

# KEMET®

CERAMIC  
HIGH-RELIABILITY  
GR900 SERIES  
& MIL-C-123  
CAPACITORS



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**CERAMIC HIGH RELIABILITY**

## **CERAMIC HIGH RELIABILITY PRODUCTS**

### **Ceramic Chips, Radial Molded**

KEMET Electronics Corporation has been known for many years as the leader in the ceramic high reliability products. KEMET produces high reliability monolithic ceramic capacitors under tightly-controlled manufacturing procedures. These capacitors achieve "State of the Art" performance by virtue of careful materials selection, conservative design rules, motivational training of employees, and scrupulous inspection of all processes as well as the finished product. KEMET not only manufactures its own high reliability ceramic capacitor (GR900), KEMET also manufactures MIL-C-123 product which is built to the highest military standard in the industry today.

#### **BASIC REQUIREMENTS FOR KEMET'S HIGH RELIABILITY PRODUCTS ARE AS FOLLOWS:**

- 1. Selected Raw Materials:** All raw materials are selected for characteristics known to produce the finest quality capacitors exhibiting the best electrical parameters and physical integrity. Materials traceability is maintained throughout the manufacturing process.
- 2. Batch Homogeneity:** Production is under batch control. Each batch is homogeneous with respect to materials, design and processing conditions.
- 3. Clean Room Processing:** All processes sensitive to particulate contamination take place in a clean room environment.
- 4. Special Designs:** Special design considerations such as dielectric thickness are strictly enforced. Only COG (BP) and X7R (BX) temperature characteristics are made.
- 5. Destructive Physical Analysis (DPA, or Cross-Sectioning):** All batches are sampled using EIA-469 as a minimum requirement. The samples remain on file and DPA Reports are shipped with the capacitors.
- 6. Ultrasonic Scanning:** Optional 100% screening may be performed using ultrasonic waves to detect voids or delaminations. Screened lots must pass a final sample DPA.
- 7. Batch Performance Monitoring:** All production batches are tested to generate electrical characteristics. Batches which show anomalous characteristics are rejected.
- 8. Special Customer Requirements:** Many special requirements such as serialization, DPA samples,

X-Ray plates, and special packaging can be accommodated.

**9. Document Applicable:** The high reliability product is implemented through various internal documents under revision control. The Manufacturing Instructions provide detailed descriptions of all operations and delineate requirements for process control and product performance at various points in the process flow. Inspector Operating Documents describe test procedures and sampling plans for inspection of raw materials, in-process material and finished product. Raw material specifications describe physical and chemical characteristics as well as the packaging and labeling needed to preserve characteristics and identity. Customer specifications are internal documents applicable only to products manufactured and inspected to requirements of individual customers; in effect, these documents translate customer drawings into modifications of the specified portions of KEMET standard procedures.

The Quality System in total is controlled by the KEMET Quality Manual and by various Quality Operating Documents. All documents, and revisions thereto, bear specified approval signatures.

#### **DETAILED SPECIFICATION: Temperature Characteristics**

Electrical stability with respect to temperature and voltage is related inversely to the packaging efficiency (capacitance X voltage in a given case size). COG (BP) is made from ceramic materials which are not ferroelectric, yielding superior stability but low packaging efficiency. X7R (BX) is made from materials which are ferroelectric, such as barium titanate, yielding a stable and high packaging efficiency.

#### **Aging**

If the temperature of a barium titanate dielectric is lowered after an excursion above its curie point, the ceramic crystalline structure gradually reverts to the tetragonal form typical of the low temperature conditions. The reversion requires a considerable length of time, and its effect in practical capacitors has become known as "Aging". The rate of aging is affected by both the temperature and the applied voltage experienced by the capacitor. The COG (BP) formulation is non-ferroelectric and does not exhibit aging. The X7R (BX) formulation exhibits its own

characteristic aging rate which describes a decrease in capacitance versus time. The capacitance of the X7R dielectric decreases approximately 1.0% during each decade of hours following a return to temperatures below the curie point. In other words, capacitance will decrease 1.0% between 1 and 10 hours, another 1.0% between 10 and 100 hours, another 1.0% between 100 and 1000 hours, etc.

KEMET takes into consideration the aging rate by designing capacitors to fall within the specified capacitance tolerance at 2400 hours. Inasmuch as the aging rate is exponential, very little change in capacitance will take place after 2400 hours.

#### Voltage Effects

Ferroelectric materials are also affected by applied voltage, both alternating and direct. Low values of voltage produce a slight increase in capacitance and dissipation factor. Higher voltages cause a decrease in capacitance. Typically, capacitors with X7R characteristic decrease in capacitance by approximately 10% when rated DC voltage is applied.

A small portion of the decrease in capacitance by the application of a high DC voltage persists after the voltage is removed and then disappears gradually.

#### Customer Testing

Because of temperature and voltage effects, caution must be used in establishing a testing sequence for ceramic capacitors. Insulation resistance measurements and tests of dielectric withstanding voltage both require application of high DC voltage and cause temporary changes in capacitance. These tests, therefore, should not be conducted until capacitance testing is completed. Alternatively, the capacitors can be "de-aged" at high temperature as described above. A stabilization time at room ambient of 24 hours should be used after de-aging.

See F-3101 Catalog for more details.

## PERFORMANCE CHARACTERISTICS

### General Information

#### Working Voltage:

**COG (BP)** - 50,100 & 200 volts

**X7R (BX)** - 50,100 & 200 volts

#### Temperature Characteristics:

**COG (BP):** 0  $\pm$ 30 ppm/ $^{\circ}$ C from -55 $^{\circ}$ C to +125 $^{\circ}$ C.  
(Limits widen below 20 pF.)

**X7R (BX):**  $\pm$ 15%; from -55 $^{\circ}$ C to +125 $^{\circ}$ C.

#### Capacitance Tolerance:

**COG (BP):** C -  $\pm$ 0.25pF; D -  $\pm$ 0.5pF; F -  $\pm$ 1%;

G -  $\pm$ 2%; J -  $\pm$ 5%; K -  $\pm$ 10%; M -  $\pm$ 20%.

**X7R (BX):** J -  $\pm$ 5%; K -  $\pm$ 10%; M -  $\pm$ 20%.

### Electrical

**Capacitance:** Within specified tolerance when measured with 1 volt RMS @ 1 kHz (1000pF or less @ 1 MHz for COG (BP)).

#### Dissipation Factor:

25 $^{\circ}$ C @ 1 kHz (1000 pF or less at 1 MHz for COG (BP)).

**COG (BP):** 0.15% maximum

**X7R (BX):** 2.5% maximum

#### Insulation Resistance:

After 2 minutes electrification:

#### at 25 $^{\circ}$ C and rated voltage:

**COG (BP):** 100K megohms or (1000 megohm X  $\mu$ F), whichever is less.

**X7R (BX):** 100K megohms or (1000 megohm X  $\mu$ F), whichever is less.

#### at 125 $^{\circ}$ C and rated voltage:

**COG (BP):** 10K megohms or (100 megohm X  $\mu$ F), whichever is less.

**X7R (BX):** 10K megohms or (100 megohm X  $\mu$ F), whichever is less.

**Dielectric Withstanding Voltage:** 250% of rated voltage for 5 seconds with current limited to 50 MA at 25 $^{\circ}$ C.

**Aging Rate:** % Delta Cap/Decade Hour, Typical

**COG (BP):** 0%

**X7R (BX):** 1.0%

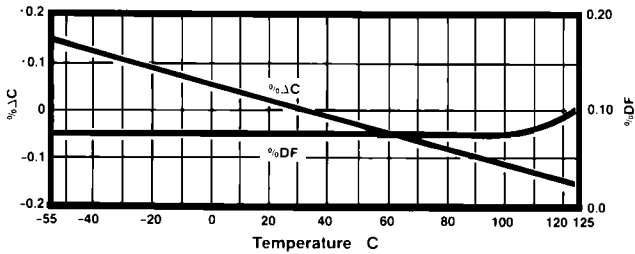
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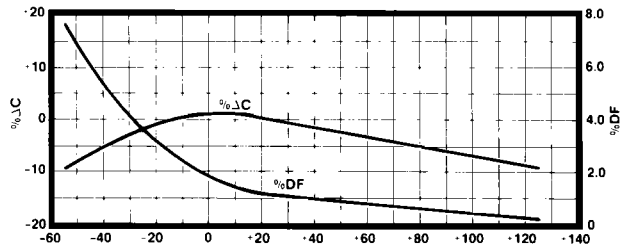
Furthermore, under no circumstances shall KEMET Electronics Corporation be liable for consequential, special, incidental or indirect damages resulting from the use or handling of this product.

Finally, KEMET Electronics Corporation does not assume any responsibility for the correctness of the information contained in this catalog. All design characteristics, specifications, tolerances, and the like are subject to change without notice.

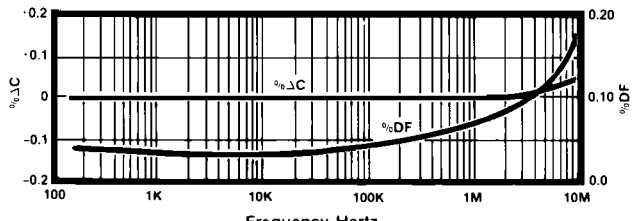
## MIL-C-123/GR900 TYPICAL PERFORMANCE CURVES



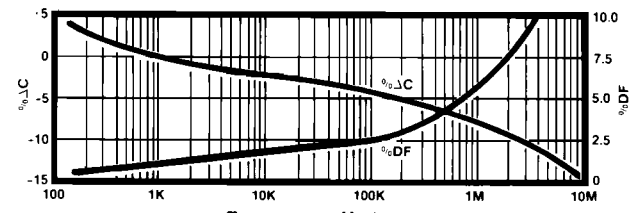
Capacitance & DF vs. Temperature-C0G



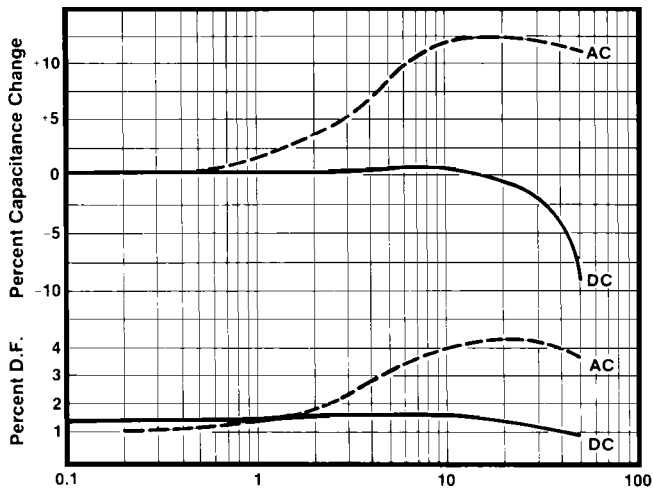
Capacitance & DF vs. Temperature-X7R



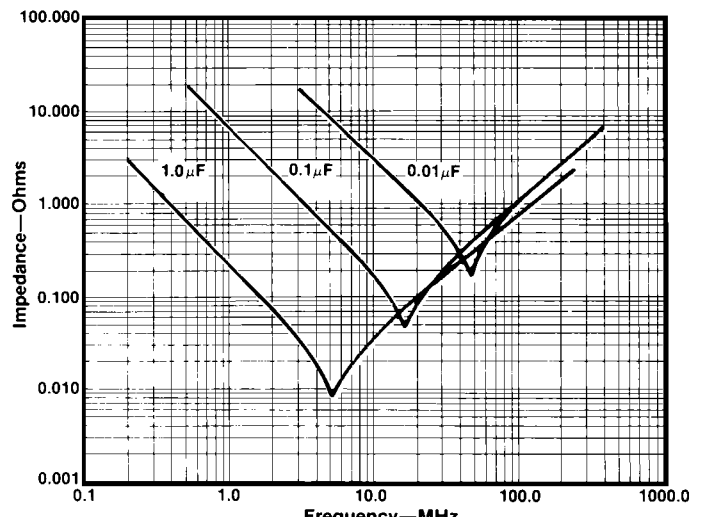
Capacitance & DF vs. Frequency-C0G



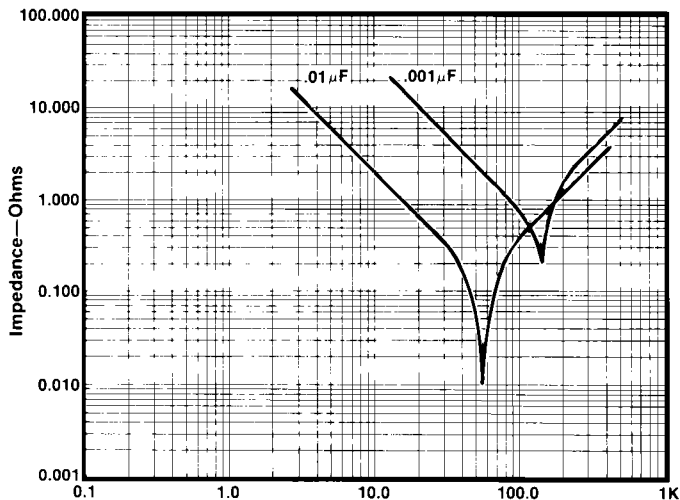
Capacitance & DF vs. Frequency-X7R



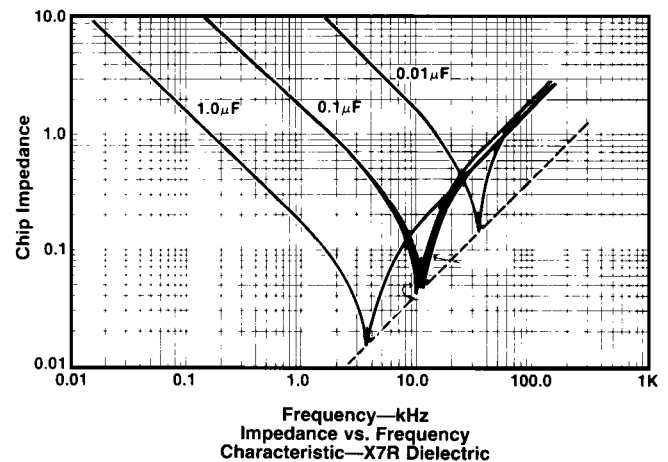
Typical Effect of 1000 Hz AC and DC Voltage Level on Capacitance and Dissipation Factor — X7R  
Note: C0G Dielectric capacitance and dissipation factor are stable with voltage.



Impedance vs. Frequency For Ceramic Capacitors — X7R Dielectric



Impedance vs. Frequency for Ceramic Capacitors—C0G Dielectric



Chip Impedance vs. Frequency Characteristic—X7R Dielectric

**INTRODUCTION**

MIL-C-123 specification covers the general requirements for high reliability, general purpose (BX) and temperature stable (BP) ceramic dielectric fixed capacitors for space, missile, and other high reliability applications. Capacitors covered by MIL-C-123 may be used in critical frequency determining applications, timing circuits, and other applications where absolute stability is required (BP) and in applications where appreciable variations in capacitance with respect to temperature, voltage, frequency, and life can be tolerated (BX).

