



MULTILAYER CERAMIC CHIP CAPACITORS



CGA Series Automotive Grade High Temperature Application

Type:

**CGA2 [EIA CC0402]
CGA3 [EIA CC0603]
CGA4 [EIA CC0805]
CGA5 [EIA CC1206]
CGA6 [EIA CC1210]
CGA8 [EIA CC1812]
CGA9 [EIA CC2220]**

**Issue date:
Apr 2015**



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Please read before using this product

SAFETY REMINDERS



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(Example)

| Catalog Issued date | Catalog Number | Item Description (On Delivery Label) |
|------------------------|---------------------|--------------------------------------|
| Prior to January 2013 | C1608C0G1E103J | C1608C0G1E103JT000N |
| January 2013 and Later | C1608C0G1E103J080AA | C1608C0G1E103JT000N |



CGA Series

High Temperature Application

Type: CGA2 [EIA CC0402], CGA3 [EIA CC0603], CGA4 [EIA CC0805], CGA5 [EIA CC1206], CGA6 [EIA CC1210], CGA8 [EIA CC1812], CGA9 [EIA CC2220]

Features



- With a maximum temperature of 150°C and a capacitance change within ±15%, the series is suited for devices that operate in high-temperature environments.
- Excellent DC bias properties.
- AEC-Q200 compliant.

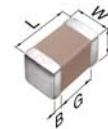
| Parameters | Specifications |
|-----------------------------|--|
| Temperature Characteristics | -55 to 150°C |
| | ΔC/C: ±15% or 0±30ppm |
| Operating Temperature | -55 to +150°C |
| Dissipation Factor | 5% maximum |
| Insulation Resistance | 10 GΩ or 500 MΩ • μF minimum |
| Voltage Proof | 2.5 • RV or 3 • RV for 1–5s Charge/Discharge ≤50 mA |

Applications



- Automotive applications (engine rooms)
- Peripheral circuits of IGDT, SiC, GaN used at high temperature environments
- Sensor Module
- Smoothing and decoupling applications for other devices that operate at high temperature

Shape & Dimensions



| | |
|---|------------------|
| L | Body Length |
| W | Body Width |
| T | Body Height |
| B | Terminal Width |
| G | Terminal Spacing |



Catalog Number Construction

CGA • 6 • P • 3 • X8R • 1C • 106 • K • 250 • A • B

Series Name

Dimensions L x W (mm)

| Code | Length | Width | Terminal |
|------|-------------|-------------|-----------|
| 2 | 1.00 ± 0.05 | 0.50 ± 0.05 | 0.10 min. |
| 3 | 1.60 ± 0.10 | 0.80 ± 0.10 | 0.20 min. |
| 4 | 2.00 ± 0.20 | 1.25 ± 0.20 | 0.20 min. |
| 5 | 3.20 ± 0.20 | 1.60 ± 0.20 | 0.20 min. |
| 6 | 3.20 ± 0.40 | 2.50 ± 0.30 | 0.20 min. |
| 8 | 4.50 ± 0.40 | 3.20 ± 0.40 | 0.20 min. |
| 9 | 5.70 ± 0.40 | 5.00 ± 0.40 | 0.20 min. |

*Dimension tolerance are typical values

Thickness T Code (mm)

| Code | Thickness |
|------|-----------|
| B | 0.50 mm |
| C | 0.60 mm |
| E | 0.80 mm |
| F | 0.85 mm |
| H | 1.15 mm |
| J | 1.25 mm |
| L | 1.60 mm |
| M | 2.00 mm |
| N | 2.30 mm |
| P | 2.50 mm |
| Q | 2.80 mm |
| R | 3.20 mm |

Voltage Condition for Life Test

| Symbol | Condition |
|--------|------------|
| 2 | 2 × R.V. |
| 3 | 1.5 × R.V. |

Temperature Characteristics

| Temperature Characteristics | Temperature Coefficient or Capacitance Change | Temperature Range |
|-----------------------------|---|-------------------|
| NP0 | 0±30ppm/°C | -55 to +150°C |
| X8R | ±15% | -55 to +150°C |

Rated Voltage (DC)

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

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.

Ex. 0R2 = 0.2pF; 103 = 10,000pF; 105 = 1,000,000pF = 100nF = 1μF

Capacitance Tolerance

| Code | Tolerance |
|------|-----------|
| C | ± 0.25pF |
| D | ± 0.50pF |
| J | ± 5% |
| K | ± 10% |
| M | ± 20% |

Nominal Thickness

| Code | Thickness | Code | Thickness |
|------|-----------|------|-----------|
| 050 | 0.50 mm | 160 | 1.60 mm |
| 060 | 0.60 mm | 200 | 2.00 mm |
| 080 | 0.80 mm | 230 | 2.30 mm |
| 085 | 0.85 mm | 250 | 2.50 mm |
| 115 | 1.15 mm | 280 | 2.80 mm |
| 125 | 1.25 mm | 320 | 3.20 mm |

Packaging Style

| Code | Style |
|------|-------------------------|
| A | 178 mm Reel, 4 mm Pitch |
| B | 178 mm Reel, 2 mm Pitch |
| K | 178 mm Reel, 8 mm Pitch |

Special Reserved Code

| Code | Description |
|------|-------------------|
| A, B | TDK Internal Code |



Capacitance Range Chart

CGA2(1005) [EIA CC0402]

