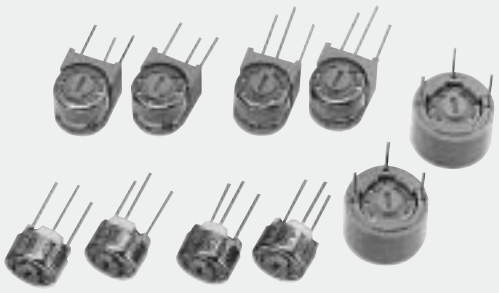
# SINGLE TURN CERMET TRIMMERS RJ-6

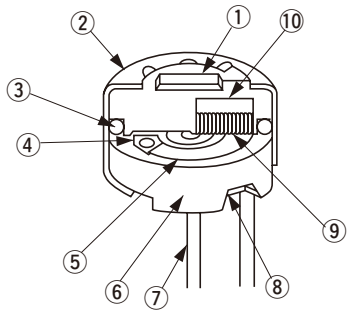
RoHS compatible



## ■ FEATURES

- Lead-free soldering
- Wide resistance range from 10 Ω to 5 MΩ
- Low contact resistance variation (1 % maximum)
- Precious metal alloy wiper

**INTERNAL STRUCTURE**




| | Part name | Material | Flammability |
|---|---|---|---|
| ① | Rotor | PBT (Polybutyleneterephthalate) | UL-94HB |
| ② | Cover | Stainless steel | — |
| ③ | "O" ring | Silicone rubber | UL-94HB |
| ④ | Electrode | Ag-Pd cermet | — |
| ⑤ | Resistive element | $RuO_2$ cermet | |
| ⑥ | Base element | Ceramic | |
| ⑦ | Terminal pin | Nickel, Gold-plated | |
| ⑧ | Adhesive | Epoxy | |
| 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 - 6 P 1 0 k Ω ( 1 0 3 )

Series name

Product shape
P : Top adjustment
W : Top adjustment
F : Rear adjustment
S : Side adjustment
X : Side adjustment

Resistance value

Resistance code

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



Oct, 2004

# RJ-6
## CERMET TRIMMERS

## ■ LIST OF PART NUMBERS

| Adjustment position | Shape of terminal (Top view) | Form of packaging: Vinyl bag | Pieces in package |
|---|---|---|---|
| Top adjustment |  | RJ-6P | 50 pcs./pack |
| |  | RJ-6W | |
| Side adjustment ( ↑ Adjustment direction) |  | RJ-6S | |
| |  | RJ-6X | |
| Rear adjustment |  | ➔ RJ-6F | |

## ■ ELECTRICAL CHARACTERISTICS

| | |
|---|---|
| Nominal resistance range | 10 Ω ~ 5 MΩ |
| Resistance tolerance | ± 10 % |
| Power ratings | 0.5 W (70 °C) 0 W (120 °C) |
| Resistance law | Linear law (B) |
| Maximum input voltage | DC200 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, 20Ω, 5 MΩ : ± 250 $10^{-6}$/°C maximum<br>50 Ω ~ 2 MΩ : ± 100 $10^{-6}$/°C maximum |
| Insulation resistance | 1000 MΩ minimum (DC500 V) |
| Dielectric strength | AC900 V, 60 s |
| Net weight | Approx. 0.60 g (RJ-6P,W)<br>Approx. 0.80 g (RJ-6S, X)<br>Approx. 1.01 g (RJ-6F) |

### <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 products indicated by ➔ mark are manufactured upon receipt of order basis.**

❋ : 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.

## ■ MECHANICAL CHARACTERISTICS

| | |
|---|---|
| Mechanical angle | 270 ° (1 turn) |
| Operating torque | 2~ 15 mN·m {20 ~ 153 gf·cm} |
| Stop strength | 50 mN·m {510 gf·cm} minimum |
| Rotational life | 200 cycles<br>10 Ω ~ 200 Ω [Δ R/R ≦ ± (0.5 Ω +3 %)]<br>500 Ω ~ 5 MΩ [Δ R/R ≦ ± (0.5 Ω +2 %)] |
| Terminal to strength | 10 N {1.02 kgf} minimum<br>(Tensile strength) |
| Thrust 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),<br>5 cycles | [Δ R/R ≦ 1 %]<br>[S.S. ≦ 1 %] |
| Humidity | −10 ~ 65 °C (Relative humidity 80 ~ 98 %),<br>10 cycles, 240 h | [Δ R/R ≦ 1 %] |
| Shock | 981 m/s², 6 ms<br>6 directions for 3 times each | [Δ R/R ≦ 1 %]<br>[S.S. ≦ 1 %] |
| Vibration | Amplitude 1.52 mm or<br>Acceleration 196 m/s²,<br>10 ~ 2000 Hz, 3 directions, 12 times each | |
| Load life | 70 °C, 0.5 W, 1000 h | [Δ R/R ≦ 2 %]<br>[S.S. ≦ 1 %] |
| Low temp. operation | −55 °C, 2 h | [Δ R/R ≦ 1 %]<br>[S.S. ≦ 2 %] |
| High temp. exposure | 120 °C, 250 h | [Δ R/R ≦ 2 %]<br>[S.S. ≦ 2 %] |
| Immersion seal | 85 °C, 60 s | No leaks (No continuous bubbles) |
| Soldering heat | Flow soldering :<br>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

■ Specifications are subject to change without notice. Specifications in this catalog are for reference. The formal specification sheets will be submitted upon request.

