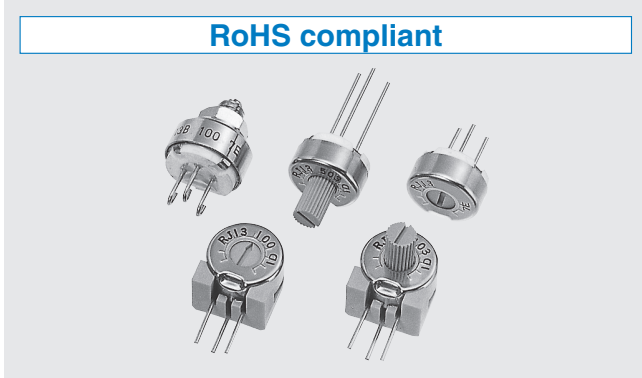


# SINGLE TURN CERMET TRIMMERS

# RJ-13

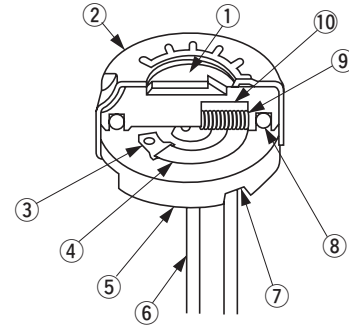
RoHS compliant



## FEATURES

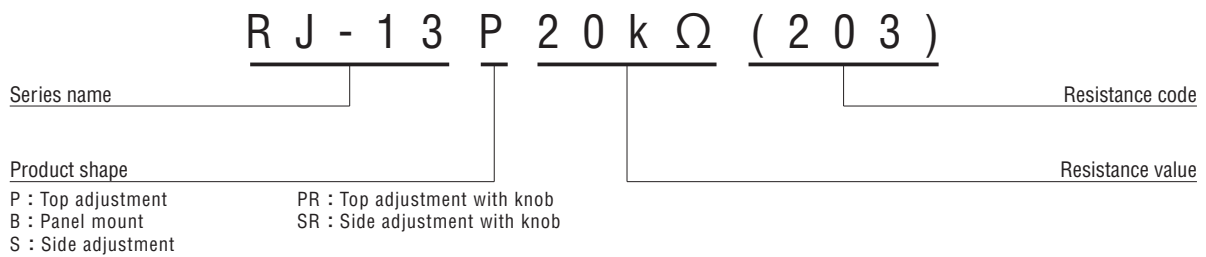
- RoHS compliant
- Wide resistance range from 10  $\Omega$  to 5 M  $\Omega$
- Precious metal alloy wiper

## INTERNAL STRUCTURE










	Part name	Material	Flammability
①	Rotor	Polybutyleneterephthalate	UL94HB
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	UL94HB
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  25 pcs./pack
		RJ-13B	
		RJ-13PR	
 Side adjustment (↑ Adjustment direction)		RJ-13S	
		RJ-13SR	

### ◁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	➡ 25 k Ω	50 k Ω	100 k Ω	200 k Ω	➡ 250 k Ω	500 k Ω	1 M Ω	2 M Ω	➡ 5 M Ω

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 M Ω
Resistance tolerance	± 10 %
Power ratings	0.75 W (70 °C) 0 W (120 °C)
Resistance law	(B) 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 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 M Ω : ± 250 10 <sup>-6</sup> /°C maximum 50 Ω ~ 2 M Ω : ± 100 10 <sup>-6</sup> /°C maximum
Insulation resistance	1000 M Ω 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 [ Δ R/R ≤ ± (0.5 Ω + 3 %)] 500 Ω ~ 5 M Ω [ Δ R/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	[ Δ R/R ≤ 1 %] [S.S. ≤ 1 %]
Humidity	− 10 ~ 65 °C (80 ~ 98 %), 10 cycles, 240 h	[ Δ R/R ≤ 1 %]
Shock	981 m/s <sup>2</sup> , 6 ms 6 directions for 3 times each	[ Δ R/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	[ Δ R/R ≤ 2 %] [S.S. ≤ 1 %]
Low temp. operation	− 55 °C, 2 h	[ Δ R/R ≤ 1 %] [S.S. ≤ 2 %]
High temp. exposure	120 °C, 250 h	[ Δ R/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	[ Δ R/R ≤ 1 %]
	Manual soldering 380 ± 10 °C, 3 ~ 4 s	

