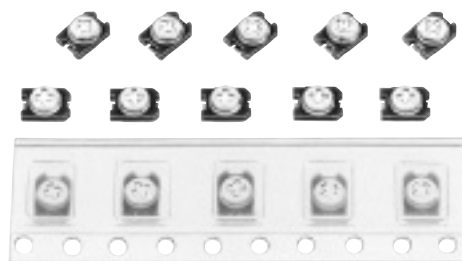


Chip Type Adjustable (pre-set) Ceramic Capacitors

Series: **K**

Series K are miniature in size, ultra-thin (1.8 mm max. in thickness) type surface mounting devices, and are recommended for miniaturization of electronic equipment.



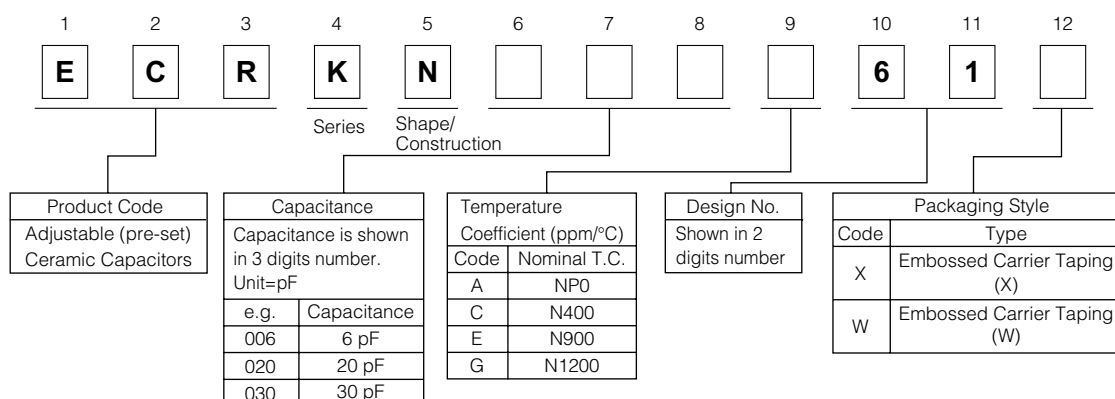
■ Features

- Miniature and ultra-thin type SMD: 3.2×4.5×1.8 max. mm
- Designed for reflow soldering
- Embossed carrier taping types are available for surface mounting
- Easy reading of the capacitance with color-coded case

■ Recommended Applications

- Hybrid IC and micromodules
- Portable radios and portable cassette tape players
- VTR cameras
- Paging systems
- Cordless telephones

■ Explanation of Part Numbers



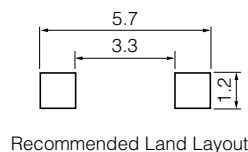
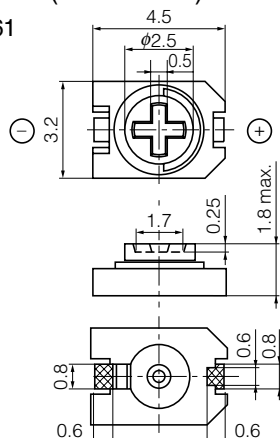
■ Ratings and Characteristics

| Item | Ratings |
|-----------------------------------|---|
| Rated Voltage | 100 VDC |
| Dielectric Withstanding Voltage | 220 VDC |
| Insulation Resistance (at C max.) | 10 ⁴ MΩ min. at 100 VDC and 1 minute electrification |
| Rotation Torque | 0.98 to 9.81 mN · m |
| Operating Temperature Range | -25 to +85 °C |

| Part Number | Capacitance (pF) | | Temperature Coefficient (ppm/°C) | Q (at 1 MHz, C max.) | Color |
|--------------|-----------------------------------|----------|-------------------------------------|-------------------------|-------|
| | max. | min. | | | |
| ECRKN003A61□ | 3 ⁺⁵⁰ ₋₀ % | 1.7 max. | NP0±300 | 500 min. | Brown |
| ECRKN006A61□ | 6 ⁺⁵⁰ ₋₀ % | 2.5 max. | NP0±300 | | Blue |
| ECRKN010C61□ | 10 ⁺⁵⁰ ₋₀ % | 3.0 max. | N400±400 | | White |
| ECRKN020E61□ | 20 ⁺⁵⁰ ₋₀ % | 5.0 max. | N900±400 | 300 min. | Red |
| ECRKN030G61□ | 30 ⁺⁵⁰ ₋₀ % | 6.0 max. | N1200±500 | | Green |

