

## REMINDERS

Please read this before using the product.

### SAFETY REMINDERS

#### REMINDERS

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8. The descriptions in this catalog apply as of April 2007.

# General Multilayer Ceramic Chip Capacitors

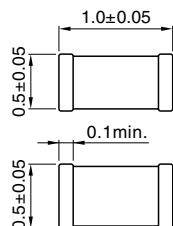
## C Series C1005(EIA CC0402) Type

Conformity to RoHS Directive

### FEATURES

- High capacitance has been achieved through precision technologies that enable the use of multiple thinner ceramic dielectric layers.
- A monolithic structure ensures superior mechanical strength and reliability.
- High-accuracy automatic mounting is facilitated through the maintenance of very precise dimensional tolerances.
- Composed of only ceramics and metals, these capacitors provide extremely dependable performance, exhibiting virtually no degradation even when subjected to temperature extremes.
- Low stray capacitance ensures high conformity with nominal values, thereby simplifying the circuit design process.
- Low residual inductance assures superior frequency characteristics.
- Because electrostatic capacity has been obtained up to the electrolytic capacitor range, these capacitors offer long service life and are optimally suited for power supply designs that require high levels of reliability.
- Owing to their low ESR and excellent frequency characteristics, these products are optimally suited for high frequency and high-density type power supplies.

### SHAPES AND DIMENSIONS



Dimensions in mm



### PRODUCT IDENTIFICATION

C	1005	CH	1H	100	D	□
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) Series name

(2) Dimensions L×W

1005	1.0×0.5mm
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(3) Capacitance temperature characteristics

Class 1 (Temperature compensation)

Temperature characteristics	Capacitance change	Temperature range
CH	0±60ppm/°C	-25 to +85°C
C0G	0±30ppm/°C	-55 to +125°C
SL	+350 to -1000ppm/°C	+20 to +85°C

Class 2 (Temperature stable and general purpose)

Temperature characteristics	Capacitance change	Temperature range
JB	±10%	-25 to +85°C
JF	+30, -80%	-25 to +85°C
X7R	±15%	-55 to +125°C
X5R	±15%	-55 to +85°C
Y5V	+22, -82%	-30 to +85°C

(4) Rated voltage E<sub>dc</sub>

0J	6.3V
1A	10V
1C	16V
1E	25V
1H	50V

(5) Nominal capacitance

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.

010	1pF
100	10pF
102	1,000pF
0R5	0.5pF

(6) Capacitance tolerance

Symbol	Tolerance	Applicable capacitance range
C	±0.25pF	10pF or less
D	±0.5pF	
J	±5%	Over 10pF
K	±10%	
M	±20%	
Z	+80, -20%	

(7) Packaging style

T	Taping (reel)
B	Bulk

- 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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**CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)**  
**TEMPERATURE CHARACTERISTICS: CH(0±60ppm/°C), C0G(0±30ppm/°C)**

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: CH	Temperature characteristics: C0G
0.5	±0.25pF	0.50±0.05	C1005CH1H0R5C	C1005C0G1H0R5C
0.75	±0.25pF	0.50±0.05	C1005CH1HR75C	C1005C0G1HR75C
1	±0.25pF	0.50±0.05	C1005CH1H010C	C1005C0G1H010C
1.5	±0.25pF	0.50±0.05	C1005CH1H1R5C	C1005C0G1H1R5C
2	±0.25pF	0.50±0.05	C1005CH1H020C	C1005C0G1H020C
3	±0.25pF	0.50±0.05	C1005CH1H030C	C1005C0G1H030C
4	±0.25pF	0.50±0.05	C1005CH1H040C	C1005C0G1H040C
5	±0.25pF	0.50±0.05	C1005CH1H050C	C1005C0G1H050C
6	±0.5pF	0.50±0.05	C1005CH1H060D	C1005C0G1H060D
7	±0.5pF	0.50±0.05	C1005CH1H070D	C1005C0G1H070D
8	±0.5pF	0.50±0.05	C1005CH1H080D	C1005C0G1H080D
9	±0.5pF	0.50±0.05	C1005CH1H090D	C1005C0G1H090D
10	±0.5pF	0.50±0.05	C1005CH1H100D	C1005C0G1H100D
12	±5%	0.50±0.05	C1005CH1H120J	C1005C0G1H120J
15	±5%	0.50±0.05	C1005CH1H150J	C1005C0G1H150J
18	±5%	0.50±0.05	C1005CH1H180J	C1005C0G1H180J
22	±5%	0.50±0.05	C1005CH1H220J	C1005C0G1H220J
27	±5%	0.50±0.05	C1005CH1H270J	C1005C0G1H270J
33	±5%	0.50±0.05	C1005CH1H330J	C1005C0G1H330J
39	±5%	0.50±0.05	C1005CH1H390J	C1005C0G1H390J
47	±5%	0.50±0.05	C1005CH1H470J	C1005C0G1H470J
56	±5%	0.50±0.05	C1005CH1H560J	C1005C0G1H560J
68	±5%	0.50±0.05	C1005CH1H680J	C1005C0G1H680J
82	±5%	0.50±0.05	C1005CH1H820J	C1005C0G1H820J
100	±5%	0.50±0.05	C1005CH1H101J	C1005C0G1H101J
120	±5%	0.50±0.05	C1005CH1H121J	C1005C0G1H121J
150	±5%	0.50±0.05	C1005CH1H151J	C1005C0G1H151J
180	±5%	0.50±0.05	C1005CH1H181J	C1005C0G1H181J
220	±5%	0.50±0.05	C1005CH1H221J	C1005C0G1H221J
270	±5%	0.50±0.05	C1005CH1H271J	C1005C0G1H271J
330	±5%	0.50±0.05	C1005CH1H331J	C1005C0G1H331J
390	±5%	0.50±0.05	C1005CH1H391J	C1005C0G1H391J
470	±5%	0.50±0.05	C1005CH1H471J	C1005C0G1H471J