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

# RJ-13

## CERMET TRIMMERS

### MAXIMUM INPUT RATINGS

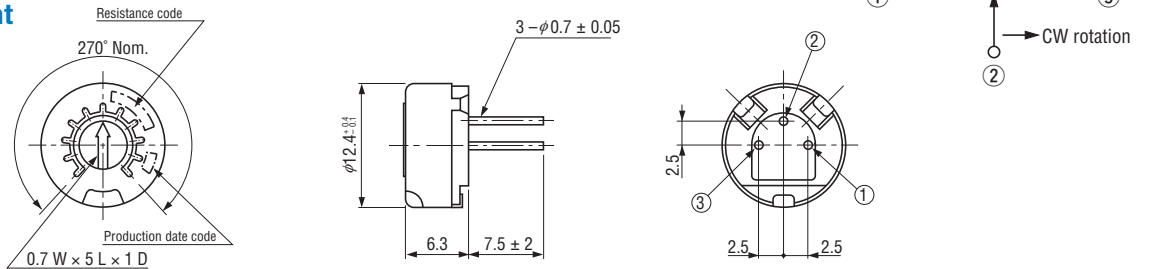
Nominal resistance value ( $\Omega$ )	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
<ul style="list-style-type: none"> <li>➔ 10</li> <li>➔ 20</li> <li>50</li> <li>100</li> <li>200</li> <li>500</li> </ul>	<ul style="list-style-type: none"> <li>100</li> <li>200</li> <li>500</li> <li>101</li> <li>201</li> <li>501</li> </ul>	<ul style="list-style-type: none"> <li>1.00</li> <li>2.00</li> <li>5.00</li> <li>8.66</li> <li>12.2</li> <li>19.4</li> </ul>	<ul style="list-style-type: none"> <li>100</li> <li>100</li> <li>100</li> <li>86.6</li> <li>61.0</li> <li>38.8</li> </ul>
<ul style="list-style-type: none"> <li>1 k</li> <li>2 k</li> <li>5 k</li> <li>10 k</li> <li>20 k</li> <li>➔ 25 k</li> <li>50 k</li> </ul>	<ul style="list-style-type: none"> <li>102</li> <li>202</li> <li>502</li> <li>103</li> <li>203</li> <li>253</li> <li>503</li> </ul>	<ul style="list-style-type: none"> <li>27.4</li> <li>38.7</li> <li>61.2</li> <li>86.6</li> <li>122</li> <li>137</li> <li>194</li> </ul>	<ul style="list-style-type: none"> <li>27.4</li> <li>19.3</li> <li>12.2</li> <li>8.66</li> <li>6.10</li> <li>5.48</li> <li>3.88</li> </ul>
<ul style="list-style-type: none"> <li>➔ 100 k</li> <li>➔ 200 k</li> <li>➔ 250 k</li> <li>500 k</li> <li>➔ 1 M</li> <li>➔ 2 M</li> <li>➔ 5 M</li> </ul>	<ul style="list-style-type: none"> <li>104</li> <li>204</li> <li>254</li> <li>504</li> <li>105</li> <li>205</li> <li>505</li> </ul>	<ul style="list-style-type: none"> <li>274</li> <li>300</li> <li>300</li> <li>300</li> <li>300</li> <li>300</li> <li>300</li> </ul>	<ul style="list-style-type: none"> <li>2.74</li> <li>1.50</li> <li>1.20</li> <li>0.60</li> <li>0.30</li> <li>0.15</li> <li>0.06</li> </ul>

