

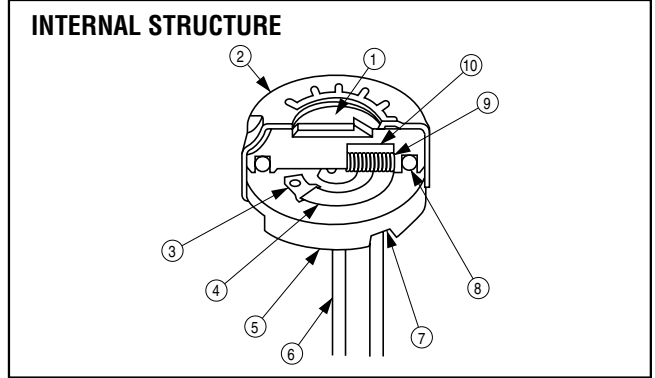
# SINGLE TURN CERMET TRIMMERS **RJ-13**

CERMET TRIMMERS



## FEATURES

- Wide resistance range from 10 Ω to 5 MΩ
- Precious metal alloy wiper

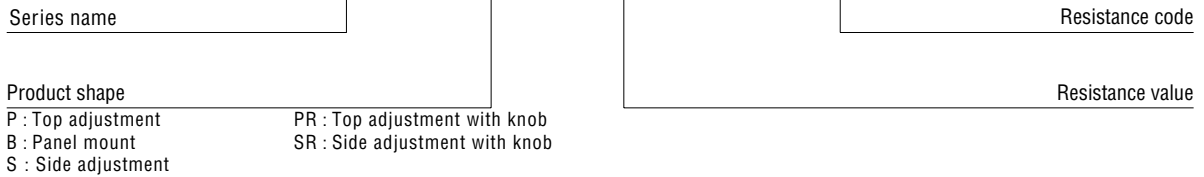


Part name	Material	Flammability
① Rotor	PBT (Polybutyleneterephthalate)	UL-94HB
② Cover	Stainless steel	—
③ Electrode	Ag-Pd cermet	
④ Resistive element	RuO <sub>2</sub> cermet	
⑤ Base element	Ceramic	
⑥ Terminal pin	Nickel, Gold-plated	
⑦ Adhesive	Epoxy	UL-94HB
⑧ "O" ring	Silicone rubber	
⑨ Wiper	Multi metal alloy	
⑩ Rubber cushion	Silicone rubber	—

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

## PART NUMBER DESIGNATION

**R J - 1 3 P 2 0 k Ω ( 2 0 3 )**



\* 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
		Bulk packaging	
Top adjustment		RJ-13P	50 pcs./pack
		RJ-13B	
		RJ-13PR	
Side adjustment (↑ Adjustment direction)		RJ-13S	25 pcs./pack
		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.

↻ : Semi-standard

**ELECTRICAL CHARACTERISTICS**

Nominal resistance range	10 Ω ~ 5 MΩ
Total resistance tolerance	± 10 %
Power ratings	0.75 W (70 °C) 0 W (125 °C)
Resistance law	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 ~ +125 °C
Temp. coefficient	10 Ω, 20Ω, 5 MΩ : ± 250 ppm/°C maximum 50 Ω ~ 2 MΩ : ± 100 ppm/°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) minimum
Rotational life	200 cycles 10 Ω ~ 200Ω [ΔR/R ≤ ± (0.5 Ω + 3 %)] 500 Ω ~ 5 MΩ [ΔR/R ≤ ± (0.5 Ω + 2 %)]
Terminal strength	20 N {2.04 kgf} minimum (Tensile strength)
Thrust to rotor	10 N {1.02 kgf} minimum
Solderability	235 °C, 2 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 <sup>2</sup> , 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 <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	125 °C, 250 h	[ΔR/R ≤ 2 %] [S.S. ≤ 2 %]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	350 °C, 3 s	[ΔR/R ≤ 1 %]

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

# RJ-13

## CERMET TRIMMERS

CERMET TRIMMERS

### MAXIMUM INPUT RATINGS

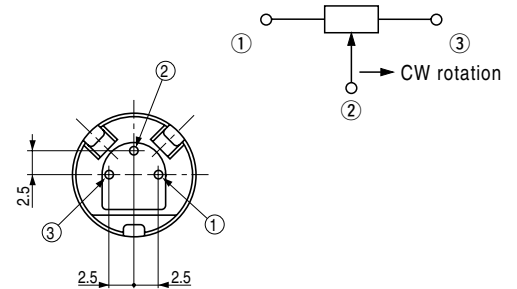
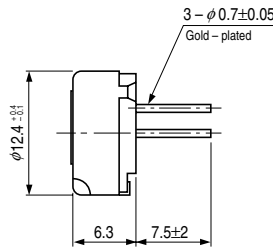
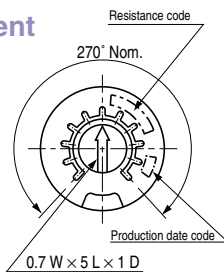
Nominal resistance value (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
<ul style="list-style-type: none"> <li>➔ 10</li> <li>➔ 20</li> <li>50</li> <li>100</li> <li>200</li> <li>500</li> </ul>	<ul style="list-style-type: none"> <li>100</li> <li>200</li> <li>500</li> <li>101</li> <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>

