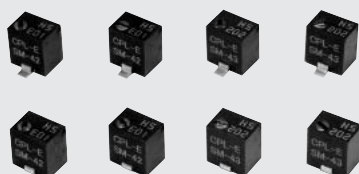


SURFACE MOUNT CERMET TRIMMERS

SM-42/43

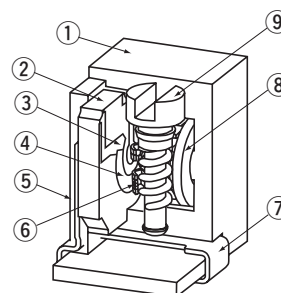
RoHS compliant



FEATURES

- RoHS compliant
- Fine adjustment is available
- Automatic mounting is available (Taping)
- Reflow soldering is available
- Sealed construction (Washable: Refer to A-328)

INTERNAL STRUCTURE



	Part name	Material	Flammability
①	Housing		
②	Base element		
③	Electrode		
④	Resistive element		
⑤	Adhesive	Epoxy	
⑥		Multi metal alloy	
⑦	Terminal pin	Copper alloy, Sn-Cu-plated	
⑧	Rotor gear	Polyamide	
⑨	Shaft	Brass, Nickel-plated	

PART NUMBER DESIGNATION

S M - 4		□	T W	1 0 0 Ω	(1 0 1)
Series name					Resistance code
Electrical turn					Resistance value
2 : 11 turns					
3 : 5 turns					
Form of packaging					Product shape (Shape of terminal)
T : Taping (Reel)					W, X : Top adjustmet
Blank : Bulk in plastic bag					A, B : Side adjustmet

※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

<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 $\Rightarrow$ 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 [$\Delta R/R \leq \pm (3 \Omega + 3 \%)$]
Thrust to shaft	5 N {0.51 kgf} minimum
Solderability	245 $\pm$ 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

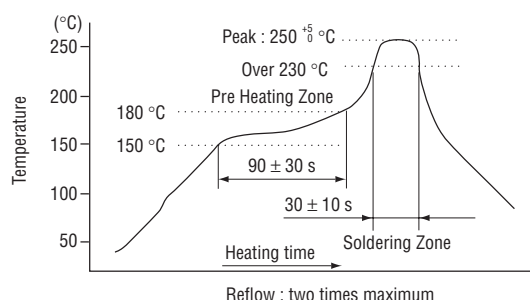
Test item	Test conditions	Specifications
Thermal shock	-65 ~ 150 °C (0.5 h), 5 cycles	[$\Delta R/R \leq 2 \%$] [S.S. $\leq 1 \%$]
Humidity	-10 ~ 65 °C (80 ~ 98 %), 10 cycles, 240 h	[$\Delta R/R \leq 2 \%$]
Shock	981 m/s ² , 6 ms 6 directions for 3 times each	[$\Delta R/R \leq 1 \%$] [S.S. $\leq 1 \%$]
Vibration	Amplitude 1.52 mm or Acceleration 196 m/s ² , 10 ~ 2000 Hz, 3 directions, 12 times each	
Load life	85 °C, 0.25 W, 1000 h	[$\Delta R/R \leq 3 \%$ or 3 Ω] [S.S. $\leq 2 \%$]
Low temp. operation	-65 °C, 2 h	[$\Delta R/R \leq 1 \%$] [S.S. $\leq 1 \%$]
High temp. exposure	150 °C, 250 h	[$\Delta R/R \leq 2 \%$] [S.S. $\leq 1 \%$]
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 $\pm$ 10 °C, 3 ~ 4 s	[$\Delta R/R \leq 1 \%$]

$\Delta R/R$: Change in total resistance
S.S. : Setting stability

ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 2 M Ω
Resistance tolerance	$\pm 10 \%$
Power ratings	0.25 W (85 °C) 0 W (150 °C)
Resistance law	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	$\pm 100 \times 10^{-6}/^{\circ}\text{C}$ maximum
Insulation resistance	100 M Ω minimum (DC500 V)
Dielectric strength	AC600 V, 60 s
Net weight	Approx. 0.17 g

Reflow profile for soldering heat evaluation>



SM-42/43

SURFACE MOUNT TRIMMERS

MAXIMUM INPUT RATINGS

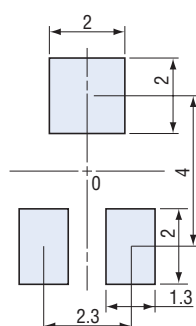
Nominal resistance values (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
➡ 10	100	1.00	100
➡ 20	200	2.00	100
50	500	3.53	70.7
100	101	5.00	50.0
200	201	7.07	35.4
500	501	11.2	22.4
1 k	102	15.8	15.8
2 k	202	22.4	11.2
5 k	502	35.4	7.07
10 k	103	50.0	5.00
20 k	203	70.7	3.54
50 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.

