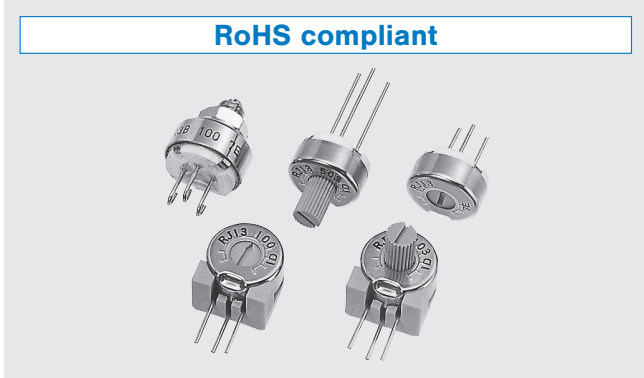


# SINGLE TURN CERMET TRIMMERS **RJ-13**

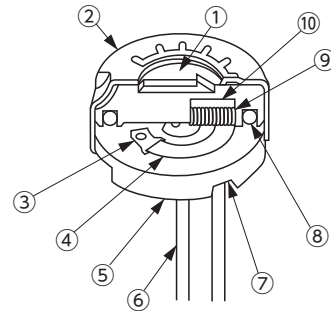
RoHS compliant



## FEATURES

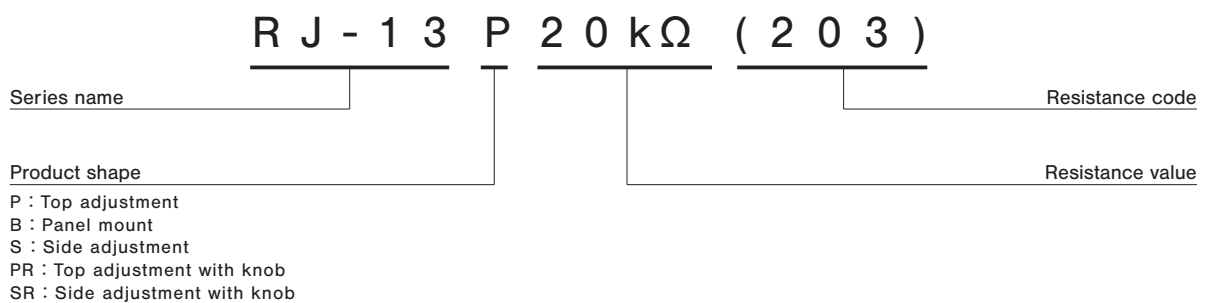
- RoHS compliant
- Wide resistance range from 10 Ω to 5MΩ
- Precious metal alloy wiper
- Resin material is UL Recognized 94V-0

## INTERNAL STRUCTURE










	Part name	Material
①	Rotor	PBT (Polybutyleneterephthalate)
②	Cover	Stainless steel
③	Electrode	Ag-Pd cermet
④	Resistive element	RuO <sub>2</sub> cermet
⑤	Base element	Ceramic
⑥	Terminal pin	Nickel, Gold-plated
⑦	Adhesive	Epoxy
⑧	“O” ring	Silicone rubber
⑨	Wiper	Multi metal alloy
⑩	Rubber cushion	Silicone rubber

## PART NUMBER DESIGNATION



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

### LIST OF PART NUMBERS

Adjustment position	Shape of terminal (Top view)	Form of packaging	Pieces in package
		Plastic bag	
 Top adjustment		RJ-13P	50 pcs./pack
		RJ-13B	
		RJ-13PR	
 Side adjustment (1 Adjustment direction)		RJ-13S	
		RJ-13SR	

### ◁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	⊖25 kΩ	50 kΩ	100 kΩ	200 kΩ	⊖250 kΩ	500 kΩ	1 MΩ	2 MΩ	⊖5 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.

The products indicated by ⊖ mark are manufactured upon receipt of order basis.

### ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 5 MΩ
Resistance tolerance	± 10 %
Power ratings	0.75 W (70 °C) 0 W (120 °C)
Resistance law	Linear law (B)
Maximum input voltage	DC300 V or power rating, whichever is smaller
Maximum wiper current	100 mA or power rating, whichever is smaller
Effective electrical angle	230 ° (1 turn)
End resistance	1 % or 2 Ω, whichever is greater
C.R.V.	1 % or 3 Ω, whichever is greater
Operating temp. range	-55 ~ 120 °C
Temp. coefficient	10 Ω, 20 Ω, 5 MΩ : ± 250 10 <sup>-6</sup> /°C maximum 50 Ω ~ 2 MΩ : ± 100 10 <sup>-6</sup> /°C maximum
Insulation resistance	1000 MΩ minimum (DC500 V)
Dielectric strength	AC900 V, 60 s
Net weight	Approx. 1.90 g (RJ-13P) Approx. 4.50 g (RJ-13B) Approx. 2.15 g (RJ-13PR) Approx. 2.50 g (RJ-13S) Approx. 2.78 g (RJ-13SR)

### MECHANICAL CHARACTERISTICS

Mechanical angle	270 ° (1 turn)
Operating torque	3 ~ 35 mN·m {30.6~357 gf·cm}
Stop strength	100 mN·m {1.02 kgf·cm}
Rotational life	200 cycles 10 Ω ~ 200 Ω [ΔR/R ≤ ± (0.5 Ω + 3 %)] 500 Ω ~ 5 MΩ [ΔR/R ≤ ± (0.5 Ω + 2 %)]
Terminal to strength	20 N {2.04 kgf} minimum (Tensile strength)
Thrust to rotor	10 N {1.02 kgf} minimum
Solderability	245 ± 3 °C, 2 ~ 3 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 (Relative humidity 80 ~ 98 %), 10 cycles, 240 h	[ΔR/R ≤ 1 %]
Shock	981 m/s <sup>2</sup> , 6 ms 6 directions for 3 times each	[ΔR/R ≤ 1 %] [S.S. ≤ 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, 0.75 W, 1000 h	[ΔR/R ≤ 2 %] [S.S. ≤ 1 %]
Low temp. operation	-55 °C, 2 h	[ΔR/R ≤ 1 %] [S.S. ≤ 2 %]
High temp. exposure	120 °C, 250 h	[ΔR/R ≤ 2 %] [S.S. ≤ 2 %]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	Flow: 260 ± 3 °C, 5 ~ 6 s, two times maximum	[ΔR/R ≤ 1 %]
	Manual soldering: 380 ± 10 °C, 3 ~ 4 s	

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

# RJ-13

## CERMET TRIMMERS

### MAXIMUM INPUT RATINGS

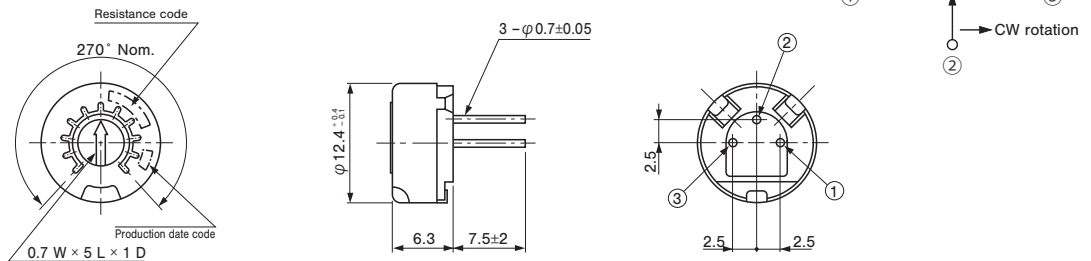
Nominal resistance value ( $\Omega$ )	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
⊕ 10 ⊖ 20 50 100 200 500	100 200 500 101 201 501	1.00 2.00 5.00 8.66 12.2 19.4	100 100 100 86.6 61.0 38.8
⊕ 1 k 2 k 5 k 10 k 20 k 25 k 50 k	102 202 502 103 203 253 503	27.4 38.7 61.2 86.6 122 137 194	27.4 19.3 12.2 8.66 6.10 5.48 3.88
⊕ 100 k 200 k 250 k 500 k 1 M 2 M ⊖ 5 M	104 204 254 504 105 205 505	274 300 300 300 300 300 300	2.74 1.50 1.20 0.60 0.30 0.15 0.06

The products indicated by ⊖ mark are manufactured upon receipt of order basis.

