

### GENERAL

#### Working Voltage:

C0G – 50, 100 & 200 Volts  
X7R – 50, 100 & 200 Volts

#### Temperature Characteristics:

C0G – 0  $\pm$ 30 PPM/ $^{\circ}$ C from -55 $^{\circ}$ C to +125 $^{\circ}$ C  
X7R –  $\pm$ 15% from -55 $^{\circ}$ C to +125 $^{\circ}$ C

#### Capacitance Tolerance:

C0G –  $\pm$ 0.5 pF,  $\pm$ 1%,  $\pm$ 2%,  $\pm$ 5%,  $\pm$ 10%,  $\pm$ 20%  
( $\pm$ 0.5 pF is tightest available tolerance)  
X7R –  $\pm$ 10%,  $\pm$ 20%, -0 +100%, -20% +80%

#### Construction:

Monolithic block of ceramic dielectric with interdigitated internal electrodes, encapsulated in a molded case, and having axial or radial leads. Meets flame test requirements of UL Standard 94V-0.

#### Terminal Strength:

EIA-198 Method 303 Condition A (2.2 kg)

### ELECTRICAL

#### Capacitance:

Within specified tolerance when measured with 1 volt rms at 1 kHz (1000 pF or less at 1 MHz for C0G).

#### Dissipation Factor:

25 $^{\circ}$ C at 1 kHz (1000 pF or less at 1 MHz for C0G).  
C0G – .15% maximum  
X7R – 2.5% maximum

#### Insulation Resistance:

After 2 minutes electrification at 25 $^{\circ}$ C and rated voltage  
C0G – 100K megohms or 1000 megohm -  $\mu$ F, whichever is less.  
X7R – 100K megohms or 1000 megohm -  $\mu$ F, whichever is less.

#### Dielectric Withstanding Voltage:

250% of rated voltage for 5 seconds with current limited to 50 mA at 25 $^{\circ}$ C.

#### Life Test:

2000 hours at 200% of rated voltage at 125 $^{\circ}$ C. Post-Test limits at 25 $^{\circ}$ C are:

#### Capacitance Change:

C0G – less than 3% or 0.25 pF, whichever is higher  
X7R –  $\pm$ 20% of initial value

#### Dissipation Factor:

C0G – .25% maximum  
X7R – 3.0% maximum

#### Insulation Resistance:

C0G – 10K megohms or 100 megohm -  $\mu$ F, whichever is less  
X7R – 10K megohms or 100 megohm -  $\mu$ F, whichever is less

#### Dielectric Withstanding Voltage:

250% of rated voltage for 5 seconds with current limited to 50 mA.

### ENVIRONMENTAL

#### Moisture Resistance:

MIL-STD-202, Method 106, or EIA-198, Method 204, Condition A, except 20 cycles.

#### Insulation Resistance:

C0G – 10K megohms or 100 megohm -  $\mu$ F, whichever is less  
X7R – 10K megohms or 100 megohm -  $\mu$ F, whichever is less

#### Dielectric Withstanding Voltage:

250% of rated voltage for 5 seconds with current limited to 50 mA.

#### Immersion Cycling:

MIL-STD-202, Method 104, Condition B. Post-Test limits at 25 $^{\circ}$ C are:

#### Insulation Resistance:

C0G – 10K megohms or 100 megohm -  $\mu$ F, whichever is less  
X7R – 10K megohms or 100 megohm -  $\mu$ F, whichever is less

#### Solderability:

MIL-STD-202, Method 208, Sn62 solder, 245 $^{\circ}$ C for 5  $\pm$ 1/2 seconds.

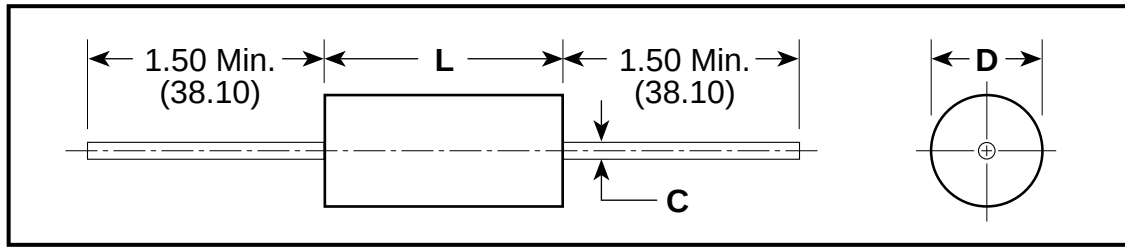
#### Resistance to Soldering Heat:

MIL-STD-202, Method 210, Condition B (260 $^{\circ}$ C, 10 secs).  
Depth of immersion — to a minimum of .050" from the capacitor body.

