

MULTILAYER CERAMIC CHIP CAPACITORS

Commercial Grade, MEGACAP Type

CKG series

Single type

CKG32K 3225 [1210 inch]

CKG45K 4532 [1812 inch]

CKG57K 5750 [2220 inch]

Stacked type

CKG45N 4532 [1812 inch]

CKG57N 5750 [2220 inch]

* Dimensions code: JIS[EIA]



REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

 **REMINDERS**

1. The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.

If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

- | | |
|---|--|
| (1) Aerospace/aviation equipment | (8) Public information-processing equipment |
| (2) Transportation equipment (cars, electric trains, ships, etc.) | (9) Military equipment |
| (3) Medical equipment | (10) Electric heating apparatus, burning equipment |
| (4) Power-generation control equipment | (11) Disaster prevention/crime prevention equipment |
| (5) Atomic energy-related equipment | (12) Safety equipment |
| (6) Seabed equipment | (13) Other applications that are not considered general-purpose applications |
| (7) Transportation control equipment | |

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

- We may modify products or discontinue production of a product listed in this catalog without prior notification.
- 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.
- 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.
- Any reproduction or transferring of the contents of this catalog is prohibited without prior permission from our company.
- 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.
- 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.

Notice: Effective January 2013, TDK will use a new catalog number which adds product thickness and packaging specification detail. This new catalog number should be referenced on all catalog orders going forward, and is not applicable for OEM part number orders.

Please be aware the last five digits of the catalog number will differ from the item description (internal control number) on the product label.

Contact your local TDK Sales representative for more information.

(Example)

Catalog issued date	Catalog number	Item description (on delivery label)
Prior to January 2013	C1608C0G1E103J(080AA)	C1608C0G1E103JT000N
January 2013 and later	C1608C0G1E103J080AA	C1608C0G1E103JT000N

CKG series

MEGACAP type



Type: CKG32K/ 3225 [1210 inch], CKG45K/ 4532 [1812 inch], CKG57K/ 5750 [2220 inch],
CKG45N/ 4532 [1812 inch], CKG57N/ 5750 [2220 inch]

SERIES OVERVIEW

TDK multilayer ceramic chip capacitor CKG series is a product which metal-frames are connected to terminations of MLCC, and it is also called MEGACAP.

MEGACAP has higher mechanical endurance by the flexible metal-frame structure which absorbs thermal and mechanical stress.

Also the stacked type is effective in mounting area reduction because twice capacitance is realized by double-stacked structure without changing footprint.

FEATURES

- Higher mechanical endurance is realized by metal-frame structure.
- Twice capacitance is realized by double-stacked structure without changing footprint.
- Lower ESR and ESL than Al caps.
- COG temperature characteristic which has excellent stable temperature and DC-bias characteristics is applicable.
- Mounting on Al board is applicable.

APPLICATIONS

- Smoothing circuits.
- DC-DC converters, inverters, battery chargers.
- The places where Al electrolytic or Film capacitor is not suitable because of higher ESR/ESL, heat resistivity, or its size.
- The COG temperature characteristic is suitable for the high-reliability circuits such as time constant, filter, resonance, oscillation and snubber circuits.

SHAPE & DIMENSIONS



Type	Dimensions in mm			
	L	W	T	E
CKG32K	3.60±0.30	2.60±0.30	3.35±0.10	0.80±0.15
CKG45K	5.00±0.50	3.50±0.50	2.90±0.10	1.10±0.30
CKG57K	6.00±0.50	5.00±0.50	3.35±0.15	1.60±0.30
CKG45N	5.00±0.50	3.50±0.50	5.00±0.50	1.10±0.30
CKG57N	6.00±0.50	5.00±0.50	5.00±0.50	1.60±0.30

*Dimensional tolerances are typical values.

