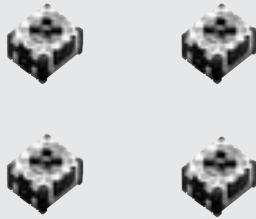


# SURFACE MOUNT CERMET TRIMMERS (SINGLE TURN)

# ST-2

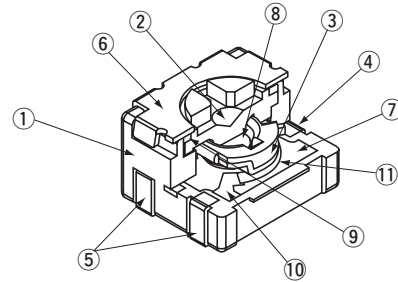
## RoHS compliant



## FEATURES

- Lead-free soldering, Cadmium-free
- Compact and low-profile □2 mm single turn type
- Washable

## INTERNAL STRUCTURE



Part name		Material	Flammability
①	Housing	Epoxy	UL-94V-0
②	Rotor	Polyphenylenesulphide	
③	Wiper	Stainless steel (SUS 304)	—
④	Terminal #2	Copper alloy, Sn-Cu-plated	
⑤	Terminal #1, #3		
⑥	Cover	Stainless steel (SUS 304)	
⑦	Ceramic substrate	Ceramic	
⑧	Pin	Blass, Sn-plated	
⑨	“O” ring	Silicone rubber	UL-94HB
⑩	Electrode	Ag-Pd cermet	—
⑪	Resistive element	RuO <sub>2</sub> cermet	

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

## PART NUMBER DESIGNATION

ST-2 T A 100Ω (101)

Series name	ST-2	T	A	100Ω	(101)	Resistance code
Form of packaging						Resistance value
T : Taping (Reel)						Product shape (Shape of terminal)
Blank : Bulk in plastic bag						A : J-hook

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

# ST-2

## SURFACE MOUNT TRIMMERS

### LIST OF PART NUMBERS

Adjustment position	Shape of terminal	Form of packaging	
		Taping (reel)	Plastic bag
Top adjustment	A (J-hook)	ST-2TA	ST-2A
Pieces in package		500 pcs./reel	100 pcs./pack

### <Nominal resistance values>

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 part numbers on the left 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	100 Ω ~ 1 MΩ
Resistance tolerance	± 20 %
Power ratings	0.1 W (70 °C) 0 W (125 °C)
Resistance law	Linear law
Maximum input voltage	DC50 V or power rating, whichever is smaller
Maximum wiper current	Power ratings ( $I = \sqrt{P/R}$ A)
Effective electrical angle	240 ° (1 turn)
End resistance	1 % or 2 Ω, whichever is greater
C.R.V.	2 % or 3 Ω, whichever is greater
Operating temp. range	−55 ~ 125 °C
Temp. coefficient	± 150 10 <sup>−6</sup> /°C
Insulation resistance	1000 MΩ minimum (DC500 V)
Dielectric strength	AC500 V, 60 s
Net weight	Approx. 0.032 g

### MECHANICAL CHARACTERISTICS

Mechanical angle	270 ° (1 turn)
Operating torque	5 mN·m {51 gf·cm} maximum
Stop strength	8 mN·m {78.4 gf·cm} minimum
Rotational life	50 cycles [ $\Delta R/R \leq \pm (2 \Omega + 5 \%)$ ]
Thrust to rotor	3 N {0.31 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