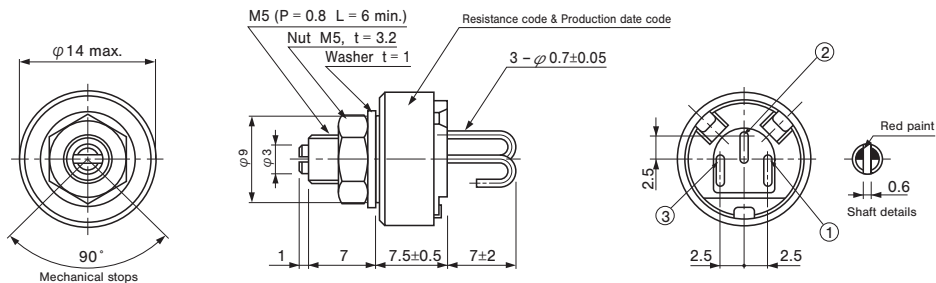
### OUTLINE DIMENSIONS

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

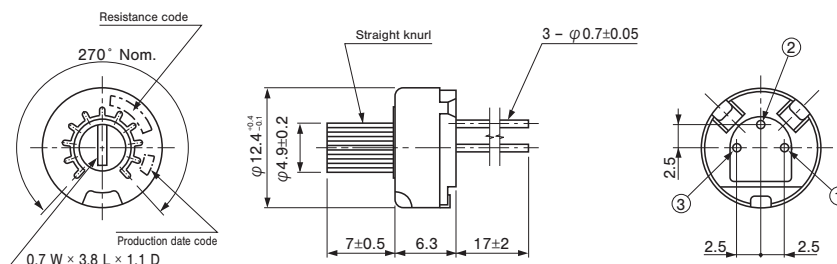
#### RJ-13P Top adjustment



#### RJ-13B Panel mount



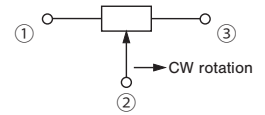
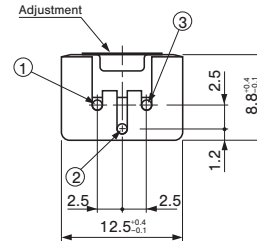
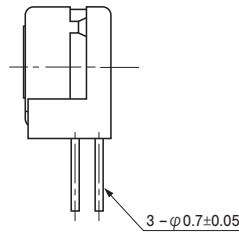
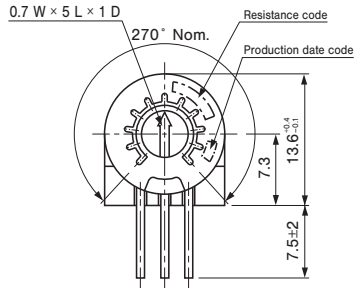
#### RJ-13PR Top adjustment with knob



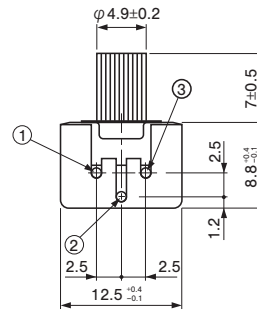
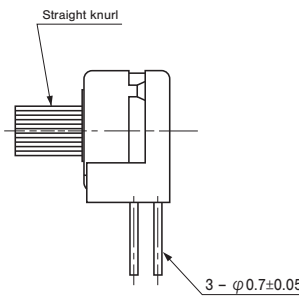
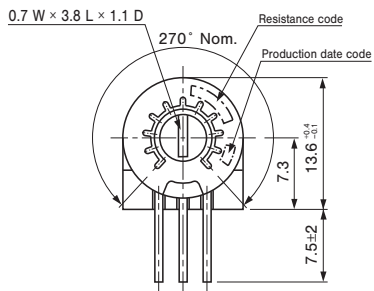
### OUTLINE DIMENSIONS

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

#### RJ-13S Side adjustment



#### RJ-13SR Side adjustment with knob



### PACKAGING SPECIFICATIONS

#### <Bulk pack specifications>

- Unit of bulk pack in a plastic bag is 25 pcs. per pack, only that RJ-13P is 50 pcs. per pack.
- Boxing of bulk in a plastic bag is performed with 50 pcs. per box, only that RJ-13P is 100 pcs. per box.