CATALOG NUMBER CONSTRUCTION

CKG	57	N	X7R	1E	107	M	500	J	H
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

(1) Series

(2) Dimensions L x W (mm)

Code	EIA	Length	Width	Metal terminal width
32	CC1210	3.60	2.60	0.80
45	CC1812	5.00	3.50	1.10
57	CC2220	6.00	5.00	1.60

(3) Structure

Code	Description
K	Single type
N	Stacked type

(4) Temperature characteristics

Temperature characteristics	Temperature coefficient or capacitance change	Temperature ranges
C0G	0±30ppm/°C	-55 to +125°C
X5R	±15%	-55 to +85°C
X7R	±15%	-55 to +125°C
X7S	±22%	-55 to +125°C
X7T	+22, -33%	-55 to +125°C

(5) Rated voltage (DC)

Code	Voltage (DC)
1C	16V
1E	25V
1H	50V
2A	100V
2E	250V
2W	450V
2J	630V
3A	1000V

(6) Nominal capacitance (pF)

The capacitance is expressed in three digit codes and in units of pico Farads (pF). The first and second digits identify the first and second significant figures of the capacitance. The third digit identifies the multiplier. R designates a decimal point.

(Example)0R5 = 0.5pF

101 = 100pF

225 = 2,200,000pF = 2.2μF

(7) Capacitance tolerance

Code	Tolerance
J	± 5%
K	± 10%
M	± 20%

(8) Thickness

Code	Thickness
290	2.90 mm
335	3.35 mm
500	5.00 mm

(9) Packaging style

Code	Style
A	178mm reel, 4mm pitch
J	330mm reel, 8mm pitch

(10) Special reserved code

Code	Description
H	MEGACAP type

MULTILAYER CERAMIC CHIP CAPACITORS TDK

Capacitance range chart

CKG32K/ 3225 [1210 inch], Single type

Capacitance		Tolerance	C0G					X7R					X7S		X7T		
(pF)	Code		3A (1kV)	2J (630V)	2W (450V)	2E (250V)	2A (100V)	2J (630V)	2E (250V)	2A (100V)	1H (50V)	1E (25V)	2A (100V)	1H (50V)	2J (630V)	2W (450V)	2E (250V)
1,000	102	J: ±5%	█														
1,200	122																
1,500	152																
1,800	182																
2,200	222																
2,700	272																
3,300	332																
3,900	392																
4,700	472																
5,600	562																
6,800	682																
8,200	822																
10,000	103																
15,000	153																
22,000	223			█	█												
33,000	333																
47,000	473	C0G ; J: ±5% X7R, X7S, X7T ; K: ±10% M: ±20%															
68,000	683																
100,000	104																
150,000	154																
220,000	224																
330,000	334																
470,000	474																
1,000,000	105																
2,200,000	225																
3,300,000	335																
4,700,000	475																
6,800,000	685																
10,000,000	106																

Standard thickness 3.35 mm

Background gray: The product which is not recommended to a new design.

█ Please refer to the capacitance range table after P-9 for the details such as product thickness and capacitance tolerance.

Capacitance range chart

CKG45K/ 4532 [1812 inch], Single type

Capacitance		Tolerance	C0G			X7R					X7S			X7T			
(pF)	Code		2J (630V)	2W (450V)	2E (250V)	2J (630V)	2E (250V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)	2A (100V)	1H (50V)	1C (16V)	2J (630V)	2W (450V)	2E (250V)
33,000	333	J: ±5%	█														
47,000	473																
68,000	683																
100,000	104	K: ±10% M: ±20%															
150,000	154																
220,000	224																
330,000	334																
470,000	474																
680,000	684																
1,000,000	105																
1,500,000	155																
2,200,000	225																
3,300,000	335																
4,700,000	475																
10,000,000	106																
22,000,000	226		M: ±20%														

Standard thickness 2.90 mm

Background gray: The product which is not recommended to a new design.

█ Please refer to the capacitance range table after P-9 for the details such as product thickness and capacitance tolerance.

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Capacitance range chart

CKG57K/ 5750 [2220 inch], Single type

Capacitance		Tolerance	C0G		X7R					X7S			X7T			
(pF)	Code		2J (630V)	2E (250V)	2J (630V)	2E (250V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)	2A (100V)	1H (50V)	1C (16V)	2J (630V)	2W (450V)	2E (250V)
68,000	683	J: ±5%														
150,000	154															
220,000	224	K: ±10% M: ±20%														
330,000	334															
470,000	474															
680,000	684															
1,000,000	105															
1,500,000	155															
2,200,000	225															
3,300,000	335															
4,700,000	475															
6,800,000	685															
10,000,000	106															
15,000,000	156	M: ±20%														
22,000,000	226															
47,000,000	476															

Standard thickness  3.35 mm

■ Please refer to the capacitance range table after P-9 for the details such as product thickness and capacitance tolerance.

