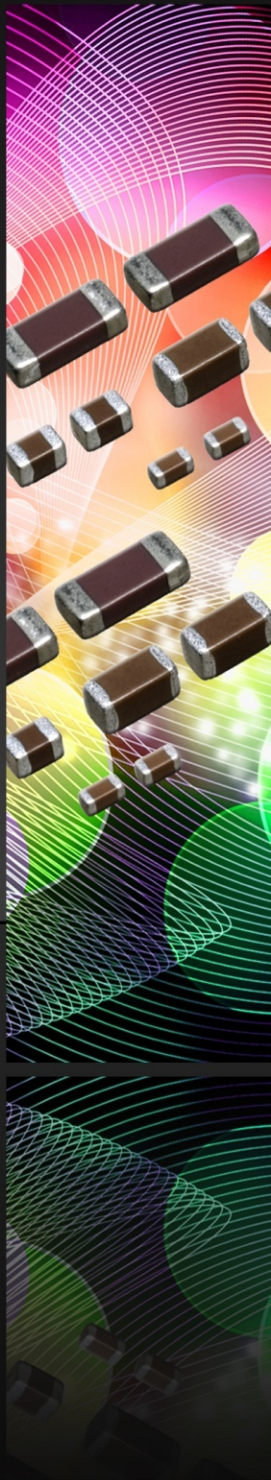




MULTILAYER CERAMIC CHIP CAPACITORS



CGJ Series Extended Life Capacitors

Type:

CGJ2 [EIA CC0402]
CGJ3 [EIA CC0603]
CGJ4 [EIA CC0805]
CGJ5 [EIA CC1206]

Issue date:

December 2011

TDK MLCC
US Catalog

Version B11

REMINDERS

Please read before using this product

SAFETY REMINDERS



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CGJ Series Extended Life Capacitors

Type: CGJ2 (C1005), CGJ3 (C1608),
CGJ4 (C2012), CGJ5 (C3216)

Features



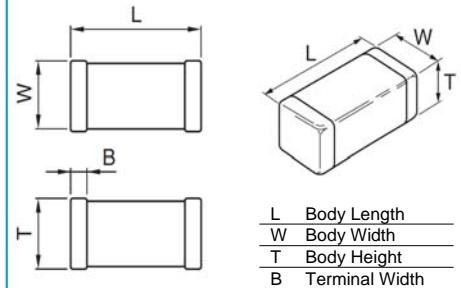
- Extended Life series capacitor featuring increased evaluation during manufacturing to promote longer life
- Life test performs at 2x rated voltage for 2000 hrs
- Reliability tests based on MIL-STD requirements
- Guaranteed TC Bias and Hot IR performance
- Anti-counterfeit/tamper-proof seal to assist in the identification of authentic TDK CGJ products. The condition of the seal also indicates if the product has been tampered with in the supply chain
- Certificate of Compliance (CofC) documentation is provided for each CGJ lot. Consumers of CGJ products can view each lot specific CofC on the TDK website
- Available optional UHF (Ultra High Frequency) RFID tag to allow integration with customer RFID programs such as inventory management
- CGJ customer priority backed by TDK factory support by 3/3/7 policy (3hrs: acknowledgement, 3 days: response with initial failure mode, 7 days: full failure analysis report)

Applications



- Smart Meter
- Smart Grid
- Solar Inverters
- Charging station
- Applications that require extended life performance

Shape & Dimension



Dimensions in mm



Part Number Construction

CGJ 5 L 2 X7R 1A 106 K T XXXX

Series Name

Dimensions L x W (mm)

| Symbol | Length | Width |
|--------|------------------|------------------|
| 2 | 1.00 ± 0.05 | 0.50 ± 0.05 |
| 3 | 1.60 ± 0.10 | 0.80 ± 0.10 |
| 4 | 2.00 ± 0.20 | 1.25 ± 0.20 |
| 5 | 3.20 ± 0.20 | 1.60 ± 0.20 |
| | 3.20 +0.30/-0.10 | 1.60 +0.30/-0.10 |

Thickness T (mm)

| Symbol | Thickness | Symbol | Thickness |
|--------|-----------|--------|-----------|
| B | 0.50 mm | H | 1.15 mm |
| C | 0.60 mm | J | 1.25 mm |
| E | 0.80 mm | L | 1.60 mm |
| F | 0.85 mm | | |

Voltage Condition for Life Test

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

Temperature Characteristic

| Temperature Characteristic | Capacitance Change | Temperature Range |
|----------------------------|--------------------|-------------------|
| C0G | 0±30 ppm/°C | -55 to +125°C |
| X7R | ± 15% | -55 to +125°C |