Capacitance Range Chart

Temperature Characteristics: NPO ($0 \pm 30\text{ppm}/^\circ\text{C}$), X8R ($\pm 15\%$)
 Rated Voltage: 100V (2A), 50V (1H), 25V (1E), 16V (1C)

| Capacitance (pF) | Code | Tolerance | NPO | | X8R | | | |
|------------------|------|------------------------|-----------|----------|-----------|----------|----------|----------|
| | | | 2A (100V) | 1H (50V) | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 1 | 010 | C: $\pm 0.25\text{pF}$ | | | | | | |
| 1.5 | 1R5 | D: $\pm 0.50\text{pF}$ | | | | | | |
| 2 | 020 | J: $\pm 5\%$ | | | | | | |
| 2.2 | 2R2 | K: $\pm 10\%$ | | | | | | |
| 3 | 030 | M: $\pm 20\%$ | | | | | | |
| 3.3 | 3R3 | | | | | | | |
| 4 | 040 | | | | | | | |
| 4.7 | 4R7 | | | | | | | |
| 5 | 050 | | | | | | | |
| 6 | 060 | | | | | | | |
| 6.8 | 6R8 | | | | | | | |
| 7 | 070 | | | | | | | |
| 8 | 080 | | | | | | | |
| 9 | 090 | | | | | | | |
| 10 | 100 | | | | | | | |
| 12 | 120 | | | | | | | |
| 15 | 150 | | | | | | | |
| 18 | 180 | | | | | | | |
| 22 | 220 | | | | | | | |
| 27 | 270 | | | | | | | |
| 33 | 330 | | | | | | | |
| 39 | 390 | | | | | | | |
| 47 | 470 | | | | | | | |
| 56 | 560 | | | | | | | |
| 68 | 680 | | | | | | | |
| 82 | 820 | | | | | | | |
| 100 | 101 | | | | | | | |
| 120 | 121 | | | | | | | |
| 150 | 151 | | | | | | | |
| 180 | 181 | | | | | | | |
| 220 | 221 | | | | | | | |
| 270 | 271 | | | | | | | |
| 330 | 331 | | | | | | | |
| 390 | 391 | | | | | | | |
| 470 | 471 | | | | | | | |
| 560 | 561 | | | | | | | |
| 680 | 681 | | | | | | | |
| 820 | 821 | | | | | | | |
| 1,000 | 102 | | | | | | | |
| 1,500 | 152 | | | | | | | |
| 2,200 | 222 | | | | | | | |
| 3,300 | 332 | | | | | | | |
| 4,700 | 472 | | | | | | | |
| 6,800 | 682 | | | | | | | |
| 10,000 | 103 | | | | | | | |
| 15,000 | 153 | | | | | | | |
| 22,000 | 223 | | | | | | | |
| 33,000 | 333 | | | | | | | |
| 47,000 | 473 | | | | | | | |

Standard Thickness
 0.50 mm



Capacitance Range Chart

CGA3(1608) [EIA CC0603]

Capacitance Range Chart

Temperature Characteristics: NPO (0 ± 30ppm/°C), X8R (±15%)

Rated Voltage: 250V (2E), 100V (2A), 50V(1H), 25V (1E), 16V (1C)

| Capacitance (pF) | Code | Tolerance | NPO | | |
|------------------|------|-------------|-----------|-----------|----------|
| | | | 2E (250V) | 2A (100V) | 1H (50V) |
| 1 | 010 | C: ± 0.25pF | | | |
| 2 | 1R5 | D: ± 0.50pF | | | |
| 2 | 020 | J: ± 5% | | | |
| 2 | 2R2 | | | | |
| 3 | 030 | | | | |
| 3 | 3R3 | | | | |
| 4 | 040 | | | | |
| 5 | 4R7 | | | | |
| 5 | 050 | | | | |
| 6 | 060 | | | | |
| 7 | 6R8 | | | | |
| 7 | 070 | | | | |
| 8 | 080 | | | | |
| 9 | 090 | | | | |
| 10 | 100 | | | | |
| 12 | 120 | | | | |
| 15 | 150 | | | | |
| 18 | 180 | | | | |
| 22 | 220 | | | | |
| 27 | 270 | | | | |
| 33 | 330 | | | | |
| 39 | 390 | | | | |
| 47 | 470 | | | | |
| 56 | 560 | | | | |
| 68 | 680 | | | | |
| 82 | 820 | | | | |
| 100 | 101 | | | | |
| 120 | 121 | | | | |
| 150 | 151 | | | | |
| 180 | 181 | | | | |
| 220 | 221 | | | | |
| 270 | 271 | | | | |
| 330 | 331 | | | | |
| 390 | 391 | | | | |
| 470 | 471 | | | | |
| 560 | 561 | | | | |
| 680 | 681 | | | | |
| 820 | 821 | | | | |
| 1,000 | 102 | | | | |
| 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 | | | | |

| Capacitance (pF) | Code | Tolerance | X8R | | | |
|------------------|------|----------------------|-----------|----------|----------|----------|
| | | | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 1,000 | 102 | K: ± 10% M: ± 20% | | | | |
| 1,500 | 152 | | | | | |
| 2,200 | 222 | | | | | |
| 3,300 | 332 | | | | | |
| 4,700 | 472 | | | | | |
| 6,800 | 682 | | | | | |
| 10,000 | 103 | | | | | |
| 15,000 | 153 | | | | | |
| 22,000 | 223 | | | | | |
| 33,000 | 333 | | | | | |
| 47,000 | 473 | | | | | |
| 68,000 | 683 | | | | | |
| 100,000 | 104 | | | | | |
| 150,000 | 154 | | | | | |
| 220,000 | 224 | | | | | |
| 330,000 | 334 | | | | | |
| 470,000 | 474 | | | | | |

Standard Thickness

0.80 mm



Capacitance Range Chart

CGA4(2012) [EIA CC0805]

Capacitance Range Chart

Temperature Characteristics: NP0 ($0 \pm 30\text{ppm}/^\circ\text{C}$), X8R ($\pm 15\%$)