Capacitance range chart

CKG45N/ 4532 [1812 inch], Stacked type

Capacitance		Tolerance	C0G			X5R		X7R					
(pF)	Code		2J (630V)	2W (450V)	2E (250V)	1H (50V)	1C (16V)	2J (630V)	2E (250V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)
66,000	663	J: $\pm 5\%$	■										
94,000	943			■									
140,000	144	K: $\pm 10\%$			■								
220,000	224							■					
470,000	474	M: $\pm 20\%$							■				
1,000,000	105								■				
2,200,000	225									■			
3,300,000	335										■		
4,700,000	475											■	
6,800,000	685												■
10,000,000	106					■							
22,000,000	226												■
47,000,000	476							■					

Capacitance		Tolerance	X7S			X7T		
(pF)	Code		2A (100V)	1H (50V)	1C (16V)	2J (630V)	2W (450V)	2E (250V)
330,000	334	M: $\pm 20\%$				■		
470,000	474							
680,000	684						■	
1,000,000	105						■	
1,500,000	155							■
2,200,000	225							■
6,800,000	685		■					
10,000,000	106			■				
47,000,000	476				■			

Standard thickness

■ 5.00 mm

■ Please refer to the capacitance range table after P-9 for the details such as product thickness and capacitance tolerance.

Capacitance range chart

CKG57N/ 5750 [2220 inch], Stacked type

Capacitance		Tolerance	C0G				X5R			X7R					
(pF)	Code		2J (630V)	2E (250V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)	2J (630V)	2E (250V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)	
140,000	144	K: ±10%	■												
300,000	304		J: ±5%		■										
470,000	474	M: ±20%						■							
1,000,000	105								■						
2,200,000	225								■	■					
4,700,000	475									■	■				
10,000,000	106				■						■	■			
22,000,000	226					■							■		
33,000,000	336													■	
47,000,000	476							■							
100,000,000	107								■					■	

Capacitance		Tolerance	X7S				X7T		
(pF)	Code		2A (100V)	1H (50V)	1E (25V)	1C (16V)	2J (630V)	2W (450V)	2E (250V)
680,000	684	M: ±20%					■		
1,000,000	105						■		
1,500,000	155							■	
2,200,000	225							■	■
3,300,000	335								■
22,000,000	226		■	■					
47,000,000	476				■				
100,000,000	107					■			

Standard thickness
 5.00 mm

Background gray: The product which is not recommended to a new design.

■ Please refer to the capacitance range table after P-9 for the details such as product thickness and capacitance tolerance.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

Temperature characteristics:
C0G(-55 to +125°C, 0±30ppm/°C)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number				
				Rated voltage Edc: 1kV	Rated voltage Edc: 630V	Rated voltage Edc: 450V	Rated voltage Edc: 250V	Rated voltage Edc: 100V
1nF	3225	3.35±0.10	±5%	CKG32KC0G3A102J335AH				
1.2nF	3225	3.35±0.10	±5%	CKG32KC0G3A122J335AH				
1.5nF	3225	3.35±0.10	±5%	CKG32KC0G3A152J335AH				
1.8nF	3225	3.35±0.10	±5%	CKG32KC0G3A182J335AH				
2.2nF	3225	3.35±0.10	±5%	CKG32KC0G3A222J335AH				
2.7nF	3225	3.35±0.10	±5%	CKG32KC0G3A272J335AH				
3.3nF	3225	3.35±0.10	±5%	CKG32KC0G3A332J335AH				
3.9nF	3225	3.35±0.10	±5%	CKG32KC0G3A392J335AH				
4.7nF	3225	3.35±0.10	±5%	CKG32KC0G3A472J335AH				
5.6nF	3225	3.35±0.10	±5%	CKG32KC0G3A562J335AH				
6.8nF	3225	3.35±0.10	±5%	CKG32KC0G3A682J335AH				
8.2nF	3225	3.35±0.10	±5%	CKG32KC0G3A822J335AH				
10nF	3225	3.35±0.10	±5%	CKG32KC0G3A103J335AH				
15nF	3225	3.35±0.10	±5%	CKG32KC0G3A153J335AH				
22nF	3225	3.35±0.10	±5%	CKG32KC0G3A223J335AH	CKG32KC0G2J223J335AH	CKG32KC0G2W223J335AH		
33nF	3225	3.35±0.10	±5%		CKG32KC0G2J333J335AH	CKG32KC0G2W333J335AH	CKG32KC0G2E333J335AH	
	4532	2.90±0.10	±5%		CKG45KC0G2J333J290JH			
47nF	3225	3.35±0.10	±5%				CKG32KC0G2E473J335AH	
	4532	2.90±0.10	±5%			CKG45KC0G2W473J290JH		
66nF	4532	5.00±0.50	±5%		CKG45NC0G2J663J500JH			
	3225	3.35±0.10	±5%					CKG32KC0G2A663J335AH
68nF	4532	2.90±0.10	±5%					CKG45KC0G2E683J290JH
	5750	3.35±0.15	±5%		CKG57KC0G2J683J335JH			
94nF	4532	5.00±0.50	±5%			CKG45NC0G2W943J500JH		
	4532	5.00±0.50	±10%				CKG45NC0G2E144K500JH	
140nF	5750	5.00±0.50	±10%		CKG57NC0G2J144K500JH			
	5750	5.00±0.50	±5%				CKG57KC0G2E154J335JH	
300nF	5750	5.00±0.50	±5%				CKG57NC0G2E304J500JH	