■ Dimensions in mm (not to scale)

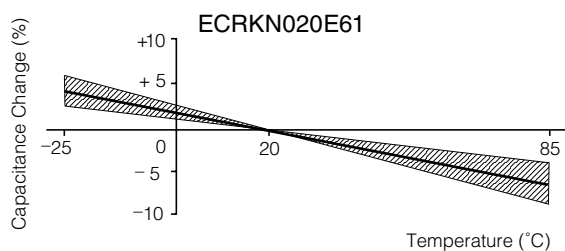
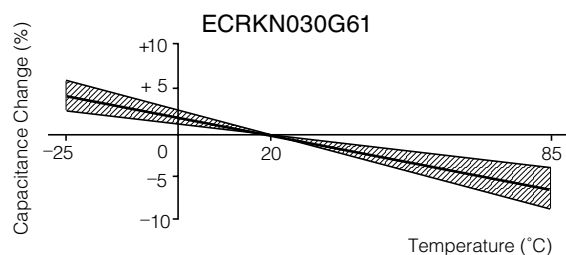
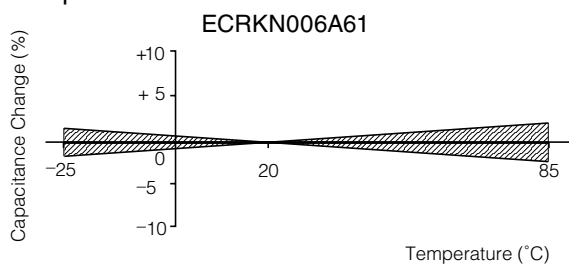
ECRKN□□□□61



effective electrode

■ Typical Characteristics

Temperature Characteristics



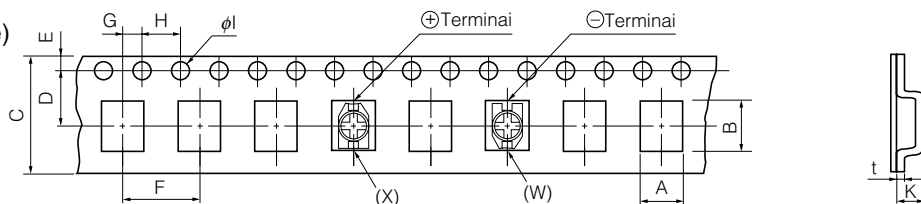
■ Packaging Methods

● Minimum Quantity/Packing Unit

| Taped Type | Packaging Style | Part Number | Dia. of reel (mm) | Minimum Packing Quantity | Packaging Quantity in Carton |
|------------|-------------------------|--------------|-------------------|--------------------------|------------------------------|
| X | Embossed Carrier Taping | ECRKN□□□□61X | φ180 | 1000 pcs./reel | 5000 pcs. |
| W | Embossed Carrier Taping | ECRKN□□□□61W | φ180 | 1000 pcs./reel | 5000 pcs. |

● Dimensions in mm (not to scale)

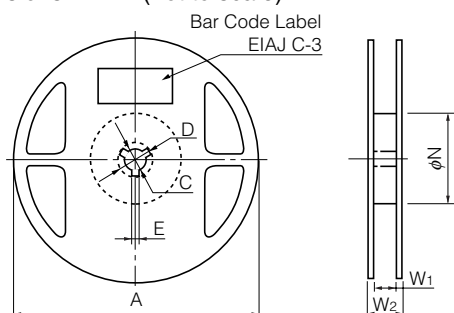
Carrier Tape



| A | B | C | D | E | F | G | H | φI | K | t |
|---------|---------|----------|---------|-----------|---------|---------|---------|---------|---------|-----------|
| 3.6±0.2 | 4.9±0.2 | 12.0±0.3 | 5.5±0.1 | 1.75±0.10 | 8.0±0.1 | 2.0±0.1 | 4.0±0.1 | 1.5±0.1 | 2.4±0.2 | 0.30±0.05 |