Internal Codes

Packaging Style

| Packaging Code | Style |
|----------------|-------------|
| T | Tape & Reel |

Capacitance Tolerance

| Tolerance Code | Tolerance |
|----------------|-----------|
| J | ± 5% |
| K | ± 10% |
| M | ± 20% |

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.

| Capacitance Code | Capacitance |
|------------------|-------------------|
| 0R5 | 0.5pF |
| 010 | 1pF |
| 102 | 1,000pF (1nF) |
| 105 | 1,000,000pF (1µF) |

Rated Voltage (DC)

| Voltage Code | Voltage (DC) |
|--------------|--------------|
| 0J | 6.3V |
| 1A | 10V |
| 1C | 16V |
| 1E | 25V |
| 1H | 50V |



Capacitance Range Chart

CGJ2 [EIA CC0402]

Capacitance Range Chart

Temperature Characteristics: C0G (0±30 ppm/°C)

Rated Voltage: 50V (1H)

| Capacitance (pF) | Cap Code | Tolerance | C0G |
|------------------|----------|-----------|----------|
| | | | 1H (50V) |
| 100 | 101 | J: ± 5% | █ |
| 120 | 121 | | █ |
| 150 | 151 | | █ |
| 180 | 181 | | █ |
| 220 | 221 | | █ |
| 270 | 271 | | █ |
| 330 | 331 | | █ |
| 390 | 391 | | █ |
| 470 | 471 | | █ |
| 560 | 561 | | █ |
| 680 | 681 | | █ |
| 820 | 821 | | █ |
| 1000 | 102 | | █ |

Standard Thickness 0.50 mm

Capacitance Range Chart

Temperature Characteristics: X7R (± 15%)

Rated Voltage: 50V (1H), 25V (1E), 16V (1C)

| Capacitance (pF) | Cap Code | Tolerance | X7R | | |
|------------------|----------|-----------|----------|----------|----------|
| | | | 1H (50V) | 1E (25V) | 1C (16V) |
| 1,000 | 102 | K: ± 10% | █ | █ | █ |
| 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 | | █ | █ | █ |

Standard Thickness 0.50 mm


**Capacitance
Range Table**
CGJ2 [EIA CC0402]
Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| CGJ2B2C0G1H101J | C0G | 50V | 100 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H121J | C0G | 50V | 120 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H151J | C0G | 50V | 150 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H181J | C0G | 50V | 180 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H221J | C0G | 50V | 220 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H271J | C0G | 50V | 270 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H331J | C0G | 50V | 330 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H391J | C0G | 50V | 390 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H471J | C0G | 50V | 470 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H561J | C0G | 50V | 560 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H681J | C0G | 50V | 680 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H821J | C0G | 50V | 820 | ± 5% | 0.50 ± 0.05 |
| CGJ2B2C0G1H102J | C0G | 50V | 1,000 | ± 5% | 0.50 ± 0.05 |


**Capacitance
Range Table**
CGJ2 [EIA CC0402]
Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| CGJ2B2X7R1H102K | X7R | 50V | 1,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1H152K | X7R | 50V | 1,500 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1H222K | X7R | 50V | 2,200 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1H332K | X7R | 50V | 3,300 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1H472K | X7R | 50V | 4,700 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1H682K | X7R | 50V | 6,800 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E102K | X7R | 25V | 1,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E152K | X7R | 25V | 1,500 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E222K | X7R | 25V | 2,200 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E332K | X7R | 25V | 3,300 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E472K | X7R | 25V | 4,700 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E682K | X7R | 25V | 6,800 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E103K | X7R | 25V | 10,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E153K | X7R | 25V | 15,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E223K | X7R | 25V | 22,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E333K | X7R | 25V | 33,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1E473K | X7R | 25V | 47,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C102K | X7R | 16V | 1,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C152K | X7R | 16V | 1,500 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C222K | X7R | 16V | 2,200 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C332K | X7R | 16V | 3,300 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C472K | X7R | 16V | 4,700 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C682K | X7R | 16V | 6,800 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C103K | X7R | 16V | 10,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C153K | X7R | 16V | 15,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C223K | X7R | 16V | 22,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C333K | X7R | 16V | 33,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C473K | X7R | 16V | 47,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C683K | X7R | 16V | 68,000 | ± 10% | 0.50 ± 0.05 |
| CGJ2B2X7R1C104K | X7R | 16V | 100,000 | ± 10% | 0.50 ± 0.05 |



Capacitance Range Chart

CGJ3 [EIA CC0603]

Capacitance Range Chart

Temperature Characteristics: C0G (0±30 ppm/°C)

