



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.

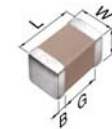
| Parameters | Specifications |
|-----------------------------|------------------------------|
| Temperature Characteristics | -55 to 150°C |
| Operating Temperature | ΔC/C: ±15% or 0±30ppm |
| Dissipation Factor | -55 to +150°C |
| Insulation Resistance | 5% maximum |
| Voltage Proof | 10 GΩ or 500 MΩ • μF minimum |
| | 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 ± 30ppm/°C), X8R (±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: ± 0.25pF | | | | | | |
| 1.5 | 1R5 | D: ± 0.50pF | | | | | | |
| 2 | 020 | J: ± 5% | | | | | | |
| 2.2 | 2R2 | K: ± 10% | | | | | | |
| 3 | 030 | M: ± 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 | | | | | | | 3.20 mm |



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% | CGA4C2NP01H332J060AA | | | | |
| 3.9 nF | 1608 | 0.85 ± 0.15 | ± 5% | | | CGA4F3NP02E332J085AA | | CGA4C2NP01H332J060AA |
| | | 1.25 ± 0.20 | ± 5% | CGA4J4NP02W332J125AA | | | | |
| | 2012 | 0.80 ± 0.10 | ± 5% | | | CGA4J2NP02A332J125AA | | CGA3E2NP01H392J080AA |
| 3.9 nF | 2012 | 0.60 ± 0.15 | ± 5% | | | | | CGA4C2NP01H392J060AA |
| | | 1.25 ± 0.20 | ± 5% | | | CGA4J2NP02A392J125AA | | |
| | 3216 | 0.60 ± 0.15 | ± 5% | CGA4J4NP02W392J125AA | | | | |
| 4.7 nF | 1608 | 0.85 ± 0.15 | ± 5% | | | CGA4F3NP02E392J125AA | CGA4J2NP02A392J125AA | CGA3E2NP01H562J080AA |
| | | 1.25 ± 0.20 | ± 5% | | | CGA4J2NP02A562J125AA | | CGA4C2NP01H562J060AA |
| | 3216 | 0.60 ± 0.15 | ± 5% | CGA4J4NP02W472J125AA | | | | |
| 5.6 nF | 1608 | 0.85 ± 0.15 | ± 5% | | | CGA4F3NP02E472J125AA | CGA4J2NP02A472J125AA | CGA3E2NP01H562J080AA |
| | | 1.25 ± 0.20 | ± 5% | | | CGA4J2NP02A562J125AA | | CGA4C2NP01H562J060AA |
| | 3216 | 0.60 ± 0.15 | ± 5% | CGA4J4NP02W562J125AA | | | | |
| 5.6 nF | 2012 | 0.85 ± 0.15 | ± 5% | | | CGA4J3NP02E562J125AA | CGA4J2NP02A562J125AA | CGA3E2NP01H562J080AA |
| | | 1.25 ± 0.20 | ± 5% | | | CGA4J2NP02A562J125AA | | CGA4C2NP01H562J060AA |
| | 3216 | 0.60 ± 0.15 | ± 5% | CGA4J4NP02W562J125AA | | | | |
| 5.6 nF | 3216 | 0.85 ± 0.15 | ± 5% | | | CGA4F2NP02A562J085AA | | CGA5C2NP01H562J060AA |
| | | 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 |
| 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 |
| 10 nF | 3216 | 1.15 ± 0.15 | ± 5% | CGA5H4NP02J682J115AA | CGA5H4NP02W682J115AA | | CGA5H2NP02A682J115AA | |
| | | 1.60 ± 0.20 | ± 5% | CGA5L4NP02J822J160AA | | | | |
| | 3225 | 1.25 ± 0.20 | ± 5% | CGA6J4NP02J822J125AA | | | | |
| | | 0.60 ± 0.15 | ± 5% | | | CGA4J3NP02E103J125AA | CGA4J2NP02A103J125AA | CGA3E2NP01H103J080AA |
