

Ceramic Capacitors

For General Use
SMD

C Series

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.

CAPACITANCE RANGE AND RATED VOLTAGE

Type	Capacitance range	Rated voltage Edc (V)
C1005	0.5 ~ 100000pF	6.3 ~ 50
C1608	0.5pF ~ 1μF	6.3 ~ 50
C2012	1200pF ~ 2.2μF	6.3 ~ 50
C3216	3900pF ~ 10μF	6.3 ~ 50

PRODUCT IDENTIFICATION

C 1005 C0G 1E 100 D _ _ _
 (1) (2) (3) (4) (5) (6) (7) (8)

(1) Series name

(2) Dimensions L×W

1005	1.0×0.5mm
1608	1.6×0.8mm
2012	2.0×1.25mm
3216	3.2×1.6mm

(3) Capacitance temperature characteristics

Class 1 (Temperature compensation)

Temperature characteristics	Capacitance change	Temperature range
C0G*	0±30ppm/°C	-55 ~ +125°C

* Please contact us for order.

Class 2 (Temperature stable and general purpose)

Temperature characteristics	Capacitance change	Temperature range
X7R	±15%	-55 ~ +125°C
X5R	±15%	-55 ~ +85°C
Z5U	+22, -56%	+10 ~ +85°C
Y5V	+22, -82%	-30 ~ +85°C

(4) Rated voltage Edc

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	1000pF
0R5	0.5pF
3R5	3.5pF

(6) Capacitance tolerance

Symbol	Tolerance	Applicable capacitance range
C	±0.25pF	10pF or less
D	±0.5pF	
F	±1pF	
J	±5%	
K	±10%	Over 10pF
M	±20%	
Z	+80, -20%	

(7) Packaging style

T	Taping (reel)
B	Bulk

(8) TDK internal code

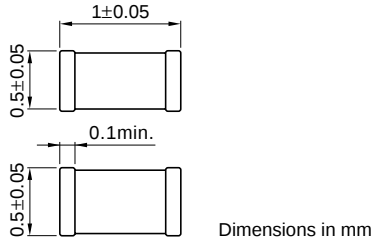
Ceramic Capacitors

For General Use
SMD

C Series

C1005 (EIA:CC0402) Type

SHAPES AND DIMENSIONS



CAPACITANCE RANGES

CLASS 1 (TEMPERATURE COMPENSATION)

TEMPERATURE CHARACTERISTICS:

C0G(0±30ppm/°C)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
0.5	±0.25pF	0.5±0.05	C1005C0G1H0R5C
0.75	±0.25pF	0.5±0.05	C1005C0G1HR75C
1	±0.25pF	0.5±0.05	C1005C0G1H010C
1.5	±0.25pF	0.5±0.05	C1005C0G1H1R5C
2	±0.25pF	0.5±0.05	C1005C0G1H020C
3	±0.25pF	0.5±0.05	C1005C0G1H030C
4	±0.25pF	0.5±0.05	C1005C0G1H040C
5	±0.25pF	0.5±0.05	C1005C0G1H050C
6	±0.5pF	0.5±0.05	C1005C0G1H060D
7	±0.5pF	0.5±0.05	C1005C0G1H070D
8	±0.5pF	0.5±0.05	C1005C0G1H080D
9	±0.5pF	0.5±0.05	C1005C0G1H090D
10	±0.5pF	0.5±0.05	C1005C0G1H100D
12	±5%	0.5±0.05	C1005C0G1H120J
15	±5%	0.5±0.05	C1005C0G1H150J
18	±5%	0.5±0.05	C1005C0G1H180J
20	±5%	0.5±0.05	C1005C0G1H200J
22	±5%	0.5±0.05	C1005C0G1H220J
27	±5%	0.5±0.05	C1005C0G1H270J
33	±5%	0.5±0.05	C1005C0G1H330J
39	±5%	0.5±0.05	C1005C0G1H390J
47	±5%	0.5±0.05	C1005C0G1H470J
56	±5%	0.5±0.05	C1005C0G1H560J
68	±5%	0.5±0.05	C1005C0G1H680J
82	±5%	0.5±0.05	C1005C0G1H820J
100	±5%	0.5±0.05	C1005C0G1H101J
120	±5%	0.5±0.05	C1005C0G1H121J

CAPACITANCE RANGES

CLASS 2 (TEMPERATURE STABLE)

TEMPERATURE CHARACTERISTICS: X7R (±15%)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
220	±10%	0.5±0.05	C1005X7R1H221K
330	±10%	0.5±0.05	C1005X7R1H331K
470	±10%	0.5±0.05	C1005X7R1H471K
680	±10%	0.5±0.05	C1005X7R1H681K
1000	±10%	0.5±0.05	C1005X7R1H102K
1500	±10%	0.5±0.05	C1005X7R1H152K
2200	±10%	0.5±0.05	C1005X7R1H222K
3300	±10%	0.5±0.05	C1005X7R1H332K

