

# REMINDERS

Please read this before using the product.

## SAFETY REMINDERS

### REMINDERS

1. If you intend to use a product listed in this catalog for a purpose that may cause loss of life or other damage, you must contact our company's sales window.
2. We may modify products or discontinue production of a product listed in this catalog without prior notification.
3. We provide "Delivery Specification" that explain precautions for the specifications and safety of each product listed in this catalog. We strongly recommend that you exchange these delivery specifications with customers that use one of these products.
4. If you plan to export a product listed in this catalog, keep in mind that it may be a restricted item according to the "Foreign Exchange and Foreign Trade Control Law". In such cases, it is necessary to acquire export permission in harmony with this law.
5. Any reproduction or transferring of the contents of this catalog is prohibited without prior permission from our company.
6. We are not responsible for problems that occur related to the intellectual property rights or other rights of our company or a third party when you use a product listed in this catalog. We do not grant license of these rights.
7. This catalog only applies to products purchased through our company or one of our company's official agencies. This catalog does not apply to products that are purchased through other third parties.
8. The descriptions in this catalog apply as of September 2007.

# 2-chip Piled Multilayer Ceramic Capacitors

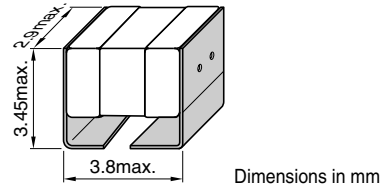
## CKG Series CKG32K Type

Conformity to RoHS Directive

### FEATURES

- No polarity.
- Twice the capacitance is obtainable on a single capacitor space.
- Unique construction provides high reliability.
- The metal caps absorbs stress from thermal and mechanical shocks, ensuring excellent performance on aluminum circuit substrates.
- Low ESR and ESL promises excellent characteristics for high frequency switching power supply.

### CASE SIZE



### APPLICATIONS

Smoothing circuits, temperature variable applications,  
Maintenance free power supplies, DC to DC converters, automotive applications.

### CAPACITANCE RANGES: CLASS 2

#### TEMPERATURE CHARACTERISTICS: X7R(±15%)

RATED VOLTAGE E<sub>dc</sub>: 630V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
47,000	±20%	3.45max.	CKG32KX7R2J473M

RATED VOLTAGE E<sub>dc</sub>: 250V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
100,000	±20%	3.45max.	CKG32KX7R2E104M
220,000	±20%	3.45max.	CKG32KX7R2E224M

RATED VOLTAGE E<sub>dc</sub>: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
470,000	±20%	3.45max.	CKG32KX7R2A474M
1,000,000	±20%	3.45max.	CKG32KX7R2A105M

RATED VOLTAGE E<sub>dc</sub>: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
1,000,000	±20%	3.45max.	CKG32KX7R1H105M

RATED VOLTAGE E<sub>dc</sub>: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
4,700,000	±20%	3.45max.	CKG32KX7R1E475M
10,000,000	±20%	3.45max.	CKG32KX7R1E106M

- For more information about the products of other capacitance or data, please contact us.
- 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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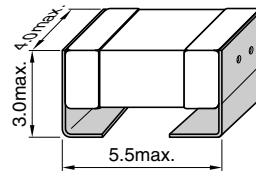
# CKG Series CKG45K Type

Conformity to RoHS Directive

## FEATURES

- No polarity.
- Twice the capacitance is obtainable on a single capacitor space.
- Unique construction provides high reliability.
- The metal caps absorbs stress from thermal and mechanical shocks, ensuring excellent performance on aluminum circuit substrates.
- Low ESR and ESL promises excellent characteristics for high frequency switching power supply.

## CASE SIZE



Dimensions in mm

## APPLICATIONS

Smoothing circuits, temperature variable applications,  
Maintenance free power supplies, DC to DC converters, automotive applications.

