

# **Disc Type Capacitors with Lead**

High Voltage Ceramic Capacitors  
Commercial Grade

Safety Standard Approved  
CD 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.

# Disc Type Capacitors with Lead

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Commercial Grade

Safety Standard Approved  
CD Series

REINFORCED INSULATION TYPE  
CLASS 2 HIGH DIELECTRIC

FEATURES

- Compliant with IEC and the safety standards of various countries.
- This ceramic capacitor meets reinforced insulation's Safety Standards.  
Since it is rated at a withstand voltage of AC.4000V, it can be used in single-unit configurations within European Class II devices.
- Flame-resistant reinforced outer insulation prevents fires, electrical shock, and other potential hazards.
- Compatible with halogen-free external resin coating.

OPERATING TEMPERATURE RANGE: -25 to +125°C

TEMPERATURE CHARACTERISTICS AND TOLERANCE

| Temperature characteristics | Test temperature range | Capacitance tolerance |
|-----------------------------|------------------------|-----------------------|
| SL (+350 to -1000ppm/°C)    | +20 to +85°C           | J (±5%)               |
| B (±10%)                    | -25 to +85°C           | K (±10%)              |
| Z5U (+22, -56%)             | +10 to +85°C           | M (±20%)              |

PRODUCT IDENTIFICATION

|     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| CD  | 90  | ZU  | 2GA | 222 | M   | Y   | N   | K   | 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) Class
- (8) Lead type
- (9) Safety standard
- (10) Halogen-free compatible product

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## CAPACITANCE AND DIMENSIONS

| Part No.           | Temperature characteristics | Capacitance (pF) | Capacitance tolerance | Dimensions (mm) |        |                |          |
|--------------------|-----------------------------|------------------|-----------------------|-----------------|--------|----------------|----------|
|                    |                             |                  |                       | D max.          | T max. | F              | d        |
| CD45SL2GA100JY□*KA | SL (+350 to -1000ppm/°C)    | 10               | J (±5%)               | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD45SL2GA150JY□*KA |                             | 15               | J (±5%)               | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD45SL2GA220JY□*KA |                             | 22               | J (±5%)               | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD45SL2GA330JY□*KA |                             | 33               | J (±5%)               | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD45SL2GA470JY□*KA |                             | 47               | J (±5%)               | 8.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD45SL2GA680JY□*KA | B (±10%)                    | 68               | J (±5%)               | 9.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD70-B2GA101KY□*KA |                             | 100              | K (±10%)              | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD70-B2GA151KY□*KA |                             | 150              | K (±10%)              | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD70-B2GA221KY□*KA |                             | 220              | K (±10%)              | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD75-B2GA331KY□*KA |                             | 330              | K (±10%)              | 7.5             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD85-B2GA471KY□*KA | Z5U (+22, -56%)             | 470              | K (±10%)              | 9.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD65ZU2GA681MY□*KA |                             | 680              | M (±20%)              | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD70ZU2GA102MY□*KA |                             | 1,000            | M (±20%)              | 7.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD80ZU2GA152MY□*KA |                             | 1,500            | M (±20%)              | 8.0             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD90ZU2GA222MY□*KA |                             | 2,200            | M (±20%)              | 9.5             | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD11ZU2GA332MY□*KA |                             | 3,300            | M (±20%)              | 12.0            | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |
| CD12ZU2GA472MY□*KA |                             | 4,700            | M (±20%)              | 13.5            | 7.0    | 10.0+2.0, -1.0 | 0.6±0.05 |

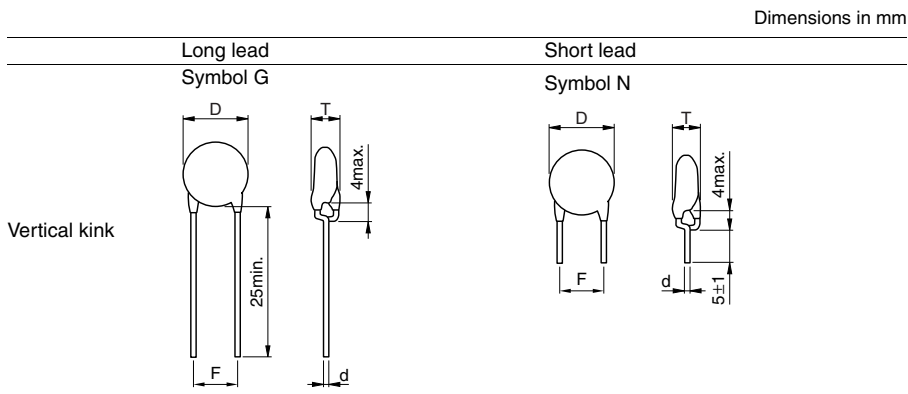
\* □ : Lead shape symbol

## 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: **CD90ZU2GA222MYNKA**

└ N: Lead type (Vertical kink, Short)