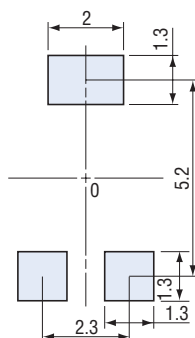
RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

(Unit: mm)

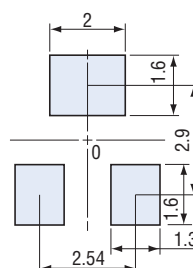
● SM-42/43A



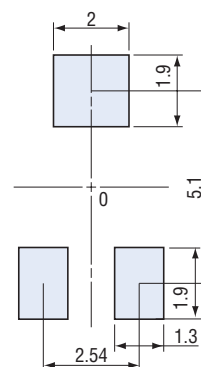
● SM-42/43B



● SM-42/43W



● SM-42/43X



Note) The zero point is the center of mounting.

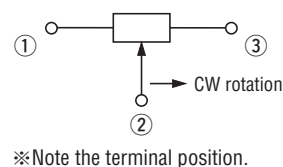
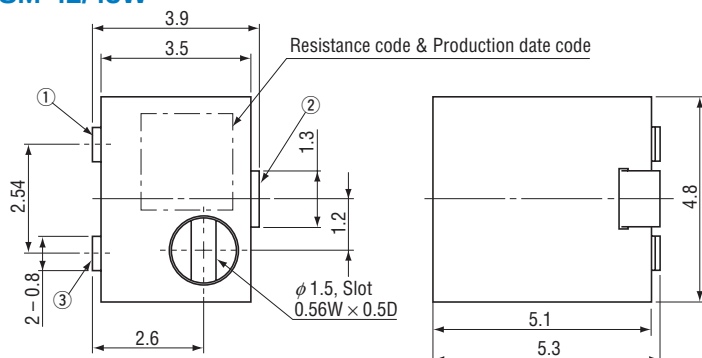
SM-42/43

SURFACE MOUNT TRIMMERS

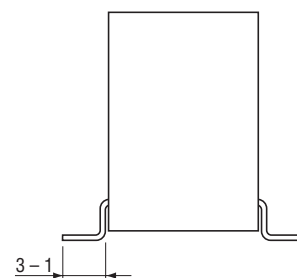
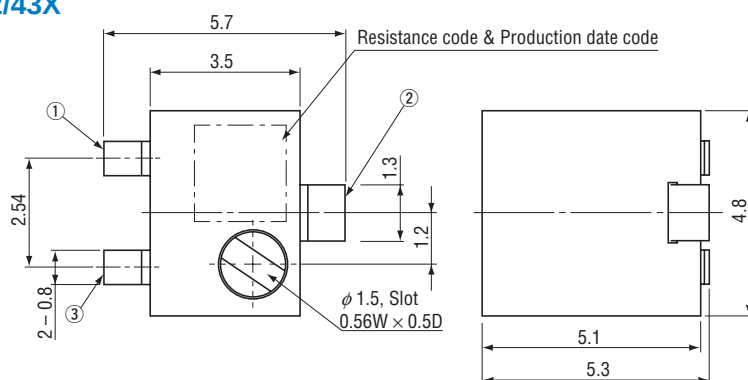
OUTLINE DIMENSIONS

Unless otherwise specified, tolerance : ± 0.3 (Unit : mm)

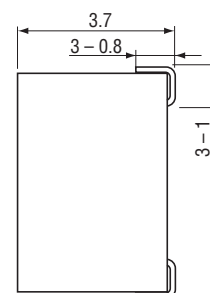
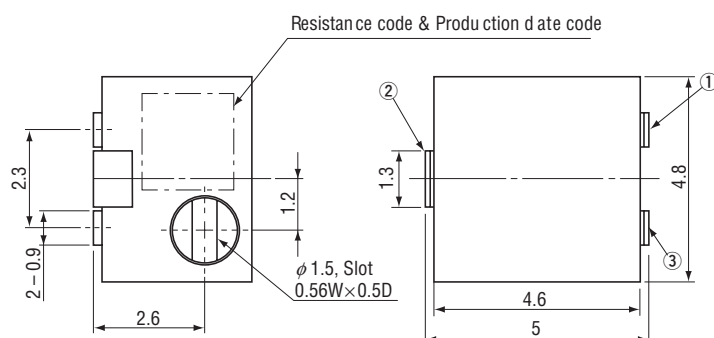
● SM-42/43W