● Dimensions in mm (not to scale)

Reel



Reusable Reel EIAJ ET-7200 : RRM12B

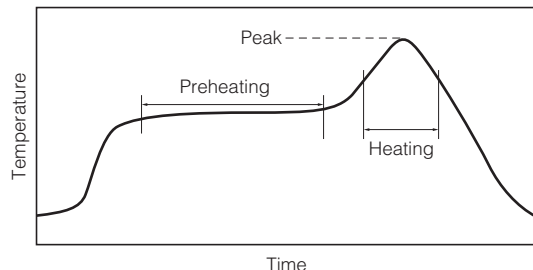
| A | C | D | E | φN | W1 | W2 |
|-----|----|----|-----|----|------|------|
| 180 | 13 | 21 | 2.0 | 60 | 13.0 | 15.4 |

■ Recommended Soldering Conditions

Recommendations and precautions are described below.

● Recommended soldering conditions for reflow

- Please contact us for additional information when used in conditions other than those specified.
 - The profile error may greatly differ depending on the measuring method.
 - The temperature varies according to the size of board or installation density.
- Therefore please check the temperature for every type of board that may be used.



For lead-free soldering (Example : Sn/Ag/Cu)

| | Temperature | Time |
|--------------|------------------|---------------|
| Preheating | 150 °C to 180 °C | 60 s to 120 s |
| Main heating | Above 230 °C | 30 s to 40 s |
| Peak | max. 260 °C | max. 5 s |

« Recommended soldering conditions for soldering iron »

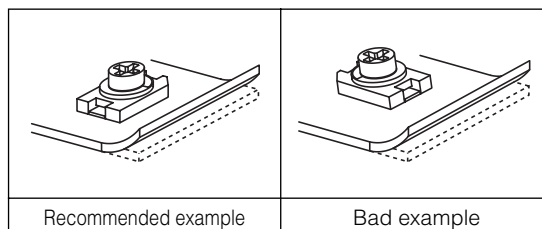
When soldering with a soldering iron, or when correcting defective soldering on parts after PWB mounting, solder following these guidelines.

- If the Adjustable (pre-set) Ceramic Capacitor is soldered exceeding the temperature range, functions or characteristics of the capacitor may degrade due to heat stress.
 - In addition, the tip must not directly touch the part other than on the terminals.
- Otherwise, distortion due to thermal shock grows, and functions of the capacitor may degrade.
- Solder tip temperature : 380 ± 10 °C
 - Soldering time : 3 s max.

Design Precautions

- (1) When mounting Adjustable (pre-set) Ceramic Capacitor on PWB, set the capacitor in such a position and direction that it is free from the effects of PWB warping and deflection.
Mechanical stress due to PWB warping or deflection may cause the functions or characteristics of the capacitor to degrade.
- ① Position : Do not place a capacitor near PWB cuts or broken parts.
 - ② Direction : Place the capacitors horizontal to the direction that the stress is applied.

Ex.)



Mounting Precautions

(1) PWB mounting

- ① Don't perform temporary sticking to a substrate with adhesives etc.
A movable part at the bottom may get bonded, and adjustment may be disabled.
- ② When mounting Adjustable (pre-set) Ceramic Capacitors on PWB, make sure that excessive pressure (2.94 N) or shock is not applied.
If the Adjustable (pre-set) Ceramic Capacitor is mounted with a force exceeding the specified pressure, functions of the capacitor may degrade.
- ③ Attach the product in close proximity to the PWB.
Functions or characteristics of the capacitor may degrade if stress is concentrated at the terminals, due to load and rotation torque caused during adjustment.

(2) Flux

- ① Use flux containing less than 0.1 wt% (converted into chlorine) of halogen type substances. Do not use strong acid flux.
If the halogen content is high, or strong acid flux is used the remaining flux after soldering may cause corrosion of terminals or reduction in insulation resistance.
- ② Amounts of Flux used during soldering.
If not enough Flux is used, insufficient fixing may occur. If the amount is too large, flux may get inside the product and may cause the characteristics or functions of the capacitor to degrade.