RATED VOLTAGE Edc:25V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
4700	±10%	0.5±0.05	C1005X7R1E472K
6800	±10%	0.5±0.05	C1005X7R1E682K

RATED VOLTAGE Edc:16V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
10000	±10%	0.5±0.05	C1005X7R1C103K
15000	±10%	0.5±0.05	C1005X7R1C153K
22000	±10%	0.5±0.05	C1005X7R1C223K
33000	±10%	0.5±0.05	C1005X7R1C333K

TEMPERATURE CHARACTERISTICS: X5R (±15%)

RATED VOLTAGE Edc:10V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
47000	±10%	0.5±0.05	C1005X5R1A473K

RATED VOLTAGE Edc:6.3V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
56000	±10%	0.5±0.05	C1005X5R0J563K
68000	±10%	0.5±0.05	C1005X5R0J683K
100000	±10%	0.5±0.05	C1005X5R0J104K

TEMPERATURE CHARACTERISTICS: Y5V (+22, -82%)

RATED VOLTAGE Edc:16V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
100000	+80, -20%	0.5±0.05	C1005Y5V1C104Z

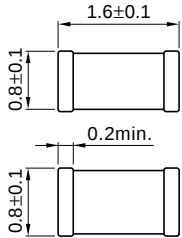
Ceramic Capacitors

For General Use
SMD

C Series

C1608 (EIA:CC0603) Type

SHAPES AND DIMENSIONS



Dimensions in mm

CAPACITANCE RANGES

CLASS 1 (TEMPERATURE COMPENSATION)

TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
0.5	±0.25pF	0.8±0.1	C1608C0G1H0R5C
0.75	±0.25pF	0.8±0.1	C1608C0G1HR75C
1	±0.25pF	0.8±0.1	C1608C0G1H010C
1.5	±0.25pF	0.8±0.1	C1608C0G1H1R5C
2	±0.25pF	0.8±0.1	C1608C0G1H020C
3	±0.25pF	0.8±0.1	C1608C0G1H030C
4	±0.25pF	0.8±0.1	C1608C0G1H040C
5	±0.25pF	0.8±0.1	C1608C0G1H050C
6	±0.5pF	0.8±0.1	C1608C0G1H060D
7	±0.5pF	0.8±0.1	C1608C0G1H070D
8	±0.5pF	0.8±0.1	C1608C0G1H080D
9	±0.5pF	0.8±0.1	C1608C0G1H090D
10	±0.5pF	0.8±0.1	C1608C0G1H100D
12	±5%	0.8±0.1	C1608C0G1H120J
15	±5%	0.8±0.1	C1608C0G1H150J
18	±5%	0.8±0.1	C1608C0G1H180J
22	±5%	0.8±0.1	C1608C0G1H220J
27	±5%	0.8±0.1	C1608C0G1H270J
33	±5%	0.8±0.1	C1608C0G1H330J
39	±5%	0.8±0.1	C1608C0G1H390J
47	±5%	0.8±0.1	C1608C0G1H470J
56	±5%	0.8±0.1	C1608C0G1H560J
68	±5%	0.8±0.1	C1608C0G1H680J
82	±5%	0.8±0.1	C1608C0G1H820J
100	±5%	0.8±0.1	C1608C0G1H101J
120	±5%	0.8±0.1	C1608C0G1H121J
150	±5%	0.8±0.1	C1608C0G1H151J
180	±5%	0.8±0.1	C1608C0G1H181J
220	±5%	0.8±0.1	C1608C0G1H221J
270	±5%	0.8±0.1	C1608C0G1H271J
330	±5%	0.8±0.1	C1608C0G1H331J
390	±5%	0.8±0.1	C1608C0G1H391J
470	±5%	0.8±0.1	C1608C0G1H471J
560	±5%	0.8±0.1	C1608C0G1H561J
680	±5%	0.8±0.1	C1608C0G1H681J
820	±5%	0.8±0.1	C1608C0G1H821J
1000	±5%	0.8±0.1	C1608C0G1H102J

CAPACITANCE RANGES

CLASS 2 (TEMPERATURE STABLE)