#### Lead Material:

Axial: Solder-coated copper clad steel  
Radial: Solder-coated copper

## CAPACITOR OUTLINE DRAWINGS (AXIAL LEADS)

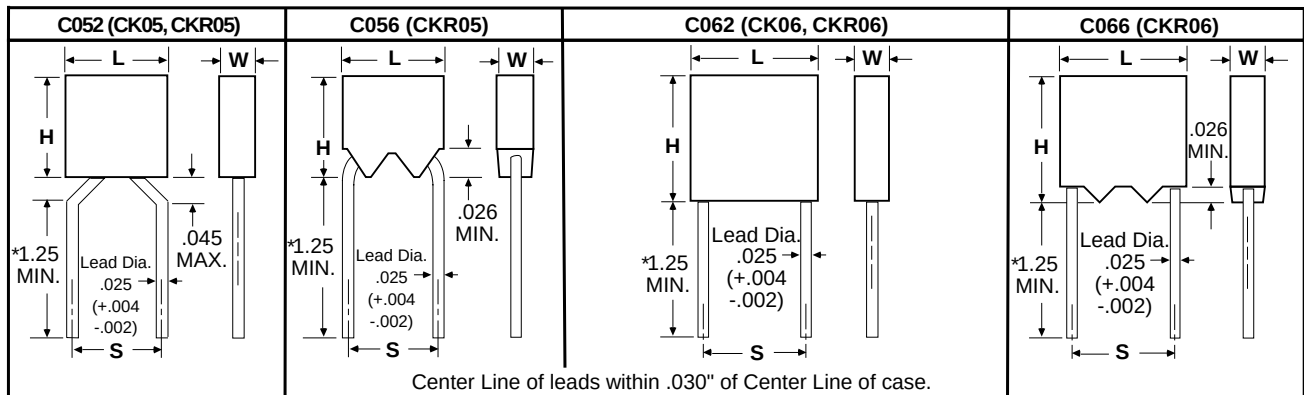


## DIMENSIONS — INCHES & (MILLIMETERS)

| CASE SIZE | MILITARY EQUIVALENT STYLES | L                         | D                        | C                                    |
|-----------|----------------------------|---------------------------|--------------------------|--------------------------------------|
| C114      | CK12, CKR11                | .160 ± .010 (4.06 ± .25)  | .090 ± .010 (2.29 ± .25) | .020, +.000, -.003 (.51, +.00, -.08) |
| C124      | CK13, CKR12                | .250 ± .010 (6.35 ± .25)  | .090 ± .010 (2.29 ± .25) | .020, +.000, -.003 (.51, +.00, -.08) |
| C192      | CK14, CKR14                | .390 ± .010 (9.91 ± .25)  | .140 ± .010 (3.56 ± .25) | .025, +.002, -.002 (.64, +.05, -.05) |
| C202      | CK15, CKR15                | .500 ± .020 (12.70 ± .51) | .250 ± .015 (6.35 ± .38) | .025, +.002, -.002 (.64, +.05, -.05) |
| C222      | CK16, CKR16                | .690 ± .030 (17.53 ± .76) | .350 ± .020 (8.89 ± .51) | .025, +.002, -.002 (.64, +.05, -.05) |

