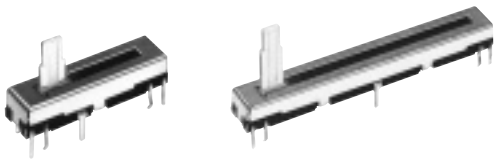
Standard Type Slide Potentiometers

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

1	2	3	4	5	6	7	8	9	10	11	12
E	W	A									
Product Code			Specifications			Lever Trims & Dimensions			Taper & Resistance		

■ Product Chart

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

Notes:
1. Standard part numbers are insulated lever types.
2. ○=available

■ Minimum Quantity/Packing Unit

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

■ 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.

Type	15.0 mm		20.0 mm		30.0 mm		45.0 mm		60.0 mm	
	EWAKF EWAKA		EWAMF EWAMA		EWANF EWANA		EWAPF EWAPA		EWAQF EWAQA	
Taper \ Rating	Power	Max. operating voltage	Power	Max. operating voltage	Power	Max. operating voltage	Power	Max. operating voltage	Power	Max. operating voltage
B	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
Standard	General (For tone)	R<50kΩ	3 Ω max.	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.
		R> 50 kΩ R<250 kΩ	25 Ω max.	50 Ω max.	25 Ω max.					25 Ω max.				
		R>250kΩ	100 Ω max.	100 Ω max.	100 Ω max.					100 Ω max.				
	For volume	R<50kΩ	3 Ω max.	25 Ω max.	3 Ω max.					25 Ω max.				
		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.				
With LED & for dc use		R<50kΩ	10 Ω max.	60 Ω max.	25 Ω max.		35 Ω max.	50 Ω max.	60 Ω max.	25 Ω max.		35 Ω max.	50 Ω max.	60 Ω max.
		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

Total resistance	Residual resistance
R<50 kΩ	100 Ω max.
50 kΩ<R<500 kΩ	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)

V_2=output voltage of the other side (between terminal 1 and 2)

Type / Range	For volume		General purpose
	15.0, 20.0 mm	30.0, 45.0, 60.0 mm	
–40 dB to 0 dB		±3 dB	
–30 dB to 0 dB	±3 dB		
50 % of Sliding Position			±3 dB

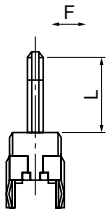
● Mechanical Specifications

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.

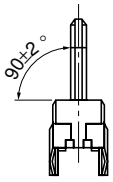
2. Lever Wobble

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×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.

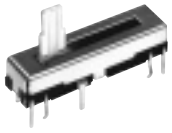
■ Dimensions in mm (not to scale)