**TEMPERATURE CHARACTERISTICS: SL(+350 to -1000ppm/°C)**

RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: SL	
1,500	±5%	0.50±0.05	C1005SL1A152J	
2,200	±5%	0.50±0.05	C1005SL1A222J	
3,300	±5%	0.50±0.05	C1005SL1A332J	

**CAPACITANCE RANGES: CLASS 2**

**TEMPERATURE CHARACTERISTICS: JB(±10%), X5R/X7R(±15%)**

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.		
			Temperature characteristics: JB	Temperature characteristics: X5R	Temperature characteristics: X7R
220	±10%	0.50±0.05	C1005JB1H221K	C1005X5R1H221K	C1005X7R1H221K
330	±10%	0.50±0.05	C1005JB1H331K	C1005X5R1H331K	C1005X7R1H331K
470	±10%	0.50±0.05	C1005JB1H471K	C1005X5R1H471K	C1005X7R1H471K
680	±10%	0.50±0.05	C1005JB1H681K	C1005X5R1H681K	C1005X7R1H681K
1,000	±10%	0.50±0.05	C1005JB1H102K	C1005X5R1H102K	C1005X7R1H102K
1,500	±10%	0.50±0.05	C1005JB1H152K	C1005X5R1H152K	C1005X7R1H152K
2,200	±10%	0.50±0.05	C1005JB1H222K	C1005X5R1H222K	C1005X7R1H222K
3,300	±10%	0.50±0.05	C1005JB1H332K	C1005X5R1H332K	C1005X7R1H332K
4,700	±10%	0.50±0.05	C1005JB1H472K	C1005X5R1H472K	C1005X7R1H472K
6,800	±10%	0.50±0.05	C1005JB1H682K	C1005X5R1H682K	C1005X7R1H682K

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## RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.		
			Temperature characteristics: JB	Temperature characteristics: X5R	Temperature characteristics: X7R
10,000	±10%	0.50±0.05	C1005JB1E103K	C1005X5R1E103K	C1005X7R1E103K
15,000	±10%	0.50±0.05	C1005JB1E153K	C1005X5R1E153K	C1005X7R1E153K
22,000	±10%	0.50±0.05	C1005JB1E223K	C1005X5R1E223K	C1005X7R1E223K
33,000	±10%	0.50±0.05	C1005JB1E333K	C1005X5R1E333K	C1005X7R1E333K
47,000	±10%	0.50±0.05	C1005JB1E473K	C1005X5R1E473K	C1005X7R1E473K

## RATED VOLTAGE Edc: 16V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.		
			Temperature characteristics: JB	Temperature characteristics: X5R	Temperature characteristics: X7R
68,000	±10%	0.50±0.05	C1005JB1C683K	C1005X5R1C683K	C1005X7R1C683K
100,000	±10%	0.50±0.05	C1005JB1C104K	C1005X5R1C104K	C1005X7R1C104K

## TEMPERATURE CHARACTERISTICS: JB(±10%), X5R(±15%)

## RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: JB	Temperature characteristics: X5R
68,000	±10%	0.50±0.05	C1005JB1E683K	C1005X5R1E683K
	±20%	0.50±0.05	C1005JB1E683M	C1005X5R1E683M
100,000	±10%	0.50±0.05	C1005JB1E104K	C1005X5R1E104K
	±20%	0.50±0.05	C1005JB1E104M	C1005X5R1E104M

## RATED VOLTAGE Edc: 16V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: JB	Temperature characteristics: X5R
150,000	±10%	0.50±0.05	C1005JB1C154K	C1005X5R1C154K
	±20%	0.50±0.05	C1005JB1C154M	C1005X5R1C154M
220,000	±10%	0.50±0.05	C1005JB1C224K	C1005X5R1C224K
	±20%	0.50±0.05	C1005JB1C224M	C1005X5R1C224M

## RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: JB	Temperature characteristics: X5R
330,000	±10%	0.50±0.05	C1005JB1A334K	C1005X5R1A334K
	±20%	0.50±0.05	C1005JB1A334M	C1005X5R1A334M
470,000	±10%	0.50±0.05	C1005JB1A474K	C1005X5R1A474K
	±20%	0.50±0.05	C1005JB1A474M	C1005X5R1A474M
680,000	±10%	0.50±0.05	C1005JB1A684K	C1005X5R1A684K
	±20%	0.50±0.05	C1005JB1A684M	C1005X5R1A684M
1,000,000	±10%	0.50±0.05	C1005JB1A105K	C1005X5R1A105K
	±20%	0.50±0.05	C1005JB1A105M	C1005X5R1A105M

## TEMPERATURE CHARACTERISTICS: JF(+30, -80%), Y5V(+22, -82%)

## RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: JF	Temperature characteristics: Y5V
100,000	+80,-20%	0.50±0.05	C1005JF1E104Z	C1005Y5V1E104Z
220,000	+80,-20%	0.50±0.05	C1005JF1E224Z	C1005Y5V1E224Z

## RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: JF	Temperature characteristics: Y5V
470,000	+80,-20%	0.50±0.05	C1005JF1A474Z	C1005Y5V1A474Z

## RATED VOLTAGE Edc: 6.3V

Capacitance (pF)	Tolerance	Thickness T (mm)	Part No.	
			Temperature characteristics: JF	Temperature characteristics: Y5V
1,000,000	+80,-20%	0.50±0.05	C1005JF0J105Z	C1005Y5V0J105Z

- For more information about the products of other capacitance or data, please contact us.

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