Rated Voltage: 50V (1H)

| Capacitance (pF) | Cap Code | Tolerance | C0G 1H (50V) |
|------------------|----------|-----------|--------------------|
| 270 | 271 | J: ± 5% | |
| 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 | | |

Standard Thickness
 0.80 mm

Capacitance Range Chart

Temperature Characteristics: X7R (± 15%)

Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

| Capacitance (pF) | Cap Code | Tolerance | X7R | | | | | |
|------------------|----------|-----------|-------------|-------------|-------------|-------------|--------------|--|
| | | | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) | |
| 10,000 | 103 | K: ± 10% | | | | | | |
| 15,000 | 153 | | | | | | | |
| 22,000 | 223 | | | | | | | |
| 33,000 | 333 | | | | | | | |
| 47,000 | 473 | | | | | | | |
| 68,000 | 683 | | | | | | | |
| 100,000 | 104 | | | | | | | |
| 330,000 | 334 | | | | | | | |
| 470,000 | 474 | | | | | | | |
| 680,000 | 684 | | | | | | | |
| 1,000,000 | 105 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Standard Thickness
 0.80 mm


**Capacitance
Range Table**
CGJ3 [EIA CC0603]
Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| CGJ3E2C0G1H271J | C0G | 50V | 270 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H331J | C0G | 50V | 330 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H391J | C0G | 50V | 390 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H471J | C0G | 50V | 470 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H561J | C0G | 50V | 560 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H681J | C0G | 50V | 680 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H821J | C0G | 50V | 820 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H102J | C0G | 50V | 1,000 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H122J | C0G | 50V | 1,200 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H152J | C0G | 50V | 1,500 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H182J | C0G | 50V | 1,800 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H222J | C0G | 50V | 2,200 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H272J | C0G | 50V | 2,700 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H332J | C0G | 50V | 3,300 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H392J | C0G | 50V | 3,900 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H472J | C0G | 50V | 4,700 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H562J | C0G | 50V | 5,600 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H682J | C0G | 50V | 6,800 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H822J | C0G | 50V | 8,200 | ± 5% | 0.80 ± 0.07 |
| CGJ3E2C0G1H103J | C0G | 50V | 10,000 | ± 5% | 0.80 ± 0.07 |


**Capacitance
Range Table**
CGJ3 [EIA CC0603]
Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| CGJ3E2X7R1H103K | X7R | 50V | 10,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1H153K | X7R | 50V | 15,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1H223K | X7R | 50V | 22,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1H333K | X7R | 50V | 33,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1H473K | X7R | 50V | 47,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1H683K | X7R | 50V | 68,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1H104K | X7R | 50V | 100,000 | ± 10% | 0.80 ± 0.10 |
| CGJ3E2X7R1E103K | X7R | 25V | 10,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1E153K | X7R | 25V | 15,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1E223K | X7R | 25V | 22,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1E333K | X7R | 25V | 33,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1E473K | X7R | 25V | 47,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1E683K | X7R | 25V | 68,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1E104K | X7R | 25V | 100,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1C103K | X7R | 16V | 10,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1C153K | X7R | 16V | 15,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1C223K | X7R | 16V | 22,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1C333K | X7R | 16V | 33,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1C473K | X7R | 16V | 47,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1C683K | X7R | 16V | 68,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1C104K | X7R | 16V | 100,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1A334K | X7R | 10V | 330,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1A474K | X7R | 10V | 470,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1A684K | X7R | 10V | 680,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R1A105K | X7R | 10V | 1,000,000 | ± 10% | 0.80 ± 0.10 |
| CGJ3E2X7R0J334K | X7R | 6.3V | 330,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R0J474K | X7R | 6.3V | 470,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R0J684K | X7R | 6.3V | 680,000 | ± 10% | 0.80 ± 0.07 |
| CGJ3E2X7R0J105K | X7R | 6.3V | 1,000,000 | ± 10% | 0.80 ± 0.10 |



Capacitance Range Chart

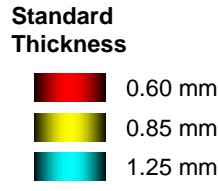
CGJ4 [EIA CC0805]

Capacitance Range Chart

Temperature Characteristics: C0G (0±30 ppm/°C)

Rated Voltage: 50V (1H)

| Capacitance (pF) | Cap Code | Tolerance | C0G | |
|------------------|----------|-----------|----------|--------------------|
| | | | 1H (50V) | Standard Thickness |
| 680 | 681 | J: ± 5% | █ | 0.60 mm |
| 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 | | | |

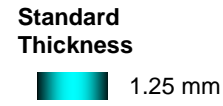


Capacitance Range Chart

Temperature Characteristics: X7R (± 15%)

