



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

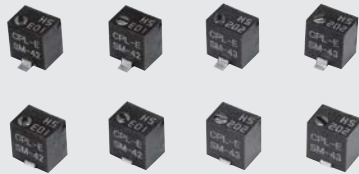
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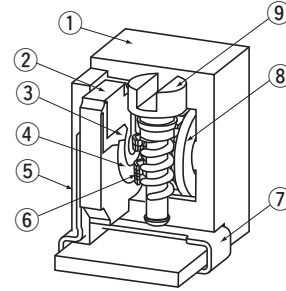
**RoHS compliant**



## FEATURES

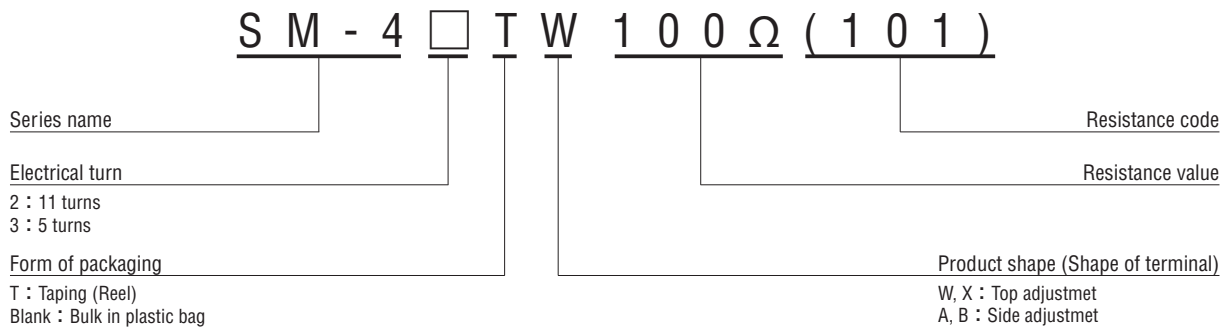
- RoHS compliant
- Fine adjustment is available
- Automatic mounting is available (Taping)
- Reflow soldering is available
- Sealed construction (Washable: Refer to page 750.)

### INTERNAL STRUCTURE



	Part name	Material	Flammability
①	Housing	Polyphenylenesulphide	UL94V-0
②	Base element	Ceramic	—
③	Electrode	Ag-Pd cermet	
④	Resistive element	RuO <sub>2</sub> cermet	
⑤	Adhesive	Epoxy	
⑥	Wiper	Multi metal alloy	
⑦	Terminal pin	Copper alloy, Sn-Cu-plated	
⑧	Rotor gear	Polyamide	UL94V-0
⑨	Shaft	Brass, Nickel-plated	—

## PART NUMBER DESIGNATION



※Please refer to the LIST OF PART NUMBERS when placing orders.

# SM-42/43

## SURFACE MOUNT TRIMMERS

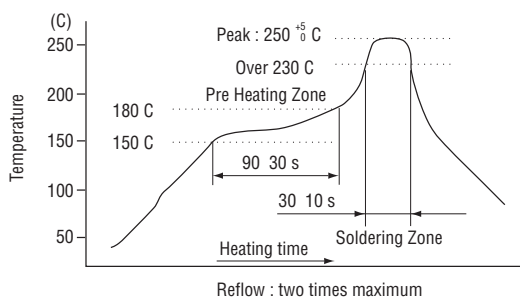
### LIST OF PART NUMBERS

Electrical turn	Adjustment position	Shape of terminal	Form of packaging	
			Taping (reel)	Plastic bag
11	Top adjustment	W (J-hook)	SM-42TW	SM-42W
		X (Gull wing)	SM-42TX	SM-42X
	Side adjustment	A (J-hook)	SM-42TA	SM-42A
		B (Gull wing)	SM-42TB	SM-42B
5	Top adjustment	W (J-hook)	SM-43TW	SM-43W
		X (Gull wing)	SM-43TX	SM-43X
	Side adjustment	A (J-hook)	SM-43TA	SM-43A
		B (Gull wing)	SM-43TB	SM-43B
Pieces in package			TA, TB : 500 pcs./reel TW, TX : 250 pcs./reel	50 pcs./pack

### ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 2 MΩ
Resistance tolerance	± 10 %
Power ratings	0.25 W (85 °C) 0 W (150 °C)
Resistance law	(B) Linear law
Maximum input voltage	DC300 V or power rating, whichever is smaller
Maximum wiper current	100 mA or power rating, whichever is smaller
Effective electrical turn	11 turns (SM-42), 5 turns (SM-43)
End resistance	1 % or 2 Ω, whichever is greater
C.R.V.	1 % or 3 Ω, whichever is greater
Operating temp. range	-65 ~ 150 °C
Temp. coefficient	±100 10 <sup>-6</sup> /°C maximum
Insulation resistance	100 MΩ minimum (DC500 V)
Dielectric strength	AC600 V, 60 s
Net weight	Approx. 0.17 g

