

Disc Type Capacitors with Lead

High Voltage Ceramic Capacitors
Automotive Grad

Low dissipation at high frequency
CK45-RR series

Issue date: February 2013

- All specifications are subject to change without notice.
 - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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FEATURES

- AEC-Q200 compliant.
- 1,000 cycles guaranteed under heat shock testing at -55°C to $+125^{\circ}\text{C}$.
- It can be used as a capacitor for snubber circuits used in automobiles (EV, HEV).
- High voltage ceramic capacitors series, low dissipation factor and higher reliability has been achieved through the use of TDK original dielectric and copper for electrode material due to nice matching of the ceramic dielectrics material for low dissipation factor, and copper for electrode.
- Low dissipation factor, and decreased self-heating temperature in the high frequency, and high voltage application.
- Compatible with halogen-free external resin coating.

OPERATING TEMPERATURE RANGE: -40 to $+125^{\circ}\text{C}$

(The maximum operating temperature of 125°C includes capacitor self-generated heat of up to 20°C .)

PRODUCT IDENTIFICATION

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| CK | 45 | -R | 3AD | 102 | K | A | N | R | A |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |

- (1) Type
- (2) Shape
- (3) Temperature characteristics
- (4) Rated voltage
- (5) Nominal capacitance
- (6) Capacitance tolerance
- (7) For use in automobiles
- (8) Lead type
- (9) Low dissipation
- (10) Halogen-free compatible product



TEMPERATURE CHARACTERISTICS AND TOLERANCE

| Temperature characteristics | Test temperature range | Capacitance tolerance |
|-----------------------------|---------------------------------|-----------------------|
| R (+15, -30%) | -25 to $+125^{\circ}\text{C}$ | K ($\pm 10\%$) |

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CAPACITANCE AND DIMENSIONS

TEMPERATURE CHARACTERISTICS: R (+15, -30%)

RATED VOLTAGE E_{dc}: 1kV

| Part No. | Capacitance (pF) | Dimensions (mm) | | | | Taping dimensions |
|--------------------|---------------------|-----------------|--------|---------|----------|-------------------|
| | | D max. | T max. | F | d | |
| CK45-R3AD101KA□*RA | 100 | 6.0 | 5.0 | 5.0±1.5 | 0.6±0.05 | V1 |
| CK45-R3AD151KA□*RA | 150 | 6.0 | 5.0 | 5.0±1.5 | 0.6±0.05 | V1 |
| CK45-R3AD221KA□*RA | 220 | 7.0 | 5.0 | 5.0±1.5 | 0.6±0.05 | V1 |
| CK45-R3AD331KA□*RA | 330 | 7.5 | 5.0 | 5.0±1.5 | 0.6±0.05 | V1 |
| CK45-R3AD471KA□*RA | 470 | 8.5 | 5.0 | 5.0±1.5 | 0.6±0.05 | V1 |
| CK45-R3AD681KA□*RA | 680 | 9.5 | 5.0 | 5.0±1.5 | 0.6±0.05 | V1 |
| CK45-R3AD102KA□*RA | 1,000 | 11.0 | 5.0 | 5.0±1.5 | 0.6±0.05 | V1 |
| CK45-R3AD152KA□*RA | 1,500 | 12.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CK45-R3AD222KA□*RA | 2,200 | 15.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V3 |

* □ : Lead shape symbol

RATED VOLTAGE E_{dc}: 2kV

| Part No. | Capacitance (pF) | Dimensions (mm) | | | | Taping dimensions |
|--------------------|---------------------|-----------------|--------|---------|----------|-------------------|
| | | D max. | T max. | F | d | |
| CK45-R3DD101KA□*RA | 100 | 6.0 | 6.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CK45-R3DD151KA□*RA | 150 | 7.0 | 6.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CK45-R3DD221KA□*RA | 220 | 7.5 | 6.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CK45-R3DD331KA□*RA | 330 | 8.5 | 6.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CK45-R3DD471KA□*RA | 470 | 9.5 | 6.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CK45-R3DD681KA□*RA | 680 | 10.5 | 6.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CK45-R3DD102KA□*RA | 1,000 | 12.5 | 6.0 | 7.5±1.5 | 0.6±0.05 | V2 |

* □ : Lead shape symbol

LIST OF STANDARD LEAD SHAPES

The lead type is indicated by the letter which is the 15th character of the product name.

Example) TDK Product Name: **CK45-R3AD102KANRA**

└ N: Lead type (Vertical kink, Short)

Dimensions in mm

| | Long lead Symbol G | Short lead Symbol N | Taping Symbol V |
|---------------|-----------------------|------------------------|--------------------|
| Vertical kink | | | |

- We recommend using a vertical kink type.
- For bulk products, we recommend a short lead type with the symbol N.

TAPING DIMENSIONS

VERTICAL KINK LEAD TYPE



| Item | Symbol | Dimensions (mm) | | | Remarks |
|--------------------------------------|----------------|---|----------------|----------------|--|
| | | V1 | V2 | V3 | |
| Body diameter | D | Depends on the specification of each product. | | | |
| Body thickness | T | Depends on the specification of each product. | | | |
| Lead-wire diameter | ød | 0.6±0.05 | 0.6±0.05 | 0.6±0.05 | |
| Pitch of component | P | 12.7±1.0 | 15.0±1.0 | 30.0±1.0 | Including the slant of body |
| Feed hole pitch | P ₀ | 12.7±0.3 | 15.0±0.3 | 15.0±0.3 | Excepting the tape splicing part |
| Feed hole center to lead | P ₁ | 3.85±0.7 | 3.75±0.7 | 3.75±0.7 | |
| Feed hole center to component center | P ₂ | 6.35±1.3 | 7.5±1.3 | 7.5±1.3 | |
| Lead-to lead distance | F | 5+0.8, -0.2 | 7.5±0.8 | 7.5±0.8 | Measuring point is bottom kink |
| Component alignment | Δh | 0±2.0 | 0±2.0 | 0±2.0 | Including the slanting body due to bending lead-wire |
| Tape width | W | 18.0+1.0, -0.5 | 18.0+1.0, -0.5 | 18.0+1.0, -0.5 | |
| Adhesive tape width | W ₀ | 10.0min. | 10.0min. | 10.0min. | |
| Hole position | W ₁ | 9.0±0.5 | 9.0±0.5 | 9.0±0.5 | |
| Adhesive tape position | W ₂ | 4.0max. | 4.0max. | 4.0max. | Adhesive tape do not stick out the tape |
| Bottom of kink from tape center | H ₀ | 16.0+1.5, -0.5 | 16.0+1.5, -0.5 | 16.0+1.5, -0.5 | |
| Height of body from tape center | H ₁ | 46.0max. | 46.0max. | 46.0max. | |
| Lead-wire protrusion | ℓ | 1.0max. | 1.0max. | 1.0max. | |
| Feed hole diameter | D ₀ | 4.0±0.2 | 4.0±0.2 | 4.0±0.2 | |
| Total tape thickness | t | 0.6±0.3 | 0.6±0.3 | 0.6±0.3 | Including adhesive tape |
| Length of snapped lead | L | 11.0max. | 11.0max. | 11.0max. | |
| Coating on lead | C | 4.0max. | 4.0max. | 4.0max. | |
| Height of kink | A | 4.0max. | 4.0max. | 4.0max. | Measuring point is bottom kink |
| Spring action | S | 2.0max. | 2.0max. | 2.0max. | |

• For more information about products with other capacitance or other data, please contact us.

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