Rated Voltage: 50V (1H), 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

| Capacitance (pF) | Cap Code | Tolerance | X7R | | | | |
|------------------|----------|-----------|----------|----------|----------|----------|-----------|
| | | | 1H (50V) | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 33,000 | 333 | K: ± 10% | █ | █ | █ | █ | █ |
| 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 | | | | | | |




**Capacitance
Range Table**
CGJ4 [EIA CC0805]
Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|------------------------------------|--------------------------------|------------------|---------------------|--------------------------|-------------------|
| CGJ4C2C0G1H681J | C0G | 50V | 680 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H821J | C0G | 50V | 820 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H102J | C0G | 50V | 1,000 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H122J | C0G | 50V | 1,200 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H152J | C0G | 50V | 1,500 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H182J | C0G | 50V | 1,800 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H222J | C0G | 50V | 2,200 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H272J | C0G | 50V | 2,700 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H332J | C0G | 50V | 3,300 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H392J | C0G | 50V | 3,900 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H472J | C0G | 50V | 4,700 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H562J | C0G | 50V | 5,600 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H682J | C0G | 50V | 6,800 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H822J | C0G | 50V | 8,200 | ± 5% | 0.60 ± 0.10 |
| CGJ4C2C0G1H103J | C0G | 50V | 10,000 | ± 5% | 0.60 ± 0.10 |
| CGJ4F2C0G1H153J | C0G | 50V | 15,000 | ± 5% | 0.85 +0.02/-0.10 |
| CGJ4J2C0G1H223J | C0G | 50V | 22,000 | ± 5% | 1.25 ± 0.10 |
| CGJ4J2C0G1H333J | C0G | 50V | 33,000 | ± 5% | 1.25 ± 0.20 |



Capacitance Range Table

CGJ4 [EIA CC0805]

Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|------------------------------------|-----------------------------|---------------|------------------|-----------------------|----------------|
| CGJ4J2X7R1H333K | X7R | 50V | 33,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1H473K | X7R | 50V | 47,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1H683K | X7R | 50V | 68,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1H104K | X7R | 50V | 100,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1H154K | X7R | 50V | 150,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1H224K | X7R | 50V | 220,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1H334K | X7R | 50V | 330,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R1E333K | X7R | 25V | 33,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E473K | X7R | 25V | 47,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E683K | X7R | 25V | 68,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E104K | X7R | 25V | 100,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E154K | X7R | 25V | 150,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E224K | X7R | 25V | 220,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E334K | X7R | 25V | 330,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R1E474K | X7R | 25V | 470,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E684K | X7R | 25V | 680,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1E105K | X7R | 25V | 1,000,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C333K | X7R | 16V | 33,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C473K | X7R | 16V | 47,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C683K | X7R | 16V | 68,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C104K | X7R | 16V | 100,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C154K | X7R | 16V | 150,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C224K | X7R | 16V | 220,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C334K | X7R | 16V | 330,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R1C474K | X7R | 16V | 470,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C684K | X7R | 16V | 680,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1C105K | X7R | 16V | 1,000,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1A224K | X7R | 10V | 220,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1A334K | X7R | 10V | 330,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R1A474K | X7R | 10V | 470,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1A684K | X7R | 10V | 680,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1A105K | X7R | 10V | 1,000,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1A155K | X7R | 10V | 1,500,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1A225K | X7R | 10V | 2,200,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R1A335K | X7R | 10V | 3,300,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R1A475K | X7R | 10V | 4,700,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R0J224K | X7R | 6.3V | 220,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R0J334K | X7R | 6.3V | 330,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R0J474K | X7R | 6.3V | 470,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R0J684K | X7R | 6.3V | 680,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R0J105K | X7R | 6.3V | 1,000,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R0J155K | X7R | 6.3V | 1,500,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R0J225K | X7R | 6.3V | 2,200,000 | ± 10% | 1.25 ± 0.20 |
| CGJ4J2X7R0J335K | X7R | 6.3V | 3,300,000 | ± 10% | 1.25 ± 0.10 |
| CGJ4J2X7R0J475K | X7R | 6.3V | 4,700,000 | ± 10% | 1.25 ± 0.20 |



Capacitance Range Chart

CGJ5 [EIA CC1206]

Capacitance Range Chart

Temperature Characteristics: C0G (0±30 ppm/°C)

Rated Voltage: 50V (1H)

| Capacitance (pF) | Cap Code | Tolerance | C0G |
|------------------|----------|-----------|----------|
| | | | 1H (50V) |
| 3,900 | 392 | J: ± 5% | |
| 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 | | |

Standard Thickness

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

Capacitance Range Chart

Temperature Characteristics: X7R (± 15%)

