Mid-high Voltage Ceramic Capacitors

Disk type with lead
Low dissipation at high frequency
General use

CK45-RR series

Issue date: July 2011

- 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.

TDK

Mid-high Voltage Ceramic Capacitors(Disk with Lead) Low Dissipation at High Frequency CK45-RR Series

Conformity to RoHS Directive

FEATURES

- 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.
- These RR type ceramic capacitors are mainly used as withstand voltage protection for power transistors and diodes of switching power sources, for controlling noise, and for absorbing high-frequency pulses such as from color TV horizontal output circuits. The high density and high operating frequency of switching power sources create high equipment temperatures.
- Low dissipation factor, and decreased self-heating temperature in the high frequency, and high voltage application.
- These products shall conform to RoHS Directive due to lead(Pb) free of lead wire and internal solder material.
- This product is compatible with halogen-free external resin coating (we recommend halogen-free products as standard).

OPERATING TEMPERATURE RANGE: –25 to +125°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	-N	R	A
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

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

CAPACITANCE TEMPERATURE CHARACTERISTICS AND TOLERANCE

Temperature characteristics	Test temperature range	Capacitance tolerance
R(+15, –30%)	–25 to +125°C	K(±10%)

CAPACITANCE AND DIMENSIONS

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

RATED VOLTAGE Edc: 1kV

Part No.		Capacitance	Dimensions(mm)				Taping
Halogen-free product	Current product	(pF)	D max.	T max.	F	d	dimensions
CK45-R3AD101K-☐*RA	CK45-R3AD101K-☐*R	100	6.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD151K-☐RA	CK45-R3AD151K-☐R	150	6.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD221K-☐RA	CK45-R3AD221K-☐R	220	6.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD331K-☐RA	CK45-R3AD331K-☐R	330	6.5	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD471K-☐RA	CK45-R3AD471K-☐R	470	7.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD681K-☐RA	CK45-R3AD681K-☐R	680	8.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD102K-☐RA	CK45-R3AD102K-☐R	1,000	9.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD152K-☐RA	CK45-R3AD152K-☐R	1,500	10.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3AD222K-☐RA	CK45-R3AD222K-☐R	2,200	11.5	5.0	7.5±1.5	0.6±0.05	V2
CK45-R3AD332K-☐RA	CK45-R3AD332K-☐R	3,300	13.5	5.0	7.5±1.5	0.6±0.05	V2
CK45-R3AD472K-☐RA	CK45-R3AD472K-☐R	4,700	15.5	5.0	10.0±2	0.6±0.05	—

* ☐ : Lead shape symbol
• 1kV and 2kV are E6 series standard products.

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CAPACITANCE AND DIMENSIONS

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

RATED VOLTAGE Edc: 2kV

Part No.		Capacitance	Dimensions(mm)				Taping
Halogen-free product	Current product	(pF)	D max.	T max.	F	d	dimensions
CK45-R3DD101K-☐*RA	CK45-R3DD101K-☐*R	100	6.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3DD151K-☐RA	CK45-R3DD151K-☐R	150	6.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3DD221K-☐RA	CK45-R3DD221K-☐R	220	7.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3DD331K-☐RA	CK45-R3DD331K-☐R	330	7.5	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3DD471K-☐RA	CK45-R3DD471K-☐R	470	8.5	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3DD681K-☐RA	CK45-R3DD681K-☐R	680	9.5	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3DD102K-☐RA	CK45-R3DD102K-☐R	1,000	11.0	5.0	5.0±1.5	0.6±0.05	V1
CK45-R3DD152K-☐RA	CK45-R3DD152K-☐R	1,500	12.0	5.0	7.5±1.5	0.6±0.05	V2
CK45-R3DD222K-☐RA	CK45-R3DD222K-☐R	2,200	14.5	5.0	7.5±1.5	0.6±0.05	V3
CK45-R3DD332K-☐RA	CK45-R3DD332K-☐R	3,300	17.0	5.0	10.0±2	0.6±0.05	—
CK45-R3DD472K-☐RA	CK45-R3DD472K-☐R	4,700	19.5	5.0	10.0±2	0.6±0.05	—

* ☐ : Lead shape symbol

• 1kV and 2kV are E6 series standard products.

