

# Safety Standard Certified Ceramic Capacitors/ High Voltage Ceramic Capacitors



### **EU RoHS Compliant**

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our website 'Murata's Approach for EU RoHS' (<http://www.murata.com/info/rohs.html>).

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## ● Part Numbering

### Safety Standard Certified Ceramic Capacitors

(Part Number) 

DE	2	E3	KY	102	M	N3	A		F
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

#### ① Product ID

Product ID	
<b>DE</b>	Safety Standard Certified Ceramic Capacitors/ High Voltage Ceramic Capacitors

#### ② Series Category

Code	Outline	Contents
<b>1</b>	Safety Standard	Class X1, Y1
<b>2</b>	Certified	Class X1, Y2
<b>J</b>	250Vac (r.m.s.)	-Products based on the Electrical Appliance and Material Safety Law of Japan-

For Electrical Appliance and Material Safety Law of Japan, the first three digits (①Product ID and ②Series Category) express "Series Name."

For Safety Certified Capacitors, the first three digits express product code. The fourth figure expresses certified type shown in ④Safety Standard Certified Type column.

#### ③ Temperature Characteristics

Code	Temperature Characteristics	Cap. Change or Temp. Coeff.	Temperature Range
<b>B3</b>	B	±10%	-25 to +85°C
<b>E3</b>	E	+20%, -55%	
<b>F3</b>	F	+30%, -80%	
<b>1X</b>	SL	+350 to -1000ppm/°C	+20 to +85°C

#### ④ Rated Voltage/Safety Standard Certified Type

Code	Rated Voltage
<b>E2</b>	250Vac (r.m.s.)
<b>KH</b>	X1, Y2; 250Vac (r.m.s.) (Safety Standard Certified Type KH)
<b>KY</b>	X1, Y2; 250Vac (r.m.s.), 300Vac (r.m.s.) (Safety Standard Certified Type KY)
<b>KX</b>	X1, Y1; 250Vac (r.m.s.), 300Vac (r.m.s.) (Safety Standard Certified Type KX)

#### ⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two numbers.

#### ⑥ Capacitance Tolerance

Code	Capacitance Tolerance
<b>J</b>	±5%
<b>K</b>	±10%
<b>M</b>	±20%
<b>Z</b>	+80%, -20%

#### ⑦ Lead Style

Code	Lead Style	Dimensions (mm)			
		Lead Spacing	Lead Diameter	Pitch of Components	
<b>A2</b>	Vertical Crimp Long	5	ø0.6±0.05	—	
<b>A3</b>		7.5			
<b>A4</b>		10			
<b>A5</b>	Vertical Crimp Short	10	ø0.6+0.1, -0.05	—	
<b>B2</b>		5	ø0.6±0.05		
<b>B3</b>		7.5			
<b>B4</b>		10			
<b>B5</b>		10	ø0.6+0.1, -0.05		
<b>C3</b>	Straight Long	7.5	ø0.6±0.05	—	
<b>D3</b>	Straight Short	7.5	ø0.6±0.05	—	
<b>N2</b>	Vertical Crimp Taping	5	ø0.6±0.05	12.7	
<b>N3</b>		7.5		15	
<b>N4</b>		10		25.4	
<b>N5</b>		10		ø0.6+0.1, -0.05	25.4
<b>N7</b>		7.5		ø0.6±0.05	30
<b>P3</b>	Straight Taping	7.5	ø0.6±0.05	15	

#### ⑧ Packaging

Code	Packaging
<b>A</b>	Ammo Pack Taping
<b>B</b>	Bulk

#### ⑨ Individual Specification Code

For part number that cannot be identified without "Individual Specification," it is added at the end of part number, expressed by three-digit alphanumerics.

#### ⑩ Halogen-free Compatible Product

## High Voltage Ceramic Capacitors (500V-6.3kV)

(Part Number)

DE	B	B3	3A	102	K	N2	A	
①	②	③	④	⑤	⑥	⑦	⑧	⑨

### ① Product ID

Product ID	
DE	High Voltage Ceramic Capacitors (500V-6.3kV) / Safety Standard Certified Ceramic Capacitors

### ② Series Category

Code	Outline	Contents
A	High Voltage	Class 1 (Char. SL) DC1-3.15kV Rated
B		Class 2 DC1-3.15kV Rated
C		Class 1, 2 DC6.3kV Rated
H		High Temperature Guaranteed, Low-dissipation Factor (Char. R, C)
S		High Temperature Guaranteed, Low-dissipation Factor (Char. D)
F		LCD Backlight Inverter Circuit

The first three digits (①Product ID and ②Series Category) express "Series Name."