Rated Voltage: 25V (1E), 16V (1C), 10V (1A), 6.3V (0J)

| Capacitance (pF) | Cap Code | Tolerance | X7R | | | |
|------------------|----------|-----------|----------|----------|----------|-----------|
| | | | 1E (25V) | 1C (16V) | 1A (10V) | 0J (6.3V) |
| 1,500,000 | 155 | K: ± 10% | | | | |
| 2,200,000 | 225 | | | | | |
| 3,300,000 | 335 | | | | | |
| 4,700,000 | 475 | | | | | |
| 6,800,000 | 685 | | | | | |
| 10,000,000 | 106 | | | | | |

Standard Thickness

| | |
|--|---------|
| | 1.60 mm |
|--|---------|



Capacitance Range Table

CGJ5 [EIA CC1206]

Class 1 (Temperature Compensating)

Temperature Characteristics: C0G (-55 to 125°C, 0±30 ppm/°C)

| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|---------------------------------|-----------------------------|---------------|------------------|-----------------------|------------------|
| CGJ5C2C0G1H392J | C0G | 50V | 3,900 | ± 5% | 0.60 ± 0.10 |
| CGJ5C2C0G1H472J | C0G | 50V | 4,700 | ± 5% | 0.60 ± 0.10 |
| CGJ5C2C0G1H562J | C0G | 50V | 5,600 | ± 5% | 0.60 ± 0.10 |
| CGJ5C2C0G1H682J | C0G | 50V | 6,800 | ± 5% | 0.60 ± 0.10 |
| CGJ5C2C0G1H822J | C0G | 50V | 8,200 | ± 5% | 0.60 ± 0.10 |
| CGJ5C2C0G1H103J | C0G | 50V | 10,000 | ± 5% | 0.60 ± 0.10 |
| CGJ5C2C0G1H153J | C0G | 50V | 15,000 | ± 5% | 0.60 ± 0.10 |
| CGJ5C2C0G1H223J | C0G | 50V | 22,000 | ± 5% | 0.60 ± 0.10 |
| CGJ5F2C0G1H333J | C0G | 50V | 33,000 | ± 5% | 0.85 +0.02/-0.10 |
| CGJ5H2C0G1H473J | C0G | 50V | 47,000 | ± 5% | 1.15 ± 0.10 |
| CGJ5L2C0G1H683J | C0G | 50V | 68,000 | ± 5% | 1.60 +0.20/-0.10 |
| CGJ5L2C0G1H104J | C0G | 50V | 100,000 | ± 5% | 1.60 +0.20/-0.10 |

Class 2 (Temperature Stable)

Temperature Characteristics: X7R (-55 to +125°C, ±15%)

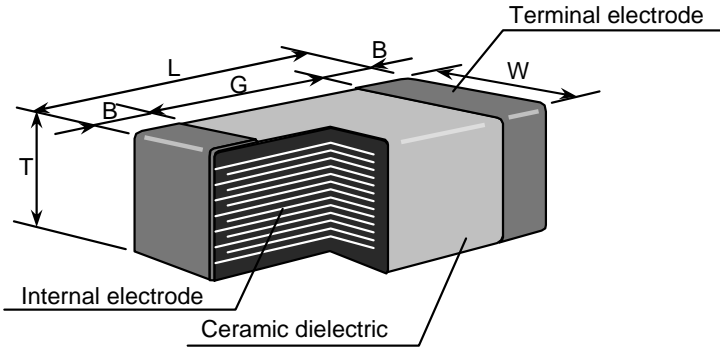
| TDK Part Number (Ordering Code) | Temperature Characteristics | Rated Voltage | Capacitance (pF) | Capacitance Tolerance | Thickness (mm) |
|---------------------------------|-----------------------------|---------------|------------------|-----------------------|------------------|
| CGJ5L2X7R1E155K | X7R | 25V | 1,500,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R1E225K | X7R | 25V | 2,200,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R1C155K | X7R | 16V | 1,500,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R1C225K | X7R | 16V | 2,200,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R1C335K | X7R | 16V | 3,300,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R1C475K | X7R | 16V | 4,700,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R1A155K | X7R | 10V | 1,500,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R1A225K | X7R | 10V | 2,200,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R1A335K | X7R | 10V | 3,300,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R1A475K | X7R | 10V | 4,700,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R1A685K | X7R | 10V | 6,800,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R1A106K | X7R | 10V | 10,000,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R0J155K | X7R | 6.3V | 1,500,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R0J225K | X7R | 6.3V | 2,200,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R0J335K | X7R | 6.3V | 3,300,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R0J475K | X7R | 6.3V | 4,700,000 | ± 10% | 1.60 +0.20/-0.10 |
| CGJ5L2X7R0J685K | X7R | 6.3V | 6,800,000 | ± 10% | 1.60 ± 0.10 |
| CGJ5L2X7R0J106K | X7R | 6.3V | 10,000,000 | ± 10% | 1.60 +0.20/-0.10 |