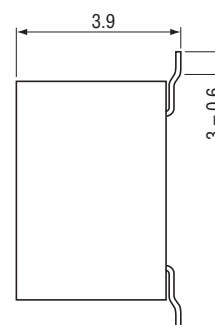
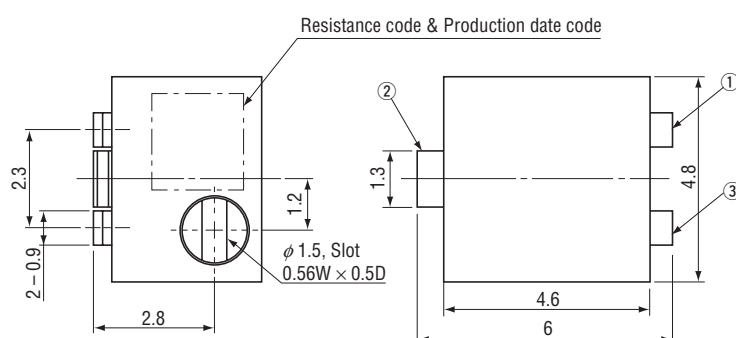
● SM-42/43X



● SM-42/43A



● SM-42/43B



SM-42/43

SURFACE MOUNT TRIMMERS

PACKAGING SPECIFICATIONS

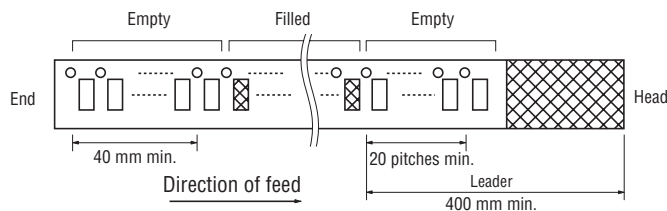
<Taping packaging specifications>

- Taping version (SM-42/43TA, TB) is packaged in 500 pcs. per reel.
 Orders will be accepted for units of 500 pcs., i.e., 500, 1000, 1500 pcs., etc.
 SM-42/43TW, TX is packaged in 250 pcs. per reel.
 Orders will be accepted for units of 250 pcs., i.e., 500, 750 pcs., etc.

Maximum number of consecutive missing pieces = 2

Leader length and reel dimension are shown in the dia-diagrams below.

EMBOSED TAPE DIMENSIONS

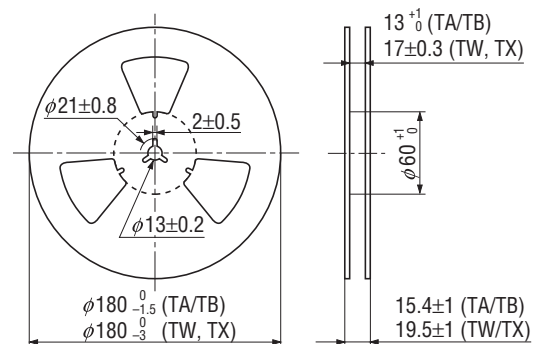


REEL DIMENSIONS

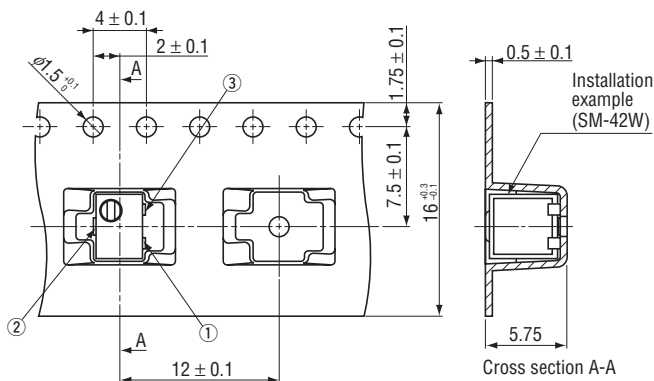
(Conforms to JIS C 0806-3)

(TA/TB type : In accordance with EIAJ ET-7200A)

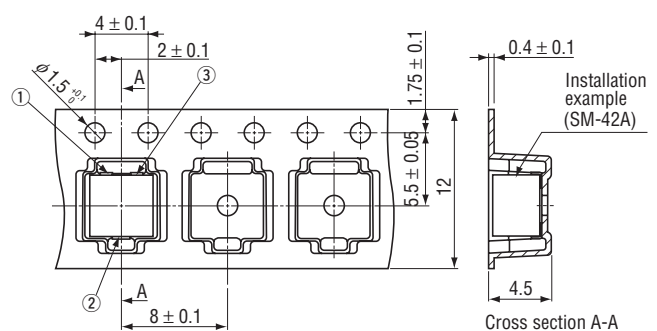
(Unit: mm)



SM-42/43TW/TX



SM-42/43TA/TB



<Bulk pack specifications>

- Unit of bulk in a plastic bag is 50 pcs. per pack.
- Boxing of bulk in a plastic bag is performed with 200 pcs. per box.