**SCREENING TESTS**

Each lot has the following In-Process Inspections performed:

1. 100% Ultrasonic Scan
2. n-Process Destructive Physical Analysis
3. 100% visual inspection at a minimum of 10X magnification
4. Pre-encapsulation terminal strength evaluation (leaded devices only). Radial leaded capacitors must meet a minimum lead pull of 1.8 kg (4.0 lbs.).

The following Group A shall be performed on each lot:

1. **Thermal Shock**—Performed in accordance to MIL-STD-202, Method 107, Condition A, with step 3 being 125°C. Number of cycles shall be 20 (100% of lot).
2. **Voltage Conditioning**—The voltage conditioning shall consist of applying twice the rated voltage to the units at the maximum rated temperature of 125°C for a minimum of 168 hours and a maximum of 264 hours. The voltage conditioning may be terminated at any time during 168 hours to 264 hours time interval that confirmed failures meet the requirements for the PDA during the last 48 hours listed in Table I below (100% of lot).

**Optional Voltage Conditioning (Accelerated Voltage Conditioning)**—All conditions of the standard voltage conditioning apply with the exception of the increased voltage and the decreased test time. (Refer to Mil-C-123 for formula.)

- \*Step 5 is performed on chips at this point (100% of lot).
3. **Dielectric Withstanding Voltage** 250% of the dc rated voltage at 25°C (100% of lot).
  4. **Insulation Resistance**—The 25°C measurement with rated voltage applied shall be the lesser of 100,000 megohms or 1000 megohm-microfarads (100% of lot).
  - \*5. **Insulation Resistance**—The 125°C measurement with rated voltage applied shall be the lesser of 10,000 megohms or 100 megohm-microfarads (1000% of lot). For chips 125°C IR is performed prior to step 3 above.
  6. **Capacitance** must be within specified tolerance at 25°C (100% of lot). **Cap Exclusion:** Capacitance values no more than 5% or .5 pF, whichever is greater, for BX characteristics or 1% or .3 pF, whichever is greater, for BP characteristics beyond specified tolerance limit shall be removed from the lot but shall not be considered defective for determination of the PDA.
  7. **Dissipation Factor** shall not exceed 2.5% for X dielectric, 0.15% for G dielectric at 25°C (100% of lot).
  8. **Percent Defective Allowable (PDA).** The following table lists the PDA requirements for MIL-C-123 Group A:

KEMET STYLE	MIL STYLE	TABLE I	
		BURN IN PDA LAST 48 HOURS	PDA OVERALL
C052Z	CKS05	1 unit or 0.1%	3%
C062Z	CKS06	1 unit or 0.2%	5%
C512Z	CKS07	1 unit or 0.2%	5%
C0805Z	CKS51	1 unit or 0.1%	3%
C1210Z	CKS52	1 unit or 0.1%	3%
C1808Z	CKS53	1 unit or 0.1%	3%
C2225Z	CKS54	1 unit or 0.1%	3%

9. **Radiographic Inspection** (leaded devices only) (100% of lot).
10. **Visual Inspection** per MIL-C-123 criteria.
11. **Destructive Physical Analysis** per EIA-469 and MIL-C-123.

**SAMPLE TESTS**

The following Group B tests shall be performed on samples from each lot, which have been subjected to and have passed Group A inspection.

1. **Thermal Shock**—Performed in accordance to MIL-STD-202, Method 107, Condition A, with step 3 being 125°C. Number of cycles shall be 100.
2. **Life Test per MIL-5TD-202, Method 108.** Test temperature and tolerance is +125°C +4, -0°C. Capacitors shall be subjected to 2X rated voltage for 1000 hours.
3. **Humidity, steady state, low voltage per MIL-STD-202, Method 103, Condition A.** Capacitors shall be subjected to an environment of 85°C with 85% relative humidity for 240 hours minimum. Cycling shall not be performed. A dc potential of 1.3 ±0.25 volts shall be applied continuously through a 100,000 ohm resistance to each device under test. At completion, 25°C IR and Cap are read.
4. **Voltage-temperature limits**—Capacitance is measured at various temperatures (-55°C to +125°C) with and without rated voltage.
5. **Moisture Resistance per MIL-STD-202, Method 106.** There shall be 20 continuous cycles. During the first 10 cycles only, a dc potential of 50 volts shall be applied across the capacitor terminals. Once each day, a check shall be performed to determine whether a capacitor has shorted. Vibration cycle of MIL-STD-202, Method 106, Step 7b shall not be performed. Upon completion of MIL-STD-202, Method 106, Step 6 of the final cycle, capacitors shall be measured for capacitance, dielectric withstanding voltage and insulation resistance.

The following Group C tests shall be performed on samples selected from lots that have passed Group A and have been submitted for Group B inspection. Samples shall be selected every two months.

1. Terminal Strength
2. Solderability
3. Resistance to Soldering Heat
4. Solvent Resistance (Leaded devices only)

All lots shipped must have been subjected to and passed Group A and B testing.

**STANDARD PACKAGING FOR MIL-C-123 IS AS FOLLOWS:**

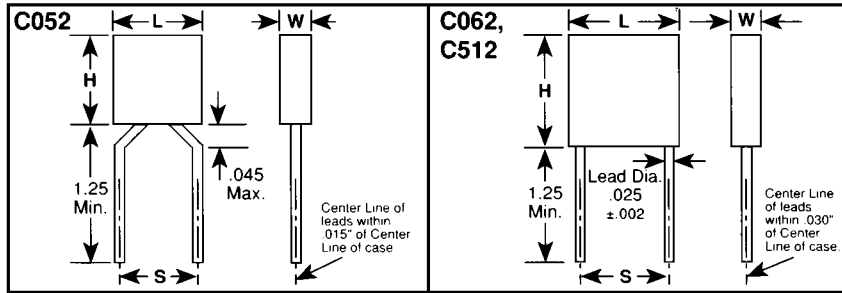
C052Z	tray	C0805Z	chip tray
C062Z	tray	C1210Z	chip tray
C512Z	1 pc. per bag	C1808Z	chip tray
		C2225Z	chip tray

**DATA PACKAGE**

A data package is sent with each shipment which contains:

1. Summary of Group A testing
2. Summary of Group B testing
3. Group B Variables Test Data
4. Lead Pull Data (Leaded Devices Only)
5. Final Destructive Physical Analysis Report
6. Certificate of Compliance stating that the ceramic capacitors supplied meet all the requirements of MIL-C-123, the applicable slash sheet(s) and all associated documents.

**CAPACITOR OUTLINE DRAWINGS - (RADIAL LEADS)**

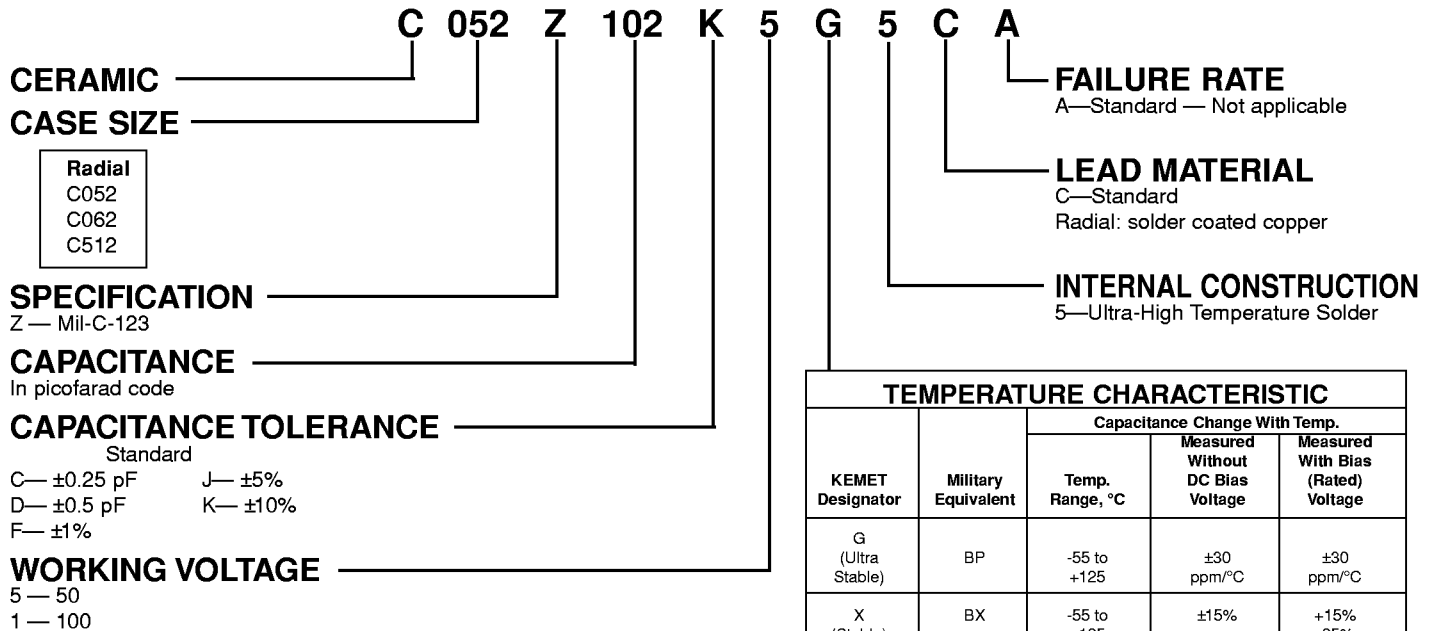


**DIMENSIONS — INCHES & (MILLIMETERS)**

CASE SIZE	MILITARY EQUIVALENT STYLES	H HEIGHT	L LENGTH	W WIDTH	S LEAD SPACING
C052	CKS05	.190 ± .010 (4.83 ± .25)	.190 ± .010 (4.83 ± .25)	.090 ± .010 (2.29 ± .25)	.200 ± .015 (5.08 ± .38)
C062	CKS06	.290 ± .010 (7.37 ± .25)	.290 ± .010 (7.37 ± .25)	.090 ± .010 (2.29 ± .25)	.200 ± .015 (5.08 ± .38)
C512	CKS07	.480 ± .020 (12.19 ± .51)	.480 ± .020 (12.19 ± .51)	.140 ± .010 (3.56 ± .25)*	.400 ± .020 (10.16 ± .51)

\*0.200 maximum for some capacitance values.

**ORDERING INFORMATION  
KEMET PART NUMBER**



MIL-C-123 MILITARY PART NUMBER

M123 A 01 BX B 103 K C

MILITARY SPECIFICATION NUMBER

MODIFICATION LETTER  
Indicates the latest characteristics of the part in the specification sheet.

MIL-C-123 SLASH SHEET NUMBER

Slash Sheet #	KEMET Style	Mil-C-123 Style
01	C052	CKS05
02	C062	CKS06
03	C512	CKS07

TERMINATION  
Molded  
C — Solder-coated copper (radial)

TOLERANCE  
C—±0.25pF J—±5%  
D—±0.5pF K—±10%  
F—±1%

CAPACITANCE  
In picofarad code

VOLTAGE  
B=50 C=100

VOLTAGE-TEMPERATURE CHARACTERISTICS				
Capacitance Change With Temp.				
KEMET Designator	Military Equivalent	Temp. Range, °C	Measured Without DC Bias Voltage	Measured (Rated) With Bias Voltage
G (Ultra Stable)	BP	-55 to +125	±30 ppm/°C	±30 ppm/°C
X (Stable)	BX	-55 to +125	±15%	+15% -25%

RATINGS & PART NUMBER REFERENCE

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>100 VOLT - BP - C052 SIZE (MILITARY CKS05)</b>		
4.7	C052Z4791G5CA	M123A01BPC4R71C
5.1	C052Z5191G5CA	M123A01BPC5R11C
5.6	C052Z5691G5CA	M123A01BPC5R61C
6.2	C052Z6291G5CA	M123A01BPC6R21C
6.8	C052Z6891G5CA	M123A01BPC6R81C
7.5	C052Z7591G5CA	M123A01BPC7R51C
8.2	C052Z8291G5CA	M123A01BPC8R21C
9.1	C052Z9191G5CA	M123A01BPC9R11C
10	C052Z1001G5CA	M123A01BPC1001C
11	C052Z1101G5CA	M123A01BPC1101C
12	C052Z1201G5CA	M123A01BPC1201C
13	C052Z1301G5CA	M123A01BPC1301C
15	C052Z1501G5CA	M123A01BPC1501C
16	C052Z1601G5CA	M123A01BPC1601C
18	C052Z1801G5CA	M123A01BPC1801C
20	C052Z2001G5CA	M123A01BPC2001C
22	C052Z2201G5CA	M123A01BPC2201C
24	C052Z2401G5CA	M123A01BPC2401C
27	C052Z2701G5CA	M123A01BPC2701C
30	C052Z3001G5CA	M123A01BPC3001C
33	C052Z3301G5CA	M123A01BPC3301C
36	C052Z3601G5CA	M123A01BPC3601C
39	C052Z3901G5CA	M123A01BPC3901C
43	C052Z4301G5CA	M123A01BPC4301C
47	C052Z4701G5CA	M123A01BPC4701C
51	C052Z5101G5CA	M123A01BPC5101C
56	C052Z5601G5CA	M123A01BPC5601C
62	C052Z6201G5CA	M123A01BPC6201C
68	C052Z6801G5CA	M123A01BPC6801C
75	C052Z7501G5CA	M123A01BPC7501C
82	C052Z8201G5CA	M123A01BPC8201C
91	C052Z9101G5CA	M123A01BPC9101C
100	C052Z1011G5CA	M123A01BPC1011C
110	C052Z1111G5CA	M123A01BPC1111C
120	C052Z1211G5CA	M123A01BPC1211C
130	C052Z1311G5CA	M123A01BPC1311C
150	C052Z1511G5CA	M123A01BPC1511C
160	C052Z1611G5CA	M123A01BPC1611C
180	C052Z1811G5CA	M123A01BPC1811C
200	C052Z2011G5CA	M123A01BPC2011C
220	C052Z2211G5CA	M123A01BPC2211C
240	C052Z2411G5CA	M123A01BPC2411C
<b>50 VOLT - BP - C052 SIZE (MILITARY CKS05)</b>		
270	C052Z2711G5CA	M123A01BPB271C
300	C052Z3011G5CA	M123A01BPB301C
330	C052Z3311G5CA	M123A01BPB331C
360	C052Z3611G5CA	M123A01BPB361C
390	C052Z3911G5CA	M123A01BPB391C
430	C052Z4311G5CA	M123A01BPB431C
470	C052Z4711G5CA	M123A01BPB471C
510	C052Z5111G5CA	M123A01BPB511C