### CAPACITANCE RANGES: CLASS 2

#### TEMPERATURE CHARACTERISTICS: X7R( $\pm 15\%$ )

RATED VOLTAGE E<sub>dc</sub>: 630V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
100,000	$\pm 20\%$	3.0max.	CKG45KX7R2J104M

RATED VOLTAGE E<sub>dc</sub>: 250V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
220,000	$\pm 20\%$	3.0max.	CKG45KX7R2E224M
470,000	$\pm 20\%$	3.0max.	CKG45KX7R2E474M

RATED VOLTAGE E<sub>dc</sub>: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
1,000,000	$\pm 20\%$	3.0max.	CKG45KX7R2A105M
2,200,000	$\pm 20\%$	3.0max.	CKG45KX7R2A225M

RATED VOLTAGE E<sub>dc</sub>: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
1,500,000	$\pm 20\%$	3.0max.	CKG45KX7R1H155M
3,300,000	$\pm 20\%$	3.0max.	CKG45KX7R1H335M
4,700,000	$\pm 20\%$	3.0max.	CKG45KX7R1H475M

RATED VOLTAGE E<sub>dc</sub>: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
4,700,000	$\pm 20\%$	3.0max.	CKG45KX7R1E475M

RATED VOLTAGE E<sub>dc</sub>: 16V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
10,000,000	$\pm 20\%$	3.0max.	CKG45KX7R1C106M
22,000,000	$\pm 20\%$	3.0max.	CKG45KX7R1C226M

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# CKG Series CKG45N Type

Conformity to RoHS Directive

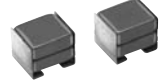
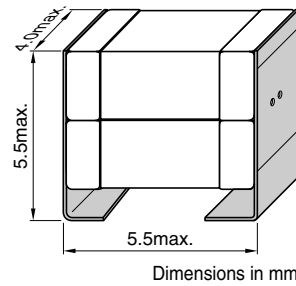
## FEATURES

- No polarity.
- Twice the capacitance is obtainable on a single capacitor space.
- Unique construction provides high reliability.
- The metal caps absorbs stress from thermal and mechanical shocks, ensuring excellent performance on aluminum circuit substrates.
- Low ESR and ESL promises excellent characteristics for high frequency switching power supply.

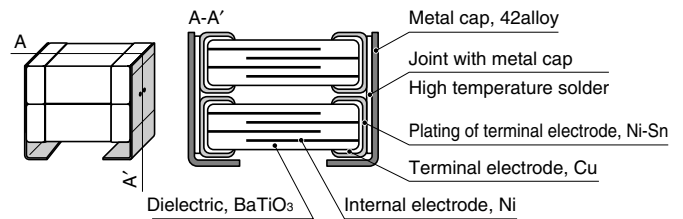
## APPLICATIONS

Smoothing circuits, temperature variable applications,  
Maintenance free power supplies, DC to DC converters, automotive applications.

## CASE SIZE



## INTERNAL CONSTRUCTION



## CAPACITANCE RANGES: CLASS 2

### TEMPERATURE CHARACTERISTICS: X5R(±15%)

RATED VOLTAGE E<sub>dc</sub>: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
10,000,000	±20%	5.5max.	CKG45NX5R1H106M

RATED VOLTAGE E<sub>dc</sub>: 16V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
47,000,000	±20%	5.5max.	CKG45NX5R1C476M

### TEMPERATURE CHARACTERISTICS: X7R(±15%)

RATED VOLTAGE E<sub>dc</sub>: 630V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
220,000	±20%	5.5max.	CKG45NX7R2J224M

RATED VOLTAGE E<sub>dc</sub>: 250V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
470,000	±20%	5.5max.	CKG45NX7R2E474M
1,000,000	±20%	5.5max.	CKG45NX7R2E105M

RATED VOLTAGE E<sub>dc</sub>: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
2,200,000	±20%	5.5max.	CKG45NX7R2A225M
4,700,000	±20%	5.5max.	CKG45NX7R2A475M

RATED VOLTAGE E<sub>dc</sub>: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
3,300,000	±20%	5.5max.	CKG45NX7R1H335M
6,800,000	±20%	5.5max.	CKG45NX7R1H685M

