Disc type capacitors with leads
High voltage ceramic capacitors, commercial grade, safety standard approved

CD series

■ FEATURES

- ○Compliant with IEC and the safety standards of various countries.
- ○Withstand voltage is 4,000V AC.
- ○Flame-resistant reinforced outer insulation prevents fires, electrical shock, and other potential hazards.
- ○Compatible with halogen-free external resin coating.

■ APPLICATIONS

Y capacitor for AC adapters, chargers, power supplies

■ PART NUMBER CONSTRUCTION

CD	12	ZU	2GA	472	M	Y	□	K	A
Series name	Type*	Temperature characteristics	Rated voltage	Nominal capacitance	Capacitance tolerance	Internal control code	Lead-wire type	Application classification	Internal code

Type*
45
65
70
75
80
85
90
11
12

Temperature characteristics	
SL	+350 to -1,000ppm/℃
-B	±10%
ZU (Z5U)	+22,-56%

Rated voltage	
2GA	X1:440V AC Y1:400V AC

Nominal capacitance	
100	10pF
221	220pF
472	4,700pF

Capacitance tolerance	
J	±5%
K	±10%
M	±20%

Lead-wire type	
G	Long lead
N	Short lead
V	Taping

Application classification	
K	Safety standard approved

Internal code	
A	Halogen-free

*Please refer to P-3 about the product dimensions.

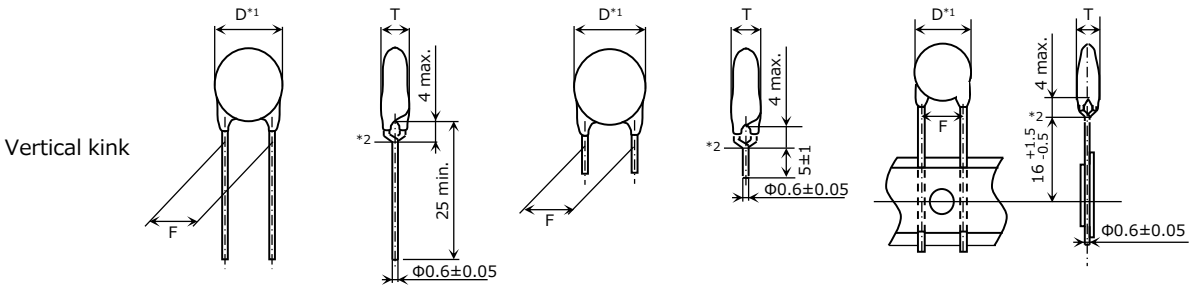
□OPERATING TEMPERATURE RANGE

Temperature characteristics	Operating temperature (℃)	Storage temperature (℃)*
SL	-40 to +125	-40 to +125
B		
ZU (Z5U)		

The maximum operating temperature of +125°C includes capacitor self-generated heat of up to 20°C.
*After capacitor is mounted on board, the storage temperature range is applied.

□STANDARD LEAD-WIRE SHAPES

Dimemsions in mm



TDK's standard product is vertical kink. TDK recommends short leads for bulk products.
*1 Body diameter (D) is reference value if D is smaller than maximum dimension of lead to lead distance (F).
*2 Coating on leads shall not extend beyond the bottom of vertical kink.

○RoHS Directive Compliant Product: See the following for more details. https://product.tdk.com/en/environment/rohs/index.html
○Halogen-free: Indicate that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1,500ppm.