# ST-2

## SURFACE MOUNT TRIMMERS

### ENVIRONMENTAL CHARACTERISTICS

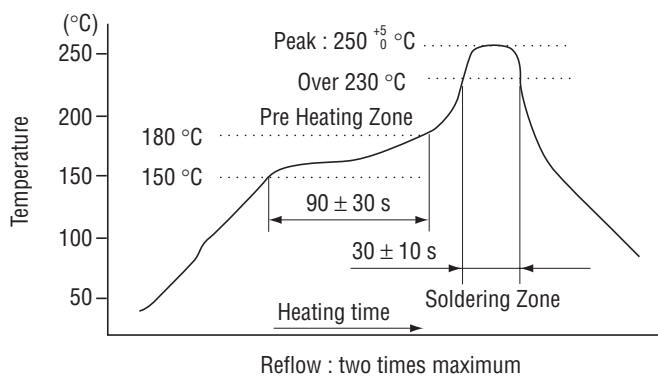
Test item	Test conditions	Specifications
Thermal shock	-65 ~ 125 °C (0.5 h), 5 cycles	$[\Delta R/R \leq 2 \%$ $[S.S. \leq 2 \%]$
Humidity	-10 ~ 65 °C 80 ~ 98 %, 10 cycles, 240 h	$[\Delta R/R \leq 2 \%$
Shock	981 m/s <sup>2</sup> , 6 ms 6 directions for 3 times each	$[\Delta R/R \leq 2 \%$ $[S.S. \leq 1 \%$
Vibration	Amplitude 1.52 mm or Acceleration 196 m/s <sup>2</sup> , 10 ~ 2000 Hz, 3 directions, 12 times each	
Load life	70 °C, 0.1 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	Reflow Peak temperature : 255 °C (Please refer to the profile below)  Flow soldering : 260 ± 3 °C, 5 ~ 6 s, two times maximum  Manual soldering : 350 ± 10 °C, 3 ~ 4 s	$[\Delta R/R \leq \pm 1 \%$

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

### MAXIMUM INPUT RATINGS

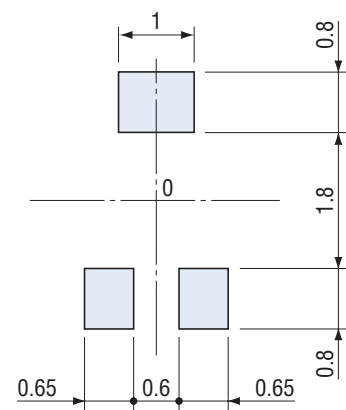
Nominal resistance values ( $\Omega$ )	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
100	101	3.16	31.6
200	201	4.47	22.4
500	501	7.07	14.1
1 k	102	10.0	10.0
2 k	202	14.1	7.1
5 k	502	22.3	4.5
10 k	103	31.6	3.2
20 k	203	44.7	2.2
50 k	503	50.0	1.0
100 k	104	50.0	0.5
200 k	204	50.0	0.25
500 k	504	50.0	0.1
1 M	105	50.0	0.05

### <Reflow profile for soldering heat evaluation>



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

(Unit : mm)



Note) The zero point is the center of mounting.

# ST-2

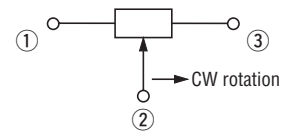
## SURFACE MOUNT TRIMMERS

### OUTLINE DIMENSIONS

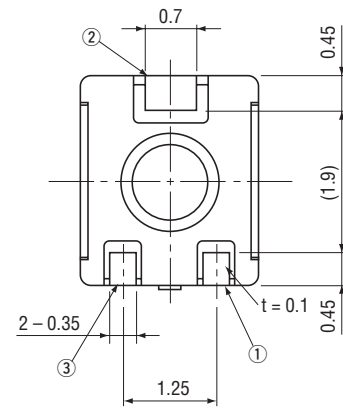
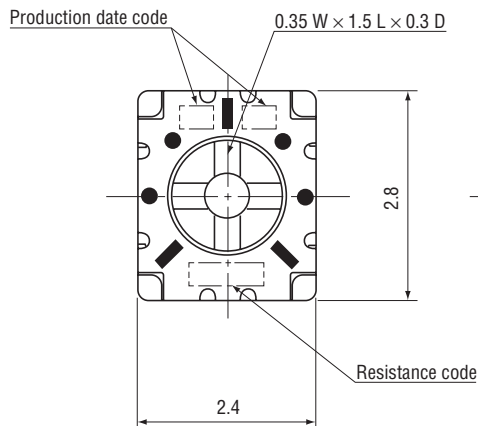
#### ST-2A

##### Top adjustment

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



※ Note the terminal position.