Rated Voltage: 450V(2W), 250V(2E), 100V (2A), 50V (1H), 25V (1E), 16V (1C)

| Capacitance (pF) | Code | Tolerance | NP0 | | | | X8R | | | |
|------------------|------|---------------|-----------|-----------|-----------|----------|-----------|----------|----------|----------|
| | | | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) |
| 100 | 101 | J: $\pm 5\%$ | █ | | | | | | | |
| 120 | 121 | K: $\pm 10\%$ | █ | | | | | | | |
| 150 | 151 | M: $\pm 20\%$ | █ | | | | | | | |
| 180 | 181 | | █ | | | | | | | |
| 220 | 221 | | █ | | | | | | | |
| 270 | 271 | | █ | | | | | | | |
| 330 | 331 | | █ | | | | | | | |
| 390 | 391 | | █ | | | | | | | |
| 470 | 471 | | █ | | | | | | | |
| 560 | 561 | | █ | | | | | | | |
| 680 | 681 | | █ | | | | | | | |
| 820 | 821 | | █ | | | | | | | |
| 1,000 | 102 | | █ | | █ | | | | | |
| 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 | | █ | █ | █ | | | | | |
| 68,000 | 683 | | █ | █ | █ | | | | | |
| 100,000 | 104 | | █ | █ | █ | | | | | |
| 150,000 | 154 | | █ | █ | █ | | | | | |
| 220,000 | 224 | | █ | █ | █ | | | | | |
| 330,000 | 334 | | █ | █ | █ | | | | | |
| 470,000 | 474 | | █ | █ | █ | | | | | |
| 680,000 | 684 | | █ | █ | █ | | | | | |
| 1,000,000 | 105 | | █ | █ | █ | | | | | |





Capacitance Range Chart

CGA5(3216) [EIA CC1206]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C), X8R (±15%)

Rated Voltage: 630V(2J), 450V(2W), 250V(2E), 100V (2A), 50V (1H), 25V (1E), 16V (1C)

| Capacitance (pF) | Code | Tolerance | NP0 | | | | | X8R | | | | |
|------------------|------|-----------|-----------|-----------|-----------|-----------|----------|-----------|----------|----------|----------|---|
| | | | 2J (630V) | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | 2A (100V) | 1H (50V) | 1E (25V) | 1C (16V) | |
| 3,900 | 392 | J : ± 5% | ■ | | | ■ | | | | | | |
| 4,700 | 472 | K : ± 10% | ■ | | | ■ | | | | | | |
| 5,600 | 562 | M : ± 20% | ■ | | | ■ | | | | | | |
| 6,800 | 682 | | ■ | | | ■ | | | | | | |
| 8,200 | 822 | | ■ | | | ■ | | | | | | |
| 10,000 | 103 | | ■ | | | ■ | | | | | | |
| 15,000 | 153 | | | ■ | | ■ | | | | | | |
| 22,000 | 223 | | | ■ | | ■ | | | | | | |
| 33,000 | 333 | | | | ■ | ■ | | | | | | |
| 47,000 | 473 | | | | | ■ | | | | | | |
| 68,000 | 683 | | | | | | ■ | | | | | |
| 100,000 | 104 | | | | | | | ■ | | | | |
| 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 | | | | | | | | | | | ■ |

Standard Thickness

- 0.60 mm
- 0.85 mm
- 1.15 mm
- 1.60 mm



Capacitance Range Chart

CGA6(3225) [EIA CC1210]

Capacitance Range Chart

Temperature Characteristics: NP0 (0 ± 30ppm/°C), X8R (±15%)

Rated Voltage: 630V(2J), 450V(2W), 250V(2E), 100V (2A), 50V (1H), 25V (1E), 16V (1C)

| Capacitance (pF) | Code | Tolerance | NP0 | | | | | X8R | | | |
|------------------|------|-----------|-----------|-----------|-----------|-----------|----------|-----------|----------|----------|--|
| | | | 2J (630V) | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | 2A (100V) | 1E (25V) | 1C (16V) | |
| 8,200 | 822 | J : ± 5% | ■ | | | | | | | | |
| 10,000 | 103 | K : ± 10% | ■ | | | | | | | | |
| 15,000 | 153 | M : ± 20% | ■ | | | | | | | | |
| 22,000 | 223 | | ■ | | | | | | | | |
| 33,000 | 333 | | ■ | | | | | | | | |
| 47,000 | 473 | | ■ | | | | | | | | |
| 68,000 | 683 | | | | | | | | | | |
| 100,000 | 104 | | | | | | | | | | |
| 470,000 | 474 | | | | | | | | | | |
| 680,000 | 684 | | | | | | | | | | |
| 1,500,000 | 155 | | | | | | | | | | |
| 2,200,000 | 225 | | | | | | | | | | |
| 3,300,000 | 335 | | | | | | | | | | |
| 4,700,000 | 475 | | | | | | | | | | |
| 6,800,000 | 685 | | | | | | | | | | |
| 10,000,000 | 106 | | | | | | | | | | |

Standard Thickness

- 1.25 mm
- 1.60 mm
- 2.00 mm
- 2.30 mm
- 2.50 mm



Capacitance Range Chart

CGA8(4532) [EIA CC1812]

Capacitance Range Chart

Temperature Characteristics: NPO ($0 \pm 30\text{ppm}/^\circ\text{C}$)
 Rated Voltage: 630V(2J), 450V(2W), 250V(2E), 100V (2A), 50V (1H)

| Capacitance (pF) | Code | Tolerance | NPO | | | | | Standard Thickness |
|------------------|------|--------------|-----------|-----------|-----------|-----------|----------|--------------------|
| | | | 2J (630V) | 2W (450V) | 2E (250V) | 2A (100V) | 1H (50V) | |
| 33,000 | 333 | J: $\pm 5\%$ | | | | | | 1.60 mm |
| 47,000 | 473 | | | | | | | 2.00 mm |
| 68,000 | 683 | | | | | | | 2.30 mm |
| 100,000 | 104 | | | | | | | 2.50 mm |
| 150,000 | 154 | | | | | | | 3.20 mm |
| 220,000 | 224 | | | | | | | |



Capacitance Range Chart

CGA9(5750) [EIA CC2220]

Capacitance Range Chart

Temperature Characteristics: NPO ($0 \pm 30\text{ppm}/^\circ\text{C}$)
 Rated Voltage: 450V(2W), 250V(2E), 100V (2A)

| Capacitance (pF) | Code | Tolerance | NPO | | | Standard Thickness |
|------------------|------|--------------|-----------|-----------|-----------|--------------------|
| | | | 2W (450V) | 2E (250V) | 2A (100V) | |
| 100,000 | 104 | J: $\pm 5\%$ | | | | 2.30 mm |
| 150,000 | 154 | | | | | 2.80 mm |





Capacitance Range Table

Class 1 (Temperature Compensating)

