

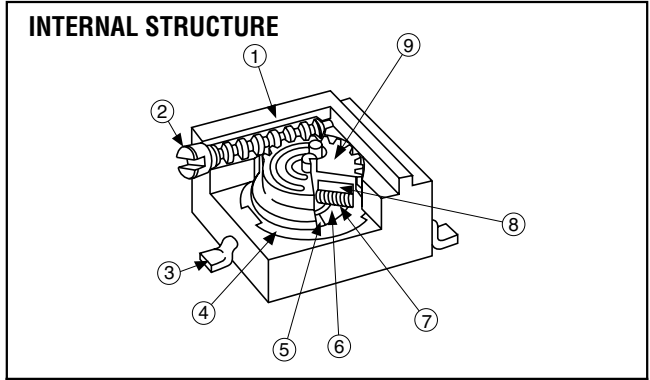
14 TURNS SURFACE MOUNT TYPE TRIMMERS **ST-5**

SURFACE MOUNT TYPE TRIMMERS



FEATURES

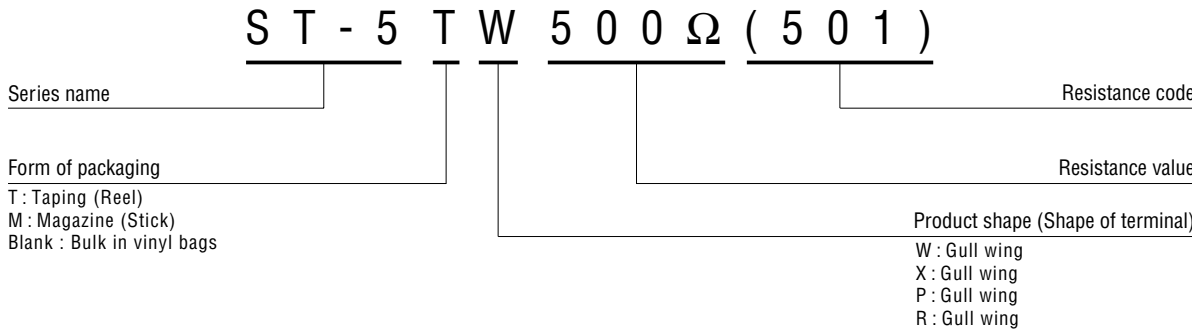
- Precise adjustment is possible
- Automatic mounting is possible (Taping)
- Flow/reflow soldering is possible
- Sealed construction (Washable)



Part name	Material	Flammability
① Housing	PPS (Polyphenylenesulphide)	UL-94V-0
② Shaft	Brass, Nickel-plated	—
③ Terminal pin	Copper, Solder-plated	
④ Base element	Ceramic	
⑤ Electrode	Ag-Pd cermet	
⑥ Resistive element	RuO ₂ cermet	
⑦ Wiper	Multi metal alloy	
⑧ Rubber plate	Silicone rubber	
⑨ Rotor gear	PA (Polyamide)	UL-94HB

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

PART NUMBER DESIGNATION



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

LIST OF PART NUMBERS

Adjustment position	Shape of terminal	Form of packaging		
		Taping (reel)	Magazine (stick)	Bulk packaging
Top adjustment	W (Gull wing)	ST-5TW	ST-5MW	ST-5W
Side adjustment	X (Gull wing)	ST-5TX	ST-5MX	ST-5X
	P (Gull wing)	ST-5TP	ST-5MP	ST-5P
	R (Gull wing)	ST-5TR	ST-5MR	ST-5R
Pieces in package		500 pcs./reel	50 pcs./stick	50 pcs./pack

ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 2 MΩ
Total resistance tolerance	±10 %
Power ratings	0.25 W (85 °C) 0 W (125 °C)
Resistance law	Linear law
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	11 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	10 Ω ~ 50 Ω : ± 250 ppm/°C maximum 100 Ω ~ 2 MΩ : ± 100 ppm/°C maximum
Insulation resistance	1000 MΩ minimum (DC500 V)
Dielectric strength	AC600 V, 60 s
Net weight	Approx. 0.35 g

<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 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 and magazine versions must be purchased in reel or stick units.