➔ : Semi-standard

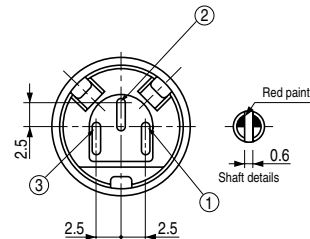
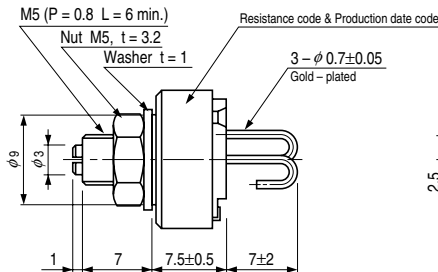
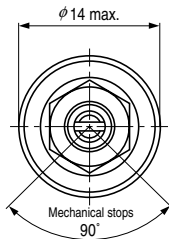
### OUTLINE DIMENSIONS

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

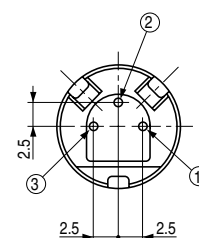
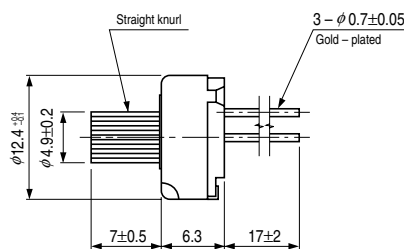
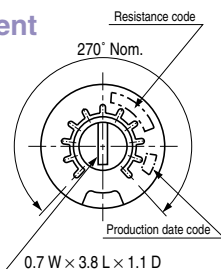
#### RJ-13P Top adjustment



#### RJ-13B Panel mount



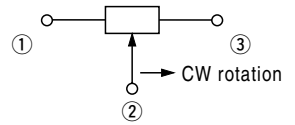
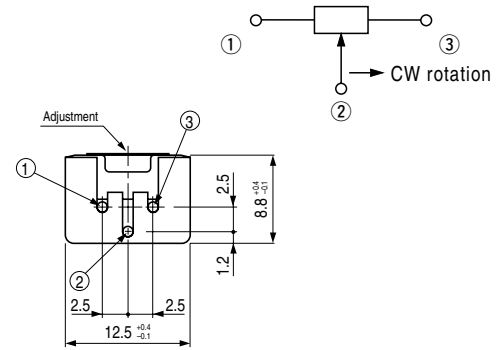
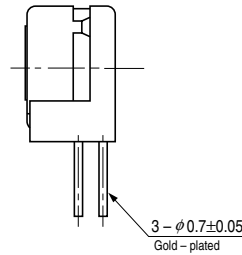
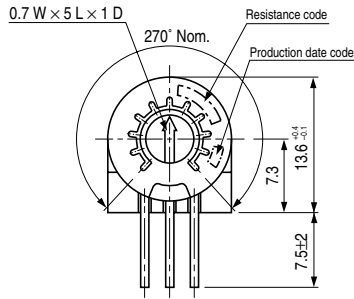
#### RJ-13PR Top adjustment with knob



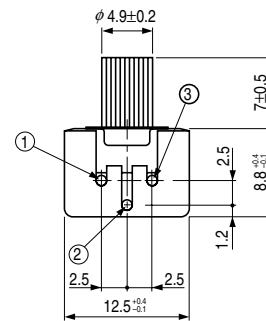
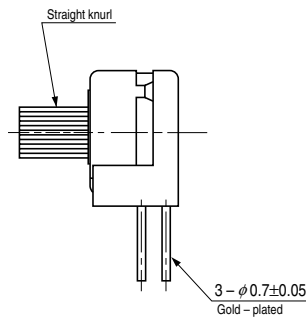
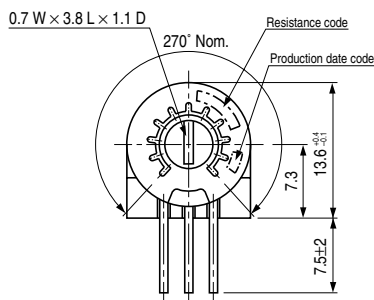
**OUTLINE DIMENSIONS**

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

● **RJ-13S**  
**Side adjustment**



● **RJ-13SR**  
**Side adjustment with knob**



**PACKAGING SPECIFICATIONS**

<Bulk packaging specifications>

- Unit of bulk in vinyl bag packaging is 25 pcs. per pack.  
Only that of RJ-13P is 50 pcs. per pack.
- Boxing of bulk in vinyl bags is performed with 50 pcs. per box.  
Only that of RJ-13P is 100 pcs. per box.