Temperature Characteristics: NP0 (-55 to +150°C, 0±30 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number | | | | |
|-------------|------|----------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| | | | | Rated Voltage Edc: 630V | Rated Voltage Edc: 450V | Rated Voltage Edc: 250V | Rated Voltage Edc: 100V | Rated Voltage Edc: 50V |
| 1 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H010C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A010C080AA | CGA3E2NP01H010C080AA |
| 1.5 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H1R5C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A1R5C080AA | CGA3E2NP01H1R5C080AA |
| 2 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H020C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A020C080AA | CGA3E2NP01H020C080AA |
| 2.2 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H2R2C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A2R2C080AA | CGA3E2NP01H2R2C080AA |
| 3 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H030C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A030C080AA | CGA3E2NP01H030C080AA |
| 3.3 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H3R3C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A3R3C080AA | CGA3E2NP01H3R3C080AA |
| 4 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H040C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A040C080AA | CGA3E2NP01H040C080AA |
| 4.7 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H4R7C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A4R7C080AA | CGA3E2NP01H4R7C080AA |
| 5 pF | 1005 | 0.50 ± 0.05 | ± 0.25pF | | | | | CGA2B2NP01H050C050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.25pF | | | | CGA3E2NP02A050C080AA | CGA3E2NP01H050C080AA |
| 6 pF | 1005 | 0.50 ± 0.05 | ± 0.50pF | | | | | CGA2B2NP01H060D050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.50pF | | | | CGA3E2NP02A060D080AA | CGA3E2NP01H060D080AA |
| 6.8 pF | 1005 | 0.50 ± 0.05 | ± 0.50pF | | | | | CGA2B2NP01H6R8D050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.50pF | | | | CGA3E2NP02A6R8D080AA | CGA3E2NP01H6R8D080AA |
| 7 pF | 1005 | 0.50 ± 0.05 | ± 0.50pF | | | | | CGA2B2NP01H070D050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.50pF | | | | CGA3E2NP02A070D080AA | CGA3E2NP01H070D080AA |
| 8 pF | 1005 | 0.50 ± 0.05 | ± 0.50pF | | | | | CGA2B2NP01H080D050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.50pF | | | | CGA3E2NP02A080D080AA | CGA3E2NP01H080D080AA |
| 9 pF | 1005 | 0.50 ± 0.05 | ± 0.50pF | | | | | CGA2B2NP01H090D050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.50pF | | | | CGA3E2NP02A090D080AA | CGA3E2NP01H090D080AA |
| 10 pF | 1005 | 0.50 ± 0.05 | ± 0.50pF | | | | | CGA2B2NP01H100D050BA |
| | 1608 | 0.80 ± 0.10 | ± 0.50pF | | | | CGA3E2NP02A100D080AA | CGA3E2NP01H100D080AA |
| 12 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H120J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A120J080AA | CGA3E2NP01H120J080AA |
| 15 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H150J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A150J080AA | CGA3E2NP01H150J080AA |
| 18 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H180J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A180J080AA | CGA3E2NP01H180J080AA |
| 22 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H220J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A220J080AA | CGA3E2NP01H220J080AA |
| 27 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H270J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A270J080AA | CGA3E2NP01H270J080AA |
| 33 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H330J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A330J080AA | CGA3E2NP01H330J080AA |
| 39 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H390J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A390J080AA | CGA3E2NP01H390J080AA |
| 47 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H470J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A470J080AA | CGA3E2NP01H470J080AA |
| 56 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H560J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A560J080AA | CGA3E2NP01H560J080AA |
| 68 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H680J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A680J080AA | CGA3E2NP01H680J080AA |
| 82 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H820J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A820J080AA | CGA3E2NP01H820J080AA |
| 100 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP02A101J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A101J080AA | CGA3E2NP01H101J050BA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W101J060AA | | | | CGA3E2NP01H101J080AA |
| 120 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP02A121J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A121J080AA | CGA3E2NP01H121J050BA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W121J060AA | | | | CGA3E2NP01H121J080AA |
| 150 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP02A151J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A151J080AA | CGA3E2NP01H151J050BA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W151J060AA | | | | CGA3E2NP01H151J080AA |
| 180 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP02A181J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A181J080AA | CGA3E2NP01H181J050BA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W181J060AA | | | | CGA3E2NP01H181J080AA |



Capacitance Range Table

Class 1 (Temperature Compensating)

