REMINDERS

Please read this before using the product.

SAFETY REMINDERS

⚠ REMINDERS

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8. The descriptions in this catalog apply as of Februery 2009.

Guaranteed at High Temperature Multilayer Ceramic Chip Capacitors for Automobile

CGA Series

Conformity to RoHS Directive

FEATURES

- The CGA series consists of products that are used for the power train, safety equipment, etc. of a vehicle.
- Even in a high-temperature range (up to +150°C), the capacitor has a stable temperature characteristic of capacitance of ±15%.
- In a quasi-high-temperature range (up to +125°C), the capacitor has a high-definition performance with its temperature characteristic of capacitance being ±7.5%.

PRODUCT IDENTIFICATION

CGA	5	L	2	X8R	1E	105	K
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

(1) Series name

(2)Dimensions

2	1005(1.0×0.5mm)
3	1608(1.6×0.8mm)
4	2012(2.0×1.25mm)
5	3216(3.2×1.6mm)
6	3225(3.2×2.5mm)

(3)Thickness T

B	0.50mm
E	0.80mm
F	0.85mm
H	1.15mm
J	1.25mm
L	1.60mm
M	2.00mm
P	2.50mm

(4)Voltage conditions at the time of high temperature loading
(Shown below are guaranteed applied voltages in a high temperature load test. [Maximum operating temperature/1000h])

2	Product with the rated voltage×2 guaranteed

(5) CapacitanceTemperature characteristics
Class 2 (Temperature stable and general purpose)

Temperature characteristics	Capacitance change	Temperature range
X8R	±15%	–55 to +150°C

(6) Product with the rated voltage Edc

1E	25V
1H	50V
2A	100V

(7) 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.

151	150pF
104	100,000pF(0.1μF)
105	1,000,000pF(1μF)

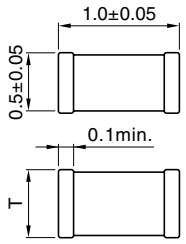
(8) CapacitanceTolerance

K	+10%

- 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.

CGA2(C1005[EIA: CC0402]) Type

SHAPES AND DIMENSIONS



Dimensions in mm

CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: X8R(±15%)

RATED VOLTAGE Edc: 50V

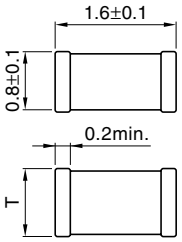
Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
150	±10%	0.5±0.05	2	CGA2B2X8R1H151K
220	±10%	0.5±0.05	2	CGA2B2X8R1H221K
330	±10%	0.5±0.05	2	CGA2B2X8R1H331K
470	±10%	0.5±0.05	2	CGA2B2X8R1H471K
680	±10%	0.5±0.05	2	CGA2B2X8R1H681K
1000	±10%	0.5±0.05	2	CGA2B2X8R1H102K
1500	±10%	0.5±0.05	2	CGA2B2X8R1H152K
2,200	±10%	0.5±0.05	2	CGA2B2X8R1H222K
3,300	±10%	0.5±0.05	2	CGA2B2X8R1H332K
4,700	±10%	0.5±0.05	2	CGA2B2X8R1H472K

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
6,800	±10%	0.5±0.05	2	CGA2B2X8R1E682K
10,000	±10%	0.5±0.05	2	CGA2B2X8R1E103K

CGA3(C1608[EIA: CC0603]) Type

SHAPES AND DIMENSIONS



Dimensions in mm

CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: X8R(±15%)

RATED VOLTAGE Edc: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
1,000	±10%	0.8±0.1	2	CGA3E2X8R2A102K
1,500	±10%	0.8±0.1	2	CGA3E2X8R2A152K
2,200	±10%	0.8±0.1	2	CGA3E2X8R2A222K
3,300	±10%	0.8±0.1	2	CGA3E2X8R2A332K
4,700	±10%	0.8±0.1	2	CGA3E2X8R2A472K
6,800	±10%	0.8±0.1	2	CGA3E2X8R2A682K
10,000	±10%	0.8±0.1	2	CGA3E2X8R2A103K
15,000	±10%	0.8±0.1	2	CGA3E2X8R2A153K