⤵ : Semi-standard

MECHANICAL CHARACTERISTICS

Mechanical turn	14 turns
Operating torque	20 mN·m (204 gf·cm) maximum
Mechanical stop	Clutch action
Rotational life	200 cycles 10 Ω ~ 200 Ω [ΔR/R ≤ ± (0.5 Ω + 3 %)] 500 Ω ~ 2 MΩ [ΔR/R ≤ ± (0.5 Ω + 2 %)]
Thrust to shaft	5 N (0.51 kgf) minimum
Solderability	235 °C, 2 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	[ΔR/R ≤ 1 %] [S.S. ≤ 1 %]
Humidity	-10 ~ +65 °C (80 ~ 98 %RH), 10 cycles, 240 h	[ΔR/R ≤ 1 %]
Shock	981 m/s ² , 6 ms 6 directions for 3 times each	[ΔR/R ≤ 1 %] [S.S. ≤ 1 %]
Vibration	Amplitude of 1.52 mm or Acceleration of 196 m/s ² , 10-2000 Hz, 3 directions, 12 times each	[ΔR/R ≤ 1 %] [S.S. ≤ 1 %]
Load life	85 °C, 0.25 W 1000 h	[ΔR/R ≤ 2 %] [S.S. ≤ 1 %]
Low temp. operation	-55 °C, 2 h	[ΔR/R ≤ 2 %] [S.S. ≤ 2 %]
High temp. exposure	125 °C, 250 h	[ΔR/R ≤ 2 %] [S.S. ≤ 2 %]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	260 °C, 10 s or 215 °C, 35 s	[ΔR/R ≤ 1 %]

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

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SURFACE MOUNT TYPE TRIMMERS

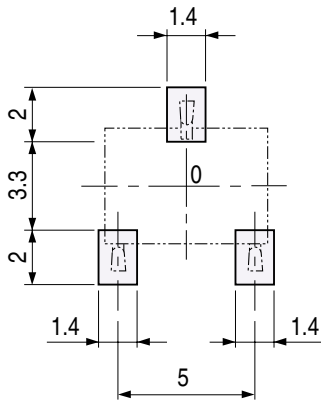
MAXIMUM INPUT RATINGS

Nominal resistance values (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
↻ 10 ↻ 20	100 200	1.00 2.00	100 100
50 100 200 500	500 101 201 501	3.53 5.00 7.07 11.2	70.7 50.0 35.4 22.4
1 k 2 k 5 k 10 k 20 k 50 k	102 202 502 103 203 503	15.8 22.4 35.4 50.0 70.7 112	15.8 11.2 7.07 5.00 3.54 2.24
100 k 200 k 500 k 1 M 2 M	104 204 504 105 205	158 200 200 200 200	1.58 1.00 0.40 0.20 0.10

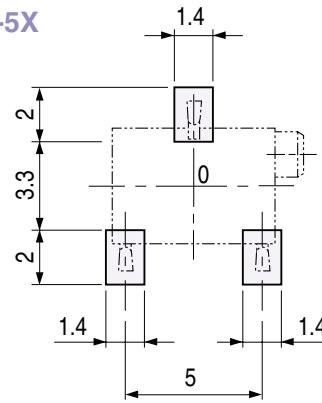
↻ : Semi-standard

RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

● ST-5W

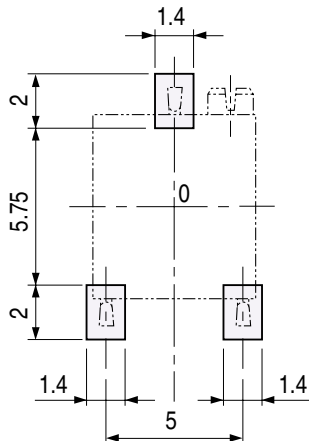


● ST-5X

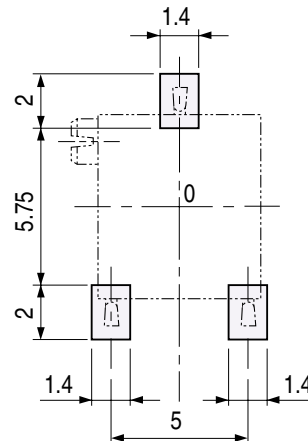


(Unit: mm)

● ST-5P



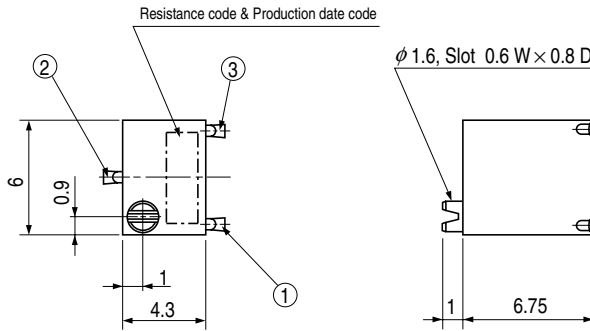
● ST-5R



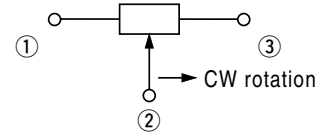
Note) The zero point is the center of mounting.

