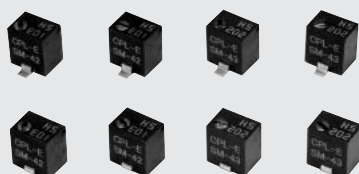


SURFACE MOUNT CERMET TRIMMERS

SM-42/43

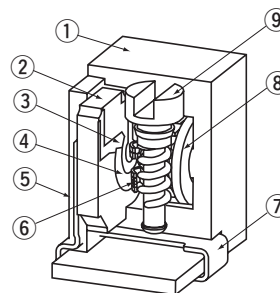
RoHS compliant



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

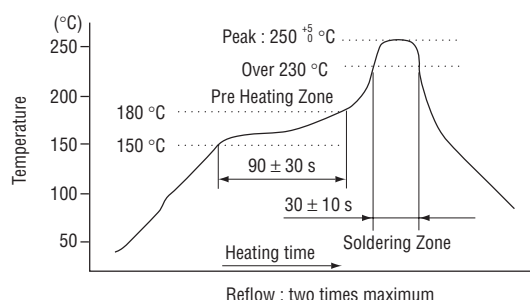
LIST OF PART NUMBERS

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

ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 2 M Ω
Resistance tolerance	$\pm 10 \%$
Power ratings	0.25 W (85 $^{\circ}$ C) 0 W (150 $^{\circ}$ 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 $^{\circ}$ C
Temp. coefficient	$\pm 100 \times 10^{-6}/^{\circ}$ 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>



<Nominal resistance values>

10 Ω	20 Ω	50 Ω	100 Ω	200 Ω	500 Ω	1 k Ω	2 k Ω	5 k Ω
10 k Ω	20 k Ω	50 k Ω	100 k Ω	200 k Ω	500 k Ω	1 M Ω	2 M Ω	

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 ± 3 $^{\circ}$ 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 $^{\circ}$ C (0.5 h), 5 cycles	[$\Delta R/R \leq 2 \%$] [S.S. $\leq 1 \%$]
Humidity	-10 ~ 65 $^{\circ}$ 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 $^{\circ}$ C, 0.25 W, 1000 h	[$\Delta R/R \leq 3 \%$ or 3 Ω] [S.S. $\leq 2 \%$]
Low temp. operation	-65 $^{\circ}$ C, 2 h	[$\Delta R/R \leq 1 \%$] [S.S. $\leq 1 \%$]
High temp. exposure	150 $^{\circ}$ C, 250 h	[$\Delta R/R \leq 2 \%$] [S.S. $\leq 1 \%$]
Immersion seal	85 $^{\circ}$ C, 60 s	No leaks (No continuous bubbles)
Soldering heat	Reflow : Peak temperature 255 $^{\circ}$ C (Please refer to the profile below.) Manual soldering : 350 ± 10 $^{\circ}$ C, 3 ~ 4 s	[$\Delta R/R \leq 1 \%$]

$\Delta R/R$: Change in total resistance

S.S. : Setting stability

SM-42/43

SURFACE MOUNT TRIMMERS

MAXIMUM INPUT RATINGS

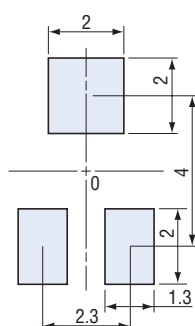
Nominal resistance values (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
➡ 10	100	1.00	100
➡ 20	200	2.00	100
50	500	3.53	70.7
100	101	5.00	50.0
200	201	7.07	35.4
500	501	11.2	22.4
1 k	102	15.8	15.8
2 k	202	22.4	11.2
5 k	502	35.4	7.07
10 k	103	50.0	5.00
20 k	203	70.7	3.54
50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

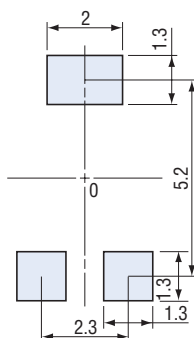
RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

(Unit: mm)

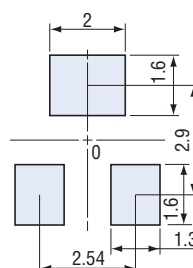
● SM-42/43A



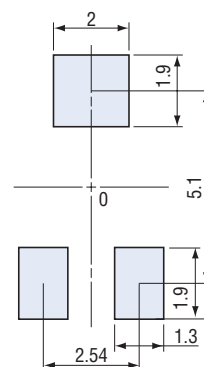
● SM-42/43B



● SM-42/43W



● SM-42/43X



Note) The zero point is the center of mounting.