### ③ Temperature Characteristics

Code	Temperature Characteristics	Cap. Change or Temp. Coeff.	Temperature Range
B3	B	±10%	-25 to +85°C
E3	E	+20%, -55%	
F3	F	+30%, -80%	
C3	C	±20%	-25 to +85°C
		+15%, -30%	+85 to +125°C
R3	R	±15%	-25 to +85°C
		+15%, -30%	+85 to +125°C
D3	D	+20%, -30%	-25 to +125°C
1X	SL	+350 to -1000ppm/°C	+20 to +85°C
2C	CH	0±60ppm/°C	+20 to +85°C

### ④ Rated Voltage

Code	Rated Voltage
2H	500Vdc
3A	1kVdc
3D	2kVdc
3F	3.15kVdc
3J	6.3kVdc
LH	6.3kVp-p

### ⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two numbers.

### ⑥ Capacitance Tolerance

Code	Capacitance Tolerance
C	±0.25pF
D	±0.5pF
J	±5%
K	±10%
Z	+80%, -20%

### ⑦ Lead Style

Code	Lead Style	Dimensions (mm)		
		Lead Spacing	Lead Diameter	Pitch of Components
A2	Vertical Crimp Long	5	ø0.6±0.05	-
A3		7.5		
A4		10		
B2/J2	Vertical Crimp Short	5	ø0.6±0.05	-
B3/J3		7.5		
B4		10		
C1	Straight Long	5	ø0.5±0.05	-
C3		7.5	ø0.6±0.05	
C4		10	ø0.6±0.05	
CD		7.5	ø0.5±0.05	
D1	Straight Short	5	ø0.5±0.05	-
D3		7.5	ø0.6±0.05	
DD		7.5	ø0.5±0.05	
N2	Vertical Crimp Taping	5	ø0.6±0.05	12.7
N3		7.5		15
N7		7.5		30
P2	Straight Taping	5	ø0.6±0.05	12.7
P3		7.5		15

### ⑧ Packaging

Code	Packaging
A	Ammo Pack Taping
B	Bulk

### ⑨ Individual Specification Code

For part number that cannot be identified without "Individual Specification," it is added at the end of part number, expressed by three-digit alphanumerics.

### Safety Standard Certified Ceramic Capacitors for Automotive

(Part Number)

DE	6	E3	KJ	102	M	N3	A	
①	②	③	④	⑤	⑥	⑦	⑧	⑨

#### ① Product ID

Product ID	
DE	Safety Standard Certified Ceramic Capacitors/ High Voltage Ceramic Capacitors

#### ② Series Category

Code	Outline	Contents
6	Safety Standard Certified	Class X1, Y2

The first three digits express product code. The fourth figure expresses certified type shown in ④ Safety Standard Certified Type column.

#### ③ Temperature Characteristics

Code	Temperature Characteristics	Cap. Change or Temp. Coeff.	Temperature Range
B3	B	±10%	-25 to +85°C
E3	E	+20%, -55%	

#### ④ Rated Voltage/Safety Standard Certified Type

Code	Rated Voltage
KJ	X1, Y2; 300Vac (r.m.s.), (Safety Standard Certified Type KJ)

#### ⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two numbers.

#### ⑥ Capacitance Tolerance

Code	Capacitance Tolerance
K	±10%
M	±20%

#### ⑦ Lead Style

Code	Lead Style	Dimensions (mm)		
		Lead Spacing	Lead Diameter	Pitch of Components
A3	Vertical Crimp Long	7.5	ø0.6±0.05	—
B3	Vertical Crimp Short			—
N3	Vertical Crimp Taping			15

#### ⑧ Packaging

Code	Packaging
A	Ammo Pack Taping
B	Bulk

#### ⑨ Individual Specification Code

For part number that cannot be identified without "Individual Specification," it is added at the end of part number, expressed by three-digit alphanumerics.

# Safety Standard Certified Ceramic Capacitors



## Type KY (Basic Insulation) -Class X1, Y2- (Recommend)

### ■ Features

1. Compact size; diameter 25% less than Type KH.
2. Operating temperature range guaranteed up to 125 degrees C.
3. Dielectric strength:  
AC2000V (for lead spacing F=5mm)  
AC2600V (for lead spacing F=7.5mm)
4. Class X1/Y2 capacitors certified by  
UL/CSA/VDE/BSI/SEMKO/DEMKO/FIMKO/NEMKO/  
ESTI/NSW/CQC.
5. Coated with flame-retardant epoxy resin  
(conforming to UL94V-0 standard).  
We recommend a halogen-free product\* as our  
standard item.  
\* Cl=900ppm max., Br=900ppm max. and  
Cl+Br=1500ppm max.
6. Taping available for automatic insertion.
7. AC300V Rated Voltage item are newly added.