RATED VOLTAGE Edc: 50V

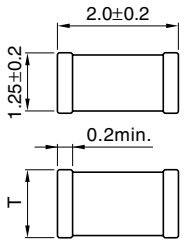
Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
1,000	±10%	0.8±0.1	2	CGA3E2X8R1H102K
1,500	±10%	0.8±0.1	2	CGA3E2X8R1H152K
2,200	±10%	0.8±0.1	2	CGA3E2X8R1H222K
3,300	±10%	0.8±0.1	2	CGA3E2X8R1H332K
4,700	±10%	0.8±0.1	2	CGA3E2X8R1H472K
6,800	±10%	0.8±0.1	2	CGA3E2X8R1H682K
10,000	±10%	0.8±0.1	2	CGA3E2X8R1H103K
15,000	±10%	0.8±0.1	2	CGA3E2X8R1H153K
22,000	±10%	0.8±0.1	2	CGA3E2X8R1H223K
33,000	±10%	0.8±0.1	2	CGA3E2X8R1H333K
47,000	±10%	0.8±0.1	2	CGA3E2X8R1H473K

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
68,000	±10%	0.8±0.1	2	CGA3E2X8R1E683K
100,000	±10%	0.8±0.1	2	CGA3E2X8R1E104K

CGA4(C2012[EIA: CC0805]) Type

SHAPES AND DIMENSIONS



Dimensions in mm

CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: X8R(±15%)

RATED VOLTAGE Edc: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
22,000	±10%	1.25±0.20	2	CGA4J2X8R2A223K

RATED VOLTAGE Edc: 50V

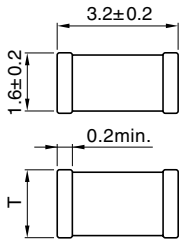
Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
68,000	±10%	1.25±0.20	2	CGA4J2X8R1H683K
100,000	±10%	1.25±0.20	2	CGA4J2X8R1H104K

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
150,000	±10%	0.85±0.15	2	CGA4F2X8R1E154K
220,000	±10%	1.25±0.20	2	CGA4J2X8R1E224K
330,000	±10%	1.25±0.20	2	CGA4J2X8R1E334K

CGA5(C3216[EIA: CC1206]) Type

SHAPES AND DIMENSIONS



Dimensions in mm

CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: X8R(±15%)

RATED VOLTAGE Edc: 100V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
33,000	±10%	0.85±0.15	2	CGA5F2X8R2A333K
47,000	±10%	0.85±0.15	2	CGA5F2X8R2A473K
68,000	±10%	1.15±0.15	2	CGA5H2X8R2A683K
100,000	±10%	1.15±0.15	2	CGA5H2X8R2A104K
150,000	±10%	1.60±0.20	2	CGA5L2X8R2A154K

RATED VOLTAGE Edc: 50V

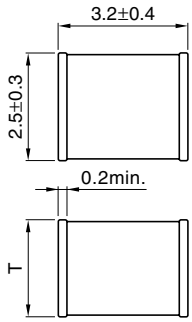
Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
150,000	±10%	0.85±0.15	2	CGA5F2X8R1H154K
220,000	±10%	1.15±0.15	2	CGA5H2X8R1H224K
330,000	±10%	1.60±0.20	2	CGA5L2X8R1H334K
470,000	±10%	1.60±0.20	2	CGA5L2X8R1H474K

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
330,000	±10%	0.85±0.15	2	CGA5F2X8R1E334K
470,000	±10%	0.85±0.15	2	CGA5F2X8R1E474K
680,000	±10%	1.15±0.15	2	CGA5H2X8R1E684K
1,000,000	±10%	1.60±0.20	2	CGA5L2X8R1E105K

CGA6(C3225[EIA: CC1210]) Type

SHAPES AND DIMENSIONS



Dimensions in mm

CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: X8R(±15%)

RATED VOLTAGE Edc: 25V

Capacitance (pF)	Tolerance	Thickness T (mm)	Voltage conditions at the time of high temperature loading	Part No.
1,500,000	±10%	1.60±0.20	2	CGA6L2X8R1E155K
2,200,000	±10%	2.00±0.20	2	CGA6M2X8R1E225K
3,300,000	±10%	2.50±0.30	2	CGA6P2X8R1E335K