MIL-C-11015  
MIL-PRF-39014

## CAPACITOR OUTLINE DRAWINGS (RADIAL LEADS)

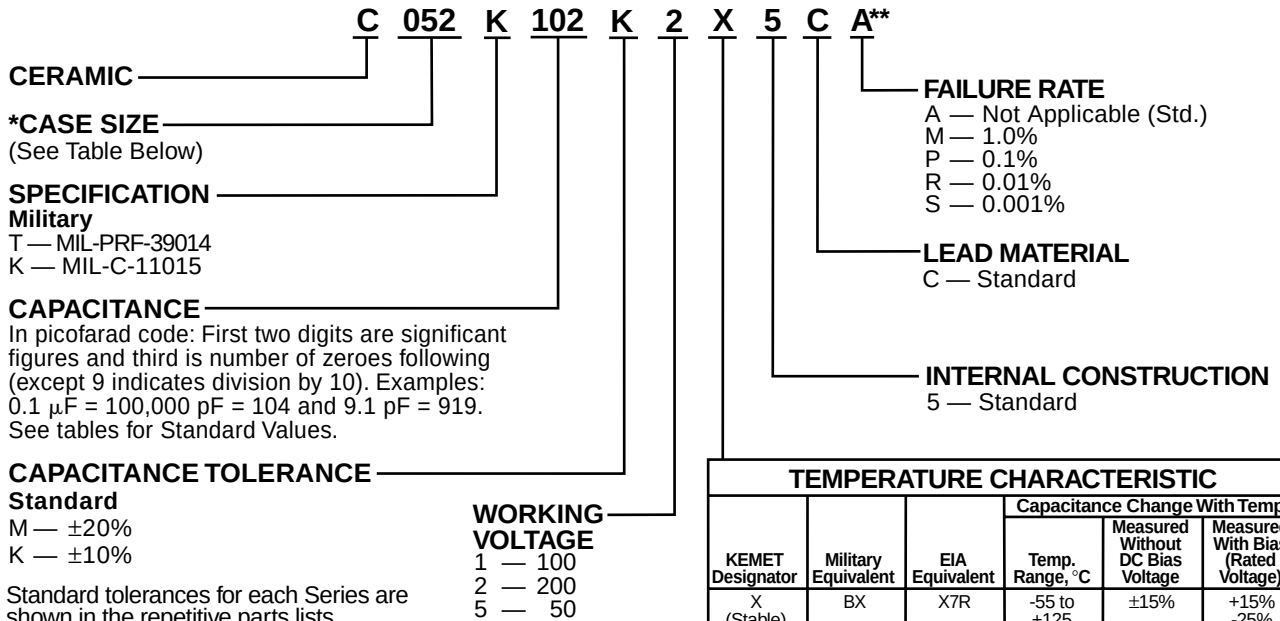


\* Leads are .625 minimum when tape and reel packaged.

## DIMENSIONS — INCHES & (MILLIMETERS)

| CASE SIZE     | MILITARY EQUIVALENT STYLES | H HEIGHT                 | L LENGTH                 | W WIDTH                  | S LEAD SPACING           |
|---------------|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| C052/<br>C056 | CK05, CKR05                | .190 ± .010 (4.83 ± .25) | .190 ± .010 (4.83 ± .25) | .090 ± .010 (2.29 ± .25) | .200 ± .015 (5.08 ± .38) |
| C062/<br>C066 | CK06, CKR06                | .290 ± .010 (7.37 ± .25) | .290 ± .010 (7.37 ± .25) | .090 ± .010 (2.29 ± .25) | .200 ± .015 (5.08 ± .38) |

## ORDERING INFORMATION



### TEMPERATURE CHARACTERISTIC

| KEMET Designator | Military Equivalent | EIA Equivalent | Capacitance Change With Temp. |                                  |                                    |
|------------------|---------------------|----------------|-------------------------------|----------------------------------|------------------------------------|
|                  |                     |                | Temp. Range, °C               | Measured Without DC Bias Voltage | Measured With Bias (Rated Voltage) |
| X (Stable)       | BX                  | X7R            | -55 to +125                   | $\pm 15\%$                       | +15%<br>-25%                       |
| R (Stable)       | BR                  | X7R            | -55 to +125                   | $\pm 15\%$                       | +15%<br>-40%                       |

| *CASE SIZES |       |
|-------------|-------|
| RADIAL      | AXIAL |
| C052        | C114  |
| C056        | C124  |
| C062        | C192  |
| C066        | C202  |
|             | C222  |

**\*\*Part Number Example: C052K102K2X5CA (14 digits – no spaces)**

## MARKING INFORMATION

### C114T (CKR11) THROUGH C222T (CKR16) PER MIL-PRF-39014

#### C114T (CKR11)

|     |                                 |
|-----|---------------------------------|
| JK  | J for JAN<br>K for KEMET        |
| 103 | Capacitance                     |
| KP5 | Capacitance Tolerance, FR Level |
| 37A | Date and Lot Code               |

#### C124T (CKR12)

|       |                                                              |
|-------|--------------------------------------------------------------|
| CKR12 | Style                                                        |
| 2657J | Dash No., J for JAN                                          |
| 0537A | Date & Lot Code                                              |
| 31433 | Source Code<br>(Federal Supply Code for Manufacturers, FSCM) |

#### C192T (CKR14) C202T (CKR15) C222T (CKR16)

|        |                                             |
|--------|---------------------------------------------|
| M39014 | Complete Part Number                        |
| 5-2125 | Manufacturer's Name                         |
| KEMET  |                                             |
| 0537A  | Date & Lot Code                             |
| J50V   | JAN & Voltage                               |
| 105K   | Capacitance, pF Code, Capacitance Tolerance |

### C052/56T (CKR05) PER MIL-PRF-39014/01

| FRONT                       | BACK             |
|-----------------------------|------------------|
| Specification — M390        | JK — JAN-KEMET   |
| Sheet No. — 14/01           | 0537 — Date Code |
| Four Digit Part No. — 1579* | A — Lot Code     |

\*Add "V" as the last digit for stand-off leads.

