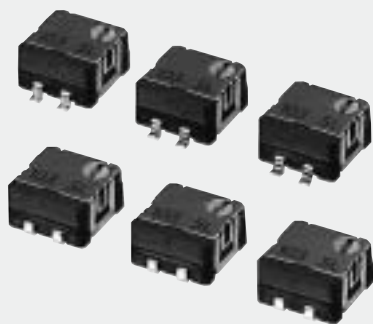


SURFACE MOUNT CERMET TRIMMERS (3 TURNS)

ST-7

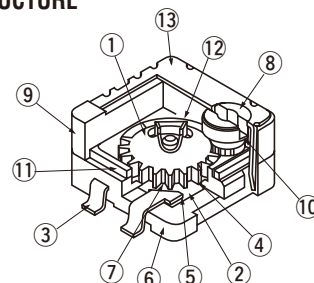
RoHS compatible



FEATURES

- Lead-free soldering, Cadmium-free
- Fine adjustment is possible
- Automatic mounting is possible (Taping)
- Flow/reflow soldering is possible
- Sealed construction (Washable)

INTERNAL STRUCTURE



Part name		Material	Flammability
①	Rotor gear	PPS (Polyphenylenesulphide)	UL-94V-0
②	Base element	Ceramic	—
③	Terminal pin	Sn-Pb Copper alloy, Solder-plated	
		Sn-Cu Copper alloy, Sn-Cu-plated	
④	Resistive element	RuO ₂ cermet	
⑤	Electrode	Ag-Pd cermet	UL-94V-0
⑥	Housing base	PPS (Polyphenylenesulphide)	
⑦	Wiper	Multi metal alloy	—
⑧	Shaft	PPS (Polyphenylenesulphide)	UL-94V-0
⑨	Housing		
⑩	Shaft "O" ring	Silicone rubber	UL-94HB
⑪	Base "O" ring		
⑫	Clutch spring	Stainless steel	—
⑬	Cover		

CFCs, Halon, Carbon tetrachloride and designated bromic flame retardant PBBs and PBBs are not used in our products.

PART NUMBER DESIGNATION

S T - 7 □ T A 1 k Ω (1 0 2)

Series name

Terminal pin

Blank : Sn-Pb

E : Sn-Cu (Lead-free)

Form of packaging

T : Taping (Reel)

Blank : Bulk in vinyl bags

Resistance code

Resistance value

Product shape (Shape of terminal)

A : J-hook

B : Gull wing

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

ST-7

SURFACE MOUNT TRIMMERS

LIST OF PART NUMBERS

Adjustment position	Shape of terminal	Form of packaging			
		Taping (reel)		Vinyl bag	
		Sn-Pb	Sn-Cu (Lead-free)	Sn-Pb	Sn-Cu (Lead-free)
Top adjustment	A (J-hook)	ST-7TA	ST-7ETA	ST-7A	ST-7EA
	B (Gull wing)	ST-7TB	ST-7ETB	ST-7B	ST-7EB
Pieces in package		500 pcs./reel		50 pcs./pack	

<Nominal resistance values>

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

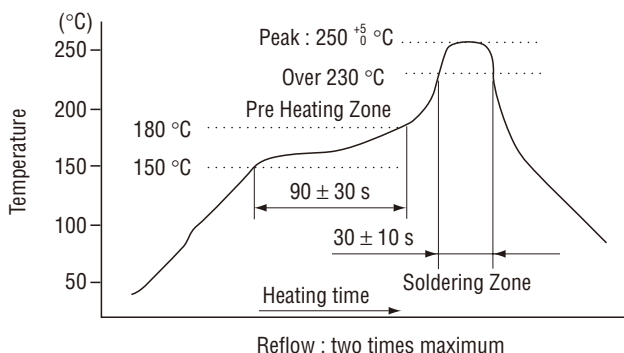
Fig. 1

- ※ : 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.

