

Mid-high Voltage Ceramic Capacitors

Disk type with lead

Safety standard approved

CS series

Issue date: June 2009

- 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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Mid-high Voltage Ceramic Capacitors(Disk with Lead) Safety Standard Approved CS Series

Conformity to RoHS Directive

BASIC INSULATION TYPE Temperature range: -25 to $+105^{\circ}\text{C}$
CLASS 2 HIGH DIELECTRIC

FEATURES

- Smaller than conventional capacitors.
- Flame-resistant reinforced outer insulation prevents fires, electrical shock, and other potential hazards.
- Compliant with the safety standards of 11 countries.

PRODUCT IDENTIFICATION

CS	11	-E	2GA	222	M	Y	N	S
(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) Class
- (8) Lead type
- (9) Safety standard

MARKINGS

Item	Marking examples	
1. Series	CS	
2. Nominal capacitance	222(2200pF)	
3. Capacitance tolerance	M($\pm 20\%$)	
4. Rated voltage Eac	250V \sim (AC.250V)	
5. Sub-class of safety performance	X1Y2	
6. TDK's logogram		
7. Date code	94 (2009.4)*	
8. Regulatory body safety standards compliance markings	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Front</p> </div> <div style="text-align: center;"> <p>Back</p> </div> </div> <p>(Marking position of the monogram is reference.)</p>	
BSI (U.K.)	BSI	SEV (Switzerland) TJ508
SEMKO (Sweden)		UL (U.S.A.)
VDE (Germany)		CSA (Canada)
		FIMKO (Finland)
		NEMKO (Norway)
		DEMKO (Denmark)
		IMQ (Italy)

* 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).

INTERNATIONALLY CERTIFIED STATUS

IEC60384-14 EN60384-14 Approved

Safety standard	Standard No. of IEC	Standard No.	Temperature characteristics	Insulation sub-class	Rated voltage Eac(V)	Approval report No.		
						Japan	Taiwan	Xiamen
BSI	IEC 60065 IEC 60384-14	BS EN 60065(8.8.14.2) BS EN60384-14	B, E, F	X1, Y2	250	226494	226494	226494
VDE	IEC 60384-14	EN60384-14	B, E, F	X1, Y2	250	138559	138560	122006
SEV	IEC 60384-14	EN60384-14	B, E, F	X1, Y2	250	08.0890	08.0890	08.0890
SEMKO	IEC 60384-14	EN60384-14	B, E, F	X1, Y2	250	0139186/01-02	0139186/01-02	9945094
NEMKO	IEC 60384-14	EN60384-14	B, E, F	X1, Y2	250	P01101988	P01101988	P99102682
DEMKO	IEC 60384-14	EN60384-14	B, E, F	X1, Y2	250	310966-01	310966-01	99-04087
FIMKO	IEC 60384-14	EN60384-14	B, E, F	X1, Y2	250	FI 17416	FI 17416	FI 24306
IMQ	IEC 60384-14	EN60384-14	B, E, F	X1, Y2	250	V3692	V3692	V3692
SAA	IEC 60065	AS3250	B, E, F	—	400	6268	6268	6268
UL	—	UL 1414	B, E, F	(X, Y)	250	E37861	E37861	E37861
CSA	—	CSA C22.2 No.0 & No.1	B, E, F	(X, Y)	250	LR35801	LR65972	LR65972

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

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CAPACITANCE AND DIMENSIONS

Part No.	Capacitance temperature characteristics	Capacitance (pF)	Capacitance tolerance	Dimensions (mm)			Taping dimensions
				D max.	F	ød	
CS70-B2GA101KY□S	B(±10%)	100	K(±10%)	7	7.5±1.5	0.6±0.05	V2
CS70-B2GA151KY□S		150	K(±10%)	7	7.5±1.5	0.6±0.05	V2
CS70-B2GA221KY□S		220	K(±10%)	7	7.5±1.5	0.6±0.05	V2
CS85-B2GA331KY□S		330	K(±10%)	8.5	7.5±1.5	0.6±0.05	V2
CS85-B2GA471KY□S		470	K(±10%)	8.5	7.5±1.5	0.6±0.05	V2
CS95-B2GA681KY□S		680	K(±10%)	9.5	7.5±1.5	0.6±0.05	V2
CS10-B2GA102KY□S		1,000	K(±10%)	10	7.5±1.5	0.6±0.05	V2
CS80-E2GA102MY□S	E(+20, -55%)	1,000	M(±20%)	8	7.5±1.5	0.6±0.05	V2
CS90-E2GA152MY□S		1,500	M(±20%)	9	7.5±1.5	0.6±0.05	V2
CS11-E2GA222MY□S		2,200	M(±20%)	10.5	7.5±1.5	0.6±0.05	V2
CS13-E2GA332MY□S		3,300	M(±20%)	12.5	7.5±1.5	0.6±0.05	V2
CS14-E2GA392MY□S		3,900	M(±20%)	13.5	7.5±1.5	0.6±0.05	V2
CS15-E2GA472MY□S		4,700	M(±20%)	14.5	7.5±1.5	0.6±0.05	V3
CS12-F2GA472MY□S		F(+30, -80%)	4,700	M(±20%)	12	7.5±1.5	0.6±0.05
CS17-F2GA103MY□S	1,0000		M(±20%)	16.5	10±2	0.6±0.05	—

* □ : Lead shape symbol

SHAPES AND DIMENSIONS

VERTICAL KINK LEAD TYPE

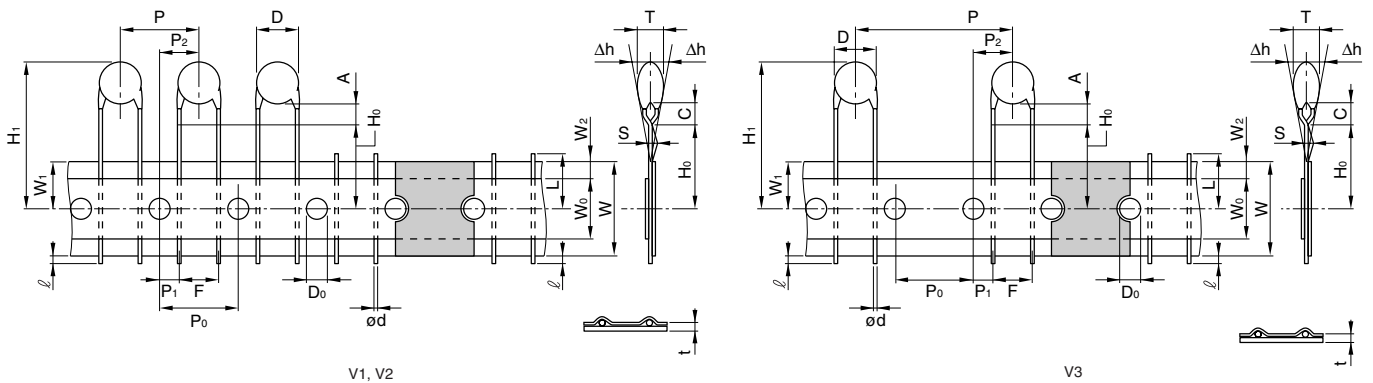
Dimensions in mm

	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	Including the slanting body due to bending lead-wire
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, F-R	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	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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