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>50 VOLT - BP - C052 SIZE (MILITARY CKS05) (Cont'd)</b>		
560	C052Z5611G5CA	M123A01BPB561C
620	C052Z6211G5CA	M123A01BPB621C
680	C052Z6811G5CA	M123A01BPB681C
750	C052Z7511G5CA	M123A01BPB751C
820	C052Z8211G5CA	M123A01BPB821C
910	C052Z9111G5CA	M123A01BPB911C
1,000	C052Z1021G5CA	M123A01BPB1021C
1,100	C052Z1121G5CA	M123A01BPB1121C
1,200	C052Z1221G5CA	M123A01BPB1221C
1,300	C052Z1321G5CA	M123A01BPB1321C
1,500	C052Z1521G5CA	M123A01BPB1521C
1,600	C052Z1621G5CA	M123A01BPB1621C
1,800	C052Z1821G5CA	M123A01BPB1821C
2,000	C052Z2021G5CA	M123A01BPB2021C
2,200	C052Z2221G5CA	M123A01BPB2221C
2,400	C052Z2421G5CA	M123A01BPB2421C
2,700	C052Z2721G5CA	M123A01BPB2721C
<b>100 VOLT - BP - C062 SIZE (MILITARY CKS06)</b>		
270	C062Z2711G5CA	M123A02BPC271C
300	C062Z3011G5CA	M123A02BPC301C
330	C062Z3311G5CA	M123A02BPC331C
360	C062Z3611G5CA	M123A02BPC361C
390	C062Z3911G5CA	M123A02BPC391C
430	C062Z4311G5CA	M123A02BPC431C
470	C062Z4711G5CA	M123A02BPC471C
510	C062Z5111G5CA	M123A02BPC511C
560	C062Z5611G5CA	M123A02BPC561C
620	C062Z6211G5CA	M123A02BPC621C
680	C062Z6811G5CA	M123A02BPC681C
750	C062Z7511G5CA	M123A02BPC751C
820	C062Z8211G5CA	M123A02BPC821C
910	C062Z9111G5CA	M123A02BPC911C
1,000	C062Z1021G5CA	M123A02BPC1021C
1,100	C062Z1121G5CA	M123A02BPC1121C
1,200	C062Z1221G5CA	M123A02BPC1221C
1,300	C062Z1321G5CA	M123A02BPC1321C
1,500	C062Z1521G5CA	M123A02BPC1521C
1,600	C062Z1621G5CA	M123A02BPC1621C
1,800	C062Z1821G5CA	M123A02BPC1821C
2,000	C062Z2021G5CA	M123A02BPC2021C
2,200	C062Z2221G5CA	M123A02BPC2221C
2,400	C062Z2421G5CA	M123A02BPC2421C
<b>50 VOLT - BP - C062 SIZE (MILITARY CKS06)</b>		
2,700	C062Z2721G5CA	M123A02BPB2721C
3,000	C062Z3021G5CA	M123A02BPB3021C
3,300	C062Z3321G5CA	M123A02BPB3321C
3,600	C062Z3621G5CA	M123A02BPB3621C
3,900	C062Z3921G5CA	M123A02BPB3921C
4,300	C062Z4321G5CA	M123A02BPB4321C
4,700	C062Z4721G5CA	M123A02BPB4721C

To complete the part numbers, insert the following tolerances: (1) C, ±0.25pF; D, ±0.5pF (2) C, ±0.25pF; J, ±5%; K, ±10% (3) F, ±1%; J, ±5%; K, ±10%

### RATINGS & PART NUMBER REFERENCE

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>100 VOLT - BX - C052 SIZE (MILITARY CKS05)</b>		
270	C052Z271K1X5CA	M123A01BXC271KC
330	C052Z331K1X5CA	M123A01BXC331KC
390	C052Z391K1X5CA	M123A01BXC391KC
470	C052Z471K1X5CA	M123A01BXC471KC
560	C052Z561K1X5CA	M123A01BXC561KC
680	C052Z681K1X5CA	M123A01BXC681KC
820	C052Z821K1X5CA	M123A01BXC821KC
1,000	C052Z102K1X5CA	M123A01BXC102KC
1,200	C052Z122K1X5CA	M123A01BXC122KC
1,500	C052Z152K1X5CA	M123A01BXC152KC
1,800	C052Z182K1X5CA	M123A01BXC182KC
2,200	C052Z222K1X5CA	M123A01BXC222KC
2,700	C052Z272K1X5CA	M123A01BXC272KC
3,300	C052Z332K1X5CA	M123A01BXC332KC
3,900	C052Z392K1X5CA	M123A01BXC392KC
4,700	C052Z472K1X5CA	M123A01BXC472KC
<b>50 VOLT - BX - C052 SIZE (MILITARY CKS05)</b>		
5,600	C052Z562K5X5CA	M123A01BXB562KC
6,800	C052Z682K5X5CA	M123A01BXB682KC
8,200	C052Z822K5X5CA	M123A01BXB822KC
10,000	C052Z103K5X5CA	M123A01BXB103KC

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>100 VOLT - BP - C512 SIZE (MILITARY CKS07)</b>		
2,700	C512Z272G1G5CA	M123A03BPC272G2C
3,000	C512Z302G1G5CA	M123A03BPC302G2C
3,300	C512Z332G1G5CA	M123A03BPC332G2C
3,600	C512Z362G1G5CA	M123A03BPC362G2C
3,900	C512Z392G1G5CA	M123A03BPC392G2C
4,300	C512Z432G1G5CA	M123A03BPC432G2C
4,700	C512Z472G1G5CA	M123A03BPC472G2C
5,100	C512Z512G1G5CA	M123A03BPC512G2C
5,600	C512Z562G1G5CA	M123A03BPC562G2C
6,200	C512Z622G1G5CA	M123A03BPC622G2C
6,800	C512Z682G1G5CA	M123A03BPC682G2C
7,500	C512Z752G1G5CA	M123A03BPC752G2C
8,200	C512Z822G1G5CA	M123A03BPC822G2C
9,100	C512Z912G1G5CA	M123A03BPC912G2C
10,000	C512Z103G1G5CA	M123A03BPC103G2C
<b>50 VOLT - BP - C512 SIZE (MILITARY CKS07)</b>		
11,000	C512Z113G5G5CA	M123A03BPB113G2C
12,000	C512Z123G5G5CA	M123A03BPB123G2C
13,000	C512Z133G5G5CA	M123A03BPB133G2C
15,000	C512Z153G5G5CA	M123A03BPB153G2C
16,000	C512Z163G5G5CA	M123A03BPB163G2C
18,000	C512Z183G5G5CA	M123A03BPB183G2C
20,000	C512Z203G5G5CA	M123A03BPB203G2C
22,000	C512Z223G5G5CA	M123A03BPB223G2C
24,000	C512Z243G5G5CA	M123A03BPB243G2C
27,000	C512Z273G5G5CA	M123A03BPB273G2C
30,000	C512Z303G5G5CA	M123A03BPB303G2C
33,000	C512Z333G5G5CA	M123A03BPB333G2C
36,000	C512Z363G5G5CA	M123A03BPB363G2C
39,000	C512Z393G5G5CA	M123A03BPB393G2C
43,000	C512Z433G5G5CA	M123A03BPB433G2C
47,000	C512Z473G5G5CA	M123A03BPB473G2C
51,000	C512Z513G5G5CA	M123A03BPB513G2C
56,000	C512Z563G5G5CA	M123A03BPB563G2C
62,000	C512Z623G5G5CA	M123A03BPB623G2C
68,000	C512Z683G5G5CA	M123A03BPB683G2C
75,000	C512Z753G5G5CA	M123A03BPB753G2C
82,000	C512Z823G5G5CA	M123A03BPB823G2C
91,000	C512Z913G5G5CA	M123A03BPB913G2C
100,000	C512Z104G5G5CA	M123A03BPB104G2C

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>100 VOLT - BX - C062 SIZE (MILITARY CKS06)</b>		
5,600	C062Z562K1X5CA	M123A02BXC562KC
6,800	C062Z682K1X5CA	M123A02BXC682KC
8,200	C062Z822K1X5CA	M123A02BXC822KC
10,000	C062Z103K1X5CA	M123A02BXC103KC
12,000	C062Z123K1X5CA	M123A02BXC123KC
15,000	C062Z153K1X5CA	M123A02BXC153KC
18,000	C062Z183K1X5CA	M123A02BXC183KC
22,000	C062Z223K1X5CA	M123A02BXC223KC
27,000	C062Z273K1X5CA	M123A02BXC273KC
33,000	C062Z333K1X5CA	M123A02BXC333KC
39,000	C062Z393K1X5CA	M123A02BXC393KC
47,000	C062Z473K1X5CA	M123A02BXC473KC
56,000	C062Z563K1X5CA	M123A02BXC563KC
68,000	C062Z683K1X5CA	M123A02BXC683KC
82,000	C062Z823K1X5CA	M123A02BXC823KC
100,000	C062Z104K1X5CA	M123A02BXC104KC
<b>50 VOLT - BX - C062 SIZE (MILITARY CKS06)</b>		
56,000	C062Z563K5X5CA	M123A02BXB563KC
68,000	C062Z683K5X5CA	M123A02BXB683KC
82,000	C062Z823K5X5CA	M123A02BXB823KC
100,000	C062Z104K5X5CA	M123A02BXB104KC
120,000	C062Z124K5X5CA	M123A02BXB124KC
150,000	C062Z154K5X5CA	M123A02BXB154KC
180,000	C062Z184K5X5CA	M123A02BXB184KC
220,000	C062Z224K5X5CA	M123A02BXB224KC
270,000	C062Z274K5X5CA	M123A02BXB274KC
330,000	C062Z334K5X5CA	M123A02BXB334KC
390,000	C062Z394K5X5CA	M123A02BXB394KC
470,000	C062Z474K5X5CA	M123A02BXB474KC
560,000	C062Z564K5X5CA	M123A02BXB564KC
680,000	C062Z684K5X5CA	M123A02BXB684KC
820,000	C062Z824K5X5CA	M123A02BXB824KC
1,000,000	C062Z105K5X5CA	M123A02BXB105KC

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>100 VOLT - BX - C512 SIZE (MILITARY CKS07)</b>		
56,000	C512Z563K1X5CA	M123A02BXC563KC
68,000	C512Z683K1X5CA	M123A02BXC683KC
82,000	C512Z823K1X5CA	M123A02BXC823KC
100,000	C512Z104K1X5CA	M123A02BXC104KC
120,000	C512Z124K1X5CA	M123A02BXC124KC
150,000	C512Z154K1X5CA	M123A02BXC154KC
180,000	C512Z184K1X5CA	M123A02BXC184KC
220,000	C512Z224K1X5CA	M123A02BXC224KC
270,000	C512Z274K1X5CA	M123A02BXC274KC
330,000	C512Z334K1X5CA	M123A02BXC334KC
390,000	C512Z394K1X5CA	M123A02BXC394KC
470,000	C512Z474K1X5CA	M123A02BXC474KC
<b>50 VOLT - BX - C512 SIZE (MILITARY CKS07)</b>		
560,000	C512Z564K5X5CA	M123A02BXB564KC
680,000	C512Z684K5X5CA	M123A02BXB684KC
820,000	C512Z824K5X5CA	M123A02BXB824KC
1,000,000	C512Z105K5X5CA	M123A02BXB105KC

To complete the part numbers, insert the following tolerances: (1) C,  $\pm 0.25\text{pF}$ ; D,  $\pm 0.5\text{pF}$  (2) C,  $\pm 0.25\text{pF}$ ; J,  $\pm 5\%$ ; K,  $\pm 10\%$  (3) F,  $\pm 1\%$ ; J,  $\pm 5\%$ ; K,  $\pm 10\%$

### MARKING INFORMATION

**C052Z**  
M123A } MIL-C-123  
01BPC } Part Number  
4R7CC }

**C062Z, C512Z**  
M123A } MIL-C-123  
02BPC } Part Number  
271FC } "JAN"  
JAN }

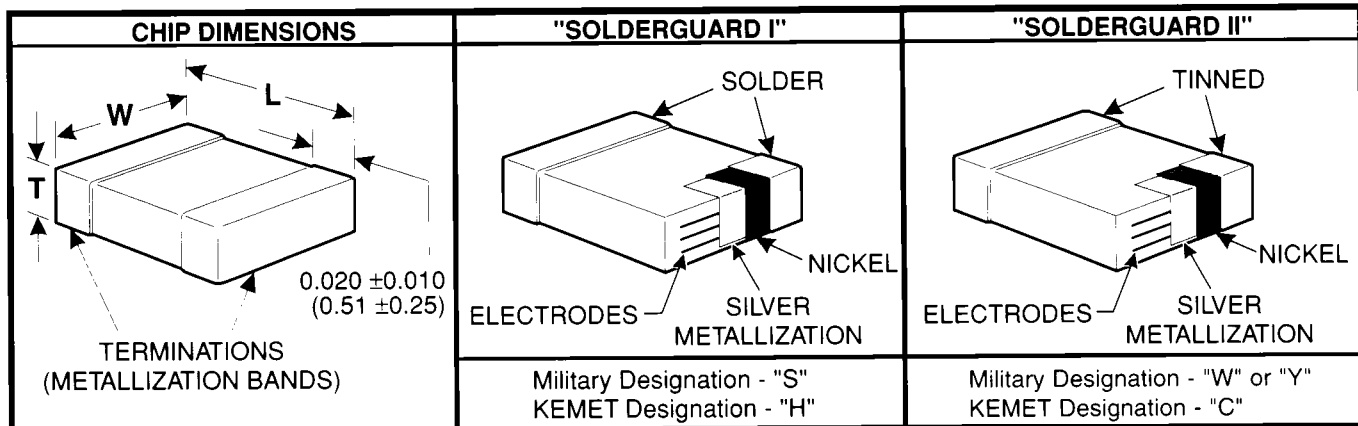
CAGE =  
Commercial and  
Government Entity

JAN — "JAN"  
XXXX\* — Date Lot Code  
31433 — CAGE

271F — Capacitance Code & Tolerance  
JAN — "JAN"  
XXXX\* — Date Lot Code  
31433 — CAGE



CAPACITOR OUTLINE DRAWINGS



NOTE: For solder coated terminations, add 0.015" (0.38mm) to the positive width and thickness tolerances. Add the following to the positive length tolerance: CKS51 - 0.020" (0.51mm); CKS52, CKS53 and CKS54 - 0.025" (0.64mm); add 0.012" (0.30mm) to the bandwidth tolerance.