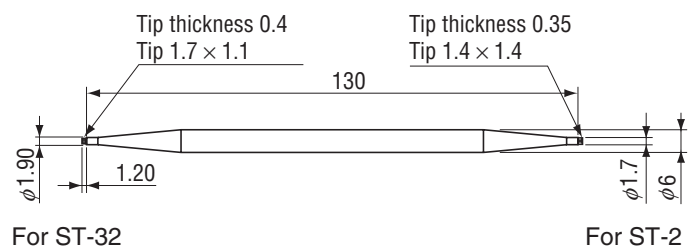


### ST-2/ST-32 ADJUSTMENT TOOL

#### Compliant with two models (ST-2/ST-32)

Recommended models	
ST-32	ST-2

Material : DURACON (POM)



### RECOMMENDED SCREWDRIVERS FOR USE

Manufacturer	Model
ENGINEER INC.	DA-54

Note : Please do not use the tool for purposes other than adjustment of electronic components.

# ST-2

## SURFACE MOUNT TRIMMERS

### PACKAGING SPECIFICATIONS

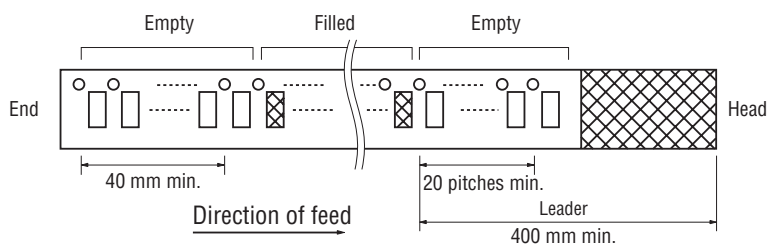
#### <Taping packaging specifications>

- 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

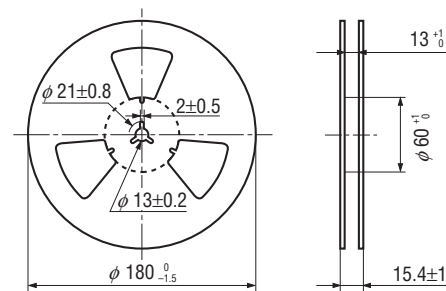
Leader length and reel dimension are shown in the diagrams below.

#### EMBOSED TAPE DIMENSIONS

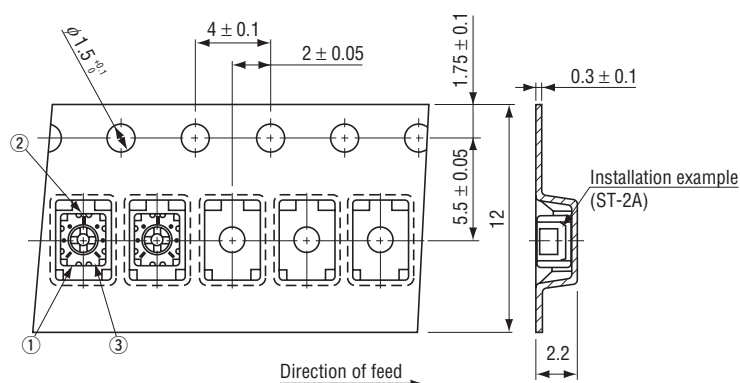


#### REEL DIMENSIONS

(Conforms to JIS C 0806-3)  
(In accordance with EIAJ ET-7200A)  
(Unit: mm)



#### ST-2TA



#### <Bulk pack specifications>

- Unit of bulk in a plastic bag is 100 pcs. per pack.
- Boxing of bulk in a plastic bag is performed with 500 pcs. per box.