OUTLINE DIMENSIONS

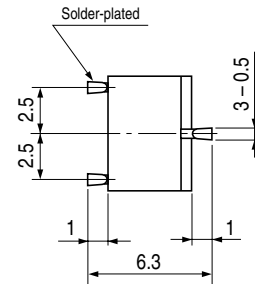
● **ST-5W**
Top adjustment



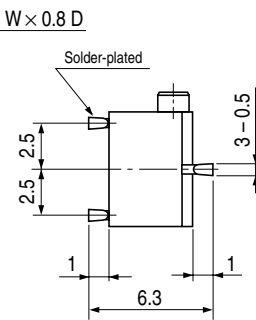
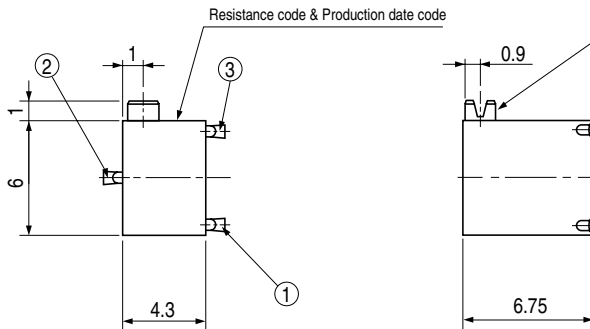
Unless otherwise specified, tolerance : ± 0.3 (Unit: mm)



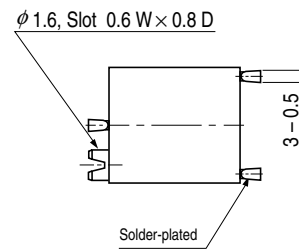
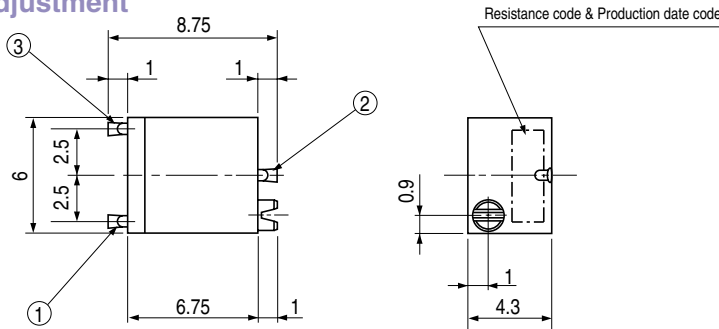
* Note the terminal position.



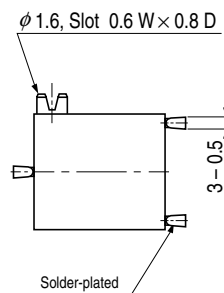
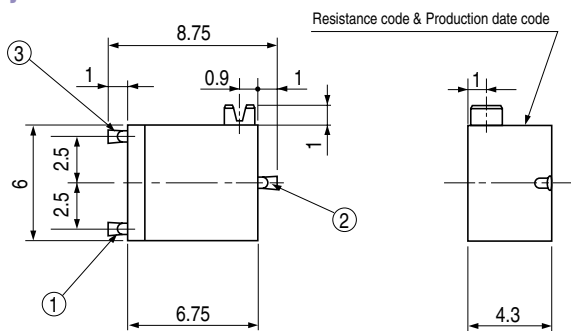
● **ST-5X**
Side adjustment



● **ST-5P**
Side adjustment



● **ST-5R**
Side adjustment



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SURFACE MOUNT TYPE TRIMMERS

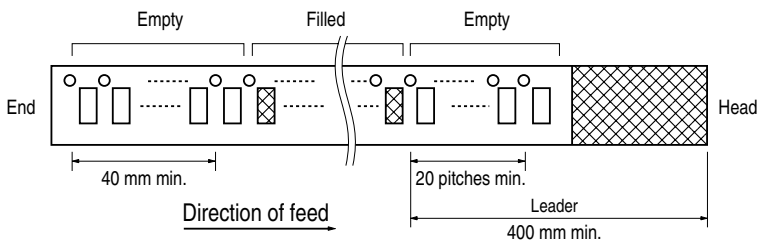
PACKAGING SPECIFICATIONS

<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.).

