

Disc Type Capacitors with Lead

High Voltage Ceramic Capacitors Commercial Grade

Safety Standard Approved CS series

Issue date: March 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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Safety Standard Approved CS Series

BASIC INSULATION TYPE CLASS 2 HIGH DIELECTRIC

FEATURES

- Compliant with IEC and the safety standards of various countries
- · Rated at a withstand voltage of AC.2600V.
- 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 | Capacitance |
|-----------------------------|------------------|-------------|
| remperature characteristics | range | 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%) |
| F (+30, -80%) | –25 to +85°C | M (±20%) |

PRODUCT IDENTIFICATION

 $\frac{\text{CS}}{(1)} \; \frac{80}{(2)} \; \frac{\text{ZU}}{(3)} \; \frac{2\text{GA}}{(4)} \; \frac{222}{(5)} \; \frac{\text{M}}{(6)} \; \frac{\text{Y}}{(7)} \; \frac{\text{N}}{(8)} \; \frac{\text{K}}{(9)} \; \frac{\text{A}}{(10)}$

- (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 Capacitance | | Dimensions (mm) | | | | Taping |
|--------------------|--|-------------------------|-----------|-----------------|--------|---------|----------|------------|
| | | (pF) | tolerance | D max. | T max. | F | d | dimensions |
| CS45SL2GA100JY□*KA | - | 10 | J (±5%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS45SL2GA150JY□KA | | 15 | J (±5%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS45SL2GA220JY□KA | CI (+350 to 1000nnm/9C) | 22 | J (±5%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS45SL2GA330JY□KA | SL (+350 to −1000ppm/°C) | 33 | J (±5%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS45SL2GA470JY□KA | - | 47 | J (±5%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS45SL2GA680JY□KA | | 68 | J (±5%) | 7.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS65-B2GA101KY□KA | | 100 | K (±10%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS65-B2GA151KY□KA | - - - B (±10%) - | 150 | K (±10%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS65-B2GA221KY□KA | | 220 | K (±10%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS70-B2GA331KY□KA | | 330 | K (±10%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS75-B2GA471KY□KA | | 470 | K (±10%) | 7.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS85-B2GA681KY□KA | | 680 | K (±10%) | 8.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS65ZU2GA102MY□KA | | 1,000 | M (±20%) | 7.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS75ZU2GA152MY□KA | | 1,500 | M (±20%) | 7.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS80ZU2GA222MY□KA | Z5U (+22, -56%) | 2,200 | M (±20%) | 8.0 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS95ZU2GA332MY□KA | | 3,300 | M (±20%) | 9.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS11ZU2GA472MY□KA | _ | 4,700 | M (±20%) | 10.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V2 |
| CS14-F2GA103MY□KA | F (+30, -80%) | 10,000 | M (±20%) | 14.5 | 5.0 | 7.5±1.5 | 0.6±0.05 | V3 |

 $^{^*}$ \square : Lead shape symbol

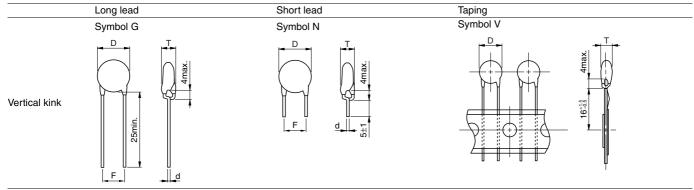
LIST OF STANDARD LEAD SHAPES

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

Example) TDK Product Name: CS80ZU2GA222MYNKA

└N: Lead type (Vertical kink, Short)

Dimensions in mm



- 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 | CS | CS series | |
| 2. Nominal capacitance | 222 | 2200pF | CS222M |
| 3. Capacitance tolerance | M | ±20% | 440~X1 300~Y2 |
| 4. Rated voltage Eac | 440∼X1 | X1: AC.440V | 29 / |
| | 300∼Y2 | Y2: AC.300V | |
| 5. TDK's logogram | \Diamond | Production base code | H H |
| 6. Date code | <u>=</u> 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.

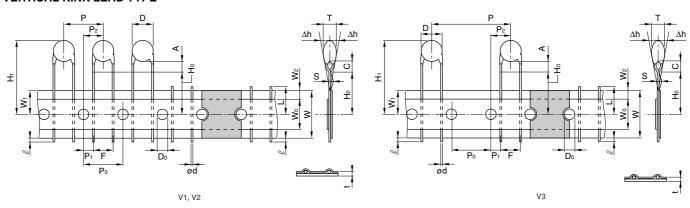
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CERTIFIED STATUS OF VARIOUS COUNTRIES

| Safety | Standard No | Temperature | Insulation | Detectoral | Approval report No. | | |
|----------|-------------------|-----------------|------------|----------------------------|---------------------|----------------|--|
| standard | | characteristics | sub-class | Rated voltage | Taiwan | Xiamen | |
| BSI | BS EN60384-14 | | X1, Y2 | X1: AC.440V Y2: AC.300V | KM37103 | KM37103 | |
| VDE | EN 60384-14 | | | | 40017930 | 40017930 | |
| SEV | EN 60384-14 | | | | 12.0263 | 12.0263 | |
| SEMKO | EN 60384-14 | | | | 1125249 | 1125249 | |
| NEMKO | EN 60384-14 | | | | P12215336 | P12215336 | |
| DEMKO | EN 60384-14 | | | | D-01153 | D-01153 | |
| FIMKO | EN 60384-14 | — SL, B, Z5U, F | | | FI 27399 | FI 27399 | |
| IMQ | EN 60384-14 | | | | V3692 | V3692 | |
| SAA | AS3250 | | | | CS6268 | CS6268 | |
| UL | UL 60384-14 | | | | E37861 | E37861 | |
| CSA | CAN/CSA-E60384-14 | | | | 1785515 | 1785515 | |
| CQC | GB/T14472-1998 | | | | CQC12001082619 | CQC10001052862 | |

[•] Certificate numbers shall be changed owing to the revisions of the related standards.

TAPING DIMEMSIONS VERTICAL KINK LEAD TYPE



| lla m | Ch. a | Dimensions (mm) | | | Damada | |
|--------------------------------------|----------------|-----------------|------------------|------------------|--|--|
| Item | Symbo | V1 | V2 | V3 | Remarks | |
| Body diameter | D | Depends on the | ne specification | of each product. | | |
| Body thickness | Т | Depends on the | ne specification | of each product. | | |
| Lead-wire diameter | ød | 0.6±0.05 | 0.6±0.05 | 0.6±0.05 | | |
| Pitch of component | Р | 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 | P1 | 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 | 5 18.0+1.0, -0.5 | | |
| Adhesive tape width | Wo | 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 | Ho | 16.0+1.5, -0.5 | 16.0+1.5, -0.5 | 16.0+1.5, -0.5 | | |
| Height of body from tape center | H1 | 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 snipped lead | L | 11.0max. | 11.0max. | 11.0max. | | |
| Coating on lead | С | 4.0max. | 4.0max. | 4.0max. | | |
| Height of kink | Α | 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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