Temperature Characteristics: NP0 (-55 to +150°C, 0±30 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number | | | | |
|-------------|------|------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| | | | | Rated Voltage Edc: 630V | Rated Voltage Edc: 450V | Rated Voltage Edc: 250V | Rated Voltage Edc: 100V | Rated Voltage Edc: 50V |
| 220 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | CGA2B2NP02A221J050BA | CGA2B2NP01H221J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A221J080AA | CGA3E2NP01H221J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W221J060AA | | | | |
| 270 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | CGA2B2NP02A271J050BA | CGA2B2NP01H271J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A271J080AA | CGA3E2NP01H271J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W271J060AA | | | | |
| 330 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | CGA2B2NP02A331J050BA | CGA2B2NP01H331J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A331J080AA | CGA3E2NP01H331J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W331J060AA | | | | |
| 390 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | CGA2B2NP02A391J050BA | CGA2B2NP01H391J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A391J080AA | CGA3E2NP01H391J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W391J060AA | | | | |
| 470 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | CGA2B2NP02A471J050BA | CGA2B2NP01H471J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A471J080AA | CGA3E2NP01H471J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W471J060AA | | | | |
| 560 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H561J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A561J080AA | CGA3E2NP01H561J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W561J060AA | | | | |
| 680 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H681J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | | CGA3E2NP02A681J080AA | CGA3E2NP01H681J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W681J060AA | | | | |
| 820 pF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H821J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | CGA3E3NP02E821J080AA | CGA3E2NP02A821J080AA | CGA3E2NP01H821J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W821J060AA | | | | |
| 1 nF | 1005 | 0.50 ± 0.05 | ± 5% | | | | | CGA2B2NP01H102J050BA |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | CGA3E3NP02E102J080AA | CGA3E2NP02A102J080AA | CGA3E2NP01H102J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W102J060AA | | | | |
| 1.2 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | CGA3E3NP02E122J080AA | CGA3E2NP02A122J080AA | CGA3E2NP01H122J080AA |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4C4NP02W122J060AA | | | | |
| | 1608 | 0.80 ± 0.10 | ± 5% | | | CGA3E3NP02E152J080AA | CGA3E2NP02A152J080AA | CGA3E2NP01H152J080AA |
| 1.5 nF | 2012 | 0.60 ± 0.15 | ± 5% | | | CGA3E3NP02E152J080AA | CGA3E2NP02A152J080AA | CGA3E2NP01H152J080AA |
| | | 0.85 ± 0.15 | ± 5% | CGA4F4NP02W152J085AA | | | | |
| 1.8 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | CGA3E3NP02E182J080AA | CGA3E2NP02A182J080AA | CGA3E2NP01H182J080AA |
| | 2012 | 0.85 ± 0.15 | ± 5% | CGA4F4NP02W182J085AA | | | | |
| 2.2 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | CGA3E3NP02E222J080AA | CGA3E2NP02A222J080AA | CGA3E2NP01H222J080AA |
| | 2012 | 0.85 ± 0.15 | ± 5% | CGA4F4NP02W222J085AA | | | | |
| 2.7 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H272J080AA |
| | | 0.80 + 0.15/-0.1 | ± 5% | | | | CGA3E2NP02A272J080AA | |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4J4NP02W272J125AA | | | | |
| 3.3 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H332J080AA |
| | | 0.80 + 0.15/-0.1 | ± 5% | | | | CGA3E2NP02A332J080AA | |
| | 2012 | 0.60 ± 0.15 | ± 5% | CGA4J4NP02W332J125AA | | | | |
| 3.9 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H392J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H392J060AA |
| | 2012 | 1.25 ± 0.20 | ± 5% | CGA4J4NP02W392J125AA | | | | |
| 4.7 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H472J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H472J060AA |
| | 2012 | 1.25 ± 0.20 | ± 5% | CGA4J4NP02W472J125AA | | | | |
| 5.6 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H562J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H562J060AA |
| | 2012 | 1.25 ± 0.20 | ± 5% | CGA4J4NP02W562J125AA | | | | |
| 5.6 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H562J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H562J060AA |
| | 3216 | 0.85 ± 0.15 | ± 5% | CGA5F4NP02J392J085AA | | | | |
| 5.6 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H562J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H562J060AA |
| | 3216 | 1.15 ± 0.15 | ± 5% | CGA5H4NP02J562J115AA | | | | |



Capacitance Range Table

Class 1 (Temperature Compensating)