ELECTRICAL CHARACTERISTICS

Nominal resistance range	50 Ω ~ 1 MΩ
Resistance tolerance	± 20 %
Power ratings	0.25 W (70 °C) 0 W (125 °C)
Resistance law	Linear law (B)
Maximum input voltage	DC200 V or power rating, whichever is smaller
Maximum wiper current	100 mA or power rating, whichever is smaller
Effective electrical turn	2.5 turns
End resistance	1 % or 2 Ω, whichever is greater
C.R.V.	1 % or 3 Ω, whichever is greater
Operating temp. range	−55 ~ 125 °C
Temp. coefficient	50 Ω : ± 250 10 ⁻⁶ /°C maximum 100 Ω ~ 1 MΩ : ± 100 10 ⁻⁶ /°C maximum
Insulation resistance	1000 MΩ minimum (DC500 V)
Dielectric strength	AC600 V, 60 s
Net weight	Approx. 0.25 g

<Reflow profile for soldering heat evaluation>



MECHANICAL CHARACTERISTICS

Mechanical turn	3 turns
Operating torque	5 mN·m {51 gf·cm} maximum
Mechanical stop	Clutch action
Rotational life	100 cycles [$\Delta R/R \leq \pm (2 \Omega + 3 \%)$]
Thrust to shaft	5 N {0.51 kgf} minimum
Solderability	Sn-Pb : 235 °C, 2 s Sn-Cu (Lead-free) : 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 ~ 125 °C (0.5 h), 5 cycles	[$\Delta R/R \leq 2 \%$] [S.S. $\leq 1 \%$]
Humidity	−10 ~ 65 °C (Relative humidity 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	70 °C, 0.25 W, 1000 h	[$\Delta R/R \leq 3 \%$] [S.S. $\leq 1 \%$]
Low temp. operation	−55 °C, 2 h	[$\Delta R/R \leq 2 \%$] [S.S. $\leq 2 \%$]
High temp. exposure	125 °C, 250 h	[$\Delta R/R \leq 3 \%$] [S.S. $\leq 2 \%$]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	Sn-Pb 260 °C, 10 s or 215 °C, 35 s	[$\Delta R/R \leq 1 \%$]
	Sn-Cu Flow : 260 ± 3 °C as the temperature in a pot of molten solder, immersion from head of terminal to backside of board, 5 ~ 6 s, two times maximum Reflow : Peak temperature 255 °C (Please refer to the profile below.) Manual soldering : 350 ± 10 °C, 3 ~ 4 s	

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

ST-7

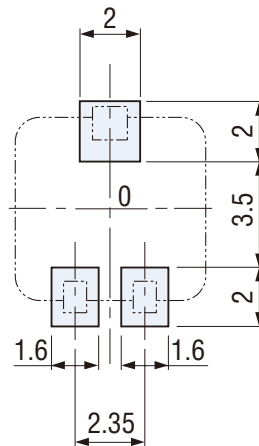
SURFACE MOUNT TRIMMERS

MAXIMUM INPUT RATINGS

Nominal resistance values (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
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	200	1.00
500 k	504	200	0.40
1 M	105	200	0.20

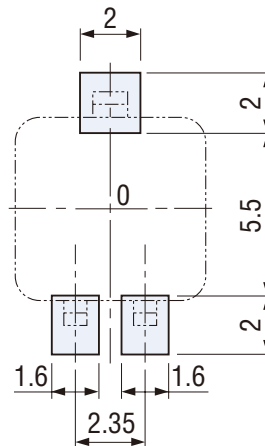
RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

ST-7A, EA



ST-7B, EB

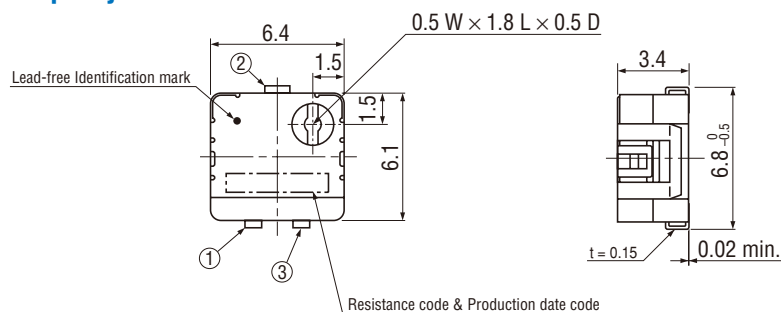
(Unit: mm)



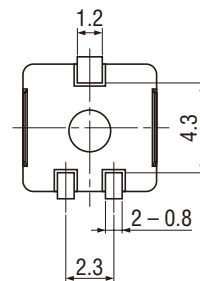
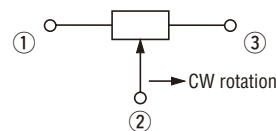
Note) The zero point is the center of mounting.