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

※Note the terminal position.

Technical drawing of a rectangular plate. The overall width is 3.7. The width of the main body is 3 - 0.8. The thickness of the plate is 3 - 1. The drawing shows a side view of the plate with a small step or change in thickness on the right side.

Technical drawing of a rectangular block. The top horizontal edge is dimensioned as 3.9. The right vertical edge is dimensioned as 3 - 0.6, indicating a total height of 3 with a tolerance of -0.6. The drawing shows the block from a perspective view, with hidden edges indicated by dashed lines.

SM-42/43

SURFACE MOUNT TRIMMERS

PACKAGING SPECIFICATIONS

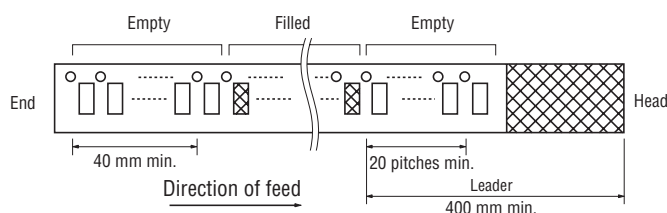
<Taping packaging specifications>

- 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

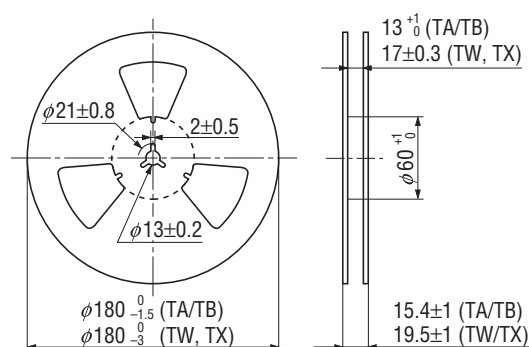


REEL DIMENSIONS

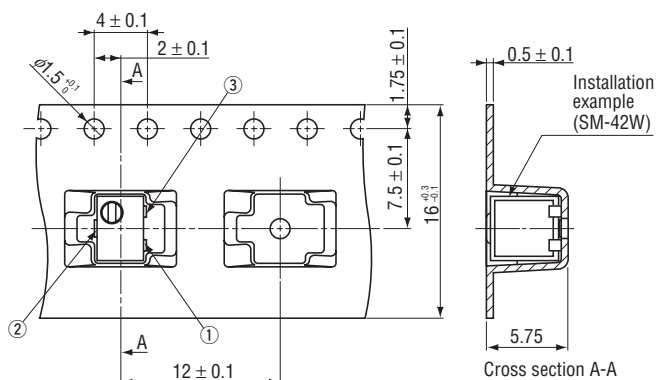
(Conforms to JIS C 0806-3)

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

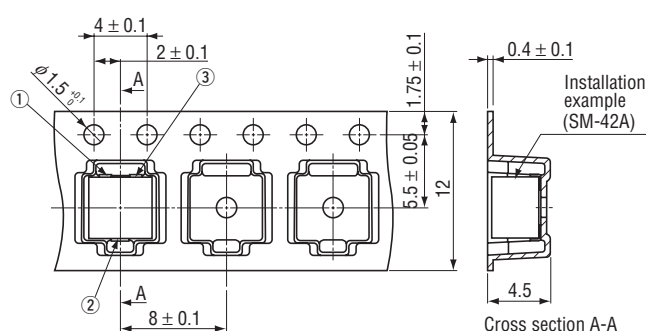
(Unit: mm)



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.