### ■ Applications

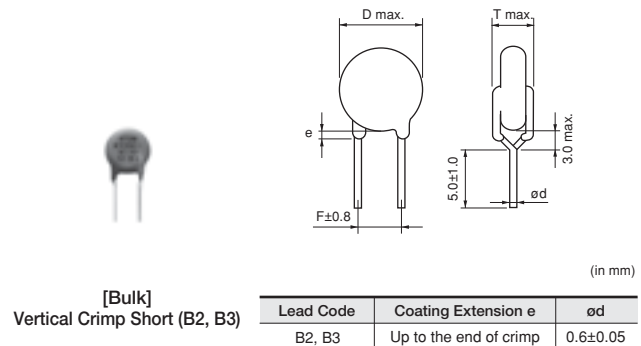
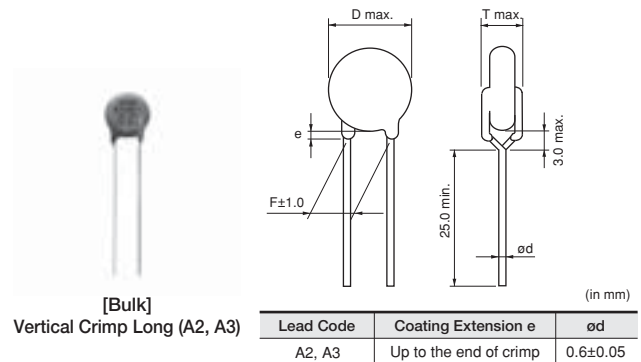
1. Ideal for use as X/Y capacitors for AC line filters  
and primary-secondary coupling on switching power  
supplies and AC adapters.
2. Ideal for use on D-A isolation and noise absorption  
for DAA modems without transformers.

Do not use these products in any automotive power train or safety equipment including battery chargers for electric vehicles and plug-in hybrids. Only Murata products clearly stipulated as "for Automotive use" on its catalog can be used for automobile applications such as power train and safety equipment.

### ■ Standard Certification

	Standard No.	Certified No.	Rated Voltage
UL	UL60384-14	E37921	250Vac (r.m.s.)
CSA	CSA E60384-14	1283280	
VDE	IEC 60384-14 EN 60384-14	40006273	
BSI	EN 60065 (8.8, 14.2)	KM 37901	
	IEC 60384-14 EN 60384-14		
SEMKO	IEC 60384-14 EN 60384-14	1207848	
DEMKO		D01002	
FIMKO		24197	
NEMKO		P12215094	
ESTI		12.0102	
NSW	IEC 60384-14 AS3250	6824	
CQC	GB/T14472	CQC06001017446	
		CQC06001017447	

• The certification number might change due to revision of the application standard and changes in the range of acquisition.  
 • Please contact us when the certification of South Korean Safety Standard is necessary.



• The certification number might change due to revision of the application standard and changes in the range of acquisition.

■ Marking

Example	Item
	① Type Designation KY
	② Nominal Capacitance (Under 100pF: Actual value, 100pF and over: 3 digit system)
	③ Capacitance Tolerance
	④ Company Name Code Ⓒ <sup>8</sup> : Made in Taiwan Ⓒ <sup>15</sup> : Made in Thailand
	⑤ Manufactured Date Code
	Class Code X1Y2
	Rated Voltage Mark 250~, 300~
	Halogen Free Mark HF

**Rated Voltage 250Vac**

● Lead Spacing F=7.5mm

Part Number	AC Rated Voltage	Temp. Char.	Capacitance	Body Dia. D	Lead Spacing F (mm)	Body Thickness T	Lead Package Long Bulk	Lead Package Short Bulk	Lead Package Taping
DE21XKY100J□□□M02F	250Vac(r.m.s.)	SL	10pF±5%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE21XKY150J□□□M02F	250Vac(r.m.s.)	SL	15pF±5%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE21XKY220J□□□M02F	250Vac(r.m.s.)	SL	22pF±5%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE21XKY330J□□□M02F	250Vac(r.m.s.)	SL	33pF±5%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE21XKY470J□□□M02F	250Vac(r.m.s.)	SL	47pF±5%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE21XKY680J□□□M02F	250Vac(r.m.s.)	SL	68pF±5%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY101K□□□M02F	250Vac(r.m.s.)	B	100pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY151K□□□M02F	250Vac(r.m.s.)	B	150pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY221K□□□M02F	250Vac(r.m.s.)	B	220pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY331K□□□M02F	250Vac(r.m.s.)	B	330pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY471K□□□M02F	250Vac(r.m.s.)	B	470pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY681K□□□M02F	250Vac(r.m.s.)	B	680pF±10%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY102M□□□M02F	250Vac(r.m.s.)	E	1000pF±20%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY152M□□□M02F	250Vac(r.m.s.)	E	1500pF±20%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY222M□□□M02F	250Vac(r.m.s.)	E	2200pF±20%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY332M□□□M02F	250Vac(r.m.s.)	E	3300pF±20%	9.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY472M□□□M02F	250Vac(r.m.s.)	E	4700pF±20%	10.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2F3KY103M□□□M02F	250Vac(r.m.s.)	F	10000pF±20%	14.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A

Three blank columns are filled with the lead and packaging codes. Please refer to the 3 columns on the right for the appropriate code.