| 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 | | |
| 22 nF | 3225 | 1.25 ± 0.20 | ± 5% | CGA6L4NP02J153J160AA | | | CGA6J2NP02A153J125AA | |
| | | 1.60 ± 0.20 | ± 5% | CGA6J4NP02J103J125AA | | | | |
| | 2012 | 1.25 ± 0.20 | ± 5% | | | | | CGA4J2NP01H223J125AA |
| | | 0.60 ± 0.15 | ± 5% | | | | | CGA5C2NP01H223J060AA |
| 33 nF | 3216 | 1.60 ± 0.20 | ± 5% | | | | | CGA5L2NP02A333J160AA |
| | | 2.00 ± 0.20 | ± 5% | | | | | CGA6L2NP01H333J160AA |
| | 3225 | 2.30 ± 0.20 | ± 5% | | | | | CGA6M2NP02A333J200AA |
| | | 2.50 ± 0.30 | ± 5% | CGA6P4NP02J333J250AA | CGA6P4NP02W333J250AA | | | |
| 47 nF | 4532 | 2.00 ± 0.20 | ± 5% | CGA8M4NP02J333J200KA | | | | |
| | | 2.30 ± 0.20 | ± 5% | | | | | CGA5H2NP01H473J115AA |
| | 3216 | 1.60 ± 0.20 | ± 5% | | | | | CGA6M2NP01H473J200AA |
| | | 2.00 ± 0.20 | ± 5% | | | | | CGA6N2NP02A473J230AA |
| 68 nF | 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 |
| 100 nF | 3216 | 3.20 ± 0.30 | ± 5% | CGA8R4NP02J473J320KA | | | | |
| | | 2.30 ± 0.20 | ± 5% | | | | | CGA5L2NP01H683J160AA |
| | 3225 | 2.00 ± 0.20 | ± 5% | | | | | CGA6M2NP01H683J200AA |
| | | 2.30 ± 0.20 | ± 5% | | | | | CGA6N2NP02A683J230AA |
| 150 nF | 4532 | 1.60 ± 0.20 | ± 5% | | | | | CGA8L2NP01H683J160KA |
| | | 2.30 ± 0.20 | ± 5% | | | CGA8N4NP02E683J230KN | | |
| | 5750 | 2.50 ± 0.30 | ± 5% | | | | | CGA8P2NP02A683J250KA |
| | | 3.20 ± 0.30 | ± 5% | CGA8R4NP02W683J320KA | | | | |
| 220 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 | |
| | 2.50 ± 0.30 | ± 5% | | | | | CGA8P2NP01H154J250KA | |
| 220 nF | 4532 | 2.50 ± 0.30 | ± 5% | | | | | CGA9N4NP02E154J230KN |
| | | 3.20 ± 0.30 | ± 5% | | | CGA9N2NP02A154J230KA | | 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 | | |
| 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 | |
| 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 μ F | 3216 | 1.60 \pm 0.20 | \pm 10% | | | | CGA5L3X8R1C335K160AB |
| | | | \pm 20% | | | | CGA5L3X8R1C335M160AB |
| | 3225 | 2.50 \pm 0.30 | \pm 10% | | | CGA6P2X8R1E335K250AA | |
| | | | \pm 20% | | | CGA6P2X8R1E335M250AA | |
| 4.7 μ F | 3216 | 1.60 \pm 0.20 | \pm 10% | | | | CGA5L3X8R1C475K160AB |
| | | | \pm 20% | | | | CGA5L3X8R1C475M160AB |
| | 3225 | 2.50 \pm 0.30 | \pm 10% | | | CGA6P3X8R1E475K250AB | |
| | | | \pm 20% | | | CGA6P3X8R1E475M250AB | |
| 6.8 μ F | 3225 | 2.00 \pm 0.20 | \pm 10% | | | | CGA6M3X8R1C685K200AB |
| | | | \pm 20% | | | | CGA6M3X8R1C685M200AB |
| 10 μ F | 3225 | 2.50 \pm 0.30 | \pm 10% | | | | CGA6P3X8R1C106K250AB |
| | | | \pm 20% | | | | CGA6P3X8R1C106M250AB |