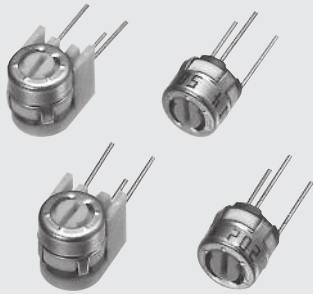


# SINGLE TURN CERMET TRIMMERS **RJ-4**

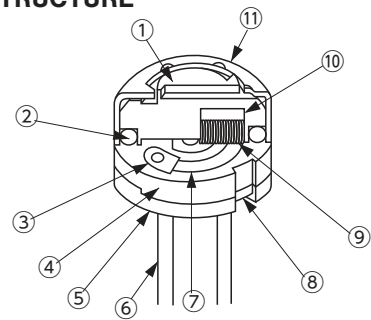
RoHS compliant



## FEATURES

- RoHS compliant
- Compact with power rating of 0.5 W
- Precious metal alloy wiper
- Resin material is UL Recognized 94V-0

## INTERNAL STRUCTURE



| Part name           | Material                  |
|---------------------|---------------------------|
| ① Rotor             | Polybutyleneterephthalate |
| ② "O" ring          | Silicone rubber           |
| ③ Electrode         | Ag-Pd cermet              |
| ④ Base element      | Ceramic                   |
| ⑤ Base              | Polyphenylenesulphide     |
| ⑥ Terminal pin      | Copper alloy, Tin-plated  |
| ⑦ Resistive element | RuO <sub>2</sub> cermet   |
| ⑧ Adhesive          | Epoxy                     |
| ⑨ Wiper             | Multi metal alloy         |
| ⑩ Rubber cushion    | Silicone rubber           |
| ⑪ Cover             | Stainless steel           |

## PART NUMBER DESIGNATION

**R J - 4 E W S 2 k Ω ( 2 0 2 )**

Series name

Terminal pin

E : Sn (Lead-free)

Product shape

W : Top adjustment

WS : Side adjustment

Resistance code

Resistance value

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

# RJ-4

## CERMET TRIMMERS

### LIST OF PART NUMBERS

| Adjustment position | Form of packaging | Pieces in package |
|---------------------|-------------------|-------------------|
|                     | Plastic bag       |                   |
| Top adjustment      | RJ-4EW            | 50 pcs./pack      |
| Side adjustment     | RJ-4EWS           |                   |

### ⟨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 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.

### ELECTRICAL CHARACTERISTICS

|                            |   |
|----------------------------|---|
| Nominal resistance range   | 10 Ω ~ 2 MΩ   |
| Resistance tolerance       | ± 10 %  |
| Power ratings              | 0.5 W (70 °C) 0 W (120 °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 angle | 200 ° (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 ~ 50 Ω : ± 250 10 <sup>-6</sup> /°C maximum<br>100 Ω ~ 2 MΩ : ± 100 10 <sup>-6</sup> /°C maximum |
| Insulation resistance      | 1000 MΩ minimum (DC500 V)   |
| Dielectric strength        | AC500 V, 60 s   |
| Net weight                 | Approx. 0.26 g (RJ-4EW)<br>Approx. 0.35 g (RJ-4EWS)   |

### MECHANICAL CHARACTERISTICS

|                   |  |
|-------------------|--|
| Mechanical angle  | 230 ° (1 turn)   |
| Operating torque  | 15 mN·m {153 gf·cm} maximum  |
| Stop strength     | 45 mN·m {459 gf·cm} minimum  |
| Rotational life   | 200 cycles<br>10 Ω ~ 200 Ω [ Δ R/R ≤ ± (0.5 Ω + 3 %)]<br>500 Ω ~ 2 MΩ [ Δ R/R ≤ ± (0.5 Ω + 2 %)] |
| Terminal strength | 10 N {1.02 kgf} minimum<br>(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),<br>5 cycles   | [ Δ R/R ≤ 1 %]<br>[S.S. ≤ 1 %]   |
| Humidity            | - 10 ~ 65 °C (80 ~ 98 %),<br>10 cycles, 240 h  | [ Δ R/R ≤ 1 %]                   |
| Shock               | 981 m/s <sup>2</sup> , 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/s <sup>2</sup> ,<br>10 ~ 2000 Hz, 3 directions, 12 times each | [ Δ R/R ≤ 1 %]<br>[S.S. ≤ 1 %]   |
| Load life           | 70 °C, 0.5 W<br>1000 h   | [ Δ R/R ≤ 3 %]<br>[S.S. ≤ 1 %]   |
| Low temp. operation | - 55 °C, 2 h   | [ Δ R/R ≤ 2 %]<br>[S.S. ≤ 2 %]   |
| High temp. exposure | 120 °C, 250 h  | [ Δ R/R ≤ 3 %]<br>[S.S. ≤ 2 %]   |
| Immersion seal      | 85 °C, 60 s  | No leaks (No continuous bubbles) |
| Soldering heat      | Flow:<br>260 ± 3 °C, 5 ~ 6 s, two times<br>Manual soldering:<br>380 ± 10 °C, 3 ~ 4 s                         | [ Δ R/R ≤ 1 %]                   |