### Reflow profile for soldering heat evaluation



### <Nominal resistance values>

⇒10 Ω	⇒20 Ω	50 Ω	100 Ω	200 Ω	500 Ω	1 kΩ	2 kΩ	5 kΩ
10 kΩ	20 kΩ	50 kΩ	100 kΩ	200 kΩ	500 kΩ	1 MΩ	2 MΩ	

Fig. 1

The products indicated by ⇒ mark are manufactured upon receipt of order basis.  
 ※ The above part numbers are all available with the respective combination of <Nominal resistance values> (Fig. 1).  
 ※ Verify the above part numbers when placing orders.  
 ※ Taping specification is not sold separately and must be purchased in reel units.

### MECHANICAL CHARACTERISTICS

Operating torque	17.6 mN·m (180 gf·cm) maximum
Mechanical stop	Clutch action
Rotational life	200 cycles [ Δ R/R ≤ ± (3 Ω + 3 %) ]
Thrust to shaft	5 N (0.51 kgf) minimum
Solderability	245 ± 3 °C, 2 ~ 3 s
Shear (Adhesion)	5 N (0.51 kgf) 10 s
Substrate bending	Width 90 mm, bend 3 mm, 5 s, 1 time
Pull-off strength	5 N (0.51 kgf) 10 s

{ } : Reference only

### ENVIRONMENTAL CHARACTERISTICS

Test item	Test conditions	Specifications
Thermal shock	-65 ~ 150 °C (0.5 h), 5 cycles	[ Δ R/R ≤ 2 % ] [ S.S. ≤ 1 % ]
Humidity	-10 ~ 65 °C (80 ~ 98 %), 10 cycles, 240 h	[ Δ R/R ≤ 2 % ]
Shock	981 m/s <sup>2</sup> , 6 ms 6 directions for 3 times each	[ Δ R/R ≤ 1 % ] [ S.S. ≤ 1 % ]
Vibration	(Amplitude) 1.52 mm or (Acceleration) 196 m/s <sup>2</sup> , 10 ~ 2000 Hz, 3 directions, 12 times each	[ Δ R/R ≤ 1 % ] [ S.S. ≤ 1 % ]
Load life	85 °C, 0.25 W, 1000 h	[ Δ R/R ≤ 3 % or 3 Ω ] [ S.S. ≤ 2 % ]
Low temp. operation	-65 °C, 2 h	[ Δ R/R ≤ 1 % ] [ S.S. ≤ 1 % ]
High temp. exposure	150 °C, 250 h	[ Δ R/R ≤ 2 % ] [ S.S. ≤ 1 % ]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	Reflow : Peak temperature 255 °C (Please refer to the profile below.) Manual soldering : 350 ± 10 °C, 3 ~ 4 s	[ Δ R/R ≤ 1 % ]

Δ R/R : Change in total resistance  
S.S. : Setting stability

# SM-42/43

## SURFACE MOUNT TRIMMERS

### MAXIMUM INPUT RATINGS

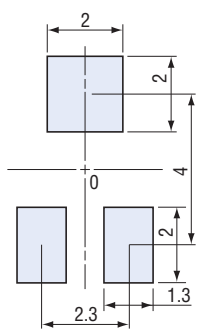
Nominal resistance values ( $\Omega$ )	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
↻ 10	100	1.00	100
↻ 20	200	2.00	100
50	500	3.53	70.7
100	101	5.00	50.0
200	201	7.07	35.4
500	501	11.2	22.4
1 k	102	15.8	15.8
2 k	202	22.4	11.2
5 k	502	35.4	7.07
10 k	103	50.0	5.00
20 k	203	70.7	3.54
50 k	503	112	2.24
100 k	104	158	1.58
200 k	204	223	1.12
500 k	504	300	0.60
1 M	105	300	0.30
2 M	205	300	0.15

The products indicated by ↻ mark are manufactured upon receipt of order basis.

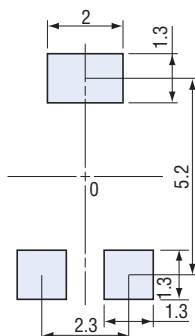
### RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

(Unit: mm)

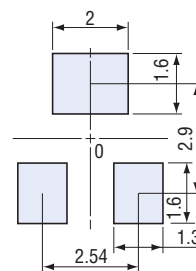
#### ● SM-42/43A



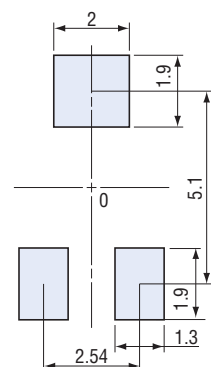
#### ● SM-42/43B



#### ● SM-42/43W



#### ● SM-42/43X



Note) The zero point is the center of mounting.