■ Gray item: The product which is not recommended to a new design.

Capacitance range table

Temperature characteristics:
X5R(-55 to +85°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 100V	Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
10μF	4532	5.00±0.50	±20%		CKG45NX5R1H106M500JH		
	5750	5.00±0.50	±20%	CKG57NX5R2A106M500JH			
22μF	5750	5.00±0.50	±20%		CKG57NX5R1H226M500JH		
	4532	5.00±0.50	±20%				CKG45NX5R1C476M500JH
47μF	5750	5.00±0.50	±20%			CKG57NX5R1E476M500JH	
	100μF	5750	5.00±0.50	±20%			CKG57NX5R1C107M500JH

■ Gray item: The product which is not recommended to a new design.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

Temperature characteristics:
X7R(-55 to +125°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 630V	Rated voltage Edc: 250V	Rated voltage Edc: 100V	Rated voltage Edc: 50V
47nF	3225	3.35±0.10	±10%	CKG32KX7R2J473K335AH			
			±20%	CKG32KX7R2J473M335AH			
100nF	3225	3.35±0.10	±10%	CKG32KX7R2E104K335AH			
			±20%	CKG32KX7R2E104M335AH			
	4532	2.90±0.10	±10%	CKG45KX7R2J104K290JH			
			±20%	CKG45KX7R2J104M290JH			
220nF	3225	3.35±0.10	±10%	CKG32KX7R2E224K335AH			
			±20%	CKG32KX7R2E224M335AH			
	4532	2.90±0.10	±10%	CKG45KX7R2E224K290JH			
			±20%	CKG45KX7R2E224M290JH			
	5750	3.35±0.15	±10%	CKG45NX7R2J224M500JH			
			±20%	CKG57KX7R2J224K335JH			
±20%	CKG57KX7R2J224M335JH						
470nF	3225	3.35±0.10	±10%	CKG32KX7R2A474K335AH			
			±20%	CKG32KX7R2A474M335AH			
	4532	2.90±0.10	±10%	CKG45KX7R2E474K290JH			
			±20%	CKG45KX7R2E474M290JH			
	5750	3.35±0.15	±10%	CKG45NX7R2E474K335JH			
			±20%	CKG57KX7R2E474M335JH			
	5750	5.00±0.50	±10%	CKG57NX7R2J474M500JH			
			±20%	CKG57NX7R2J474M500JH			
1µF	3225	3.35±0.10	±10%	CKG32KX7R2A105K335AH			
			±20%	CKG32KX7R2A105M335AH			
	4532	2.90±0.10	±10%	CKG45KX7R2A105K290JH			
			±20%	CKG45KX7R2A105M290JH			
	5750	3.35±0.15	±10%	CKG45NX7R2E105M500JH			
			±20%	CKG57KX7R2E105K335JH			
	5750	5.00±0.50	±10%	CKG57KX7R2E105M335JH			
			±20%	CKG57NX7R2E105M500JH			
1.5µF	4532	2.90±0.10	±10%	CKG45KX7R1H155K290JH			
			±20%	CKG45KX7R1H155M290JH			
2.2µF	3225	3.35±0.10	±10%	CKG32KX7R2A225K335AH			
			±20%	CKG32KX7R2A225M335AH			
	4532	2.90±0.10	±10%	CKG45KX7R2A225K290JH			
			±20%	CKG45KX7R2A225M290JH			
	5750	3.35±0.15	±10%	CKG45NX7R2A225M500JH			
			±20%	CKG57KX7R2A225K335JH			
	5750	5.00±0.50	±10%	CKG57KX7R2A225M335JH			
			±20%	CKG57NX7R2E225M500JH			
±20%	CKG57NX7R2A225M500JH						