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

## MARKINGS

| Item                     | Markings         | Specifications             | Marking examples                 |
|--------------------------|------------------|----------------------------|----------------------------------|
| 1. Series                | CD               | CD series                  |                                  |
| 2. Nominal capacitance   | 222              | 2200pF                     |                                  |
| 3. Capacitance tolerance | M                | ±20%                       |                                  |
| 4. Rated voltage Eac     | 440~X1<br>400~Y1 | X1: AC.440V<br>Y1: AC.400V |                                  |
| 5. TDK's logogram        |                  | Production base code       |                                  |
| 6. Date code             | 29               | 2012.9*                    | (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.

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

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**CERTIFIED STATUS OF VARIOUS COUNTRIES**

| Safety standard | Standard No.      | Temperature characteristics | Insulation sub-class | Rated voltage              | Approval report No. |                |
|-----------------|-------------------|-----------------------------|----------------------|----------------------------|---------------------|----------------|
|                 |                   |                             |                      |                            | Taiwan              | Xiamen         |
| BSI             | BS EN60384-14     | SL, B, Z5U                  | X1, Y1               | X1: AC.440V<br>Y1: AC.400V | KM37103             | KM37103        |
| VDE             | EN 60384-14       |                             |                      |                            | 40017931            | 40017931       |
| SEV             | EN 60384-14       |                             |                      |                            | 12.0223             | 12.0223        |
| SEMKO           | EN 60384-14       |                             |                      |                            | 1125241             | 1125241        |
| NEMKO           | EN 60384-14       |                             |                      |                            | P12215264           | P12215264      |
| DEMKO           | EN 60384-14       |                             |                      |                            | D-01094             | D-01094        |
| FIMKO           | EN 60384-14       |                             |                      |                            | FI 27387            | FI 27387       |
| IMQ             | EN 60384-14       |                             |                      |                            | V3691               | V3691          |
| SAA             | AS3250            |                             |                      |                            | CS6268              | CS6268         |
| UL              | UL 60384-14       |                             |                      |                            | E37861              | E37861         |
| CSA             | CAN/CSA-E60384-14 |                             |                      |                            | 1785504             | 1785504        |
| CQC             | GB/T14472-1998    |                             |                      |                            | CQC12001082617      | CQC10001052863 |

- Certificate numbers shall be changed owing to the revisions of the related standards.

# Mouser Electronics

Authorized Distributor

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## TDK:

[CD70-B2GA151KYGS](#) [CD90-B2GA391KYGS](#) [CD45SL2GA100JYNKA](#) [CD65ZU2GA681MYNKA](#)  
[CD45SL2GA680JYNKA](#) [CD70-B2GA221KYNKA](#) [CD45SL2GA220JYNKA](#) [CD70-B2GA151KYNKA](#)  
[CD45SL2GA470JYNKA](#) [CD45SL2GA150JYNKA](#) [CD80ZU2GA152MYNKA](#) [CD85-B2GA471KYNKA](#) [CD75-](#)  
[B2GA331KYNKA](#) [CD45SL2GA330JYNKA](#) [CD11ZU2GA332MYNKA](#) [CD90ZU2GA222MYNKA](#)  
[CD12ZU2GA472MYNKA](#) [CD45SL2GA220JYGKA](#) [CD45SL2GA470JYGKA](#) [CD45SL2GA150JYGKA](#)  
[CD45SL2GA330JYGKA](#) [CD45SL2GA680JYGKA](#) [CD45SL2GA100JYGKA](#) [CD70ZU2GA102MYGKA](#) [CD70-](#)  
[B2GA151KYGKA](#) [CD70-B2GA221KYGKA](#) [CD80ZU2GA152MYGKA](#) [CD85-B2GA471KYGKA](#) [CD75-B2GA331KYGKA](#)  
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[CD12ZU2GA472MYGKA](#) [CD45-E2GA332K-NKA](#) [CD45-B2GA471K-NKA](#) [CD45-E2GA222K-NKA](#) [CD45SL2GA150K-](#)  
[NKA](#) [CD45-E2GA102M-NKA](#) [CD45-B2GA331K-NKA](#) [CD45-E2GA152M-NKA](#) [CD45-E2GA681K-NKA](#)  
[CD45SL2GA220K-NKA](#) [CD45SL2GA330J-NKA](#) [CD45SL2GA220J-NKA](#) [CD45-B2GA221K-NKA](#) [CD45-B2GA151K-](#)  
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