# RJ-6
## CERMET TRIMMERS

## ■ MAXIMUM INPUT RATINGS

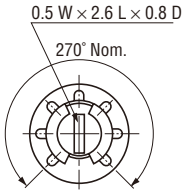
| Nominal resistance values (Ω) | Resistance code | Maximum input voltage (V) | Maximum wiper current (mA) |
|---|---|---|---|
| ➔ 10 | 100 | 1.00 | 100 |
| ➔ 20 | 200 | 2.00 | 100 |
| 50 | 500 | 5.00 | 100 |
| 100 | 101 | 7.07 | 70.7 |
| 200 | 201 | 10.0 | 50.0 |
| 500 | 501 | 15.8 | 31.6 |
| 1 k | 102 | 22.4 | 22.4 |
| 2 k | 202 | 31.6 | 15.8 |
| 5 k | 502 | 50.0 | 10.0 |
| 10 k | 103 | 70.7 | 7.07 |
| 20 k | 203 | 100 | 5.00 |
| ➔ 25 k | 253 | 112 | 4.48 |
| 50 k | 503 | 158 | 3.16 |
| 100 k | 104 | 200 | 2.00 |
| 200 k | 204 | 200 | 1.00 |
| ➔ 250 k | 254 | 200 | 0.80 |
| 500 k | 504 | 200 | 0.40 |
| 1 M | 105 | 200 | 0.20 |
| 2 M | 205 | 200 | 0.10 |
| ➔ 5 M | 505 | 200 | 0.04 |

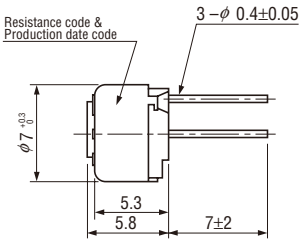
**The products indicated by ➔ mark are manufactured upon receipt of order basis.**

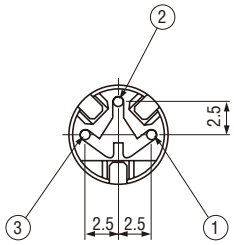
## ■ OUTLINE DIMENSIONS

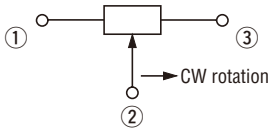
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

### ● RJ-6P
### Top adjustment

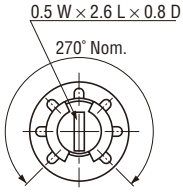


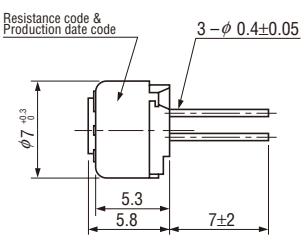



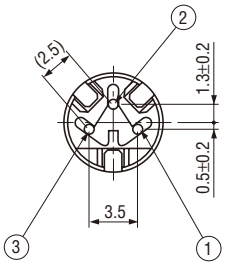




### ● RJ-6W
### Top adjustment

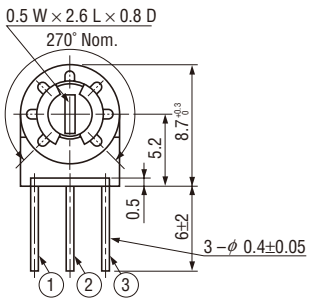


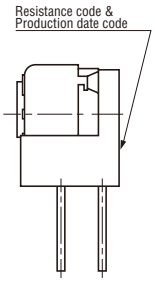



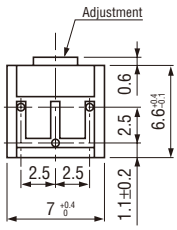




★ : Pin pitch in W type is different from P type.

### ● RJ-6S
### Side adjustment

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# RJ-6
## CERMET TRIMMERS

## ■ OUTLINE DIMENSIONS

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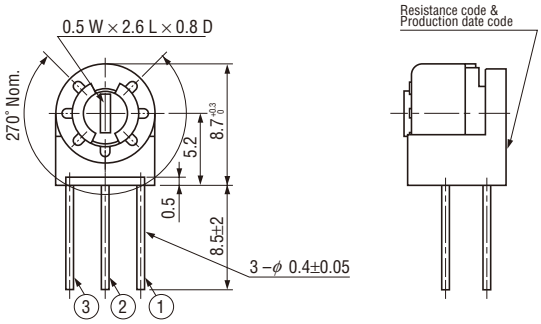
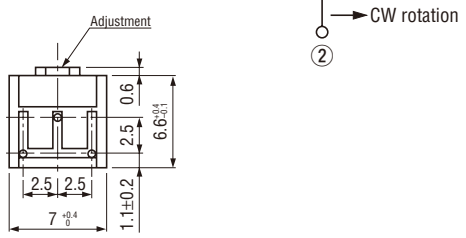
### ● RJ-6X
### Side adjustment

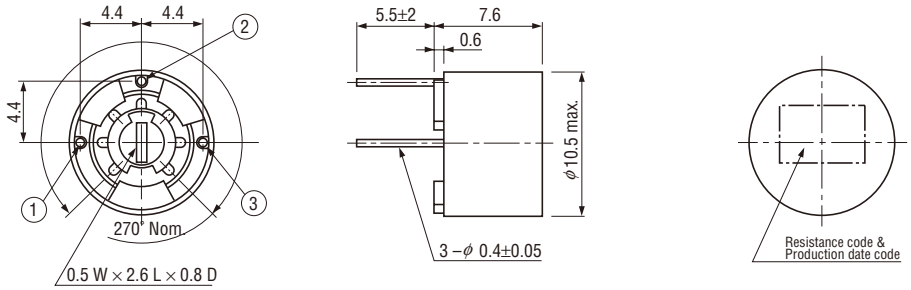



★ Pin position & stopper position of X type are different from S type.

### ● RJ-6F
### Rear adjustment

<Semi-standard products>




## ■ PACKAGING SPECIFICATIONS

### <Vinyl bag 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. (RJ-6F is 100 pcs.) per box.