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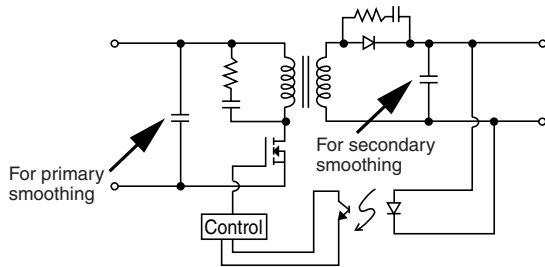
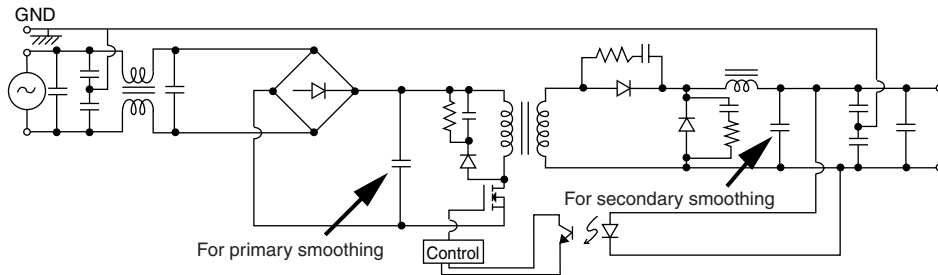
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**RATED VOLTAGE E<sub>dc</sub>: 25V**

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
10,000,000	±20%	5.5max.	CKG45NX7R1E106M

**RATED VOLTAGE E<sub>dc</sub>: 16V**

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
22,000,000	±20%	5.5max.	CKG45NX7R1C226M

**TYPICAL APPLICATION EXAMPLES**
**DC TO DC CONVERTER**

**SWITCHING POWER SUPPLY**


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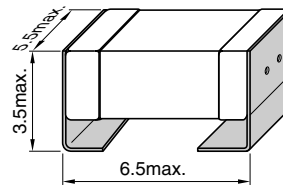
# CKG Series CKG57K Type

Conformity to RoHS Directive

## FEATURES

- No polarity.
- Twice the capacitance is obtainable on a single capacitor space.
- Unique construction provides high reliability.
- The metal caps absorbs stress from thermal and mechanical shocks, ensuring excellent performance on aluminum circuit substrates.
- Low ESR and ESL promises excellent characteristics for high frequency switching power supply.

## CASE SIZE



Dimensions in mm

## APPLICATIONS

Smoothing circuits, temperature variable applications,  
Maintenance free power supplies, DC to DC converters, automotive applications.

### CAPACITANCE RANGES: CLASS 2

#### TEMPERATURE CHARACTERISTICS: X7R(±15%)

RATED VOLTAGE E<sub>dc</sub>: 630V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
220,000	±20%	3.5max.	CKG57KX7R2J224M

RATED VOLTAGE E<sub>dc</sub>: 250V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
470,000	±20%	3.5max.	CKG57KX7R2E474M
1,000,000	±20%	3.5max.	CKG57KX7R2E105M

RATED VOLTAGE E<sub>dc</sub>: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
1,000,000	±20%	3.5max.	CKG57KX7R2A105M
2,200,000	±20%	3.5max.	CKG57KX7R2A225M
3,300,000	±20%	3.5max.	CKG57KX7R2A335M
4,700,000	±20%	3.5max.	CKG57KX7R2A475M

RATED VOLTAGE E<sub>dc</sub>: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
4,700,000	±20%	3.5max.	CKG57KX7R1H475M
10,000,000	±20%	3.5max.	CKG57KX7R1H106M

RATED VOLTAGE E<sub>dc</sub>: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
10,000,000	±20%	3.5max.	CKG57KX7R1E106M
22,000,000	±20%	3.5max.	CKG57KX7R1E226M

RATED VOLTAGE E<sub>dc</sub>: 16V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
15,000,000	±20%	3.5max.	CKG57KX7R1C156M
47,000,000	±20%	3.5max.	CKG57KX7R1C476M

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# CKG Series CKG57N Type

Conformity to RoHS Directive

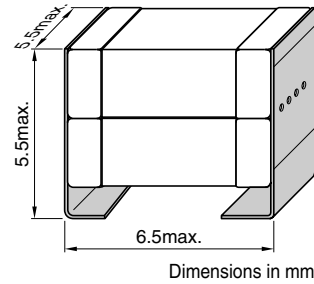
## FEATURES

- No polarity.
- Twice the capacitance is obtainable on a single capacitor space.
- Unique construction provides high reliability.
- The metal caps absorbs stress from thermal and mechanical shocks, ensuring excellent performance on aluminum circuit substrates.
- Low ESR and ESL promises excellent characteristics for high frequency switching power supply.