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

## MAXIMUM INPUT RATINGS

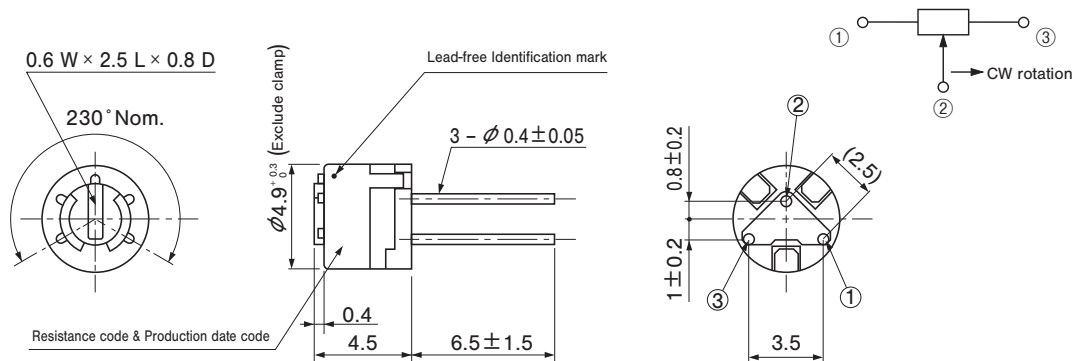
| Nominal resistance values ( $\Omega$ ) | Resistance code | Maximum input voltage (V) | Maximum wiper current (mA) |
|--|-----------------|---------------------------|----------------------------|
| ⊖ 10                                   | 100             | 1.00                      | 100                        |
| ⊖ 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                       |
| 50 k                                   | 503             | 158                       | 3.16                       |
| 100 k                                  | 104             | 200                       | 2.00                       |
| 200 k                                  | 204             | 200                       | 1.00                       |
| 500 k                                  | 504             | 200                       | 0.40                       |
| 1 M                                    | 105             | 200                       | 0.20                       |
| 2 M                                    | 205             | 200                       | 0.10                       |

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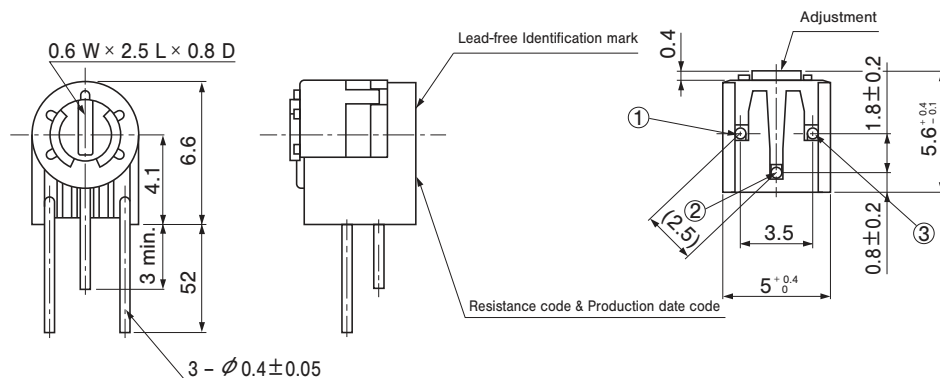
## OUTLINE DIMENSIONS

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

### RJ-4EW Top adjustment



### RJ-4EWS Side adjustment



## PACKAGING SPECIFICATIONS

### <Bulk pack specifications>

- Unit of bulk pack in a plastic bag is 50 pcs. per pack.
- Boxing of bulk in a plastic bag is performed with 200 pcs. per box.