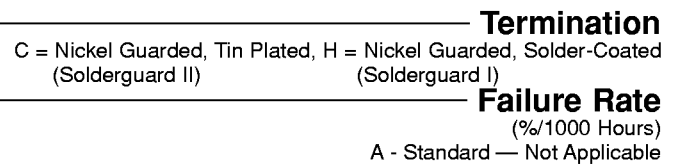
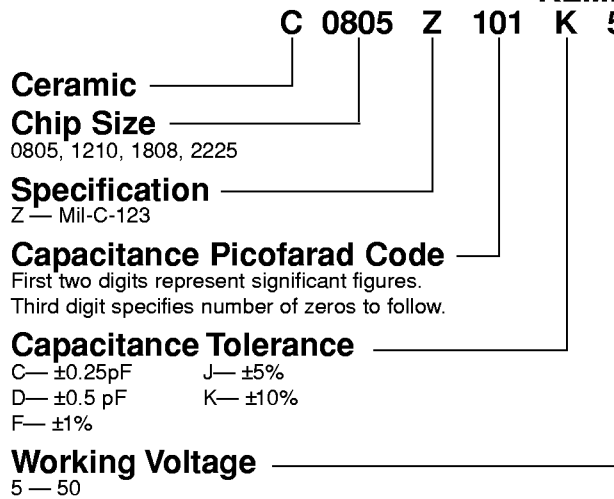
DIMENSIONS — INCHES

CHIP SIZE	MILITARY EQUIVALENT STYLES	L LENGTH	W WIDTH	T THICKNESS MAXIMUM
0805	CKS51	0.080±0.015	0.050±0.015	0.055
1210	CKS52	0.120±0.015	0.100±0.015	0.065
1808	CKS53	0.180±0.015	0.080±0.015	0.065
2225	CKS54	0.220±0.015	0.250±0.015	0.070

MARKING

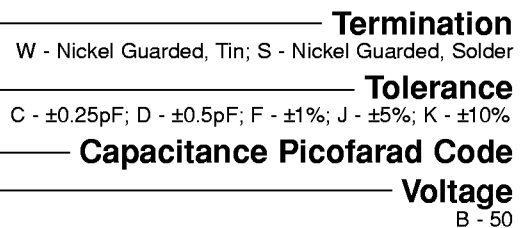
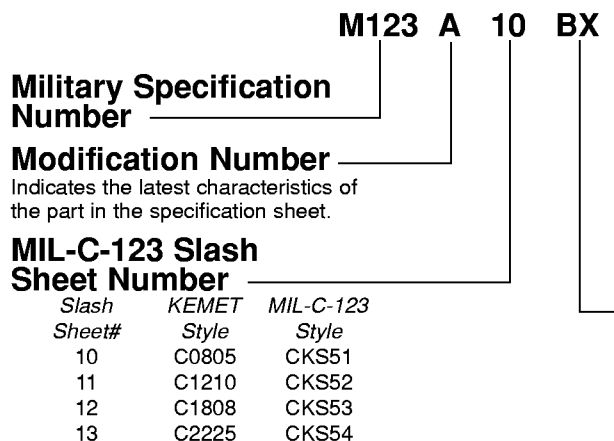
Capacitors shall be legibly laser marked in contrasting color with either a three-digit capacitance code or KEMET trademark and 2-digit capacitance symbol.

KEMET ORDERING INFORMATION



Temperature Characteristic

KEMET Designator	Military Equivalent	Temp. Range, °C	Measured Without DC Bias Voltage	Measured With Bias (Rated Voltage)
G (Ultra Stable)	BP	-55 to +125	±30 ppm °C	±30 ppm °C
X (Stable)	BX	-55 to +125	±15%	+15% -25%



Temperature Characteristic

KEMET Designator	Military Equivalent	EIA Equivalent	Temp. Range, °C	Capacitance Change with Temperature	
				Measured Without DC Bias Voltage	Measured With Bias (Rated Voltage)
G (Ultra Stable)	BP	C0G (NPO)	-55 to +125	±30 ppm °C	±30 ppm °C
X (Stable)	BX	X7R	-55 to +125	±15%	+15% -25%

## RATINGS AND PART NUMBER REFERENCE

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>50 VOLT - BP - C0805 SIZE (MILITARY CKS51)</b>		
1.0	C0805Z1091J5GA4	M123A10BPB1R01K5
1.1	C0805Z1191J5GA4	M123A10BPB1R11K5
1.2	C0805Z1291J5GA4	M123A10BPB1R21K5
1.3	C0805Z1391J5GA4	M123A10BPB1R31K5
1.5	C0805Z1591J5GA4	M123A10BPB1R51K5
1.6	C0805Z1691J5GA4	M123A10BPB1R61K5
1.8	C0805Z1891J5GA4	M123A10BPB1R81K5
2.0	C0805Z2091J5GA4	M123A10BPB2R01K5
2.2	C0805Z2291J5GA4	M123A10BPB2R21K5
2.4	C0805Z2491J5GA4	M123A10BPB2R41K5
2.7	C0805Z2791J5GA4	M123A10BPB2R71K5
3.0	C0805Z3091J5GA4	M123A10BPB3R01K5
3.3	C0805Z3391J5GA4	M123A10BPB3R31K5
3.6	C0805Z3691J5GA4	M123A10BPB3R61K5
3.9	C0805Z3991J5GA4	M123A10BPB3R91K5
4.3	C0805Z4391J5GA4	M123A10BPB4R31K5
4.7	C0805Z4791J5GA4	M123A10BPB4R71K5
5.1	C0805Z5191J5GA4	M123A10BPB5R11K5
5.6	C0805Z5691J5GA4	M123A10BPB5R61K5
6.2	C0805Z6291J5GA4	M123A10BPB6R21K5
6.8	C0805Z6891J5GA4	M123A10BPB6R81K5
7.5	C0805Z7591J5GA4	M123A10BPB7R51K5
8.2	C0805Z8291J5GA4	M123A10BPB8R21K5
9.1	C0805Z9191J5GA4	M123A10BPB9R11K5
10	C0805Z1002J5GA4	M123A10BPB1002K5
11	C0805Z1102J5GA4	M123A10BPB1102K5
12	C0805Z1202J5GA4	M123A10BPB1202K5
13	C0805Z1302J5GA4	M123A10BPB1302K5
15	C0805Z1502J5GA4	M123A10BPB1502K5
16	C0805Z1602J5GA4	M123A10BPB1602K5
18	C0805Z1802J5GA4	M123A10BPB1802K5
20	C0805Z2002J5GA4	M123A10BPB2002K5
22	C0805Z2202J5GA4	M123A10BPB2202K5
24	C0805Z2402J5GA4	M123A10BPB2402K5
27	C0805Z2702J5GA4	M123A10BPB2702K5
30	C0805Z3002J5GA4	M123A10BPB3002K5
33	C0805Z3302J5GA4	M123A10BPB3302K5
36	C0805Z3602J5GA4	M123A10BPB3602K5
39	C0805Z3902J5GA4	M123A10BPB3902K5
43	C0805Z4302J5GA4	M123A10BPB4302K5
47	C0805Z4702J5GA4	M123A10BPB4702K5
51	C0805Z5102J5GA4	M123A10BPB5102K5
56	C0805Z5602J5GA4	M123A10BPB5602K5
62	C0805Z6202J5GA4	M123A10BPB6202K5
68	C0805Z6802J5GA4	M123A10BPB6802K5
75	C0805Z7502J5GA4	M123A10BPB7502K5
82	C0805Z8202J5GA4	M123A10BPB8202K5
91	C0805Z9102J5GA4	M123A10BPB9102K5
100	C0805Z1012J5GA4	M123A10BPB1012K5
110	C0805Z1112J5GA4	M123A10BPB1112K5
120	C0805Z1212J5GA4	M123A10BPB1212K5
130	C0805Z1312J5GA4	M123A10BPB1312K5
150	C0805Z1512J5GA4	M123A10BPB1512K5
160	C0805Z1612J5GA4	M123A10BPB1612K5
180	C0805Z1812J5GA4	M123A10BPB1812K5
200	C0805Z2012J5GA4	M123A10BPB2012K5
220	C0805Z2212J5GA4	M123A10BPB2212K5
240	C0805Z2412J5GA4	M123A10BPB2412K5
270	C0805Z2712J5GA4	M123A10BPB2712K5
<b>50 VOLT - BX - C0805 SIZE (MILITARY CKS51)</b>		
330	C0805Z331K5XA4	M123A10BXB331K5
390	C0805Z391K5XA4	M123A10BXB391K5
470	C0805Z471K5XA4	M123A10BXB471K5
560	C0805Z561K5XA4	M123A10BXB561K5
680	C0805Z681K5XA4	M123A10BXB681K5
820	C0805Z821K5XA4	M123A10BXB821K5
1,000	C0805Z102K5XA4	M123A10BXB102K5
1,200	C0805Z122K5XA4	M123A10BXB122K5
1,500	C0805Z152K5XA4	M123A10BXB152K5
1,800	C0805Z182K5XA4	M123A10BXB182K5
2,200	C0805Z222K5XA4	M123A10BXB222K5
2,700	C0805Z272K5XA4	M123A10BXB272K5
3,300	C0805Z332K5XA4	M123A10BXB332K5
3,900	C0805Z392K5XA4	M123A10BXB392K5
4,700	C0805Z472K5XA4	M123A10BXB472K5
<b>50 VOLT - BP - C1210 SIZE (MILITARY CKS52)</b>		
300	C1210Z301J5GA4	M123A11BPB301K5
330	C1210Z331J5GA4	M123A11BPB331K5
360	C1210Z361J5GA4	M123A11BPB361K5
390	C1210Z391J5GA4	M123A11BPB391K5
430	C1210Z431J5GA4	M123A11BPB431K5
470	C1210Z471J5GA4	M123A11BPB471K5
510	C1210Z511J5GA4	M123A11BPB511K5
560	C1210Z561J5GA4	M123A11BPB561K5
620	C1210Z621J5GA4	M123A11BPB621K5
680	C1210Z681J5GA4	M123A11BPB681K5
750	C1210Z751J5GA4	M123A11BPB751K5
820	C1210Z821J5GA4	M123A11BPB821K5
910	C1210Z911J5GA4	M123A11BPB911K5
1,000	C1210Z1012J5GA4	M123A11BPB1012K5

CAP. pF	KEMET PART NUMBER	MIL-C-123 PART NUMBER
<b>50 VOLT - BX - C1210 SIZE (MILITARY CKS52)</b>		
5,600	C1210Z562K5XA4	M123A11BXB562K5
6,800	C1210Z682K5XA4	M123A11BXB682K5
8,200	C1210Z822K5XA4	M123A11BXB822K5
10,000	C1210Z103K5XA4	M123A11BXB103K5
12,000	C1210Z123K5XA4	M123A11BXB123K5
15,000	C1210Z153K5XA4	M123A11BXB153K5
18,000	C1210Z183K5XA4	M123A11BXB183K5
22,000	C1210Z223K5XA4	M123A11BXB223K5
27,000	C1210Z273K5XA4	M123A11BXB273K5
33,000	C1210Z333K5XA4	M123A11BXB333K5
47,000	C1210Z473K5XA4	M123A11BXB473K5
<b>50 VOLT - BP - C1808 SIZE (MILITARY CKS53)</b>		
300	C1808Z301J5GA4	M123A12BPB301K5
330	C1808Z331J5GA4	M123A12BPB331K5
360	C1808Z361J5GA4	M123A12BPB361K5
390	C1808Z391J5GA4	M123A12BPB391K5
430	C1808Z431J5GA4	M123A12BPB431K5
470	C1808Z471J5GA4	M123A12BPB471K5
510	C1808Z511J5GA4	M123A12BPB511K5
560	C1808Z561J5GA4	M123A12BPB561K5
620	C1808Z621J5GA4	M123A12BPB621K5
680	C1808Z681J5GA4	M123A12BPB681K5
750	C1808Z751J5GA4	M123A12BPB751K5
820	C1808Z821J5GA4	M123A12BPB821K5
910	C1808Z911J5GA4	M123A12BPB911K5
1,000	C1808Z102J5GA4	M123A12BPB102K5
<b>50 VOLT - BX - C1808 SIZE (MILITARY CKS53)</b>		
5,600	C1808Z562K5XA4	M123A12BXB562K5
6,800	C1808Z682K5XA4	M123A12BXB682K5
8,200	C1808Z822K5XA4	M123A12BXB822K5
10,000	C1808Z103K5XA4	M123A12BXB103K5
12,000	C1808Z123K5XA4	M123A12BXB123K5
15,000	C1808Z153K5XA4	M123A12BXB153K5
18,000	C1808Z183K5XA4	M123A12BXB183K5
22,000	C1808Z223K5XA4	M123A12BXB223K5
27,000	C1808Z273K5XA4	M123A12BXB273K5
33,000	C1808Z333K5XA4	M123A12BXB333K5
47,000	C1808Z473K5XA4	M123A12BXB473K5
56,000	C1808Z563K5XA4	M123A12BXB563K5
68,000	C1808Z683K5XA4	M123A12BXB683K5
82,000	C1808Z823K5XA4	M123A12BXB823K5
100,000	C1808Z104K5XA4	M123A12BXB104K5
<b>50 VOLT - BP - C2225 SIZE (MILITARY CKS54)</b>		
1,100	C2225Z112J5GA4	M123A13BPB112K5
1,200	C2225Z122J5GA4	M123A13BPB122K5
1,300	C2225Z132J5GA4	M123A13BPB132K5
1,500	C2225Z152J5GA4	M123A13BPB152K5
1,600	C2225Z162J5GA4	M123A13BPB162K5
1,800	C2225Z182J5GA4	M123A13BPB182K5
2,000	C2225Z202J5GA4	M123A13BPB202K5
2,200	C2225Z222J5GA4	M123A13BPB222K5
2,400	C2225Z242J5GA4	M123A13BPB242K5
2,700	C2225Z272J5GA4	M123A13BPB272K5
3,000	C2225Z302J5GA4	M123A13BPB302K5
3,300	C2225Z332J5GA4	M123A13BPB332K5
3,600	C2225Z362J5GA4	M123A13BPB362K5
3,900	C2225Z392J5GA4	M123A13BPB392K5
4,300	C2225Z432J5GA4	M123A13BPB432K5
4,700	C2225Z472J5GA4	M123A13BPB472K5
5,100	C2225Z512J5GA4	M123A13BPB512K5
5,600	C2225Z562J5GA4	M123A13BPB562K5
6,200	C2225Z622J5GA4	M123A13BPB622K5
6,800	C2225Z682J5GA4	M123A13BPB682K5
7,500	C2225Z752J5GA4	M123A13BPB752K5
8,200	C2225Z822J5GA4	M123A13BPB822K5
9,100	C2225Z912J5GA4	M123A13BPB912K5
10,000	C2225Z103J5GA4	M123A13BPB103K5
<b>50 VOLT - BX - C2225 SIZE (MILITARY CKS54)</b>		
120,000	C2225Z124K5XA4	M123A13BXB124K5
150,000	C2225Z154K5XA4	M123A13BXB154K5
180,000	C2225Z184K5XA4	M123A13BXB184K5
220,000	C2225Z224K5XA4	M123A13BXB224K5
270,000	C2225Z274K5XA4	M123A13BXB274K5
330,000	C2225Z334K5XA4	M123A13BXB334K5
390,000	C2225Z394K5XA4	M123A13BXB394K5
470,000	C2225Z474K5XA4	M123A13BXB474K5

To complete the part numbers, insert the following tolerances:

- (1) C,  $\pm 0.25\text{pF}$ ; D,  $\pm 0.5\text{pF}$
- (2) C,  $\pm 0.25\text{pF}$ ; J,  $\pm 5\%$ ; K,  $\pm 10\%$
- (3) F,  $\pm 1\%$ ; J,  $\pm 5\%$ ; K,  $\pm 10\%$

To complete part number, insert appropriate end metallization:

- KEMET: (4) C = Tin-Coated, Final—SolderGuard II
- Military: (5) W or Y = Tin-Coated, Final
- H = Solder-Coated, Final—SolderGuard I
- S = Solder-Coated, Final

## HIGH RELIABILITY — GR900

GR900 capacitors are intended for use in any application where the chance of failure must be reduced to the lowest possible level. While any well-made multilayer ceramic capacitor is an inherently reliable device, GR900 capacitors receive special attention in all phases of manufacture including:

- Raw Materials Selection
- Special Designs
- Clean Room Production
- Individual Batch Testing
- Ultrasonic Scanning (when applicable)
- Singular Batch Identity is Maintained
- Destructive Physical Analysis

These parts are well worth the added investment in comparison to the cost of a device or system failure.