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MULTILAYER CERAMIC CHIP CAPACITORS

Capacitance range table

Temperature characteristics: X7R(-55 to +125°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 100V	Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
3.3µF	4532	2.90±0.10	±10%		CKG45KX7R1H335K290JH		
			±20%		CKG45KX7R1H335M290JH		
	5.00±0.50	±20%		CKG45NX7R1H335M500JH			
	5750	3.35±0.15	±10%	CKG57KX7R2A335K335JH			
		±20%	CKG57KX7R2A335M335JH				
4.7µF	3225	3.35±0.10	±10%			CKG32KX7R1E475K335AH	
			±20%			CKG32KX7R1E475M335AH	
	4532	2.90±0.10	±10%			CKG45KX7R1E475K290JH	
			±20%			CKG45KX7R1E475M290JH	
		5.00±0.50	±20%	CKG45NX7R2A475M500JH			
	5750	3.35±0.15	±10%	CKG57KX7R2A475K335JH	CKG57KX7R1H475K335JH		
			±20%	CKG57KX7R2A475M335JH	CKG57KX7R1H475M335JH		
		5.00±0.50	±20%	CKG57NX7R2A475M500JH			
6.8µF	4532	5.00±0.50	±20%		CKG45NX7R1H685M500JH		
	3225	3.35±0.10	±10%			CKG32KX7R1E106K335AH	
			±20%			CKG32KX7R1E106M335AH	
10µF	4532	2.90±0.10	±10%				CKG45KX7R1C106K290JH
			±20%				CKG45KX7R1C106M290JH
		5.00±0.50	±20%			CKG45NX7R1E106M500JH	
	5750	3.35±0.15	±10%			CKG57KX7R1E106K335JH	
		±20%			CKG57KX7R1E106M335JH		
15µF	5750	3.35±0.15	±20%				CKG57KX7R1C156M335JH
							CKG45KX7R1C226M290JH
22µF	4532	5.00±0.50	±20%				CKG45NX7R1C226M500JH
33µF	5750	5.00±0.50	±20%				
47µF	5750	3.35±0.15	±20%				
100µF	5750	5.00±0.50	±20%				

■ Gray item: The product which is not recommended to a new design.