Temperature Characteristics: NP0 (-55 to +150°C, 0±30 ppm/°C)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number | | | | |
|-------------|-------------|-----------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| | | | | Rated Voltage Edc: 630V | Rated Voltage Edc: 450V | Rated Voltage Edc: 250V | Rated Voltage Edc: 100V | Rated Voltage Edc: 50V |
| 6.8 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H682J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H682J060AA |
| | 2012 | 1.25 ± 0.20 | ± 5% | | | CGA4J3NP02E682J125AA | CGA4J2NP02A682J125AA | |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA5C2NP01H682J060AA |
| 3216 | 1.15 ± 0.15 | ± 5% | CGA5H4NP02J682J115AA | CGA5H4NP02W682J115AA | | CGA5H2NP02A682J115AA | | |
| | 1.60 ± 0.20 | ± 5% | | | | | | |
| 8.2 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H822J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H822J060AA |
| | 2012 | 1.25 ± 0.20 | ± 5% | | | CGA4J3NP02E822J125AA | CGA4J2NP02A822J125AA | |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA5C2NP01H822J060AA |
| 3216 | 1.15 ± 0.15 | ± 5% | | CGA5H4NP02W822J115AA | | CGA5H2NP02A822J115AA | | |
| | 1.60 ± 0.20 | ± 5% | CGA5L4NP02J822J160AA | | | | | |
| 3225 | 1.25 ± 0.20 | ± 5% | CGA6J4NP02J822J125AA | | | | | |
| | | | | | | | | |
| 10 nF | 1608 | 0.80 ± 0.10 | ± 5% | | | | | CGA3E2NP01H103J080AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H103J060AA |
| | 2012 | 1.25 ± 0.20 | ± 5% | | | CGA4J3NP02E103J125AA | CGA4J2NP02A103J125AA | |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA5C2NP01H103J060AA |
| 3216 | 1.15 ± 0.15 | ± 5% | | CGA5H3NP02E103J115AA | CGA5H2NP02A103J115AA | | | |
| | 1.60 ± 0.20 | ± 5% | CGA5L4NP02J103J160AA | CGA5L4NP02W103J160AA | | | | |
| 3225 | 1.25 ± 0.20 | ± 5% | CGA6J4NP02J103J125AA | | | | | |
| | | | | | | | | |
| 15 nF | 2012 | 0.85 ± 0.15 | ± 5% | | | | | CGA4F2NP01H153J085AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA5C2NP01H153J060AA |
| | 3216 | 1.15 ± 0.15 | ± 5% | | | | CGA5H2NP02A153J115AA | |
| | | 1.60 ± 0.20 | ± 5% | | CGA5L4NP02W153J160AA | CGA5L3NP02E153J160AA | | |
| 3225 | 1.25 ± 0.20 | ± 5% | | | | CGA6J2NP02A153J125AA | | |
| | 1.60 ± 0.20 | ± 5% | CGA6L4NP02J153J160AA | | | | | |
| 22 nF | 2012 | 1.25 ± 0.20 | ± 5% | | | | | CGA4J2NP01H223J125AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA5C2NP01H223J060AA |
| | 3216 | 1.60 ± 0.20 | ± 5% | | | CGA5L3NP02E223J160AA | CGA5L2NP02A223J160AA | |
| | | 1.25 ± 0.20 | ± 5% | | | | | CGA6J2NP01H223J125AA |
| 3225 | 1.60 ± 0.20 | ± 5% | | CGA6L3NP02E223J160AA | CGA6L2NP02A223J160AA | | | |
| | 2.30 ± 0.20 | ± 5% | CGA6N4NP02J223J230AA | CGA6N4NP02W223J230AA | | | | |
| 33 nF | 2012 | 1.25 ± 0.20 | ± 5% | | | | | CGA4J2NP01H333J125AA |
| | | 0.85 ± 0.15 | ± 5% | | | | | CGA5F2NP01H333J085AA |
| | 3216 | 1.60 ± 0.3/-0.1 | ± 5% | | | | CGA5L2NP02A333J160AA | |
| | | 1.60 ± 0.20 | ± 5% | | | | | CGA6L2NP01H333J160AA |
| 3225 | 2.00 ± 0.20 | ± 5% | | | | CGA6M2NP02A333J200AA | | |
| | 2.30 ± 0.20 | ± 5% | | | CGA6N3NP02E333J230AA | | | |
| 4532 | 2.50 ± 0.30 | ± 5% | CGA6P4NP02J333J250AA | CGA6P4NP02W333J250AA | | | | |
| | 2.00 ± 0.20 | ± 5% | CGA8M4NP02J333J200KA | | | | | |
| 47 nF | 3216 | 1.15 ± 0.15 | ± 5% | | | | | CGA5H2NP01H473J115AA |
| | | 2.00 ± 0.20 | ± 5% | | | | | CGA6M2NP01H473J200AA |
| | 3225 | 2.30 ± 0.20 | ± 5% | | | | CGA6N2NP02A473J230AA | |
| | | 2.50 ± 0.30 | ± 5% | | CGA6P3NP02E473J250AA | | | |
| 4532 | 1.60 ± 0.20 | ± 5% | | | | | CGA8L2NP01H473J160KA | |
| | 2.00 ± 0.20 | ± 5% | | | | CGA8M2NP02A473J200KA | | |
| 3216 | 2.30 ± 0.20 | ± 5% | | | | CGA8N4NP02W473J230KA | | |
| | 3.20 ± 0.30 | ± 5% | CGA8R4NP02J473J320KA | | | | | |
| 68 nF | 3216 | 1.60 ± 0.20 | ± 5% | | | | | CGA5L2NP01H683J160AA |
| | | 2.00 ± 0.20 | ± 5% | | | | | CGA6M2NP01H683J200AA |
| | 3225 | 2.30 ± 0.20 | ± 5% | | | | CGA6N2NP02A683J230AA | |
| | | 1.60 ± 0.20 | ± 5% | | | | | CGA8L2NP01H683J160KA |
| 4532 | 2.30 ± 0.20 | ± 5% | | CGA8N4NP02E683J230KN | | | | |
| | 2.50 ± 0.30 | ± 5% | | | | CGA8P2NP02A683J250KA | | |
| 3216 | 3.20 ± 0.30 | ± 5% | | CGA8R4NP02W683J320KA | | | | |
| | | | | | | | | |
| 100 nF | 3216 | 1.60 ± 0.20 | ± 5% | | | | | CGA5L2NP01H104J160AA |
| | | 2.50 ± 0.30 | ± 5% | | | | | CGA6P2NP01H104J250AA |
| | 4532 | 2.00 ± 0.20 | ± 5% | | | | | CGA8M2NP01H104J200KA |
| | | 3.20 ± 0.30 | ± 5% | | CGA8R4NP02E104J320KN | CGA8R2NP02A104J320KA | | |
| 5750 | 2.80 ± 0.30 | ± 5% | | CGA9Q4NP02W104J280KA | | | | |
| | | | | | | | | |
| 150 nF | 4532 | 2.50 ± 0.30 | ± 5% | | | | | CGA8P2NP01H154J250KA |
| | 5750 | 2.30 ± 0.20 | ± 5% | | CGA9N4NP02E154J230KN | CGA9N2NP02A154J230KA | | |
| 220 nF | 4532 | 3.20 ± 0.30 | ± 5% | | | | | CGA8R2NP01H224J320KA |





Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X8R (-55 to +150°C, ±15%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number | | | |
|-------------|-------------|----------------|-----------------------|-------------------------|------------------------|------------------------|------------------------|
| | | | | Rated Voltage Edc: 100V | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 150 pF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A151K050BA | CGA2B2X8R1H151K050BA | | |
| | | | ± 20% | CGA2B2X8R2A151M050BA | CGA2B2X8R1H151M050BA | | |
| 220 pF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A221K050BA | CGA2B2X8R1H221K050BA | | |
| | | | ± 20% | CGA2B2X8R2A221M050BA | CGA2B2X8R1H221M050BA | | |
| 330 pF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A331K050BA | CGA2B2X8R1H331K050BA | | |
| | | | ± 20% | CGA2B2X8R2A331M050BA | CGA2B2X8R1H331M050BA | | |
| 470 pF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A471K050BA | CGA2B2X8R1H471K050BA | | |
| | | | ± 20% | CGA2B2X8R2A471M050BA | CGA2B2X8R1H471M050BA | | |
| 680 pF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A681K050BA | CGA2B2X8R1H681K050BA | | |
| | | | ± 20% | CGA2B2X8R2A681M050BA | CGA2B2X8R1H681M050BA | | |
| 1 nF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A102K050BA | CGA2B2X8R1H102K050BA | | |
| | | | ± 20% | CGA2B2X8R2A102M050BA | CGA2B2X8R1H102M050BA | | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A102K080AA | CGA3E2X8R1H102K080AA | | |
| | | | ± 20% | CGA3E2X8R2A102M080AA | CGA3E2X8R1H102M080AA | | |
| 1.5 nF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A152K050BA | CGA2B2X8R1H152K050BA | | |
| | | | ± 20% | CGA2B2X8R2A152M050BA | CGA2B2X8R1H152M050BA | | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A152K080AA | CGA3E2X8R1H152K080AA | | |
| | | | ± 20% | CGA3E2X8R2A152M080AA | CGA3E2X8R1H152M080AA | | |
| 2.2 nF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B2X8R2A222K050BA | CGA2B2X8R1H222K050BA | | |
| | | | ± 20% | CGA2B2X8R2A222M050BA | CGA2B2X8R1H222M050BA | | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A222K080AA | CGA3E2X8R1H222K080AA | | |
| | | | ± 20% | CGA3E2X8R2A222M080AA | CGA3E2X8R1H222M080AA | | |
| 3.3 nF | 1005 | 0.50 ± 0.05 | ± 10% | CGA2B3X8R2A332K050BB | CGA2B2X8R1H332K050BA | | |
| | | | ± 20% | CGA2B3X8R2A332M050BB | CGA2B2X8R1H332M050BA | | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A332K080AA | CGA3E2X8R1H332K080AA | | |
| | | | ± 20% | CGA3E2X8R2A332M080AA | CGA3E2X8R1H332M080AA | | |
| 4.7 nF | 1005 | 0.50 ± 0.05 | ± 10% | | CGA2B2X8R1H472K050BA | | |
| | | | ± 20% | | CGA2B2X8R1H472M050BA | | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A472K080AA | CGA3E2X8R1H472K080AA | | |
| | | | ± 20% | CGA3E2X8R2A472M080AA | CGA3E2X8R1H472M080AA | | |
| 6.8 nF | 1005 | 0.50 ± 0.05 | ± 10% | | CGA2B3X8R1H682K050BB | CGA2B2X8R1E682K050BA | |
| | | | ± 20% | | CGA2B3X8R1H682M050BB | CGA2B2X8R1E682M050BA | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A682K080AA | CGA3E2X8R1H682K080AA | | |
| | | | ± 20% | CGA3E2X8R2A682M080AA | CGA3E2X8R1H682M080AA | | |
| 10 nF | 1005 | 0.50 ± 0.05 | ± 10% | | CGA2B3X8R1H103K050BB | CGA2B2X8R1E103K050BA | |
| | | | ± 20% | | CGA2B3X8R1H103M050BB | CGA2B2X8R1E103M050BA | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A103K080AA | CGA3E2X8R1H103K080AA | | |
| | | | ± 20% | CGA3E2X8R2A103M080AA | CGA3E2X8R1H103M080AA | | |
| 15 nF | 1005 | 0.50 ± 0.05 | ± 10% | | | CGA2B3X8R1E153K050BB | |
| | | | ± 20% | | | CGA2B3X8R1E153M050BB | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E2X8R2A153K080AA | CGA3E2X8R1H153K080AA | | |
| | | | ± 20% | CGA3E2X8R2A153M080AA | CGA3E2X8R1H153M080AA | | |
| 22 nF | 1005 | 0.50 ± 0.05 | ± 10% | | | CGA2B3X8R1E223K050BB | |
| | | | ± 20% | | | CGA2B3X8R1E223M050BB | |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E3X8R2A223K080AB | CGA3E2X8R1H223K080AA | | |
| | | | ± 20% | CGA3E3X8R2A223M080AB | CGA3E2X8R1H223M080AA | | |
| 2012 | 1.25 ± 0.20 | ± 10% | CGA4J2X8R2A223K125AA | | | | |
| | | ± 20% | CGA4J2X8R2A223M125AA | | | | |
| 33 nF | 1005 | 0.50 ± 0.05 | ± 10% | | | | CGA2B3X8R1C333K050BB |
| | | | ± 20% | | | | CGA2B3X8R1C333M050BB |
| | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E3X8R2A333K080AB | CGA3E2X8R1H333K080AA | | |
| | | | ± 20% | CGA3E3X8R2A333M080AB | CGA3E2X8R1H333M080AA | | |
| 2012 | 1.25 ± 0.20 | ± 10% | CGA4J3X8R2A333K125AB | | | | |
| | | ± 20% | CGA4J3X8R2A333M125AB | | | | |
| 47 nF | 1005 | 0.50 ± 0.05 | ± 10% | | | | CGA2B3X8R1C473K050BB |
| | | | ± 20% | | | | CGA2B3X8R1C473M050BB |
| | 1608 | 0.80 ± 0.10 | ± 10% | | CGA3E2X8R1H473K080AA | | |
| | | | ± 20% | | CGA3E2X8R1H473M080AA | | |
| 2012 | 1.25 ± 0.20 | ± 10% | CGA4J3X8R2A473K125AB | | | | |
| | | ± 20% | CGA4J3X8R2A473M125AB | | | | |