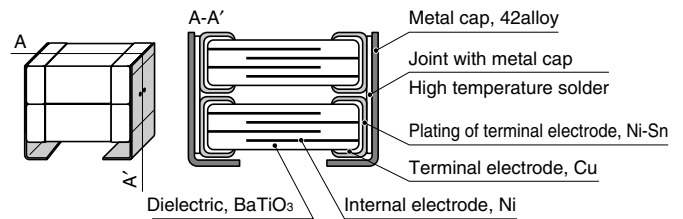
## APPLICATIONS

Smoothing circuits, temperature variable applications, Maintenance free power supplies, DC to DC converters, automotive applications.

## CASE SIZE



## INTERNAL CONSTRUCTION



## CAPACITANCE RANGES: CLASS 2

### TEMPERATURE CHARACTERISTICS: X5R(±15%)

RATED VOLTAGE E<sub>dc</sub>: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
22,000,000	±20%	5.5max.	CKG57NX5R1H226M

RATED VOLTAGE E<sub>dc</sub>: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
47,000,000	±20%	5.5max.	CKG57NX5R1E476M

RATED VOLTAGE E<sub>dc</sub>: 16V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
100,000,000	±20%	5.5max.	CKG57NX5R1C107M

### TEMPERATURE CHARACTERISTICS: X7R(±15%)

RATED VOLTAGE E<sub>dc</sub>: 630V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
470,000	±20%	5.5max.	CKG57NX7R2J474M

RATED VOLTAGE E<sub>dc</sub>: 250V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
1,000,000	±20%	5.5max.	CKG57NX7R2E105M
2,200,000	±20%	5.5max.	CKG57NX7R2E225M

RATED VOLTAGE E<sub>dc</sub>: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
2,200,000	±20%	5.5max.	CKG57NX7R2A225M
4,700,000	±20%	5.5max.	CKG57NX7R2A475M
10,000,000	±20%	5.5max.	CKG57NX7R2A106M

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**RATED VOLTAGE E<sub>dc</sub>: 50V**

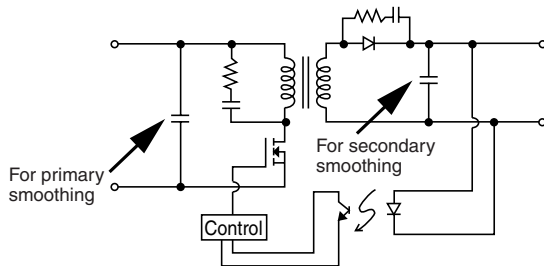
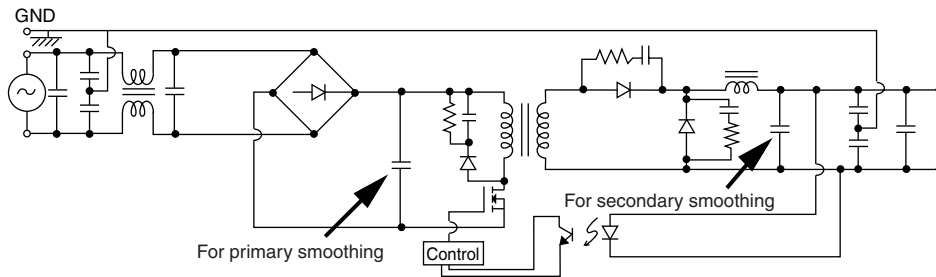
Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
10,000,000	±20%	5.5max.	CKG57NX7R1H106M

**RATED VOLTAGE E<sub>dc</sub>: 25V**

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
22,000,000	±20%	5.5max.	CKG57NX7R1E226M

**RATED VOLTAGE E<sub>dc</sub>: 16V**

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.
33,000,000	±20%	5.5max.	CKG57NX7R1C336M

**TYPICAL APPLICATION EXAMPLES**
**DC TO DC CONVERTER**

**SWITCHING POWER SUPPLY**


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