Typical applications include:

1. Medical: heart pacemakers, pain control devices, life signs monitoring, eyesight improvement and electroencephalographic equipment.
2. Aerospace: space exploration (Viking, Apollo, Venus Lander, etc.); Communications Satellites; Space Shuttle/IUS; Sky Lab.

### SCREENING AND SAMPLE TESTS

Each batch receives the following testing/inspections:

#### Preliminary:

1. Destructive Physical Analysis: (DPA) - A sample is pulled from each lot and examined per EIA-469 and KEMET's strict internal void and delamination criteria. Sampling plan is per MIL-C-123.
2. Ultrasonic Scanning - May be performed on batches failing to meet the DPA criteria for removal of marginal product. Not required on each lot.

#### Group A

1. **Thermal Shock** — Materials used in the construction of multilayer ceramic capacitors possess various thermal coefficients of expansion. To assure maximum uniformity, each part is temperature cycled in accordance to MIL-STD-202, Method 107, Condition A with Step 3 being 125°C. Number of cycles shall be 20 (100% of lot).

2. **Voltage Conditioning** — One of the most strenuous environments for any capacitor is the high temperature/high voltage test. All units are subject to twice-rated voltage to the units at the maximum rated temperature of 125°C for a minimum of 168 hours and a maximum of 264 hours. The voltage conditioning may be terminated at any time during 168 hours to 264 hours time interval that confirmed failures meet the requirements of the PDA during the last 48 hours of 1 unit or .4% (100% of lot).

**Optional Voltage Conditioning (Accelerated Voltage Conditioning)** — All conditions of the standard voltage conditioning apply with the exception of increased voltage and decreased test time. Refer to MIL-C-123 for the proper formula.

**\*Step 5 is performed on chips at this point (100% of lot).**

3. **Dielectric Withstanding Voltage** — 250% of the dc rated voltage at 25°C (100% of lot).

4. **Insulation Resistance** — The 25°C measurement with rated voltage applied shall be the lesser of 100,000 megohms or 1000 megohm-microfarads (100% of lot).

\*5. **Insulation Resistance** — The 125°C measurement with rated voltage applied shall be the lesser of 10,000 megohms or 100 megohm-microfarads (100% of lot). For chips, 125°C IR is performed prior to Step 3 above.

6. **Storage** at 150°C for 2 hours minimum without voltage applied followed by a 12-hour minimum stabilization period (temperature characteristic BX only).

7. **Capacitance** — Shall be within specified tolerance at 25°C (100% of lot). (Aging phenomenon is taken into account for BX dielectric to obtain capacitance.)

8. **Dissipation Factor** — Shall not exceed 2.5% for X7R (BX) dielectric, 0.15% for NPO (BP) dielectric at 25°C. (100% of lot.)

9. **Percent Defective Allowable (PDA)** — The overall PDA is 8% for parts outside the MIL-C-123 values. The PDA is per MIL-C-123 for all parts that are valid MIL-C-123 values. The PD includes steps 1 through 8 above with the following exceptions. Capacitance exclusion - capacitance values no more than 5% or .5pF, whichever is greater for BX characteristic or 1% or .3pF, whichever is greater for BP characteristic beyond specified tolerance limit, shall be removed from the lot but shall not be considered defective for determination of the PD.

Insulation Resistance at 25°C — Product which is not acceptable for twice the military limit but is acceptable per the military limit, is removed from the lot but shall not be considered defective for determination of the PD.

10. **Visual and Mechanical Examination** — Performed per MIL-C-123 criteria.

11. **Radiographic Examination (Leaded Devices Only)** — Radial devices receive a one-plane X-ray.

12. **Destructive Physical Analysis (DPA)** — A sample is examined on each lot per EIA-469. Sampling Plan is per MIL-C-123.

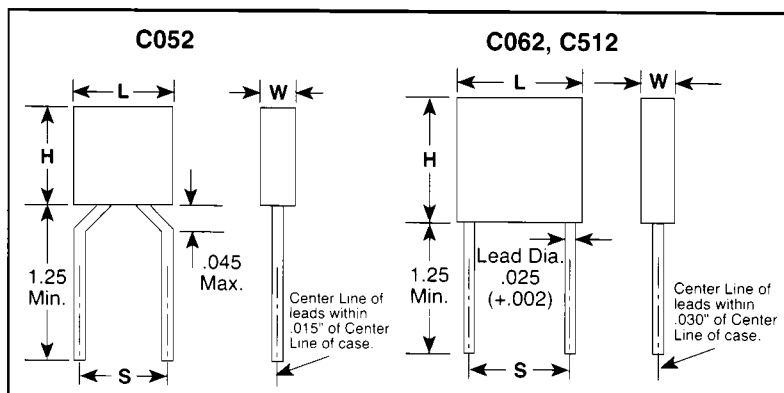
### STANDARD PACKAGING

All products are packaged in trays except C512 capacitors which are packaged 1 piece per bag.

### DATA PACKAGE

A data package is sent with each shipment which contains:

1. Final Destructive Physical Analysis (DPA) report.
2. Certificate of Compliance stating that the parts meet all applicable requirements of the appropriate military specification to the best failure level to which KEMET is approved.

**CAPACITOR OUTLINE DRAWINGS**

**DIMENSIONS — INCHES & (MILLIMETERS)  
RADIAL LEAD**

KEMET CASE SIZE	H HEIGHT	L LENGTH	W WIDTH	S LEAD SPACING	MILITARY STYLES		
					MIL-C-20	MIL-C-39014	MIL-C-123
C052	.190 ± .010 (4.83 ± .25)	.190 ± .010 (4.83 ± .25)	.090 ± .010 (2.29 ± .25)	.200 ± .015 (5.08 ± .38)	CCR05	CKR05	CKS05
C062	.290 ± .010 (7.37 ± .25)	.290 ± .010 (7.37 ± .25)	.090 ± .010 (2.29 ± .25)	.200 ± .015 (5.08 ± .38)	CCR06	CKR06	CKS06
C512	.480 ± .020 (12.19 ± .51)	.480 ± .020 (12.19 ± .51)	.140 ± .010 (3.56 ± .25)	.400 ± .020 (10.16 ± .51)	CCR07	—	CKS07

**C 052 B 223 K 1 X 5 C A**

**MONOLITHIC CERAMIC CAPACITORS**

**PHYSICAL DIMENSIONS**  
(See above)

**HI REL SPECIFICATIONS APPLY:**  
B—Leaded devices

**CAPACITANCE PICOFARAD CODE**  
First two digits are significant figures of capacitance value and third digit is the number of zeros to follow in stating capacitance in picofarads. For example, "223" is 22,000 pF. The third-digit number "9" indicates a divisor of 10; for example, "229" is 2.2 pF.

**CAPACITANCE TOLERANCE**  
M — ±20%    G — ±2% (G(BP) Temperature Characteristic Only)  
K — ±10%    F — ±1% (G(BP) Temperature Characteristic Only)  
J — ±5%    \*D—±0.5 pF (G(BP) Temperature Characteristic Only)  
              \*C—±0.25 pF (G(BP) Temperature Characteristic Only)

**FAILURE RATE**  
A—Standard — Not Applicable

**LEAD MATERIAL**  
C — Standard —  
Radial: solder coated copper

**INTERNAL CONSTRUCTION**  
5— Ultra-High Temperature Solder

**TEMPERATURE CHARACTERISTICS**  
(See table below)

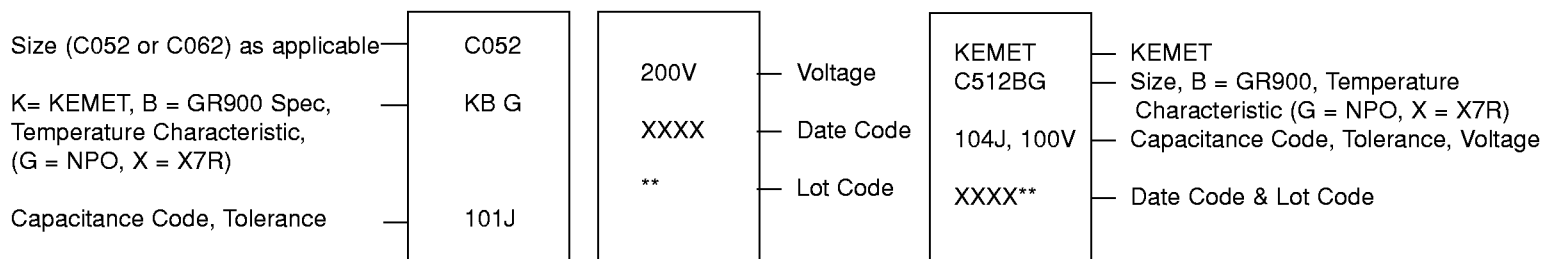
**RATED VOLTAGE**  
1 — 100  
2 — 200  
5 — 50

\*These tolerances available only for 1.0 through 9.1 pF capacitors.

**TEMPERATURE CHARACTERISTICS CAPACITANCE CHANGE WITH TEMPERATURE -55° TO +125°C**

PART NUMBER LETTER	WITHOUT D.C. BIAS	WITH RATED D.C. VOLTAGE APPLIED	OTHER NOMENCLATURE		
			EIA	MILITARY	COMMON
G	±30ppm/°C	±30ppm/°C	COG	CG,BP	NPO
X	±15%	+15%, -25%	X7R	BX	—

### CAPACITOR MARKINGS



### RATINGS & PART NUMBER REFERENCE

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP - STYLE C052</b>	
1.0	C052B109(4)2G5CA
1.1	C052B119(4)2G5CA
1.2	C052B129(4)2G5CA
1.5	C052B159(4)2G5CA
1.8	C052B189(4)2G5CA
2.0	C052B209(4)2G5CA
2.2	C052B229(4)2G5CA
2.4	C052B249(4)2G5CA
2.7	C052B279(4)2G5CA
3.0	C052B309(4)2G5CA
3.3	C052B339(4)2G5CA
3.6	C052B369(4)2G5CA
3.9	C052B399(4)2G5CA
4.3	C052B439(4)2G5CA
4.7	C052B479(4)2G5CA
5.1	C052B519(4)2G5CA
5.6	C052B569(4)2G5CA
6.2	C052B629(4)2G5CA
6.8	C052B689(4)2G5CA
7.5	C052B759(4)2G5CA
8.2	C052B829(4)2G5CA
9.1	C052B919(4)2G5CA
10.0	C052B100(4)2G5CA
11.0	C052B110(4)2G5CA
12.0	C052B120(4)2G5CA
13.0	C052B130(4)2G5CA
15.0	C052B150(4)2G5CA
16.0	C052B160(4)2G5CA
18.0	C052B180(4)2G5CA
20.0	C052B200(4)2G5CA
22.0	C052B220(4)2G5CA
24.0	C052B240(4)2G5CA
27.0	C052B270(4)2G5CA
30.0	C052B300(4)2G5CA

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP - STYLE C052 (Cont'd)</b>	
33.0	C052B330(4)2G5CA
36.0	C052B360(4)2G5CA
39.0	C052B390(4)2G5CA
43.0	C052B430(4)2G5CA
47.0	C052B470(4)2G5CA
51.0	C052B510(4)2G5CA
56.0	C052B560(4)2G5CA
62.0	C052B620(4)2G5CA
68.0	C052B680(4)2G5CA
75.0	C052B750(4)2G5CA
82.0	C052B820(4)2G5CA
91.0	C052B910(4)2G5CA
100	C052B101(4)2G5CA
110	C052B111(4)2G5CA
120	C052B121(4)2G5CA
130	C052B131(4)2G5CA
150	C052B151(4)2G5CA
160	C052B161(4)2G5CA
180	C052B181(4)2G5CA
200	C052B201(4)2G5CA
220	C052B221(4)2G5CA
240	C052B241(4)2G5CA
270	C052B271(4)2G5CA
300	C052B301(4)2G5CA
330	C052B331(4)2G5CA
360	C052B361(4)2G5CA
390	C052B391(4)2G5CA
430	C052B431(4)2G5CA
470	C052B471(4)2G5CA
510	C052B511(4)2G5CA
560	C052B561(4)2G5CA
620	C052B621(4)2G5CA
680	C052B681(4)2G5CA
750	C052B751(4)2G5CA

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 12

**BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 9.1pF only) TEMPERATURE CHARACTERISTIC "G"

**BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% TEMPERATURE CHARACTERISTIC "X"

(2) Capacitance values shown above are standard. Other capacitance values are available upon request.

**RATINGS & PART NUMBER REFERENCE**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP - STYLE C052 (Cont'd)</b>	
820	C052B821W2G5CA
910	C052B911W2G5CA
1000	C052B102W2G5CA
1100	C052B112W2G5CA
1200	C052B122W2G5CA
1300	C052B132W2G5CA
1500	C052B152W2G5CA
<b>100 VOLT - BP - STYLE C052</b>	
1600	C052B162W1G5CA
1800	C052B182W1G5CA
2000	C052B202W1G5CA
2200	C052B222W1G5CA
2400	C052B242W1G5CA
2700	C052B272W1G5CA
3000	C052B302W1G5CA
3300	C052B332W1G5CA
3600	C052B362W1G5CA
3900	C052B392W1G5CA
4300	C052B432W1G5CA
4700	C052B472W1G5CA
5100	C052B512W1G5CA
5600	C052B562W1G5CA
<b>200 VOLT - BX - STYLE C052</b>	
470	C052B471W2X5CA
560	C052B561W2X5CA
680	C052B681W2X5CA
820	C052B821W2X5CA
1000	C052B102W2X5CA
1200	C052B122W2X5CA
1500	C052B152W2X5CA
1800	C052B182W2X5CA
2200	C052B222W2X5CA
2700	C052B272W2X5CA
3300	C052B332W2X5CA
3900	C052B392W2X5CA
4700	C052B472W2X5CA
5600	C052B562W2X5CA
6800	C052B682W2X5CA
8200	C052B822W2X5CA
10,000	C052B103W2X5CA
12,000	C052B123W2X5CA
15,000	C052B153W2X5CA
<b>100 VOLT - BX - STYLE C052</b>	
18,000	C052B183W1X5CA
22,000	C052B223W1X5CA
27,000	C052B273W1X5CA
33,000	C052B333W1X5CA
39,000	C052B393W1X5CA
47,000	C052B473W1X5CA
<b>50 VOLT - BX - STYLE C052</b>	
56,000	C052B563W5X5CA
68,000	C052B683W5X5CA
82,000	C052B823W5X5CA
100,000	C052B104W5X5CA
120,000	C052B124W5X5CA
150,000	C052B154W5X5CA
<b>200 VOLT - BP - STYLE C062</b>	
330	C062B331W2G5CA
360	C062B361W2G5CA
390	C062B391W2G5CA
430	C062B431W2G5CA
470	C062B471W2G5CA
510	C062B511W2G5CA