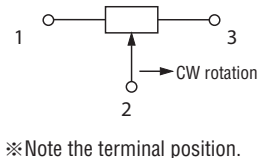
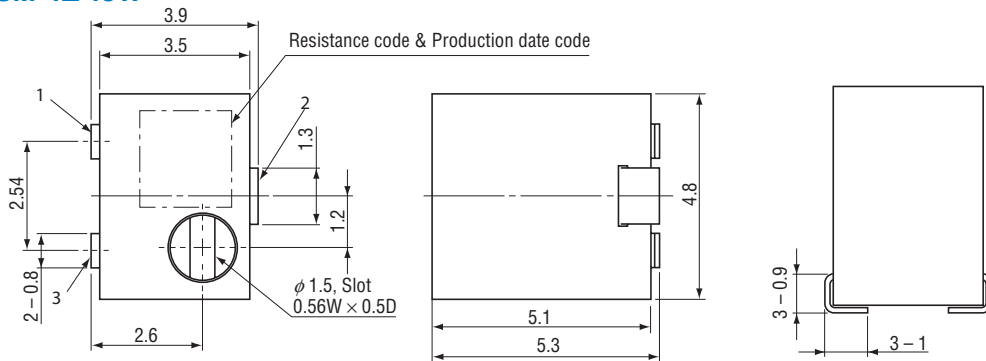
# SM-42/43

## SURFACE MOUNT TRIMMERS

### OUTLINE DIMENSIONS

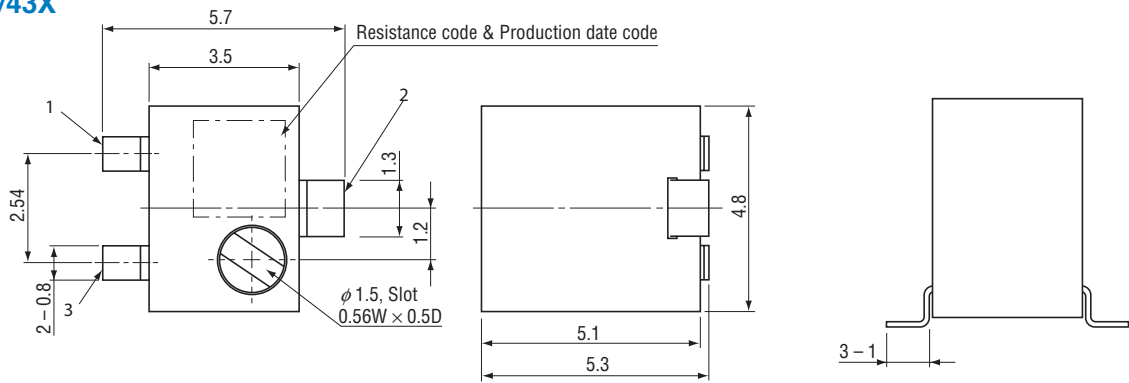
Unless otherwise specified, tolerance :  $\pm 0.3$  (Unit : mm)

#### SM-42/43W

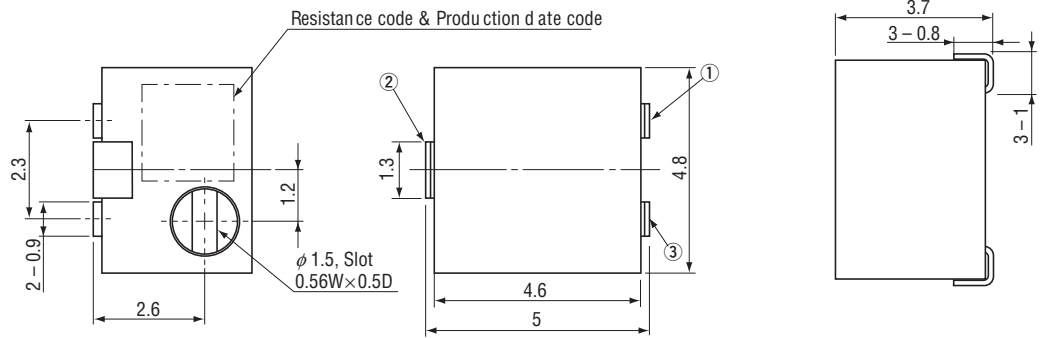


※Note the terminal position.

#### SM-42/43X



#### SM-42/43A



#### SM-42/43B