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

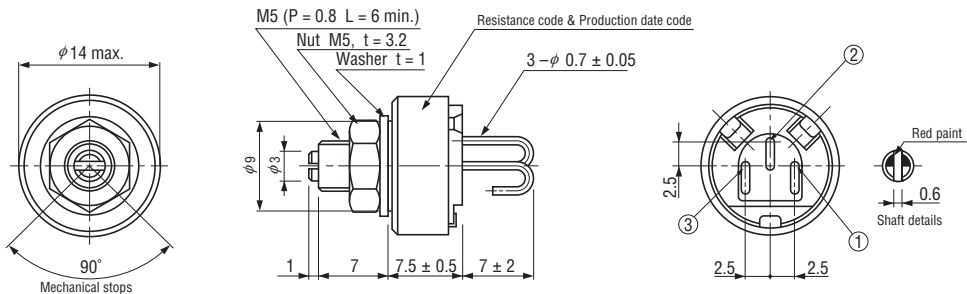
### OUTLINE DIMENSIONS

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

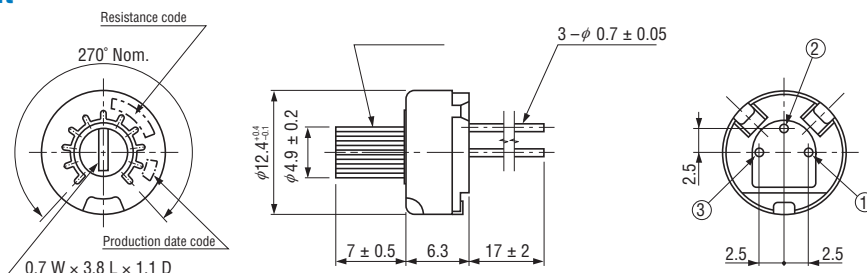
#### RJ-13P Top adjustment



#### RJ-13B Panel mount

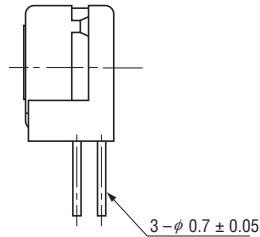
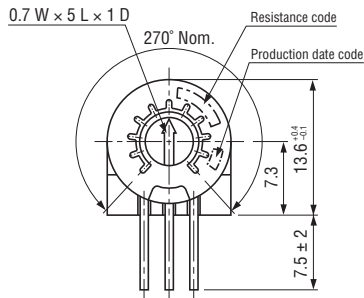


#### RJ-13PR Top adjustment with knob

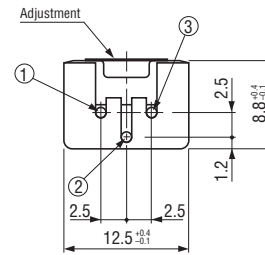
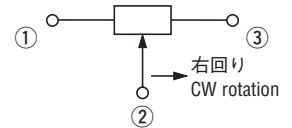


### OUTLINE DIMENSIONS

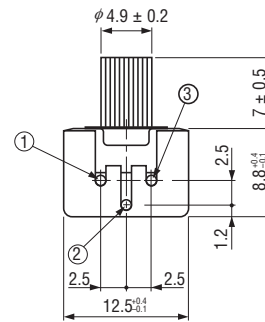
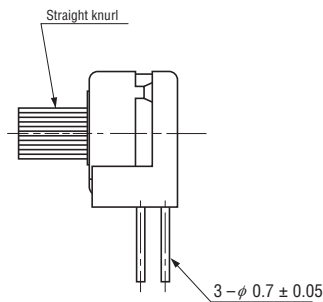
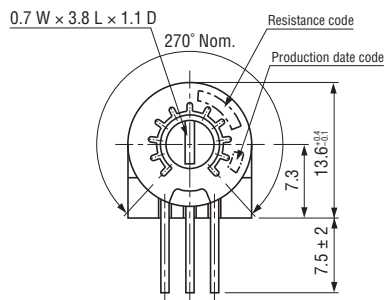
#### ● RJ-13S Side adjustment



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



#### ● 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.

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[R16148-1A-2-B220K](#) [R16148-1A-2-B22K](#)