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP - STYLE C062 (Cont'd)</b>	
560	C062B561W2G5CA
620	C062B621W2G5CA
680	C062B681W2G5CA
750	C062B751W2G5CA
820	C062B821W2G5CA
910	C062B911W2G5CA
1000	C062B102W2G5CA
1100	C062B112W2G5CA
1200	C062B122W2G5CA
1300	C062B132W2G5CA
1500	C062B152W2G5CA
1600	C062B162W2G5CA
1800	C062B182W2G5CA
2000	C062B202W2G5CA
2200	C062B222W2G5CA
2400	C062B242W2G5CA
2700	C062B272W2G5CA
3000	C062B302W2G5CA
3300	C062B332W2G5CA
3600	C062B362W2G5CA
3900	C062B392W2G5CA
4700	C062B472W2G5CA
5100	C062B512W2G5CA
5600	C062B562W2G5CA
6200	C062B622W2G5CA
6800	C062B682W2G5CA
<b>100 VOLT - BP - STYLE C062</b>	
7500	C062B752W1G5CA
8200	C062B822W1G5CA
9100	C062B912W1G5CA
10,000	C062B103W1G5CA
11,000	C062B113W1G5CA
12,000	C062B123W1G5CA
13,000	C062B133W1G5CA
15,000	C062B153W1G5CA
16,000	C062B163W1G5CA
18,000	C062B183W1G5CA
20,000	C062B203W1G5CA
22,000	C062B223W1G5CA
<b>200 VOLT - BX - STYLE C062</b>	
3300	C062B332W2X5CA
3900	C062B392W2X5CA
4700	C062B472W2X5CA
5600	C062B562W2X5CA
6800	C062B682W2X5CA
8200	C062B822W2X5CA
10,000	C062B103W2X5CA
12,000	C062B123W2X5CA
15,000	C062B153W2X5CA
18,000	C062B183W2X5CA
22,000	C062B223W2X5CA
27,000	C062B273W2X5CA
33,000	C062B333W2X5CA
39,000	C062B393W2X5CA
47,000	C062B473W2X5CA
56,000	C062B563W2X5CA
68,000	C062B683W2X5CA
<b>100 VOLT - BX - STYLE C062</b>	
82,000	C062B823W1X5CA
100,000	C062B104W1X5CA
120,000	C062B124W1X5CA
150,000	C062B154W1X5CA
180,000	C062B184W1X5CA
220,000	C062B224W1X5CA

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 12. **BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 9.1pF only) **TEMPERATURE CHARACTERISTIC "G"** **BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% **TEMPERATURE CHARACTERISTIC "X"** (2) Capacitance values shown above are standard. Other capacitance values are available upon request.

**RATINGS & PART NUMBER REFERENCE**

CAPACITANCE pF	KEMET PART NUMBER
<b>50 VOLT - BX - STYLE C062</b>	
270,000	C062B274□5X5CA
330,000	C062B334□5X5CA
390,000	C062B394□5X5CA
470,000	C062B474□5X5CA
560,000	C062B564□5X5CA
680,000	C062B684□5X5CA
820,000	C062B824□5X5CA
1,000,000	C062B105□5X5CA
<b>200 VOLT - BP- STYLE C512</b>	
2000	C512B202□2G5CA
2200	C512B222□2G5CA
2400	C512B242□2G5CA
2700	C512B272□2G5CA
3000	C512B302□2G5CA
3300	C512B332□2G5CA
3600	C512B362□2G5CA
3900	C512B392□2G5CA
4300	C512B432□2G5CA
4700	C512B472□2G5CA
5600	C512B562□2G5CA
6800	C512B682□2G5CA
8200	C512B822□2G5CA
10,000	C512B103□2G5CA
12,000	C512B123□2G5CA
15,000	C512B153□2G5CA
18,000	C512B183□2G5CA
22,000	C512B223□2G5CA
27,000	C512B273□2G5CA
33,000	C512B333□2G5CA
<b>100 VOLT - BP- STYLE C512</b>	
39,000	C512B393□1G5CA
47,000	C512B473□2G5CA
56,000	C512B563□1G5CA
68,000	C512B683□1G5CA
82,000	C512B823□1G5CA
100,000	C512B104□1G5CA
<b>50 VOLT - BP- STYLE C512</b>	
120,000	C512B124□5G5CA
150,000	C512B154□5G5CA

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BX - STYLE C512</b>	
39,000	C512B393□2X5CA
47,000	C512B473□2X5CA
56,000	C512B563□2X5CA
68,000	C512B683□2X5CA
82,000	C512B823□2X5CA
100,000	C512B104□2X5CA
120,000	C512B124□2X5CA
150,000	C512B154□2X5CA
180,000	C512B184□2X5CA
220,000	C512B224□2X5CA
270,000	C512B274□2X5CA
330,000	C512B334□2X5CA
390,000	C512B394□2X5CA
<b>100 VOLT - BX - STYLE C512</b>	
470,000	C512B474□1X5CA
560,000	C512B564□1X5CA
680,000	C512B684□1X5CA
820,000	C512B824□1X5CA
1,000,000	C512B105□1X5CA
<b>50 VOLT - BX - STYLE C512</b>	
1,200,000	C512B125□5X5CA
1,500,000	C512B155□5X5CA
2,000,000	C512B205□5X5CA
2,200,000	C512B225□5X5CA
3,300,000	C512B335□5X5CA

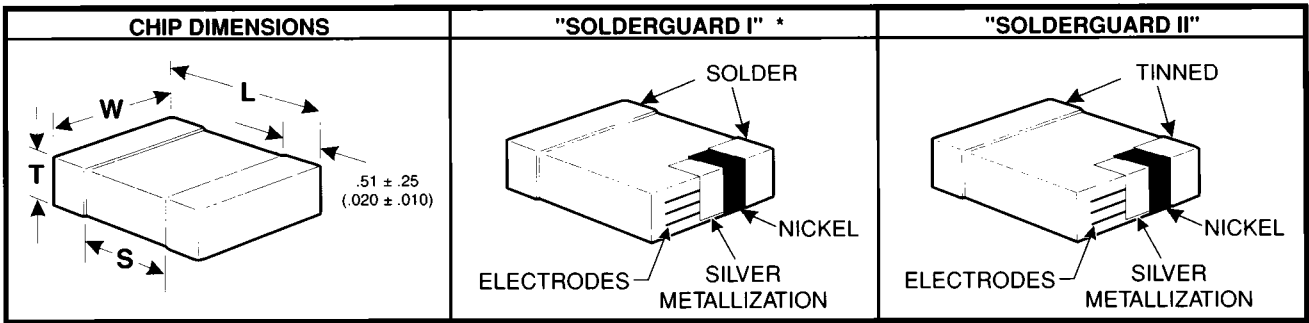
(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 12.

**BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 9.1pF only) TEMPERATURE CHARACTERISTIC "G"

**BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% TEMPERATURE CHARACTERISTIC "X"

(2) Capacitance values shown above are standard. Other capacitance values are available upon request.

### CAPACITOR OUTLINE DRAWINGS



\* Add .38mm (.015") to the positive width and thickness tolerance dimensions and .64mm (.025") to the positive length tolerance dimension for Solderguard I.

### DIMENSIONS — MILLIMETERS (INCHES)

Size Code	L Length	W Width	T Thickness Max.
0805	2.03 (.080) ± 0.38 (.015)	1.27 (.050) ± 0.38 (.015)	1.4 (.055)
1005	2.56 (.100) ± 0.38 (.015)	1.27 (.050) ± 0.38 (.015)	1.5 (.059)
1206	3.07 (.120) ± 0.38 (.015)	1.52 (.060) ± 0.38 (.015)	1.6 (.065)
1210	3.07 (.120) ± 0.38 (.015)	2.56 (.100) ± 0.38 (.015)	1.6 (.065)
1805	4.57 (.180) ± 0.38 (.015)	1.27 (.050) ± 0.38 (.015)	1.4 (.055)
1808	4.57 (.180) ± 0.38 (.015)	2.03 (.080) ± 0.38 (.015)	1.6 (.065)
1812	4.57 (.180) ± 0.38 (.015)	3.18 (.125) ± 0.38 (.015)	2.03 (.080)
1825	4.57 (.180) ± 0.38 (.015)	6.35 (.250) ± 0.38 (.015)	2.03 (.080)
2225	5.59 (.220) ± 0.38 (.015)	6.35 (.250) ± 0.38 (.015)	2.03 (.080)

### ORDERING INFORMATION

**C** **0805** **A** **103** **K** **5** **X** **A** **C**

**CERAMIC** —

**SIZE CODE** — See table above

**SPECIFICATION** — A — KEMET GR900 (CHIPS)

**CAPACITANCE CODE** — Expressed in Picofarads (pF)  
First two digit-significant figures.  
Third digit-number of zeros. (Use 9 for 1.0 thru 9.9 pF.  
Example: 2.2 pF — 229).

**CAPACITANCE TOLERANCE** —  
M — ±20%    G — ±2% (G(BP) Temperature Characteristic Only)  
K — ±10%    F — ±1% (G(BP) Temperature Characteristic Only)  
J — ±5%    \*D — ±0.5 pF (G(BP) Temperature Characteristic Only)  
              \*C — ±0.25 pF (G(BP) Temperature Characteristic Only)

\*These tolerances available only for 1.0 through 10 pF capacitors.

**VOLTAGE** —  
1—100  
2—200  
5—50

**END METALLIZATION** —  
C—Tin-Coated, Final (SolderGuard II)  
H—Soder-Coated, Final (SolderGuard I)

**FAILURE RATE LEVEL (%/1,000 HOURS)** —  
A—Standard—Not applicable

**TEMPERATURE CHARACTERISTIC** —  
Designated by Capacitance Change over Temperature Range  
G—BP (±30 PPM/°C)  
X—BX (±15%, +15%, -25% with bias.)



**RATINGS AND PART NUMBER REFERENCE  
STYLE C0805**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
1.0	C0805A109(1)2GA(2)
1.1	C0805A119(1)2GA(2)
1.2	C0805A129(1)2GA(2)
1.5	C0805A159(1)2GA(2)
1.6	C0805A169(1)2GA(2)
1.8	C0805A189(1)2GA(2)
2.0	C0805A209(1)2GA(2)
2.2	C0805A229(1)2GA(2)
2.4	C0805A249(1)2GA(2)
2.7	C0805A279(1)2GA(2)
3.0	C0805A309(1)2GA(2)
3.3	C0805A339(1)2GA(2)
3.6	C0805A369(1)2GA(2)
3.9	C0805A399(1)2GA(2)
4.3	C0805A439(1)2GA(2)
4.7	C0805A479(1)2GA(2)
5.1	C0805A519(1)2GA(2)
5.6	C0805A569(1)2GA(2)
6.2	C0805A629(1)2GA(2)
6.8	C0805A689(1)2GA(2)
7.5	C0805A759(1)2GA(2)
8.2	C0805A829(1)2GA(2)
9.1	C0805A919(1)2GA(2)
10.0	C0805A100(1)2GA(2)
11.0	C0805A110(1)2GA(2)
12.0	C0805A120(1)2GA(2)
13.0	C0805A130(1)2GA(2)
15.0	C0805A150(1)2GA(2)
16.0	C0805A160(1)2GA(2)
18.0	C0805A180(1)2GA(2)
20.0	C0805A200(1)2GA(2)
22.0	C0805A220(1)2GA(2)
24.0	C0805A240(1)2GA(2)
27.0	C0805A270(1)2GA(2)
30.0	C0805A300(1)2GA(2)
33.0	C0805A330(1)2GA(2)
36.0	C0805A360(1)2GA(2)
39.0	C0805A390(1)2GA(2)
43.0	C0805A430(1)2GA(2)
47.0	C0805A470(1)2GA(2)
51.0	C0805A510(1)2GA(2)
56.0	C0805A560(1)2GA(2)
62.0	C0805A620(1)2GA(2)
75.0	C0805A750(1)2GA(2)
82.0	C0805A820(1)2GA(2)
91.0	C0805A910(1)2GA(2)
100	C0805A101(1)2GA(2)
110	C0805A111(1)2GA(2)
120	C0805A121(1)2GA(2)
130	C0805A131(1)2GA(2)
150	C0805A151(1)2GA(2)
160	C0805A161(1)2GA(2)
180	C0805A181(1)2GA(2)
200	C0805A201(1)2GA(2)
220	C0805A221(1)2GA(2)
<b>100 VOLT - BP</b>	
240	C0805A241(1)1GA(2)
270	C0805A271(1)1GA(2)
300	C0805A301(1)1GA(2)
330	C0805A331(1)1GA(2)
360	C0805A361(1)1GA(2)
390	C0805A391(1)1GA(2)
430	C0805A431(1)1GA(2)
470	C0805A471(1)1GA(2)
<b>50 VOLT - BP</b>	
510	C0805A511(1)5GA(2)
560	C0805A561(1)5GA(2)

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BX</b>	
180	C0805A181(1)2XA(2)
220	C0805A221(1)2XA(2)
270	C0805A271(1)2XA(2)
330	C0805A331(1)2XA(2)
390	C0805A391(1)2XA(2)
470	C0805A471(1)2XA(2)
560	C0805A561(1)2XA(2)
680	C0805A681(1)2XA(2)
820	C0805A821(1)2XA(2)
<b>100 VOLT - BX</b>	
1000	C0805A102(1)1XA(2)
1200	C0805A122(1)1XA(2)
1500	C0805A152(1)1XA(2)
1800	C0805A182(1)1XA(2)
2200	C0805A222(1)1XA(2)
2700	C0805A272(1)1XA(2)
3300	C0805A332(1)1XA(2)
3900	C0805A392(1)1XA(2)
4700	C0805A472(1)1XA(2)
<b>50 VOLT - BX</b>	
5600	C0805A562(1)5XA(2)
6800	C0805A682(1)5XA(2)
8200	C0805A822(1)5XA(2)
10,000	C0805A103(1)5XA(2)

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 16.

**BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 10pF only) TEMPERATURE CHARACTERISTIC "G"

**BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% TEMPERATURE CHARACTERISTIC "X"

(2) Complete part number by inserting end Metallization, as applicable as shown in ordering information on page 16.