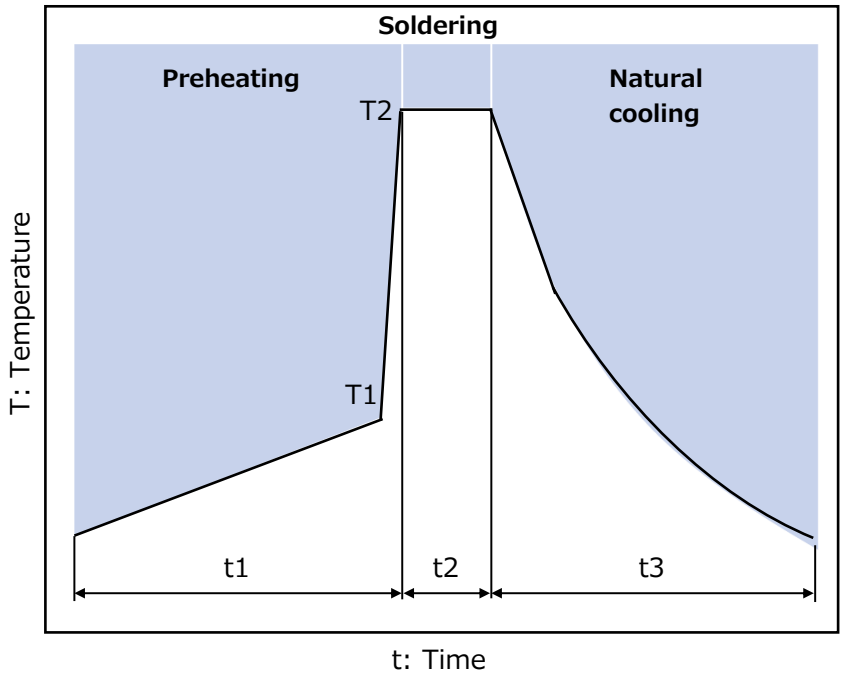
Overview of CD series

■ CERTIFIED STATUS OF VARIOUS COUNTRIES

Safety standard	IEC standard No.	Standard No.	Temperature characteristics	Sub-class	Rated voltage	Approval report No.*	
						Taiwan	Xiamen
BSI	IEC 62368-1 IEC 60384-14	BS EN 62368-1 BS EN 60384-14	SL,B,Z5U	X1,Y1	X1:440V AC Y1:400V AC	KM37103	
VDE	IEC 60384-14	EN 60384-14				40017931	
SEV						25.0065	
SEMKO						SE-S-2201273	
NEMKO						P19223658	
DEMKO						D-04974-A2	
FIMKO						FI/41931	
IMQ						V3691	
SAA		IEC 60384-14				CS6268N	
CSA		CSA-E60384-14				1785504	
UL		UL60384-14				E37861	
CQC		IEC 60384-14				CQC12001082617	CQC10001052863
KTL		K60384-14		X1	440V AC	SZ03001-12002	SU03047-12002
				Y1	400V AC	SZ03001-12004	SU03047-12004

*Certificate numbers shall be changed owing to the revisions of the related standards and renewal of certificate.

■ RECOMMENDED FLOW PROFILE

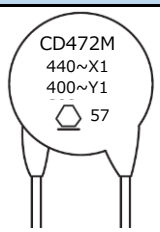


Preheating		Peak		Natural cooling
Temp.	Time	Temp.	Time	Time
T1	t1	T2	t2	t3
100 to 120℃	30 to 60s.	260℃	Within 10s.	Over 60s.

Before soldering, be sure to preheat components.
The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150 ℃.

CD series

■ MARKINGS

Item	Markings	Description	Marking examples
1. Series	CD	CD series	
2. Nominal capacitance	472	4,700pF	
3. Capacitance tolerance	M	±20%	
4. Rated voltage:Eac	440~X1	X1:440V AC	
	400~Y1	Y1:400V AC	
5. TDK's trademark	⬡	Production base	
6. Date doce	57	2025.07*	

(Marking position is reference.)

*Year and month of production: last digit of year + month denoted by 1, 2, 3, 4, 5, 6, 7, 8, 9, O (October), N (November), or D (December).
*The expression has become simplified due to a revision in the standards.