Additional Information

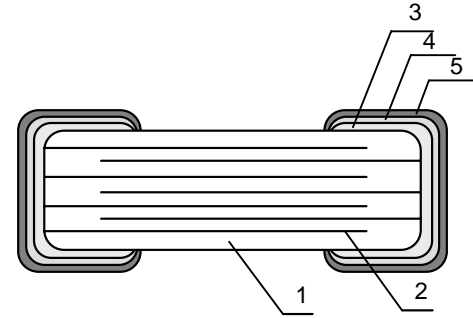
CGJ Series – Extended Life Capacitors

• Shape & Dimensions



| Case Code | | | Dimensions (mm) | | | | |
|-----------|-------|--------|-----------------|------|------|-----------|-----------|
| Series | JIS | EIA | L | W | T | B | G |
| CGJ2 | C1005 | CC0402 | 1.00 | 0.50 | 0.50 | 0.10 | 0.30 min. |
| CGJ3 | C1608 | CC0603 | 1.60 | 0.80 | 0.80 | 0.20 | 0.50 min. |
| CGJ4 | C2012 | CC0805 | 2.00 | 1.25 | 0.60 | 0.20 min. | 0.50 min. |
| | | | | | 0.85 | | |
| | | | | | 1.25 | | |
| CGJ5 | C3216 | CC1206 | 3.20 | 1.60 | 0.60 | 0.20 min. | 1.00 min. |
| | | | | | 0.85 | | |
| | | | | | 1.15 | | |
| | | | | | 1.60 | | |

• Inside Structure & Material System



| No. | NAME | MATERIAL | |
|-----|--------------------|--------------------|--------------------|
| | | Class 1 | Class 2 |
| (1) | Ceramic Dielectric | CaZrO ₃ | BaTiO ₃ |
| (2) | Internal Electrode | Nickel (Ni) | |
| (3) | Termination | Copper (Cu) | |
| (4) | | Nickel (Ni) | |
| (5) | | Tin (Sn) | |

• Environmental Information

TDK Corporation established internal product environmental assurance standards that include the six hazardous substances banned by the EU RoHS Directive¹ enforced on July 1, 2006 along with additional substances independently banned by TDK and has successfully completed making general purpose electronic components conform to the RoHS Directive².

1. Abbreviation for Restriction on Hazardous Substances, which refers to the regulation EU Directive 2002/95/EC on hazardous substances by the European Union (EU) effective from July 1, 2006. The Directive bans the use of six specific hazardous substances in electric and electronic devices and products handled within the EU. The six substances are lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyls), and PBDE (polybrominated diphenyl ethers).
2. This means that, in conformity with the 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.

For REACH (SVHC : 15 substances according to ECHA / October 2008) : All TDK MLCC do not contain these 15 substances.

For European Directive 2000/53/CE and 2005/673/CE : Cadmium, Hexavalent Chromium, Mercury, Lead are not contained in all TDK MLCC.

For European Directive 2003/11/CE : Pentabromodiphenyl-ether, Octabromodiphenyl-ether are not contained in all TDK MLCC.



TDK Sales Representatives Contact Information

South Bridge, LLC
South Carolina, USA
[Email: crystal@southbridge.net](mailto:crystal@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

South Bridge, LLC
Alabama, USA
[Email: sherrill@southbridge.net](mailto:sherrill@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

South Bridge, LLC
Mississippi, USA
[Email: sherrill@southbridge.net](mailto:sherrill@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

South Bridge, LLC
North Carolina, USA
[Email: crystal@southbridge.net](mailto:crystal@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

South Bridge, LLC
Western Tennessee, USA
[Email: sherrill@southbridge.net](mailto:sherrill@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

South Bridge, LLC
Georgia, USA
[Email: bobbi@southbridge.net](mailto:bobbi@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

South Bridge, LLC
Eastern Tennessee, USA
[Email: bobbi@southbridge.net](mailto:bobbi@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

South Bridge, LLC
Florida, USA
[Email: kim@southbridge.net](mailto:kim@southbridge.net)
[Website: www.southbridge.net](http://www.southbridge.net)

Seltec Sales Corporation
Missouri, USA
[Email: christy_meyer@seltec-sales.com](mailto:christy_meyer@seltec-sales.com)
[Website: www.seltecsales.com](http://www.seltecsales.com)

Seltec Sales Corporation
Kansas, USA
[Email: brian_young@seltec-sales.com](mailto:brian_young@seltec-sales.com)
[Website: www.seltecsales.com](http://www.seltecsales.com)