C—Tin-Coated, Final (SolderGuard II)

H—Solder-Coated, Final (SolderGuard I)

**RATINGS AND PART NUMBER REFERENCE**  
**STYLE C1005**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
1.0	C1005A109(1)2GA(2)
1.1	C1005A119(1)2GA(2)
1.2	C1005A129(1)2GA(2)
1.5	C1005A159(1)2GA(2)
1.6	C1005A169(1)2GA(2)
1.8	C1005A189(1)2GA(2)
2.0	C1005A209(1)2GA(2)
2.2	C1005A229(1)2GA(2)
2.4	C1005A249(1)2GA(2)
2.7	C1005A279(1)2GA(2)
3.0	C1005A309(1)2GA(2)
3.3	C1005A339(1)2GA(2)
3.6	C1005A369(1)2GA(2)
3.9	C1005A399(1)2GA(2)
4.3	C1005A439(1)2GA(2)
4.7	C1005A479(1)2GA(2)
5.1	C1005A519(1)2GA(2)
5.6	C1005A569(1)2GA(2)
6.8	C1005A689(1)2GA(2)
7.5	C1005A759(1)2GA(2)
8.2	C1005A829(1)2GA(2)
9.1	C1005A919(1)2GA(2)
10.0	C1005A100(1)2GA(2)
11.0	C1005A110(1)2GA(2)
12.0	C1005A120(1)2GA(2)
13.0	C1005A130(1)2GA(2)
15.0	C1005A150(1)2GA(2)
16.0	C1005A160(1)2GA(2)
18.0	C1005A180(1)2GA(2)
20.0	C1005A200(1)2GA(2)
22.0	C1005A220(1)2GA(2)
24.0	C1005A240(1)2GA(2)
27.0	C1005A270(1)2GA(2)
30.0	C1005A300(1)2GA(2)
33.0	C1005A330(1)2GA(2)
36.0	C1005A360(1)2GA(2)
39.0	C1005A390(1)2GA(2)
43.0	C1005A430(1)2GA(2)
47.0	C1005A470(1)2GA(2)
51.0	C1005A510(1)2GA(2)
56.0	C1005A560(1)2GA(2)
62.0	C1005A620(1)2GA(2)
75.0	C1005A750(1)2GA(2)
82.0	C1005A820(1)2GA(2)
91.0	C1005A910(1)2GA(2)
100	C1005A101(1)2GA(2)
110	C1005A111(1)2GA(2)
120	C1005A121(1)2GA(2)
130	C1005A131(1)2GA(2)
150	C1005A151(1)2GA(2)
160	C1005A161(1)2GA(2)

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
180	C1005A181(1)2GA(2)
200	C1005A201(1)2GA(2)
220	C1005A221(1)2GA(2)
240	C1005A241(1)2GA(2)
270	C1005A271(1)2GA(2)
300	C1005A301(1)2GA(2)
330	C1005A331(1)2GA(2)
360	C1005A361(1)2GA(2)
390	C1005A391(1)2GA(2)
430	C1005A431(1)2GA(2)
470	C1005A471(1)2GA(2)
<b>100 VOLT - BP</b>	
510	C1005A511(1)1GA(2)
560	C1005A561(1)1GA(2)
620	C1005A621(1)1GA(2)
680	C1005A681(1)1GA(2)
750	C1005A751(1)1GA(2)
820	C1005A821(1)1GA(2)
<b>50 VOLT - BP</b>	
910	C1005A911(1)5GA(2)
1000	C1005A102(1)5GA(2)
1100	C1005A112(1)5GA(2)
1200	C1005A122(1)5GA(2)
<b>200 VOLT - BX</b>	
330	C1005A331(1)2XA(2)
390	C1005A391(1)2XA(2)
470	C1005A471(1)2XA(2)
560	C1005A561(1)2XA(2)
680	C1005A681(1)2XA(2)
820	C1005A821(1)2XA(2)
1000	C1005A102(1)2XA(2)
1200	C1005A122(1)2XA(2)
1500	C1005A152(1)2XA(2)
1800	C1005A182(1)2XA(2)
<b>100 VOLT - BX</b>	
2200	C1005A222(1)1XA(2)
2700	C1005A272(1)1XA(2)
3300	C1005A332(1)1XA(2)
3900	C1005A392(1)1XA(2)
4700	C1005A472(1)1XA(2)
5600	C1005A562(1)1XA(2)
6800	C1005A682(1)1XA(2)
8200	C1005A822(1)1XA(2)
10,000	C1005A103(1)1XA(2)
<b>50 VOLT - BX</b>	
12,000	C1005A123(1)5XA(2)
15,000	C1005A153(1)5XA(2)
18,000	C1005A183(1)5XA(2)
22,000	C1005A223(1)5XA(2)

**RATINGS AND PART NUMBER REFERENCE**  
**STYLE C1206**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
10.0	C1206A100(1)2GA(2)
11.0	C1206A110(1)2GA(2)
12.0	C1206A120(1)2GA(2)
13.0	C1206A130(1)2GA(2)
15.0	C1206A150(1)2GA(2)
16.0	C1206A160(1)2GA(2)
18.0	C1206A180(1)2GA(2)
20.0	C1206A200(1)2GA(2)
22.0	C1206A220(1)2GA(2)
24.0	C1206A240(1)2GA(2)

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
27.0	C1206A270(1)2GA(2)
30.0	C1206A300(1)2GA(2)
33.0	C1206A330(1)2GA(2)
36.0	C1206A360(1)2GA(2)
39.0	C1206A390(1)2GA(2)
43.0	C1206A430(1)2GA(2)
47.0	C1206A470(1)2GA(2)
51.0	C1206A510(1)2GA(2)
56.0	C1206A560(1)2GA(2)
62.0	C1206A620(1)2GA(2)

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 16.  
**BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 10pF only) **TEMPERATURE CHARACTERISTIC "G"**  
**BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% **TEMPERATURE CHARACTERISTIC "X"**  
(2) Complete part number by inserting end Metallization, as applicable as shown in ordering information on page 16.  
C—Tin-Coated, Final (SolderGuard II)  
H—Solder-Coated, Final (SolderGuard I)

**RATINGS AND PART NUMBER REFERENCE  
STYLE C1206 (continued)**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
68.0	C1206A680 <u>1</u> 2GA <u>2</u>
75.0	C1206A750 <u>1</u> 2GA <u>2</u>
82.0	C1206A820 <u>1</u> 2GA <u>2</u>
91.0	C1206A910 <u>1</u> 2GA <u>2</u>
100	C1206A101 <u>1</u> 2GA <u>2</u>
110	C1206A111 <u>1</u> 2GA <u>2</u>
120	C1206A121 <u>1</u> 2GA <u>2</u>
130	C1206A131 <u>1</u> 2GA <u>2</u>
150	C1206A151 <u>1</u> 2GA <u>2</u>
160	C1206A161 <u>1</u> 2GA <u>2</u>
180	C1206A181 <u>1</u> 2GA <u>2</u>
200	C1206A201 <u>1</u> 2GA <u>2</u>
220	C1206A221 <u>1</u> 2GA <u>2</u>
240	C1206A241 <u>1</u> 2GA <u>2</u>
270	C1206A271 <u>1</u> 2GA <u>2</u>
300	C1206A301 <u>1</u> 2GA <u>2</u>
330	C1206A331 <u>1</u> 2GA <u>2</u>
360	C1206A361 <u>1</u> 2GA <u>2</u>
390	C1206A391 <u>1</u> 2GA <u>2</u>
430	C1206A431 <u>1</u> 2GA <u>2</u>
470	C1206A471 <u>1</u> 2GA <u>2</u>
<b>100 VOLT - BP</b>	
510	C1206A511 <u>1</u> 1GA <u>2</u>
560	C1206A561 <u>1</u> 1GA <u>2</u>
620	C1206A621 <u>1</u> 1GA <u>2</u>
680	C1206A681 <u>1</u> 1GA <u>2</u>
750	C1206A751 <u>1</u> 1GA <u>2</u>
820	C1206A821 <u>1</u> 1GA <u>2</u>
910	C1206A911 <u>1</u> 1GA <u>2</u>
1000	C1206A102 <u>1</u> 1GA <u>2</u>
1100	C1206A112 <u>1</u> 1GA <u>2</u>
1200	C1206A122 <u>1</u> 1GA <u>2</u>
1300	C1206A132 <u>1</u> 1GA <u>2</u>
1500	C1206A152 <u>1</u> 1GA <u>2</u>
1600	C1206A162 <u>1</u> 1GA <u>2</u>

CAPACITANCE pF	KEMET PART NUMBER
<b>50 VOLT - BP</b>	
1800	C1206A182 <u>1</u> 5GA <u>2</u>
2000	C1206A202 <u>1</u> 5GA <u>2</u>
<b>200 VOLT - BX</b>	
470	C1206A471 <u>1</u> 2XA <u>2</u>
560	C1206A561 <u>1</u> 2XA <u>2</u>
680	C1206A681 <u>1</u> 2XA <u>2</u>
820	C1206A821 <u>1</u> 2XA <u>2</u>
1000	C1206A102 <u>1</u> 2XA <u>2</u>
1200	C1206A122 <u>1</u> 2XA <u>2</u>
1500	C1206A152 <u>1</u> 2XA <u>2</u>
1800	C1206A182 <u>1</u> 2XA <u>2</u>
2200	C1206A222 <u>1</u> 2XA <u>2</u>
2700	C1206A272 <u>1</u> 2XA <u>2</u>
3300	C1206A332 <u>1</u> 2XA <u>2</u>
3900	C1206A392 <u>1</u> 2XA <u>2</u>
4700	C1206A472 <u>1</u> 2XA <u>2</u>
<b>100 VOLT - BX</b>	
5600	C1206A562 <u>1</u> 1XA <u>2</u>
6800	C1206A682 <u>1</u> 1XA <u>2</u>
8200	C1206A822 <u>1</u> 1XA <u>2</u>
10,000	C1206A103 <u>1</u> 1XA <u>2</u>
12,000	C1206A123 <u>1</u> 1XA <u>2</u>
15,000	C1206A153 <u>1</u> 1XA <u>2</u>
<b>50 VOLT - BX</b>	
18,000	C1206A183 <u>1</u> 5XA <u>2</u>
22,000	C1206A223 <u>1</u> 5XA <u>2</u>
27,000	C1206A273 <u>1</u> 5XA <u>2</u>
33,000	C1206A333 <u>1</u> 5XA <u>2</u>
39,000	C1206A393 <u>1</u> 5XA <u>2</u>
47,000	C1206A473 <u>1</u> 5XA <u>2</u>

**RATINGS AND PART NUMBER REFERENCE  
STYLE C1210**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
10.0	C1210A100 <u>1</u> 2GA <u>2</u>
11.0	C1210A110 <u>1</u> 2GA <u>2</u>
12.0	C1210A120 <u>1</u> 2GA <u>2</u>
13.0	C1210A130 <u>1</u> 2GA <u>2</u>
15.0	C1210A150 <u>1</u> 2GA <u>2</u>
16.0	C1210A160 <u>1</u> 2GA <u>2</u>
18.0	C1210A180 <u>1</u> 2GA <u>2</u>
20.0	C1210A200 <u>1</u> 2GA <u>2</u>
22.0	C1210A220 <u>1</u> 2GA <u>2</u>
24.0	C1210A240 <u>1</u> 2GA <u>2</u>
27.0	C1210A270 <u>1</u> 2GA <u>2</u>
30.0	C1210A300 <u>1</u> 2GA <u>2</u>
33.0	C1210A330 <u>1</u> 2GA <u>2</u>
36.0	C1210A360 <u>1</u> 2GA <u>2</u>
39.0	C1210A390 <u>1</u> 2GA <u>2</u>
43.0	C1210A430 <u>1</u> 2GA <u>2</u>
47.0	C1210A470 <u>1</u> 2GA <u>2</u>
51.0	C1210A510 <u>1</u> 2GA <u>2</u>
56.0	C1210A560 <u>1</u> 2GA <u>2</u>
62.0	C1210A620 <u>1</u> 2GA <u>2</u>
68.0	C1210A680 <u>1</u> 2GA <u>2</u>
75.0	C1210A750 <u>1</u> 2GA <u>2</u>
82.0	C1210A820 <u>1</u> 2GA <u>2</u>
91.0	C1210A910 <u>1</u> 2GA <u>2</u>
100	C1210A101 <u>1</u> 2GA <u>2</u>
110	C1210A111 <u>1</u> 2GA <u>2</u>
120	C1210A121 <u>1</u> 2GA <u>2</u>

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
130	C1210A131 <u>1</u> 2GA <u>2</u>
150	C1210A151 <u>1</u> 2GA <u>2</u>
160	C1210A161 <u>1</u> 2GA <u>2</u>
180	C1210A181 <u>1</u> 2GA <u>2</u>
200	C1210A201 <u>1</u> 2GA <u>2</u>
220	C1210A221 <u>1</u> 2GA <u>2</u>
240	C1210A241 <u>1</u> 2GA <u>2</u>
270	C1210A271 <u>1</u> 2GA <u>2</u>
300	C1210A301 <u>1</u> 2GA <u>2</u>
330	C1210A331 <u>1</u> 2GA <u>2</u>
360	C1210A361 <u>1</u> 2GA <u>2</u>
390	C1210A391 <u>1</u> 2GA <u>2</u>
430	C1210A431 <u>1</u> 2GA <u>2</u>
470	C1210A471 <u>1</u> 2GA <u>2</u>
510	C1210A511 <u>1</u> 2GA <u>2</u>
560	C1210A561 <u>1</u> 2GA <u>2</u>
620	C1210A621 <u>1</u> 2GA <u>2</u>
680	C1210A681 <u>1</u> 2GA <u>2</u>
750	C1210A751 <u>1</u> 2GA <u>2</u>
820	C1210A821 <u>1</u> 2GA <u>2</u>
910	C1210A911 <u>1</u> 2GA <u>2</u>
1000	C1210A102 <u>1</u> 2GA <u>2</u>

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 16.  
**BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 10pF only) **TEMPERATURE CHARACTERISTIC "G"**  
**BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% **TEMPERATURE CHARACTERISTIC "X"**  
(2) Complete part number by inserting end Metallization, as applicable as shown in ordering information on page 16.  
C—Tin-Coated, Final (SolderGuard II)  
H—Solder-Coated, Final (SolderGuard I)

**RATINGS AND PART NUMBER REFERENCE**  
**STYLE C1210 (continued)**

CAPACITANCE pF	KEMET PART NUMBER
<b>100 VOLT - BP</b>	
1100	C1210A112 <u>1</u> 1GA <u>2</u>
1200	C1210A122 <u>1</u> 1GA <u>2</u>
1300	C1210A132 <u>1</u> 1GA <u>2</u>
1500	C1210A152 <u>1</u> 1GA <u>2</u>
1600	C1210A162 <u>1</u> 1GA <u>2</u>
1800	C1210A182 <u>1</u> 1GA <u>2</u>
2000	C1210A202 <u>1</u> 1GA <u>2</u>
2200	C1210A222 <u>1</u> 1GA <u>2</u>
2400	C1210A242 <u>1</u> 1GA <u>2</u>
2700	C1210A272 <u>1</u> 1GA <u>2</u>
3000	C1210A302 <u>1</u> 1GA <u>2</u>
3300	C1210A332 <u>1</u> 1GA <u>2</u>
<b>50 VOLT - BP</b>	
3600	C1210A362 <u>1</u> 5GA <u>2</u>
3900	C1210A392 <u>1</u> 5GA <u>2</u>
<b>200 VOLT - BX</b>	
470	C1210A471 <u>1</u> 2XA <u>2</u>
560	C1210A561 <u>1</u> 2XA <u>2</u>
680	C1210A681 <u>1</u> 2XA <u>2</u>
820	C1210A821 <u>1</u> 2XA <u>2</u>
1000	C1210A102 <u>1</u> 2XA <u>2</u>
1200	C1210A122 <u>1</u> 2XA <u>2</u>
1500	C1210A152 <u>1</u> 2XA <u>2</u>
1800	C1210A182 <u>1</u> 2XA <u>2</u>

