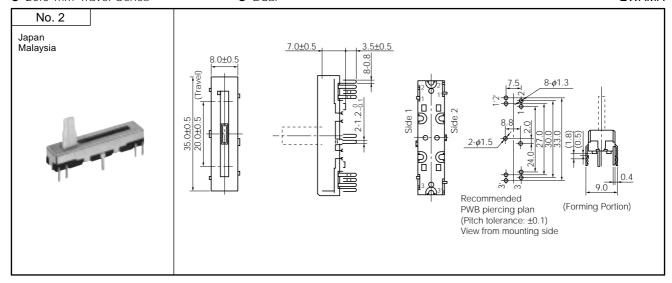
5. Operating Life

15000 cycles min.

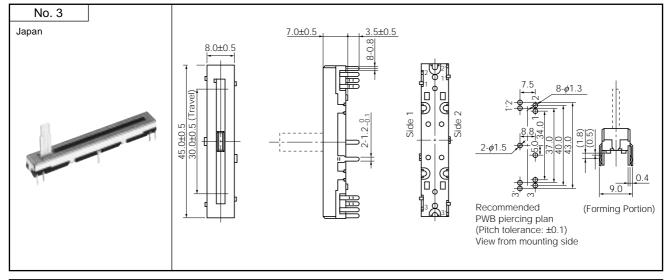
- Dimensions in mm (not to scale)
- 15.0 mm Travel Series
- SingleDualEWAKA

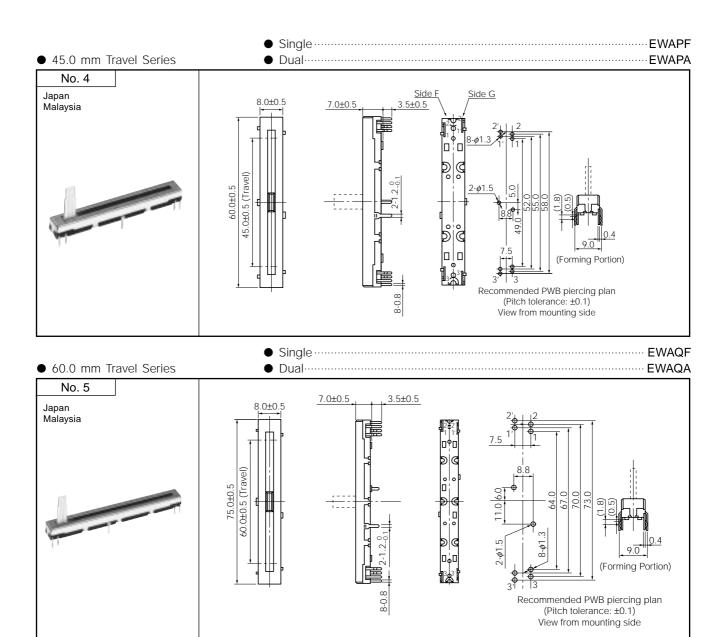


- 20.0 mm Travel Series



- 30.0 mm Travel Series
- SingleDualEWANA



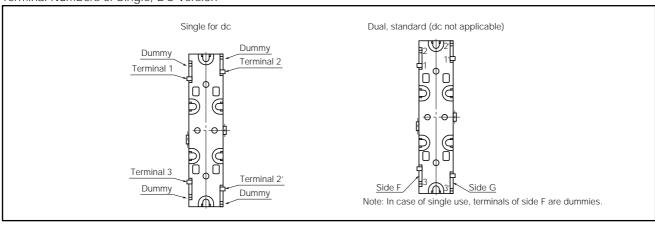


Notes:

- Refer to the drawing below for terminal alignment of single slide potentiometers.
 Slide Potentiometers with no Midpoint Tap
 Terminals 3-3' and the next inner terminals are connected together as a common terminal.

 Slide Potentiometers with Midpoint Tap
- The next inner terminals to Terminal 3-3' shall be used for midpoint taps.

Terminal Numbers of Single, DC Version



■ Lever Trims and Dimensions in mm

1. Insulated lever (15.0, 20.0, 30.0, 45.0, 60.0)

2. Metal lever (15.0, 20.0, 30.0, 45.0, 60.0)

Туре	Insulated lever	Туре	Metal lever				
С	Part No. Length 7th to 9th L	С	Part No. Length 7th to 9th				
X	Part No. Length 7th to 9th	S	Part No. Length 7th to 9th L S10 10.0 7.0 S15 15.0 8.0 S20 20.0 8.0 1.20±0.06				
U	Part No. Length 7th to 9th L U10 10.0 - U15 15.0 - U20 20.0 -	D	Part No. Length 7th to 9th L D15				