Individual specification code "M02" expresses "simplicity marking and guarantee of dielectric strength between lead wires: AC2600V."

Murata part numbers might be changed depending on lead code or any other changes. Therefore, please specify only the type name (KY) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

● Lead Spacing F=5mm

Part Number	AC Rated Voltage	Temp. Char.	Capacitance	Body Dia. D	Lead Spacing F (mm)	Body Thickness T	Lead Package Long Bulk	Lead Package Short Bulk	Lead Package Taping
DE21XKY100J□□□M01F	250Vac(r.m.s.)	SL	10pF±5%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE21XKY150J□□□M01F	250Vac(r.m.s.)	SL	15pF±5%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE21XKY220J□□□M01F	250Vac(r.m.s.)	SL	22pF±5%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE21XKY330J□□□M01F	250Vac(r.m.s.)	SL	33pF±5%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE21XKY470J□□□M01F	250Vac(r.m.s.)	SL	47pF±5%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE21XKY680J□□□M01F	250Vac(r.m.s.)	SL	68pF±5%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2B3KY101K□□□M01F	250Vac(r.m.s.)	B	100pF±10%	7.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2B3KY151K□□□M01F	250Vac(r.m.s.)	B	150pF±10%	7.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2B3KY221K□□□M01F	250Vac(r.m.s.)	B	220pF±10%	7.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2B3KY331K□□□M01F	250Vac(r.m.s.)	B	330pF±10%	7.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2B3KY471K□□□M01F	250Vac(r.m.s.)	B	470pF±10%	7.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2B3KY681K□□□M01F	250Vac(r.m.s.)	B	680pF±10%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2E3KY102M□□□M01F	250Vac(r.m.s.)	E	1000pF±20%	7.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A

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Part Number	AC Rated Voltage	Temp. Char.	Capacitance	Body Dia. D	Lead Spacing F (mm)	Body Thickness T	Lead Package Long Bulk	Lead Package Short Bulk	Lead Package Taping
DE2E3KY152M□□□M01F	250Vac(r.m.s.)	E	1500pF±20%	7.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2E3KY222M□□□M01F	250Vac(r.m.s.)	E	2200pF±20%	8.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2E3KY332M□□□M01F	250Vac(r.m.s.)	E	3300pF±20%	9.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A
DE2E3KY472M□□□M01F	250Vac(r.m.s.)	E	4700pF±20%	10.0mm max.	5.0	5.0mm max.	A2B	B2B	N2A

Three blank columns are filled with the lead and packaging codes. Please refer to the 3 columns on the right for the appropriate code.

Individual specification code "M01" expresses "simplicity marking and guarantee of dielectric strength between lead wires: AC2000V."

Murata part numbers might be changed depending on lead code or any other changes. Therefore, please specify only the type name (KY) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

## Rated Voltage 300Vac

### ● Lead Spacing F=7.5mm

Part Number	AC Rated Voltage	Temp. Char.	Capacitance	Body Dia. D	Lead Spacing F (mm)	Body Thickness T	Lead Package Long Bulk	Lead Package Short Bulk	Lead Package Taping
DE2B3KY101K□□□U02F	300Vac(r.m.s.)	B	100pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY151K□□□U02F	300Vac(r.m.s.)	B	150pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY221K□□□U02F	300Vac(r.m.s.)	B	220pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY331K□□□U02F	300Vac(r.m.s.)	B	330pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY471K□□□U02F	300Vac(r.m.s.)	B	470pF±10%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2B3KY681K□□□U02F	300Vac(r.m.s.)	B	680pF±10%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY102M□□□U02F	300Vac(r.m.s.)	E	1000pF±20%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY152M□□□U02F	300Vac(r.m.s.)	E	1500pF±20%	7.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY222M□□□U02F	300Vac(r.m.s.)	E	2200pF±20%	8.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY332M□□□U02F	300Vac(r.m.s.)	E	3300pF±20%	9.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2E3KY472M□□□U02F	300Vac(r.m.s.)	E	4700pF±20%	10.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A
DE2F3KY103M□□□U02F	300Vac(r.m.s.)	F	10000pF±20%	14.0mm max.	7.5	5.0mm max.	A3B	B3B	N3A

Three blank columns are filled with the lead and packaging codes. Please refer to the 3 columns on the right for the appropriate code.

Individual specification code "U02" expresses "simplicity marking and guarantee of dielectric strength between lead wires: AC2600V."

Murata part numbers might be changed depending on lead code or any other changes. Therefore, please specify only the type name (KY) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.