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X8R (-55 to +150°C, ±15%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number | | |
|-------------|-------------|-------------------|-----------------------|-------------------------|------------------------|------------------------|
| | | | | Rated Voltage Edc: 100V | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V |
| 68 nF | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E3X8R1H683K080AB | CGA3E2X8R1E683K080AA | |
| | | | ± 20% | CGA3E3X8R1H683M080AB | CGA3E2X8R1E683M080AA | |
| | 2012 | 1.25 ± 0.20 | ± 10% | CGA4J3X8R2A683K125AB | CGA4J2X8R1H683K125AA | |
| | | | ± 20% | CGA4J3X8R2A683M125AB | CGA4J2X8R1H683M125AA | |
| | 3216 | 1.15 ± 0.15 | ± 10% | CGA5H2X8R2A683K115AA | | |
| | | | ± 20% | CGA5H2X8R2A683M115AA | | |
| 100 nF | 1608 | 0.80 ± 0.10 | ± 10% | CGA3E3X8R1H104K080AB | CGA3E2X8R1E104K080AA | |
| | | | ± 20% | CGA3E3X8R1H104M080AB | CGA3E2X8R1E104M080AA | |
| | 2012 | 1.25 ± 0.20 | ± 10% | CGA4J2X8R1H104K125AA | | |
| | | | ± 20% | CGA4J2X8R1H104M125AA | | |
| | 3216 | 1.15 ± 0.15 | ± 10% | CGA5H2X8R2A104K115AA | | |
| | | | ± 20% | CGA5H2X8R2A104M115AA | | |
| 150 nF | 1608 | 0.80 ± 0.10 | ± 10% | | CGA3E3X8R1E154K080AB | |
| | | | ± 20% | | CGA3E3X8R1E154M080AB | |
| | 2012 | 1.25 ± 0.20 | ± 10% | CGA4J3X8R1H154K125AB | | |
| | | | ± 20% | CGA4J3X8R1H154M125AB | | |
| | 3216 | 1.60 ± 0.20 | ± 10% | CGA5L2X8R2A154K160AA | | |
| | | | ± 20% | CGA5L2X8R2A154M160AA | | |
| 220 nF | 1608 | 0.80 ± 0.10 | ± 10% | | CGA3E3X8R1E224K080AB | |
| | | | ± 20% | | CGA3E3X8R1E224M080AB | |
| | 2012 | 1.25 ± 0.20 | ± 10% | CGA4J3X8R1H224K125AB | CGA4J2X8R1E224K125AA | |
| | | | ± 20% | CGA4J3X8R1H224M125AB | CGA4J2X8R1E224M125AA | |
| | 3216 | 1.15 ± 0.15 | ± 10% | CGA5H2X8R1H224K115AA | | |
| | | | ± 20% | CGA5H2X8R1H224M115AA | | |
| 3216 | 1.60 ± 0.20 | ± 10% | CGA5L3X8R2A224K160AB | | | |
| | | ± 20% | CGA5L3X8R2A224M160AB | | | |
| 330 nF | 1608 | 0.80 ± 0.10 | ± 10% | | | CGA3E3X8R1C334K080AB |
| | | | ± 20% | | | CGA3E3X8R1C334M080AB |
| | 2012 | 1.25 ± 0.20 | ± 10% | | CGA4J2X8R1E334K125AA | |
| | | | ± 20% | | CGA4J2X8R1E334M125AA | |
| | 3216 | 1.60 ± 0.20 | ± 10% | CGA5L3X8R2A334K160AB | CGA5L2X8R1H334K160AA | |
| | | | ± 20% | CGA5L3X8R2A334M160AB | CGA5L2X8R1H334M160AA | |
| 470 nF | 1608 | 0.80 + 0.15/-0.10 | ± 10% | | | CGA3E3X8R1C474K080AB |
| | | | ± 20% | | | CGA3E3X8R1C474M080AB |
| | 2012 | 1.25 ± 0.20 | ± 10% | | CGA4J3X8R1E474K125AB | |
| | | | ± 20% | | CGA4J3X8R1E474M125AB | |
| | 3216 | 1.60 ± 0.20 | ± 10% | CGA5L2X8R1H474K160AA | | |
| | | | ± 20% | CGA5L2X8R1H474M160AA | | |
| 3225 | 2.00 ± 0.20 | ± 10% | CGA6M3X8R2A474K200AB | | | |
| | | ± 20% | CGA6M3X8R2A474M200AB | | | |
| 680 nF | 2012 | 1.25 ± 0.20 | ± 10% | | | CGA4J3X8R1C684K125AB |
| | | | ± 20% | | | CGA4J3X8R1C684M125AB |
| | 3216 | 1.15 ± 0.15 | ± 10% | | CGA5H2X8R1E684K115AA | |
| | | | ± 20% | | CGA5H2X8R1E684M115AA | |
| | 3216 | 1.60 ± 0.20 | ± 10% | CGA5L3X8R1H684K160AB | | |
| | | | ± 20% | CGA5L3X8R1H684M160AB | | |
| 3225 | 2.50 ± 0.30 | ± 10% | CGA6P3X8R2A684K250AB | | | |
| | | ± 20% | CGA6P3X8R2A684M250AB | | | |
| 1 µF | 2012 | 1.25 ± 0.20 | ± 10% | | | CGA4J3X8R1C105K125AB |
| | | | ± 20% | | | CGA4J3X8R1C105M125AB |
| | 3216 | 1.60 ± 0.20 | ± 10% | CGA5L3X8R1H105K160AB | CGA5L2X8R1E105K160AA | |
| | | | ± 20% | CGA5L3X8R1H105M160AB | CGA5L2X8R1E105M160AA | |
| 1.5 µF | 3216 | 1.60 ± 0.20 | ± 10% | | CGA5L3X8R1E155K160AB | |
| | | | ± 20% | | CGA5L3X8R1E155M160AB | |
| | 3225 | 1.60 ± 0.20 | ± 10% | CGA6L2X8R1E155K160AA | | |
| | | | ± 20% | CGA6L2X8R1E155M160AA | | |
| 2.2 µF | 3216 | 1.60 ± 0.20 | ± 10% | CGA5L3X8R1E225K160AB | | |
| | | | ± 20% | CGA5L3X8R1E225M160AB | | |
| | 3225 | 2.00 ± 0.20 | ± 10% | CGA6M2X8R1E225K200AA | | |
| | | | ± 20% | CGA6M2X8R1E225M200AA | | |



Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X8R (-55 to +150°C, ±15%)

| Capacitance | Size | Thickness (mm) | Capacitance Tolerance | Catalog Number | | | |
|-------------|------|----------------|-----------------------|-------------------------|------------------------|------------------------|------------------------|
| | | | | Rated Voltage Edc: 100V | Rated Voltage Edc: 50V | Rated Voltage Edc: 25V | Rated Voltage Edc: 16V |
| 3.3 µF | 3216 | 1.60 ± 0.20 | ± 10% | | | | CGA5L3X8R1C335K160AB |
| | | | ± 20% | | | | CGA5L3X8R1C335M160AB |
| | 3225 | 2.50 ± 0.30 | ± 10% | | | CGA6P2X8R1E335K250AA | |
| | | | ± 20% | | | CGA6P2X8R1E335M250AA | |
| 4.7 µF | 3216 | 1.60 ± 0.20 | ± 10% | | | | CGA5L3X8R1C475K160AB |
| | | | ± 20% | | | | CGA5L3X8R1C475M160AB |
| | 3225 | 2.50 ± 0.30 | ± 10% | | | CGA6P3X8R1E475K250AB | |
| | | | ± 20% | | | CGA6P3X8R1E475M250AB | |
| 6.8 µF | 3225 | 2.00 ± 0.20 | ± 10% | | | | CGA6M3X8R1C685K200AB |
| | | | ± 20% | | | | CGA6M3X8R1C685M200AB |
| 10 µF | 3225 | 2.50 ± 0.30 | ± 10% | | | | CGA6P3X8R1C106K250AB |
| | | | ± 20% | | | | CGA6P3X8R1C106M250AB |