RATED VOLTAGE Edc: 3kV

Part No.		Capacitance	Dimensions(mm)				Taping
Halogen-free product	Current product	(pF)	D max.	T max.	F	d	dimensions
CK45-R3FD101K-☐*RA	CK45-R3FD101K-☐*R	100	6.0	6.0	7.5±1.5	0.6±0.05	V2
CK45-R3FD151K-☐RA	CK45-R3FD151K-☐R	150	7.0	6.0	7.5±1.5	0.6±0.05	V2
CK45-R3FD221K-☐RA	CK45-R3FD221K-☐R	220	7.5	6.0	7.5±1.5	0.6±0.05	V2
CK45-R3FD331K-☐RA	CK45-R3FD331K-☐R	330	8.5	6.0	7.5±1.5	0.6±0.05	V2
CK45-R3FD471K-☐RA	CK45-R3FD471K-☐R	470	9.5	6.0	7.5±1.5	0.6±0.05	V2
CK45-R3FD681K-☐RA	CK45-R3FD681K-☐R	680	10.5	6.0	7.5±1.5	0.6±0.05	V2
CK45-R3FD102K-☐RA	CK45-R3FD102K-☐R	1,000	12.0	6.0	7.5±1.5	0.6±0.05	V2
CK45-R3FD152K-☐RA	CK45-R3FD152K-☐R	1,500	14.5	6.0	7.5±1.5	0.6±0.05	V3
CK45-R3FD222K-☐RA	CK45-R3FD222K-☐R	2,200	16.5	6.0	10.0±2	0.6±0.05	—

* ☐ : Lead shape symbol

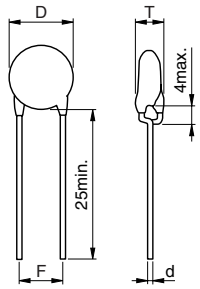
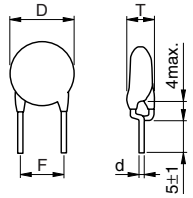
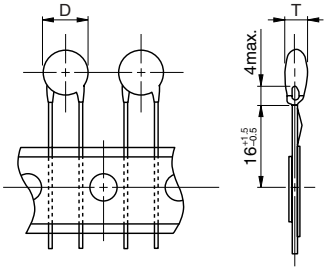
LIST OF STANDARD LEAD SHAPES

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

Example) TDK Product Name: **CK45-R3AD102K-NRA**

└N: Lead type (Vertical kink, Short)

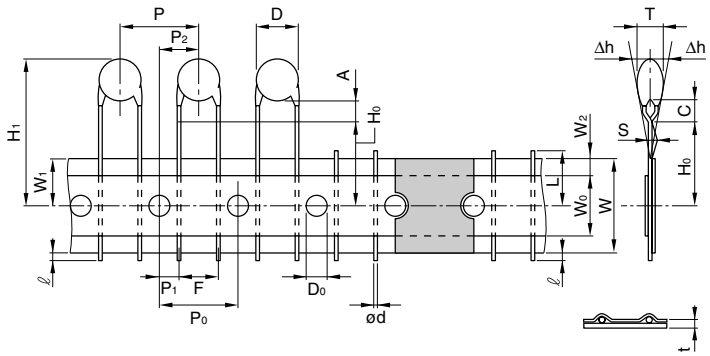
Dimensions in mm

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

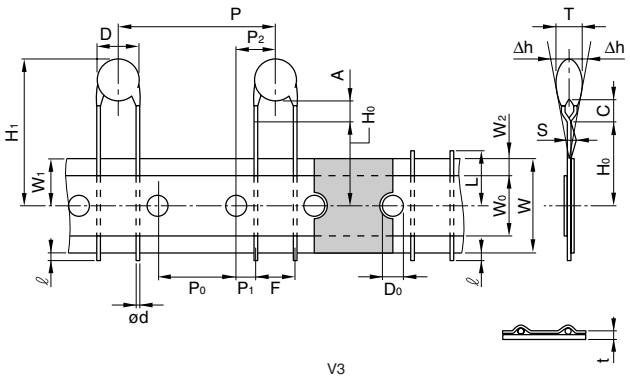
• We recommend using a vertical kink type.

• For bulk products, we recommend a short lead type with the symbol N.

TAPING DIMEMSIONS
VERTICAL KINK LEAD TYPE



V1, V2



V3

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	11.5min.	11.5min.	11.5min.	
Hole position	W_1	9.0±0.5	9.0±0.5	9.0±0.5	
Adhesive tape position	W_2	3.0max.	3.0max.	3.0max.	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	Do not including adhesive tape
Length of snipped 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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