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BX</b>	
2200	C1210A222 <u>1</u> 2XA <u>2</u>
2700	C1210A272 <u>1</u> 2XA <u>2</u>
3300	C1210A332 <u>1</u> 2XA <u>2</u>
3900	C1210A392 <u>1</u> 2XA <u>2</u>
4700	C1210A472 <u>1</u> 2XA <u>2</u>
5600	C1210A562 <u>1</u> 2XA <u>2</u>
6800	C1210A682 <u>1</u> 2XA <u>2</u>
8200	C1210A822 <u>1</u> 2XA <u>2</u>
10,000	C1210A103 <u>1</u> 2XA <u>2</u>
<b>100 VOLT - BX</b>	
12,000	C1210A123 <u>1</u> 1XA <u>2</u>
15,000	C1210A153 <u>1</u> 1XA <u>2</u>
18,000	C1210A183 <u>1</u> 1XA <u>2</u>
22,000	C1210A223 <u>1</u> 1XA <u>2</u>
27,000	C1210A273 <u>1</u> 1XA <u>2</u>
33,000	C1210A333 <u>1</u> 1XA <u>2</u>
<b>50 VOLT - BX</b>	
39,000	C1210A393 <u>1</u> 5XA <u>2</u>
47,000	C1210A473 <u>1</u> 5XA <u>2</u>
56,000	C1210A563 <u>1</u> 5XA <u>2</u>
68,000	C1210A683 <u>1</u> 5XA <u>2</u>
82,000	C1210A823 <u>1</u> 5XA <u>2</u>
100,000	C1210A104 <u>1</u> 5XA <u>2</u>

**RATINGS AND PART NUMBER REFERENCE**  
**STYLE C1805**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
220	C1805A221 <u>1</u> 2GA <u>2</u>
240	C1805A241 <u>1</u> 2GA <u>2</u>
270	C1805A271 <u>1</u> 2GA <u>2</u>
300	C1805A301 <u>1</u> 2GA <u>2</u>
330	C1805A331 <u>1</u> 2GA <u>2</u>
360	C1805A361 <u>1</u> 2GA <u>2</u>
390	C1805A391 <u>1</u> 2GA <u>2</u>
430	C1805A431 <u>1</u> 2GA <u>2</u>
470	C1805A471 <u>1</u> 2GA <u>2</u>
<b>100 VOLT - BP</b>	
510	C1805A511 <u>1</u> 1GA <u>2</u>
560	C1805A561 <u>1</u> 1GA <u>2</u>
620	C1805A621 <u>1</u> 1GA <u>2</u>
680	C1805A681 <u>1</u> 1GA <u>2</u>
750	C1805A751 <u>1</u> 1GA <u>2</u>
820	C1805A821 <u>1</u> 1GA <u>2</u>
910	C1805A911 <u>1</u> 1GA <u>2</u>
1000	C1805A102 <u>1</u> 1GA <u>2</u>
1100	C1805A112 <u>1</u> 1GA <u>2</u>
1200	C1805A122 <u>1</u> 1GA <u>2</u>
1300	C1805A132 <u>1</u> 1GA <u>2</u>
1500	C1805A152 <u>1</u> 1GA <u>2</u>
<b>50 VOLT - BP</b>	
1600	C1805A162 <u>1</u> 5GA <u>2</u>
1800	C1805A182 <u>1</u> 5GA <u>2</u>
2000	C1805A202 <u>1</u> 5GA <u>2</u>
2200	C1805A222 <u>1</u> 5GA <u>2</u>

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BX</b>	
1200	C1805A122 <u>1</u> 2XA <u>2</u>
1500	C1805A152 <u>1</u> 2XA <u>2</u>
1800	C1805A182 <u>1</u> 2XA <u>2</u>
2200	C1805A222 <u>1</u> 2XA <u>2</u>
2700	C1805A272 <u>1</u> 2XA <u>2</u>
3300	C1805A332 <u>1</u> 2XA <u>2</u>
3900	C1805A392 <u>1</u> 2XA <u>2</u>
<b>100 VOLT - BX</b>	
4700	C1805A472 <u>1</u> 1XA <u>2</u>
5600	C1805A562 <u>1</u> 1XA <u>2</u>
6800	C1805A682 <u>1</u> 1XA <u>2</u>
8200	C1805A822 <u>1</u> 1XA <u>2</u>
10,000	C1805A103 <u>1</u> 1XA <u>2</u>
12,000	C1805A123 <u>1</u> 1XA <u>2</u>
15,000	C1805A153 <u>1</u> 1XA <u>2</u>
<b>50 VOLT - BX</b>	
18,000	C1805A183 <u>1</u> 5XA <u>2</u>
22,000	C1805A223 <u>1</u> 5XA <u>2</u>
27,000	C1805A273 <u>1</u> 5XA <u>2</u>
33,000	C1805A333 <u>1</u> 5XA <u>2</u>
39,000	C1805A393 <u>1</u> 5XA <u>2</u>
47,000	C1805A473 <u>1</u> 5XA <u>2</u>

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 16.

**BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 10pF only) TEMPERATURE CHARACTERISTIC "G"

**BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% TEMPERATURE CHARACTERISTIC "X"

(2) Complete part number by inserting end Metallization, as applicable as shown in ordering information on page 16.

C—Tin-Coated, Final (SolderGuard II) H—Solder-Coated, Final (SolderGuard I)

**RATINGS AND PART NUMBER REFERENCE  
STYLE C1808**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
330	C1808A331112GA12
360	C1808A361112GA12
390	C1808A391112GA12
430	C1808A431112GA12
470	C1808A471112GA12
510	C1808A511112GA12
560	C1808A561112GA12
620	C1808A621112GA12
680	C1808A681112GA12
750	C1808A751112GA12
820	C1808A821112GA12
910	C1808A911112GA12
1000	C1808A102112GA12
1100	C1808A112112GA12
1200	C1808A122112GA12
1300	C1808A132112GA12
1500	C1808A152112GA12
<b>100 VOLT - BP</b>	
1600	C1808A162111GA12
1800	C1808A182111GA12
2000	C1808A202111GA12
2200	C1808A222111GA12
2400	C1808A242111GA12
2700	C1808A272111GA12
3000	C1808A302111GA12
3300	C1808A332111GA12
3600	C1808A362111GA12
3900	C1808A392111GA12
4300	C1808A432111GA12
4700	C1808A472111GA12

CAPACITANCE pF	KEMET PART NUMBER
<b>50 VOLT - BP</b>	
5100	C1808A512115GA12
5600	C1808A562115GA12
<b>200 VOLT - BX</b>	
2200	C1808A222112XA12
2700	C1808A272112XA12
3300	C1808A332112XA12
3900	C1808A392112XA12
4700	C1808A472112XA12
5600	C1808A562112XA12
6800	C1808A682112XA12
8200	C1808A822112XA12
10,000	C1808A103112XA12
<b>100 VOLT - BX</b>	
12,000	C1808A123111XA12
15,000	C1808A153111XA12
18,000	C1808A183111XA12
22,000	C1808A223111XA12
27,000	C1808A273111XA12
33,000	C1808A333111XA12
<b>50 VOLT - BX</b>	
39,000	C1808A393115XA12
47,000	C1808A473115XA12
56,000	C1808A563115XA12
68,000	C1808A683115XA12
82,000	C1808A823115XA12
100,000	C1808A104115XA12

**RATINGS AND PART NUMBER REFERENCE  
STYLE C1812**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
330	C1812A331112GA12
360	C1812A361112GA12
390	C1812A391112GA12
430	C1812A431112GA12
470	C1812A471112GA12
510	C1812A511112GA12
560	C1812A561112GA12
620	C1812A621112GA12
680	C1812A681112GA12
750	C1812A751112GA12
820	C1812A821112GA12
910	C1812A911112GA12
1000	C1812A102112GA12
1100	C1812A112112GA12
1200	C1812A122112GA12
1300	C1812A132112GA12
1500	C1812A152112GA12
1600	C1812A162112GA12
1800	C1812A182112GA12
2000	C1812A202112GA12
2200	C1812A222112GA12
2400	C1812A242112GA12
2700	C1812A272112GA12
<b>100 VOLT - BP</b>	
3000	C1812A302111GA12
3300	C1812A332111GA12
3600	C1812A362111GA12
3900	C1812A392111GA12
4300	C1812A432111GA12
4700	C1812A472111GA12
5100	C1812A512111GA12

CAPACITANCE pF	KEMET PART NUMBER
<b>100 VOLT - BP</b>	
5600	C1812A562111GA12
6200	C1812A622111GA12
6800	C1812A682111GA12
<b>50 VOLT - BP</b>	
7500	C1812A752115GA12
8200	C1812A822115GA12
9100	C1812A912115GA12
10,000	C1812A103115GA12
<b>200 VOLT - BX</b>	
6800	C1812A682112XA12
8200	C1812A822112XA12
10,000	C1812A103112XA12
12,000	C1812A123112XA12
15,000	C1812A153112XA12
18,000	C1812A183112XA12
<b>100 VOLT - BX</b>	
22,000	C1812A223111XA12
27,000	C1812A273111XA12
33,000	C1812A333111XA12
39,000	C1812A393111XA12
47,000	C1812A473111XA12
56,000	C1812A563111XA12
68,000	C1812A683111XA12
<b>50 VOLT - BX</b>	
82,000	C1812A823115XA12
100,000	C1812A104115XA12
120,000	C1812A124115XA12
150,000	C1812A154115XA12
180,000	C1812A184115XA12

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 16. **BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 10pF only) **TEMPERATURE CHARACTERISTIC "G" BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% **TEMPERATURE CHARACTERISTIC "X"** (2) Complete part number by inserting end Metallization, as applicable as shown in ordering information on page 16.

C—Tin-Coated, Final (SolderGuard II) H—Solder-Coated, Final (SolderGuard I)

**RATINGS AND PART NUMBER REFERENCE**  
**STYLE C1825**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
2700	C1825A272(1)2GA(2)
3000	C1825A302(1)2GA(2)
3300	C1825A332(1)2GA(2)
3600	C1825A362(1)2GA(2)
3900	C1825A392(1)2GA(2)
4300	C1825A432(1)2GA(2)
4700	C1825A472(1)2GA(2)
5100	C1825A512(1)2GA(2)
5600	C1825A562(1)2GA(2)
<b>100 VOLT - BP</b>	
6200	C1825A622(1)1GA(2)
6800	C1825A682(1)1GA(2)
7500	C1825A752(1)1GA(2)
8200	C1825A822(1)1GA(2)
9100	C1825A912(1)1GA(2)
10,000	C1825A103(1)1GA(2)
11,000	C1825A113(1)1GA(2)
12,000	C1825A123(1)1GA(2)
13,000	C1825A133(1)1GA(2)
15,000	C1825A153(1)1GA(2)
16,000	C1825A163(1)1GA(2)
18,000	C1825A183(1)1GA(2)
<b>50 VOLT - BP</b>	
20,000	C1825A203(1)5GA(2)
22,000	C1825A223(1)5GA(2)

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BX</b>	
10,000	C1825A103(1)2XA(2)
12,000	C1825A123(1)2XA(2)
15,000	C1825A153(1)2XA(2)
18,000	C1825A183(1)2XA(2)
22,000	C1825A223(1)2XA(2)
33,000	C1825A333(1)2XA(2)
39,000	C1825A393(1)2XA(2)
47,000	C1825A473(1)2XA(2)
<b>100 VOLT - BX</b>	
56,000	C1825A563(1)1XA(2)
68,000	C1825A683(1)1XA(2)
82,000	C1825A823(1)1XA(2)
100,000	C1825A104(1)1XA(2)
120,000	C1825A124(1)1XA(2)
150,000	C1825A154(1)1XA(2)
<b>50 VOLT - BX</b>	
180,000	C1825A184(1)5XA(2)
220,000	C1825A224(1)5XA(2)
270,000	C1825A274(1)5XA(2)
330,000	C1825A334(1)5XA(2)
390,000	C1825A394(1)5XA(2)
470,000	C1825A474(1)5XA(2)

**RATINGS AND PART NUMBER REFERENCE**  
**STYLE C2225**

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BP</b>	
2700	C2225A272(1)2GA(2)
3000	C2225A302(1)2GA(2)
3300	C2225A332(1)2GA(2)
3600	C2225A362(1)2GA(2)
3900	C2225A392(1)2GA(2)
4300	C2225A432(1)2GA(2)
4700	C2225A472(1)2GA(2)
5100	C2225A512(1)2GA(2)
5600	C2225A562(1)2GA(2)
6200	C2225A622(1)2GA(2)
6800	C2225A682(1)2GA(2)
7500	C2225A752(1)2GA(2)
8200	C2225A822(1)2GA(2)
<b>100 VOLT - BP</b>	
9100	C2225A912(1)1GA(2)
10,000	C2225A103(1)1GA(2)
11,000	C2225A113(1)1GA(2)
12,000	C2225A123(1)1GA(2)
13,000	C2225A133(1)1GA(2)
15,000	C2225A153(1)1GA(2)
16,000	C2225A163(1)1GA(2)
18,000	C2225A183(1)1GA(2)
20,000	C2225A203(1)1GA(2)
22,000	C2225A223(1)1GA(2)
<b>50 VOLT - BP</b>	
24,000	C2225A243(1)5GA(2)
27,000	C2225A273(1)5GA(2)

CAPACITANCE pF	KEMET PART NUMBER
<b>200 VOLT - BX</b>	
18,000	C2225A183(1)2XA(2)
22,000	C2225A223(1)2XA(2)
27,000	C2225A273(1)2XA(2)
33,000	C2225A333(1)2XA(2)
39,000	C2225A393(1)2XA(2)
47,000	C2225A473(1)2XA(2)
<b>100 VOLT - BX</b>	
56,000	C2225A563(1)1XA(2)
68,000	C2225A683(1)1XA(2)
82,000	C2225A823(1)1XA(2)
100,000	C2225A104(1)1XA(2)
120,000	C2225A124(1)1XA(2)
150,000	C2225A154(1)1XA(2)
180,000	C2225A184(1)1XA(2)
<b>50 VOLT - BX</b>	
220,000	C2225A224(1)5XA(2)
270,000	C2225A274(1)5XA(2)
330,000	C2225A334(1)5XA(2)
390,000	C2225A394(1)5XA(2)
470,000	C2225A474(1)5XA(2)
560,000	C2225A564(1)5XA(2)
680,000	C2225A684(1)5XA(2)
820,000	C2225A824(1)5XA(2)
1,000,000	C2225A105(1)5XA(2)

(1) Complete KEMET part number by inserting capacitance tolerance, as applicable as shown in ordering information on page 16. **BP CAPACITANCE TOLERANCE:** ±1%, ±2%, ±5%, ±10%, ±20% (±0.5pF & ±0.25pF tolerances available 1.0 thru 10pF only) **TEMPERATURE CHARACTERISTIC "G"** **BX CAPACITANCE TOLERANCE:** ±5%, ±10%, ±20% **TEMPERATURE CHARACTERISTIC "X"**

(2) Complete part number by inserting end Metallization, as applicable as shown in ordering information on page 16.

C—Tin-Coated, Final (SolderGuard II)

H—Solder-Coated, Final (SolderGuard I)

# KEMET<sup>®</sup> Capacitors

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