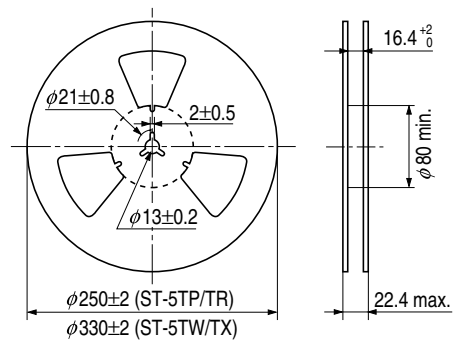
Maximum number of consecutive missing pieces=2
Leader length and reel dimension are shown in the diagrams below.

EMBOSSED TAPE DIMENSIONS



REEL DIMENSIONS

(Unit: mm)



Reel & embossed tape materials

Embossed tape: Plastic
Reel: Paper

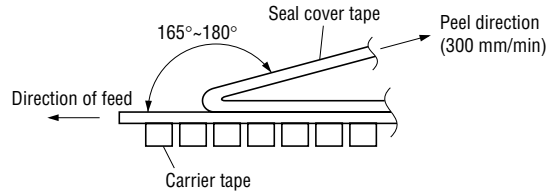
Embossed tape pull strength

9.8 N {1kgf} minimum

Peeling strength of seal tape

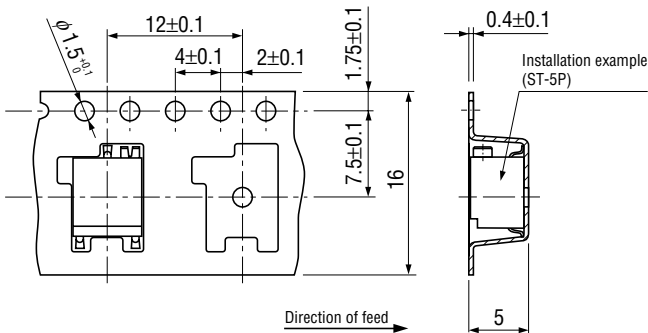
0.098~0.69 N {10~70gf}

Test method for peeling strength of seal tape

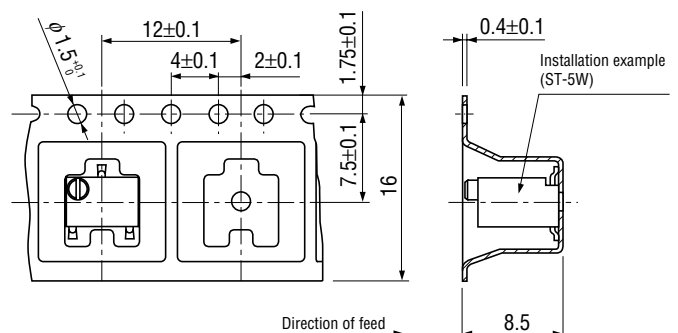


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ST-5TP/TR



ST-5TW/TX



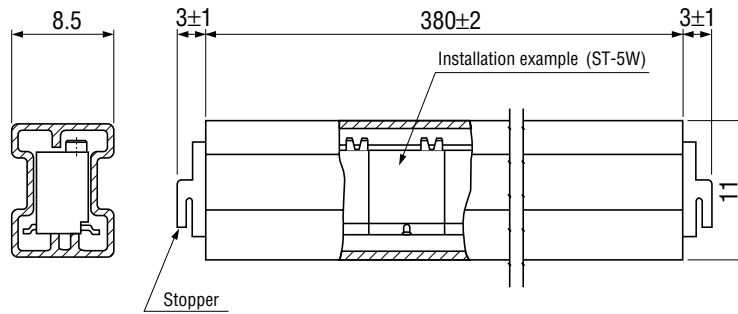
<Magazine packaging specifications>

Magazine is common for ST-5MW, MX, MP and MR.

- Magazine is packed 50 pcs. per stick.
 Orders will be accepted for units of 50 pcs., i.e., 50, 100, 150 pcs., etc.
- Magazines are packed 2000 pcs. per box.

● Magazine dimensions

(Unit: mm)



<Bulk 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.