Capacitance range table

Temperature characteristics: X7S(-55 to +125°C, ±22%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 100V	Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
3.3µF	3225	3.35±0.10	±10%	CKG32KX7S2A335K335AH			
			±20%	CKG32KX7S2A335M335AH			
	4532	2.90±0.10	±10%	CKG45KX7S2A335K290JH			
			±20%	CKG45KX7S2A335M290JH			
4.7µF	3225	3.35±0.10	±10%	CKG32KX7S2A475K335AH	CKG32KX7S1H475K335AH		
			±20%	CKG32KX7S2A475M335AH	CKG32KX7S1H475M335AH		
	4532	2.90±0.10	±10%	CKG45KX7S2A475K290JH	CKG45KX7S1H475K290JH		
			±20%	CKG45KX7S2A475M290JH	CKG45KX7S1H475M290JH		
6.8µF	3225	3.35±0.10	±10%		CKG32KX7S1H685K335AH		
			±20%		CKG32KX7S1H685M335AH		
	4532	5.00±0.50	±20%	CKG45NX7S2A685M500JH			
5750	3.35±0.15	±10%	CKG57KX7S2A685K335JH				
		±20%	CKG57KX7S2A685M335JH				
10µF	3225	3.35±0.10	±10%		CKG32KX7S1H106K335AH		
			±20%		CKG32KX7S1H106M335AH		
	4532	5.00±0.50	±20%	CKG45NX7S2A106M500JH	CKG45NX7S1H106M500JH		
5750	3.35±0.15	±10%	CKG57KX7S2A106K335JH	CKG57KX7S1H106K335JH			
		±20%	CKG57KX7S2A106M335JH	CKG57KX7S1H106M335JH			
15µF	5750	3.35±0.15	±20%	CKG57KX7S2A156M335JH			
22µF	4532	5.00±0.50	±20%				CKG45KX7S1C226M290JH
47µF	5750	5.00±0.50	±20%	CKG57NX7S2A226M500JH	CKG57NX7S1H226M500JH		
47µF	5750	3.35±0.15	±20%				CKG45NX7S1C476M500JH
							CKG57KX7S1C476M335JH
100µF	5750	5.00±0.50	±20%			CKG57NX7S1E476M500JH	
							CKG57NX7S1C107M500JH

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

MULTILAYER CERAMIC CHIP CAPACITORS



Capacitance range table

Temperature characteristics:
X7T (-55 to +125°C, +22,-33%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 630V	Rated voltage Edc: 450V	Rated voltage Edc: 250V	
100nF	3225	3.35±0.10	±10%	CKG32KX7T2J104K335AH			
			±20%	CKG32KX7T2J104M335AH			
150nF	3225	3.35±0.10	±10%	CKG32KX7T2J154K335AH			
			±20%	CKG32KX7T2J154M335AH			
	4532	2.90±0.10	±10%	CKG45KX7T2J154K290JH			
			±20%	CKG45KX7T2J154M290JH			
220nF	3225	3.35±0.10	±10%		CKG32KX7T2W224K335AH		
			±20%		CKG32KX7T2W224M335AH		
	4532	2.90±0.10	±10%	CKG45KX7T2J224K290JH			
			±20%	CKG45KX7T2J224M290JH			
330nF	3225	3.35±0.10	±10%			CKG32KX7T2E334K335AH	
			±20%			CKG32KX7T2E334M335AH	
	4532	2.90±0.10	±10%		CKG45KX7T2W334K290JH		
			±20%		CKG45KX7T2W334M290JH		
	5750	3.35±0.15	±10%	CKG45NX7T2J334M500JH			
			±20%	CKG57KX7T2J334K335JH			
470nF	4532	2.90±0.10	±10%		CKG45KX7T2W474K290JH		
			±20%		CKG45KX7T2W474M290JH		
	5750	3.35±0.15	±10%	CKG45NX7T2J474M500JH			
			±20%	CKG57KX7T2J474K335JH			
	680nF	4532	2.90±0.10	±10%			CKG45KX7T2E684K290JH
				±20%			CKG45KX7T2E684M290JH
5750		3.35±0.15	±10%		CKG45NX7T2W684M500JH		
			±20%		CKG57KX7T2W684K335JH		
1µF	4532	2.90±0.10	±10%			CKG45KX7T2E105K290JH	
			±20%			CKG45KX7T2E105M290JH	
	5750	3.35±0.15	±10%		CKG45NX7T2W105M500JH		
			±20%		CKG57KX7T2W105K335JH		
	5750	5.00±0.50	±10%	CKG57KX7T2J105M500JH			
			±20%	CKG57NX7T2J105M500JH			
1.5µF	4532	5.00±0.50	±10%			CKG45NX7T2E155M500JH	
			±20%			CKG57KX7T2E155K335JH	
	5750	3.35±0.15	±10%			CKG57KX7T2E155M335JH	
			±20%		CKG57NX7T2W155M500JH		
2.2µF	4532	5.00±0.50	±10%			CKG45NX7T2E225M500JH	
			±20%			CKG57KX7T2E225K335JH	
	5750	3.35±0.15	±10%			CKG57KX7T2E225M335JH	
			±20%		CKG57NX7T2W225M500JH		
3.3µF	5750	5.00±0.50	±20%			CKG57NX7T2E335M500JH	