■ Rated voltage Eac: X1:440V、Y1:400V

□CAPACITANCE AND DIMENSIONS

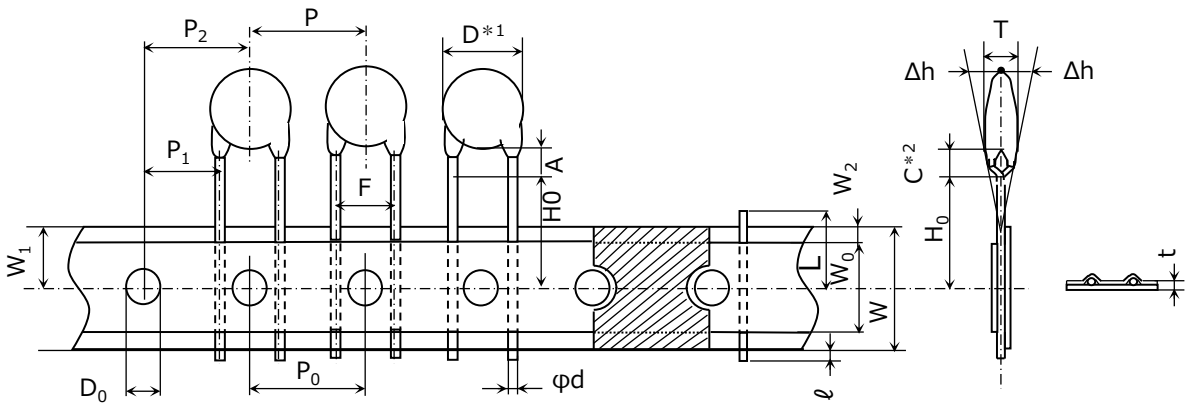
Temperature characteristics	Capacitance	Capacitance tolerance	Dimensions (mm)				Part numbers		
			Dmax.*	Tmax.	F (Applied to bulk)	F (Applied to taping)	Bulk/long leads (Symbol: G)	Bulk/short leads (Symbol: N)	Taping (Symbol: V)
SL	10 pF	±5 %	(7.0)	7.0	10+2,−1	10±1	CD45SL2GA100JYGKA	CD45SL2GA100JYNKA	CD45SL2GA100JYVKA
SL	15 pF	±5 %	(7.0)	7.0	10+2,−1	10±1	CD45SL2GA150JYGKA	CD45SL2GA150JYNKA	CD45SL2GA150JYVKA
SL	22 pF	±5 %	(7.0)	7.0	10+2,−1	10±1	CD45SL2GA220JYGKA	CD45SL2GA220JYNKA	CD45SL2GA220JYVKA
SL	33 pF	±5 %	(7.0)	7.0	10+2,−1	10±1	CD45SL2GA330JYGKA	CD45SL2GA330JYNKA	CD45SL2GA330JYVKA
SL	47 pF	±5 %	(8.0)	7.0	10+2,−1	10±1	CD45SL2GA470JYGKA	CD45SL2GA470JYNKA	CD45SL2GA470JYVKA
SL	68 pF	±5 %	(9.0)	7.0	10+2,−1	10±1	CD45SL2GA680JYGKA	CD45SL2GA680JYNKA	CD45SL2GA680JYVKA
B	100 pF	±10 %	(7.0)	7.0	10+2,−1	10±1	CD70-B2GA101KYGKA	CD70-B2GA101KYNKA	CD70-B2GA101KYVKA
B	150 pF	±10 %	(7.0)	7.0	10+2,−1	10±1	CD70-B2GA151KYGKA	CD70-B2GA151KYNKA	CD70-B2GA151KYVKA
B	220 pF	±10 %	(7.0)	7.0	10+2,−1	10±1	CD70-B2GA221KYGKA	CD70-B2GA221KYNKA	CD70-B2GA221KYVKA
B	330 pF	±10 %	(7.5)	7.0	10+2,−1	10±1	CD75-B2GA331KYGKA	CD75-B2GA331KYNKA	CD75-B2GA331KYVKA
B	470 pF	±10 %	(9.0)	7.0	10+2,−1	10±1	CD85-B2GA471KYGKA	CD85-B2GA471KYNKA	CD85-B2GA471KYVKA
Z5U	680 pF	±20 %	(7.0)	7.0	10+2,−1	10±1	CD65ZU2GA681MYGKA	CD65ZU2GA681MYNKA	CD65ZU2GA681MYVKA
Z5U	1,000 pF	±20 %	(7.0)	7.0	10+2,−1	10±1	CD70ZU2GA102MYGKA	CD70ZU2GA102MYNKA	CD70ZU2GA102MYVKA
Z5U	1,500 pF	±20 %	(8.0)	7.0	10+2,−1	10±1	CD80ZU2GA152MYGKA	CD80ZU2GA152MYNKA	CD80ZU2GA152MYVKA
Z5U	2,200 pF	±20 %	(9.5)	7.0	10+2,−1	10±1	CD90ZU2GA222MYGKA	CD90ZU2GA222MYNKA	CD90ZU2GA222MYVKA
Z5U	3,300 pF	±20 %	12.0**	7.0	10+2,−1	10±1	CD11ZU2GA332MYGKA	CD11ZU2GA332MYNKA	CD11ZU2GA332MYVKA
Z5U	4,700 pF	±20 %	13.5	7.0	10+2,−1	10±1	CD12ZU2GA472MYGKA	CD12ZU2GA472MYNKA	CD12ZU2GA472MYVKA