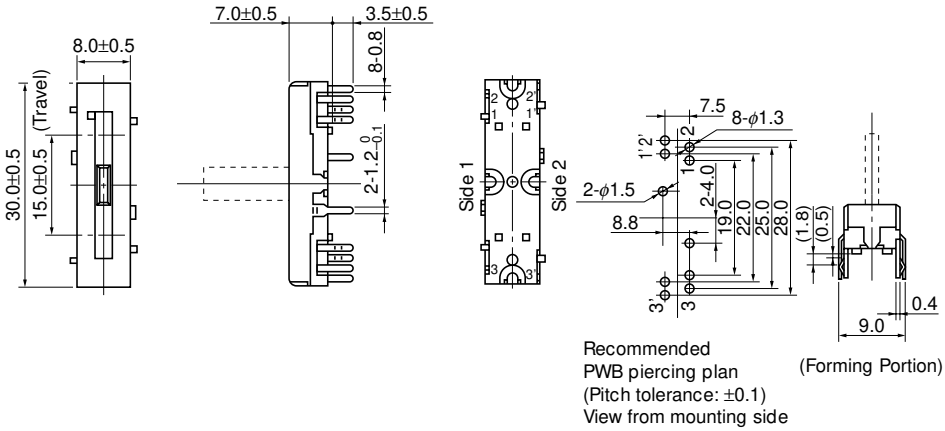
● 15.0 mm Travel Series

● Single ····· EWAKF
● Dual ····· EWAKA

No. 1

Japan



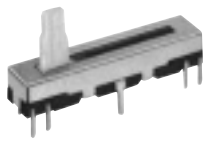


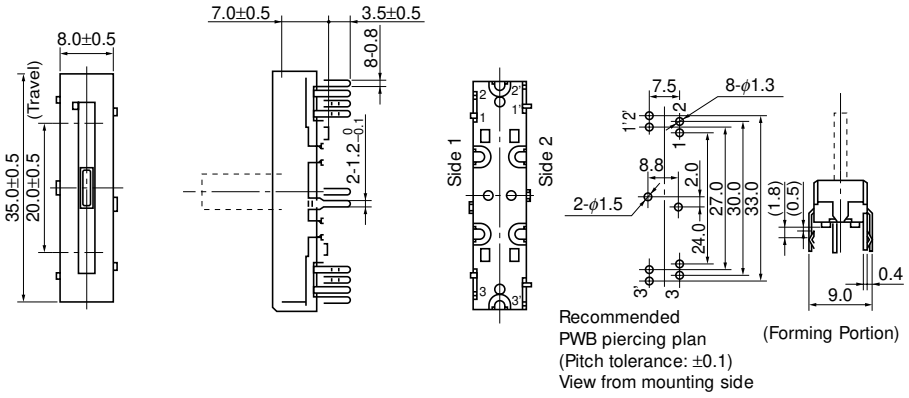
● 20.0 mm Travel Series

● Single ····· EWAMF
● Dual ····· EWAMA

No. 2

Japan
Malaysia



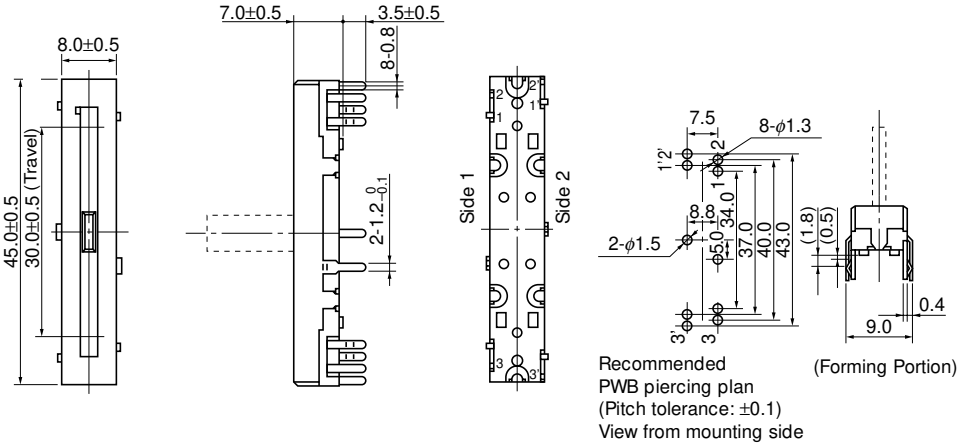


● 30.0 mm Travel Series

● Single ····· EWANF
● Dual ····· EWANA

No. 3

Japan

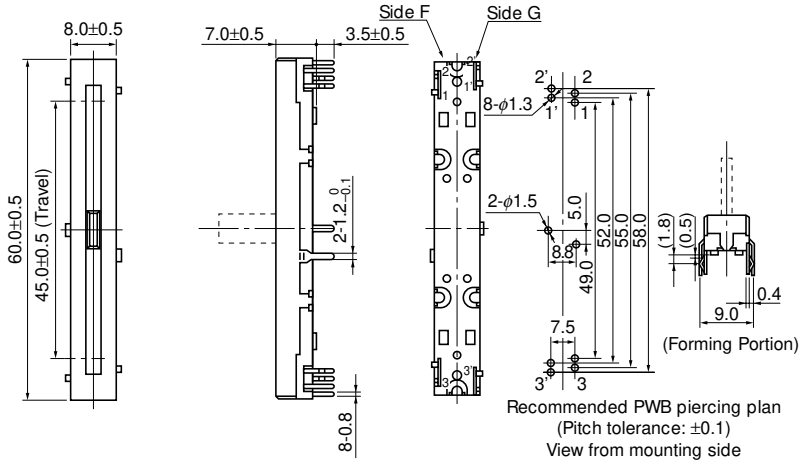


● 45.0 mm Travel Series

● Single ····· EWAPF
● Dual ····· EWAPA

No. 4

Japan
Malaysia

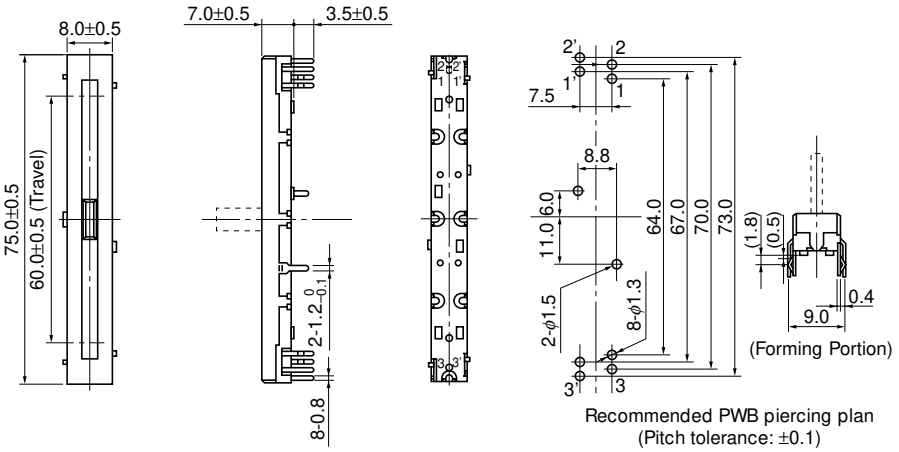


● 60.0 mm Travel Series

● Single ····· EWAQF
● Dual ····· EWAQA

No. 5

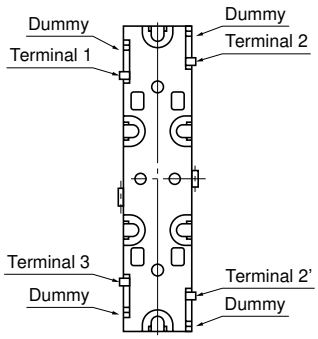
Japan
Malaysia



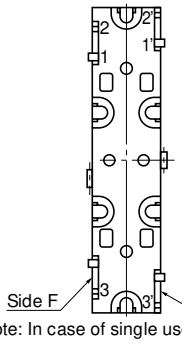
Notes:
1. Refer to the drawing below for terminal alignment of single slide potentiometers.
2. Slide Potentiometers with no Midpoint Tap
   Terminals 3-3′ and the next inner terminals are connected together as a common terminal.
3. Slide Potentiometers with Midpoint Tap