Seltec Sales Corporation
Southern Illinois, USA
[Email: christy_meyer@seltec-sales.com](mailto:christy_meyer@seltec-sales.com)
[Website: www.seltecsales.com](http://www.seltecsales.com)

Seltec Sales Corporation
Nebraska, USA
[Email: brian_young@seltec-sales.com](mailto:brian_young@seltec-sales.com)
[Website: www.seltecsales.com](http://www.seltecsales.com)

Quad State Sales and Marketing
Texas, USA
[Email: kbrayman@quadstatesales.com](mailto:kbrayman@quadstatesales.com)
[Website: www.quadstatesales.com](http://www.quadstatesales.com)

Quad State Sales and Marketing
Oklahoma, USA
[Email: kbrayman@quadstatesales.com](mailto:kbrayman@quadstatesales.com)
[Website: www.quadstatesales.com](http://www.quadstatesales.com)

Quad State Sales and Marketing
Arkansas, USA
[Email: kbrayman@quadstatesales.com](mailto:kbrayman@quadstatesales.com)
[Website: www.quadstatesales.com](http://www.quadstatesales.com)

Quad State Sales and Marketing
Louisiana, USA
[Email: kbrayman@quadstatesales.com](mailto:kbrayman@quadstatesales.com)
[Website: www.quadstatesales.com](http://www.quadstatesales.com)

Procyon Technical Sales
Southern Nevada, USA
[Email: lfisher@procyonsales.com](mailto:lfisher@procyonsales.com)
[Website: www.procyonsales.com](http://www.procyonsales.com)

Procyon Technical Sales
New Mexico, USA
[Email: lfisher@procyonsales.com](mailto:lfisher@procyonsales.com)
[Website: www.procyonsales.com](http://www.procyonsales.com)

Procyon Technical Sales
New Mexico, USA
[Email: lfisher@procyonsales.com](mailto:lfisher@procyonsales.com)
[Website: www.procyonsales.com](http://www.procyonsales.com)

Procyon Technical Sales
Arizona, USA
[Email: lfisher@procyonsales.com](mailto:lfisher@procyonsales.com)
[Website: www.procyonsales.com](http://www.procyonsales.com)

Procyon Technical Sales
Southern California, USA
[Email: lfisher@procyonsales.com](mailto:lfisher@procyonsales.com)
[Website: www.procyonsales.com](http://www.procyonsales.com)

Paragon Electronic Systems
Vermont, USA
[Email: sales@paragonelect.com](mailto:sales@paragonelect.com)
[Website: www.paragonelect.com](http://www.paragonelect.com)

Paragon Electronic Systems
Rhode Island, USA
[Email: sales@paragonelect.com](mailto:sales@paragonelect.com)
[Website: www.paragonelect.com](http://www.paragonelect.com)

Paragon Electronic Systems
New Hampshire, USA
[Email: sales@paragonelect.com](mailto:sales@paragonelect.com)
[Website: www.paragonelect.com](http://www.paragonelect.com)

Paragon Electronic Systems
Maine, USA
[Email: sales@paragonelect.com](mailto:sales@paragonelect.com)
[Website: www.paragonelect.com](http://www.paragonelect.com)

Paragon Electronic Systems
Massachusetts, USA
[Email: sales@paragonelect.com](mailto:sales@paragonelect.com)
[Website: www.paragonelect.com](http://www.paragonelect.com)

Paragon Electronic Systems
Connecticut, USA
[Email: sales@paragonelect.com](mailto:sales@paragonelect.com)
[Website: www.paragonelect.com](http://www.paragonelect.com)

Omega Electronic Sales, Inc.
Southern New Jersey, USA
[Email: office@omegasales.com](mailto:office@omegasales.com)
[Website: www.omegasales.com](http://www.omegasales.com)

Omega Electronic Sales, Inc.
Delaware, USA
[Email: office@omegasales.com](mailto:office@omegasales.com)
[Website: www.omegasales.com](http://www.omegasales.com)

Omega Electronic Sales, Inc.
Eastern Pennsylvania, USA
[Email: office@omegasales.com](mailto:office@omegasales.com)
[Website: www.omegasales.com](http://www.omegasales.com)

Mel Foster Company
Iowa, USA
[Email: sonja@melfoster.com](mailto:sonja@melfoster.com)
[Website: www.melfoster.com](http://www.melfoster.com)

Mel Foster Company
North Dakota, USA
[Email: kristine@melfoster.com](mailto:kristine@melfoster.com)
[Website: www.melfoster.com](http://www.melfoster.com)

Mel Foster Company
South Dakota, USA
[Email: kristine@melfoster.com](mailto:kristine@melfoster.com)
[Website: www.melfoster.com](http://www.melfoster.com)