TEMPERATURE CHARACTERISTICS: X7R (±15%)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
220	±10%	0.8±0.1	C1608X7R1H221K
330	±10%	0.8±0.1	C1608X7R1H331K
470	±10%	0.8±0.1	C1608X7R1H471K
680	±10%	0.8±0.1	C1608X7R1H681K
1000	±10%	0.8±0.1	C1608X7R1H102K
1500	±10%	0.8±0.1	C1608X7R1H152K
2200	±10%	0.8±0.1	C1608X7R1H222K
3300	±10%	0.8±0.1	C1608X7R1H332K
4700	±10%	0.8±0.1	C1608X7R1H472K
6800	±10%	0.8±0.1	C1608X7R1H682K
10000	±10%	0.8±0.1	C1608X7R1H103K
15000	±10%	0.8±0.1	C1608X7R1H153K
22000	±10%	0.8±0.1	C1608X7R1H223K

RATED VOLTAGE Edc:25V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
33000	±10%	0.8±0.1	C1608X7R1E333K
47000	±10%	0.8±0.1	C1608X7R1E473K

RATED VOLTAGE Edc:16V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
68000	±10%	0.8±0.1	C1608X7R1C683K
100000	±10%	0.8±0.1	C1608X7R1C104K
[0.1μF]			

TEMPERATURE CHARACTERISTICS: X5R (±15%)

RATED VOLTAGE Edc:10V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
150000	±10%	0.8±0.1	C1608X5R1A154K

RATED VOLTAGE Edc:6.3V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
220000	±10%	0.8±0.1	C1608X5R0J224K
	±20%	0.8±0.1	C1608X5R0J224M
330000	±10%	0.8±0.1	C1608X5R0J334K
	±20%	0.8±0.1	C1608X5R0J334M
470000	±10%	0.8±0.1	C1608X5R0J474K
	±20%	0.8±0.1	C1608X5R0J474M

Ceramic Capacitors

C Series

For General Use
SMD

C1608 (EIA:CC0603) Type

CAPACITANCE RANGES

CLASS 2 (TEMPERATURE STABLE)

TEMPERATURE CHARACTERISTICS: Y5V (+22, -82%)

RATED VOLTAGE Edc:50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
100000 [0.1μF]	+80, -20%	0.8±0.1	C1608Y5V1H104Z

RATED VOLTAGE Edc: 16V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
220000	+80, -20%	0.8±0.1	C1608Y5V1C224Z

RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
470000	+80, -20%	0.8±0.1	C1608Y5V1A474Z
1000000 [1μF]	+80, -20%	0.8±0.1	C1608Y5V1A105Z

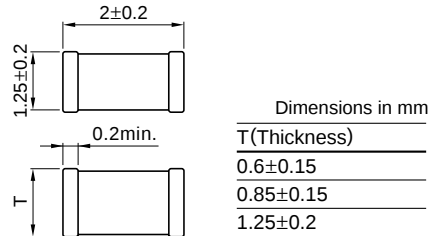
Ceramic Capacitors

For General Use
SMD

C Series

C2012 (EIA:CC0805) Type

SHAPES AND DIMENSIONS



CAPACITANCE RANGES

CLASS 1 (TEMPERATURE COMPENSATION)

TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
1200	±5%	0.85±0.15	C2012C0G1H122J
1500	±5%	0.85±0.15	C2012C0G1H152J
1800	±5%	0.85±0.15	C2012C0G1H182J
2200	±5%	0.85±0.15	C2012C0G1H222J
2700	±5%	1.25±0.02	C2012C0G1H272J
3300	±5%	1.25±0.02	C2012C0G1H332J

CAPACITANCE RANGES

CLASS 2 (TEMPERATURE STABLE)

TEMPERATURE CHARACTERISTICS: X7R (±15%)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
1000	±10%	0.6±0.15	C2012X7R1H102K
1500	±10%	0.6±0.15	C2012X7R1H152K
2200	±10%	0.6±0.15	C2012X7R1H222K
3300	±10%	0.6±0.15	C2012X7R1H332K
4700	±10%	0.6±0.15	C2012X7R1H472K
6800	±10%	0.6±0.15	C2012X7R1H682K
10000	±10%	0.6±0.15	C2012X7R1H103K
15000	±10%	0.6±0.15	C2012X7R1H153K
22000	±10%	0.6±0.15	C2012X7R1H223K
33000	±10%	0.85±0.15	C2012X7R1H333K
47000	±10%	1.25±0.2	C2012X7R1H473K
68000	±10%	1.25±0.2	C2012X7R1H683K
100000	±10%	1.25±0.2	C2012X7R1H104K
[0.1μF]	±10%	1.25±0.2	C2012X7R1H104K

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
150000	±10%	1.25±0.2	C2012X7R1E154K
220000	±10%	1.25±0.2	C2012X7R1E224K

RATED VOLTAGE Edc: 16V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
330000	±10%	1.25±0.2	C2012X7R1C334K
	±20%	1.25±0.2	C2012X7R1C334M
470000	±10%	1.25±0.2	C2012X7R1C474K
	±20%	1.25±0.2	C2012X7R1C474M
1000000	±10%	1.25±0.2	C2012X7R1C105K
	±20%	1.25±0.2	C2012X7R1C105M

RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
1500000	±10%	1.25±0.2	C2012X5R0J155K
	±20%	1.25±0.2	C2012X5R0J155M
2200000	±10%	1.25±0.2	C2012X5R0J225K
	±20%	1.25±0.2	C2012X5R0J225M

RATED VOLTAGE Edc: 6.3V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
3300000	±10%	1.25±0.2	C2012X5R335K
	±20%	1.25±0.2	C2012X5R335M

TEMPERATURE CHARACTERISTICS: Y5V(+22, -82%)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
100000	+80, -20%	0.6±0.15	C2012Y5V1H104Z
[0.1μF]			

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
470000	+80, -20%	1.25±0.2	C2012Y5V1E474Z
1000000	+80, -20%	1.25±0.2	C2012Y5V1E105Z

RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
4700000	+80, -20%	1.25±0.2	C2012Y5V1C475Z

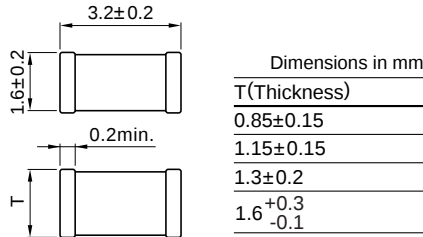
Ceramic Capacitors

For General Use
SMD

C Series

C3216 (EIA:CC1206) Type

SHAPES AND DIMENSIONS



CAPACITANCE RANGES

CLASS 1 (TEMPERATURE COMPENSATION)

TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
3900	±5%	0.6±0.15	C3216C0G1H392J
4700	±5%	0.85±0.15	C3216C0G1H472J
5600	±5%	0.85±0.15	C3216C0G1H502K
6800	±5%	1.15±0.15	C3216C0G1H682K
8200	±5%	1.15±0.15	C3216C0G1H822K
10000	±5%	1.15±0.15	C3216C0G1H103J

CAPACITANCE RANGES

CLASS 2 (TEMPERATURE STABLE)

TEMPERATURE CHARACTERISTICS: X7R(±15%)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
150000	±10%	1.15±0.15	C3216X7R1H154K
	±10%	1.15±0.15	C3216X7R1H224K
220000	±10%	1.15±0.15	C3216X7R1H224M
	±10%	1.15±0.15	C3216X7R1H334K
330000	±10%	1.15±0.15	C3216X7R1H334M

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
470000	±10%	1.15±0.15	C3216X7R1E474K
	±20%	1.15±0.15	C3216X7R1E474M
680000	±10%	1.6±0.3	C3216X7R1E684K
	±20%	1.6±0.3	C3216X7R1E684M
1000000	±10%	1.6±0.3	C3216X7R1E105K
	±20%	1.6±0.3	C3216X7R1E105M

RATED VOLTAGE Edc: 16V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
1500000	±10%	1.6±0.3	C3216X7R1C155K
	±20%	1.6±0.3	C3216X7R1C155M
2200000	±10%	1.6±0.3	C3216X7R1C225K
	±20%	1.6±0.3	C3216X7R1C225M
3300000	±10%	1.6±0.3	C3216X7R1C335K
	±20%	1.6±0.3	C3216X7R1C335M

RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
4700000	±10%	1.6±0.3	C3216X5R1A475K
[4.7μF]	±20%	1.6±0.3	C3216X5R1A475M

RATED VOLTAGE Edc: 6.3V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
6800000	±10%	1.6±0.3	C3216X5R0J685K
	±20%	1.6±0.3	C3216X5R0J685M
10000000	±10%	1.6±0.3	C3216X5R0J106K
	±20%	1.6±0.3	C3216X5R0J106M

TEMPERATURE CHARACTERISTICS: Y5V(+22, -82%)

RATED VOLTAGE Edc: 50V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
470000	+80, -20%	0.85±0.15	C3216Y5V1H474Z
1000000	+80, -20%	1.3±0.2	C3216Y5V1H105Z
[1μF]			

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
2200000	+80, -20%	1.3±0.2	C3216Y5V1E225Z

RATED VOLTAGE Edc: 16V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
4700000	+80, -20%	1.3±0.2	C3216Y5V1C475Z

RATED VOLTAGE Edc: 10V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
10000000	+80, -20%	1.6±0.3	C3216Y5V1A106Z

RATED VOLTAGE Edc: 6.3V

Capacitance (pF)	Tolerance	Thickness (mm)max.	Part No.
22000000	+80, -20%	1.6±0.3	C3216Y5V1A226Z

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