OUTLINE DIMENSIONS

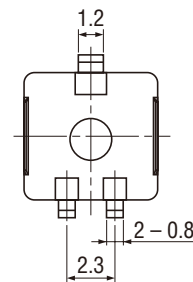
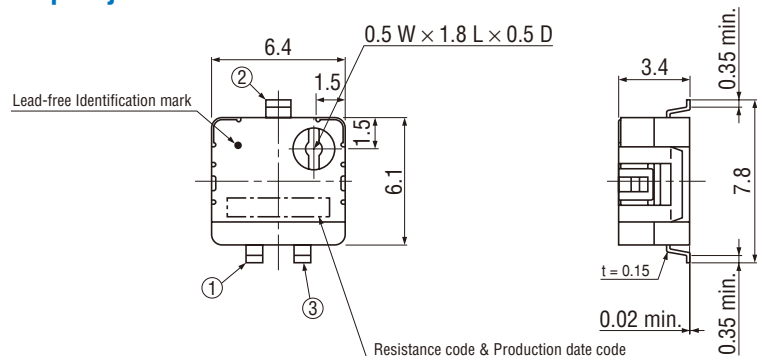
ST-7A, ST-7EA Top adjustment



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



ST-7B, ST-7EB Top adjustment



* : The ST-7 series has a different terminal arrangement from the ST-32 and ST-4 series. Pay attention to the location of terminals number 1 and 3. (Resistance decreases when the shaft is turned CCW.)

ST-7

SURFACE MOUNT TRIMMERS

PACKAGING SPECIFICATIONS

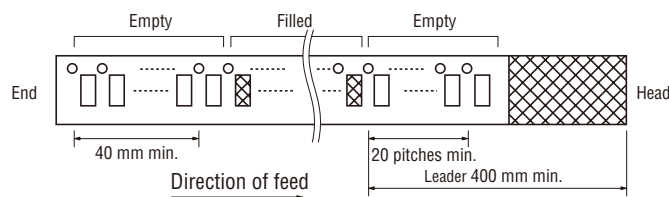
<Taping packaging specifications>

- Taping version is packaged in 500 pcs. per reel.
Orders will be accepted for units of 500 pcs., i.e., 500, 1000, 1500 pcs., etc.
- Taping version is boxed with one reel (500 pcs.).

Maximum number of consecutive missing pieces = 2

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

EMBOSED TAPE DIMENSIONS

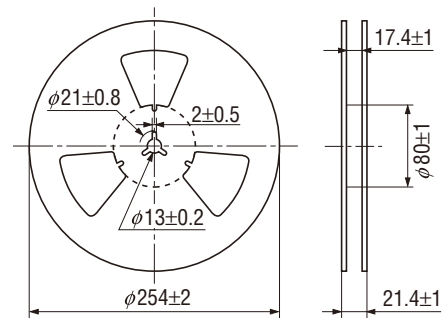


REEL DIMENSIONS

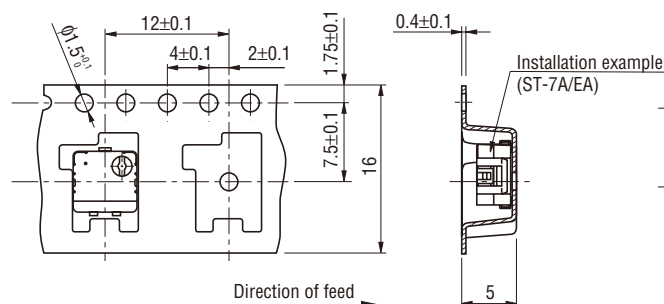
(Conforms to JIS C 0806-3)

(In accordance with EIAJ ET-7200A)

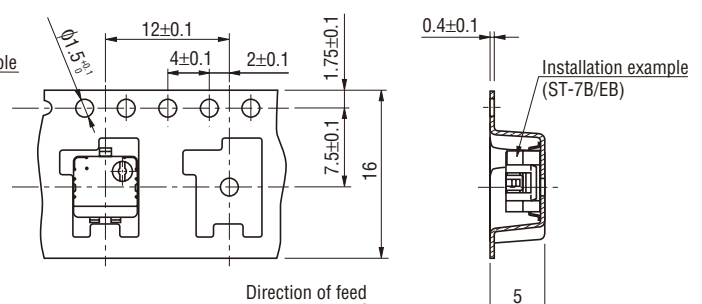
(Unit: mm)



ST-7TA, ETA



ST-7TB, ETB



<Vinyl bag packaging specifications>

- Unit of bulk in vinyl bag packaging is 50 pcs. per pack.
- Boxing of bulk in vinyl bags is performed with 200 pcs. per box.