*The values in parentheses "( )" are reference values.
**Reference value is applied to bulk product.
● Click the part number for details.
● Please refer to p-4 about the taping dimemsions.

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

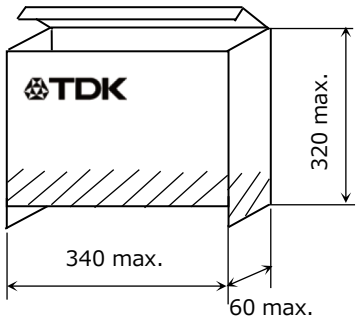
CD series

TAPING DIMENSIONS



Item	Symbols	Dimensions (mm)	Remarks
Body diameter	D	Refer to P-3	*1 Body diameter (D) is reference value if D is smaller than maximum dimension of lead to lead distance (F).
Body thickness	T	Refer to P-3	
Lead-wire diameter	Φd	0.6±0.05	
Pitch of component	P	15.0±1.0	Including the slant of body
Feed hole pitch	P_0	15.0±0.3	Excepting the tape splicing part
Feed hole center to lead-wire	P_1	10.0±0.7	
Feed hole center to component center	P_2	15.0±1.3	Including the slanting body due to bending lead-wire
Lead-to lead distance	F	10.0±1.0	Measuring point is bottom kink
Component alignment	Δh	0±2.0	Including the slanting body due to bending lead-wire
Carrier tape width	W	18.0+1.0,-0.5	
Adhesive tape width	W_0	10.0 Min.	
Hole position	W_1	9.0±0.5	
Adhesive tape position	W_2	4.0 Max.	Adhesive tape do not stick out the tape
Bottom of kink from tape center	H_0	16.0+1.5,-0.5	
Lead-wire protrusion	ℓ	1.0 Max.	
Feed hole diameter	D_0	4.0±0.2	
Carrier tape thickness (Including adhesive tape)	t	0.6±0.3	Including adhesive tape
Length of snipped lead-wire	L	11.0 Max.	
Coating on lead-wire	C	4.0 Max.	*2 Coating on leads shall not extend beyond the bottom of vertical kink.
Height of kink	A	4.0 Max.	Measuring point is bottom kink

AMMO PACK INNER BOX SIZE



Dimensions in mm

PACKAGE QUANTITY

Type	Package quantity	
	Bulk (pcs/bag)	Taping (pcs/box)*
CD	1,000	1,000

*500 pieces applies to CD12ZU2GA472MYVKA.

REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

⚠ REMINDERS

○Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).

○Before soldering, be sure to preheat components.
The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.

○Soldering corrections after mounting should be within the range of the conditions determined in the specifications. If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.

○Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.

○Do not use for a purpose outside of the contents regulated in the delivery specifications.

○The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

(1) Aerospace/aviation equipment
(2) Transportation equipment
(cars, electric trains, ships, etc.)
(3) Medical equipment
(4) Power-generation control equipment
(5) Atomic energy-related equipment
(6) Seabed equipment
(7) Transportation control equipment
(8) Public information-processing equipment
(9) Military equipment
(10) Electric heating apparatus, burning equipment
(11) Disaster prevention/crime prevention equipment
(12) Safety equipment
(13) Other applications that are not considered general-purpose applications

○Please refer to the guideline of notabilia for fixed ceramic capacitors issued by JEITA (Japan Electronics and Information Technology Association, EIAJ RCR-2335).
This guideline describes general precautions* for using fixed ceramic capacitors. Please carefully confirm it and use capacitors safely.
* Items for check, explanation/reason/concrete example and failure examples, etc.

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.