   The next inner terminals to Terminal 3-3′ shall be used for midpoint taps.

Terminal Numbers of Single, DC Version

Single for dc



Dual, standard (dc not applicable)



Note: In case of single use, terminals of side F are dummies.

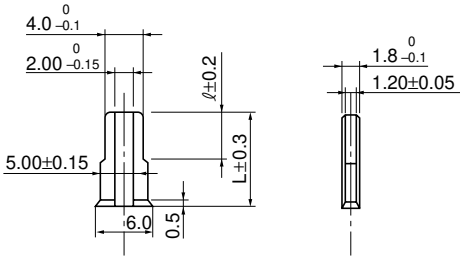
■ Lever Trims and Dimensions in mm

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)

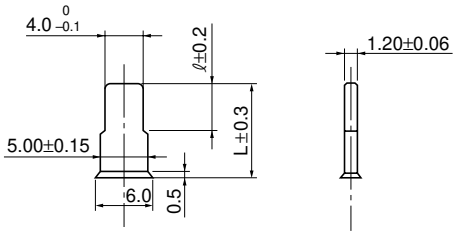
Type C — Insulated lever

Part No.	Length	
7th to 9th	L	ℓ
C10	10.0	5.0
C15	15.0	5.0



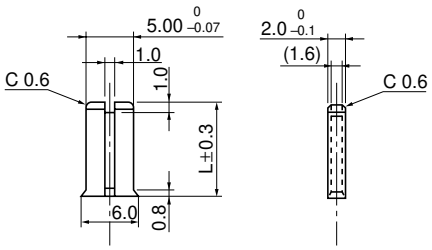
Type C — Metal lever

Part No.	Length	
7th to 9th	L	ℓ
C10	10.0	5.0
C15	15.0	10.0
C20	20.0	10.0



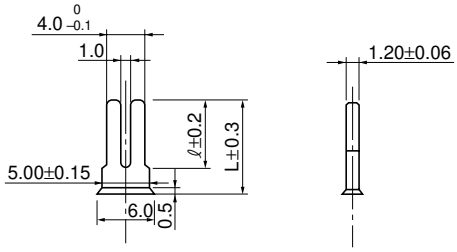
Type X

Part No.	Length	
7th to 9th	L	ℓ
X05	5.0	–
X10	10.0	–
X15	15.0	–
X20	20.0	–



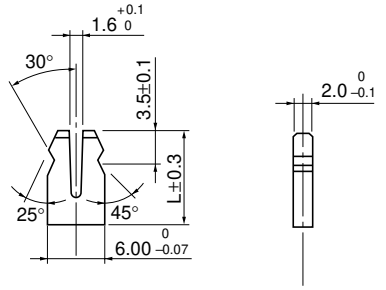
Type S

Part No.	Length	
7th to 9th	L	ℓ
S10	10.0	7.0
S15	15.0	8.0
S20	20.0	8.0



Type U

Part No.	Length	
7th to 9th	L	ℓ
U10	10.0	–
U15	15.0	–
U20	20.0	–



Type D

Part No.	Length	
7th to 9th	L	ℓ
D15	15.0	10.0
D20	20.0	10.0