Mel Foster Company
Minnesota, USA
[Email: kristine@melfoster.com](mailto:kristine@melfoster.com)
[Website: www.melfoster.com](http://www.melfoster.com)

Mel Foster Company
Northwest Wisconsin, USA
[Email: kristine@melfoster.com](mailto:kristine@melfoster.com)
[Website: www.melfoster.com](http://www.melfoster.com)

Luscombe Engineering Company
Northern California, USA
[Email: dbrown@lecsf.com](mailto:dbrown@lecsf.com)
[Website: www.lecsf.com](http://www.lecsf.com)

Luscombe Engineering Company
Northern Nevada, All products, USA
[Email: dbrown@lecsf.com](mailto:dbrown@lecsf.com)
[Website: www.lecsf.com](http://www.lecsf.com)

Innovatech Rocky Mountains
Colorado, USA
[Email: ggoodenow@innovatechrm.com](mailto:ggoodenow@innovatechrm.com)
[Website: www.innovatechrm.com](http://www.innovatechrm.com)

Innovatech Rocky Mountains
Utah, USA
[Email: ggoodenow@innovatechrm.com](mailto:ggoodenow@innovatechrm.com)
[Website: www.innovatechrm.com](http://www.innovatechrm.com)

Innovatech Rocky Mountains
Montana, USA
[Email: ggoodenow@innovatechrm.com](mailto:ggoodenow@innovatechrm.com)
[Website: www.innovatechrm.com](http://www.innovatechrm.com)

Innovatech Rocky Mountains
Wyoming, USA
[Email: ggoodenow@innovatechrm.com](mailto:ggoodenow@innovatechrm.com)
[Website: www.innovatechrm.com](http://www.innovatechrm.com)

HLC Ltd
Northern Illinois, USA
[Email: djohnson@hlcltd.com](mailto:djohnson@hlcltd.com)
[Website: www.hlcltd.com](http://www.hlcltd.com)

HLC Ltd
Southeast Wisconsin, USA
[Email: djohnson@hlcltd.com](mailto:djohnson@hlcltd.com)
[Website: www.hlcltd.com](http://www.hlcltd.com)

Fusion Sourcing Group
New York, USA
[Email: TDKsales@fusionsourcing.com](mailto:TDKsales@fusionsourcing.com)
[Website: www.fusionsourcing.com](http://www.fusionsourcing.com)

Fusion Sourcing Group
Northern New Jersey, USA
[Email: TDKsales@fusionsourcing.com](mailto:TDKsales@fusionsourcing.com)
[Website: www.fusionsourcing.com](http://www.fusionsourcing.com)

Enco Marketing
Michigan, USA
[Email: Brett.kauffman@encomarketing.com](mailto:Brett.kauffman@encomarketing.com)
[Website: www.encomarketing.com](http://www.encomarketing.com)

Electro Reps Inc
Kentucky, USA
[Email: eri@electro-reps.com](mailto:eri@electro-reps.com)
[Website: www.electro-reps.com](http://www.electro-reps.com)

Electro Reps Inc
Ohio, USA
[Email: eri@electro-reps.com](mailto:eri@electro-reps.com)
[Website: www.electro-reps.com](http://www.electro-reps.com)

Electro Reps Inc
Indiana, USA
[Email: eri@electro-reps.com](mailto:eri@electro-reps.com)
[Website: www.electro-reps.com](http://www.electro-reps.com)

Electro Reps Inc
Western Pennsylvania, USA
[Email: eri@electro-reps.com](mailto:eri@electro-reps.com)
[Website: www.electro-reps.com](http://www.electro-reps.com)

Earl & Brown Co., Inc.
Washington, USA
[Email: dpoulos@earlbrownrep.com](mailto:dpoulos@earlbrownrep.com)
[Website: www.earlbrownrep.com](http://www.earlbrownrep.com)

Earl & Brown Co., Inc.
Idaho, USA
[Email: dpoulos@earlbrownrep.com](mailto:dpoulos@earlbrownrep.com)
[Website: www.earlbrownrep.com](http://www.earlbrownrep.com)

Earl & Brown Co., Inc.
Oregon, USA
[Email: jchinn@earlbrownrep.com](mailto:jchinn@earlbrownrep.com)
[Website: www.earlbrownrep.com](http://www.earlbrownrep.com)



TDK Corporation of America

475 Half Day Road

Lincolnshire, IL 60069-2934

Web: <http://www.tdk.com>

Reps: <http://www.tdk.com/rep.php>

Sales: <http://www.tdk.com/sales.php>

Distributors: <http://www.tdk.com/distributor.php>