### C062/66T (CKR06) PER MIL-PRF-39014/02

| FRONT                          | BACK                                               |
|--------------------------------|----------------------------------------------------|
| Complete MIL Part No. — M39014 | 0537A — Date & Lot Code                            |
| Manufacturer's Name — *KEMET   | J200V — JAN & Voltage                              |
|                                | 103K — Capacitance, pF Code, Capacitance Tolerance |

\*Add "V" as the last digit for stand-off leads.

### C114K (CK12) THROUGH C222K (CK16) PER MIL-C-11015

#### C114K (CK12) C124K (CK13)

|      |                                             |
|------|---------------------------------------------|
| KCK  | KEMET, CK                                   |
| 12BX | Style (12 or 13), Temp. Char. (BX or BR)    |
| 102K | Capacitance, pF Code, Capacitance Tolerance |
| 0537 | Date Code                                   |

#### C192K (CK14) C202K (CK15) C222K (CK16)

|        |                                              |
|--------|----------------------------------------------|
| K100V  | KEMET, Voltage                               |
| CK14BX | Style (14, 15 or 16), Temp. Char. (BX or BR) |
| 123K   | Capacitance, pF Code, Capacitance Tolerance  |
| 0537   | Date Code                                    |

### C052K (CK05) PER MIL-C-11015/18 & C062K (CK06) PER MIL-C-11015/19

| FRONT                                              | BACK             |
|----------------------------------------------------|------------------|
| Style — CK05                                       | 200V — Voltage   |
| Temperature Characteristic — BX                    | K — KEMET        |
| Capacitance, pF Code, Capacitance Tolerance — 102K | 0501 — Date Code |

## RATINGS &amp; PART NUMBER REFERENCE

| CAP.<br>pF                                    | TOL.<br>% | KEMET<br>PART NUMBER | MIL-C-11015/20 | MIL-PRF-39014/05 | MIL-PRF-39014/05 For Failure Rate Levels (2) |      |      |      |
|-----------------------------------------------|-----------|----------------------|----------------|------------------|----------------------------------------------|------|------|------|
|                                               |           |                      |                |                  | M                                            | P    | R    | S    |
| 100 VOLT — C114 SIZE (MILITARY—CK12 or CKR11) |           |                      |                |                  |                                              |      |      |      |
| 10                                            | 10        | C114(1)100K1X5C(2)   | CK12BX100K     | CKR11BX100K(2)   | 2601                                         | 2801 | 2001 | 2201 |
| 10                                            | 20        | C114(1)100M1X5C(2)   | CK12BX100M     | CKR11BX100M(2)   | 2602                                         | 2802 | 2002 | 2202 |
| 12                                            | 10        | C114(1)120K1X5C(2)   | CK12BX120K     | CKR11BX120K(2)   | 2603                                         | 2803 | 2003 | 2203 |
| 15                                            | 10        | C114(1)150K1X5C(2)   | CK12BX150K     | CKR11BX150K(2)   | 2604                                         | 2804 | 2004 | 2204 |
| 15                                            | 20        | C114(1)150M1X5C(2)   | CK12BX150M     | CKR11BX150M(2)   | 2605                                         | 2805 | 2005 | 2205 |
| 18                                            | 10        | C114(1)180K1X5C(2)   | CK12BX180K     | CKR11BX180K(2)   | 2606                                         | 2806 | 2006 | 2206 |
| 22                                            | 10        | C114(1)220K1X5C(2)   | CK12BX220K     | CKR11BX220K(2)   | 2607                                         | 2807 | 2007 | 2207 |
| 22                                            | 20        | C114(1)220M1X5C(2)   | CK12BX220M     | CKR11BX220M(2)   | 2608                                         | 2808 | 2008 | 2208 |
| 27                                            | 10        | C114(1)270K1X5C(2)   | CK12BX270K     | CKR11BX270K(2)   | 2609                                         | 2809 | 2009 | 2209 |
| 33                                            | 10        | C114(1)330K1X5C(2)   | CK12BX330K     | CKR11BX330K(2)   | 2610                                         | 2810 | 2010 | 2210 |
| 33                                            | 20        | C114(1)330M1X5C(2)   | CK12BX330M     | CKR11BX330M(2)   | 2611                                         | 2811 | 2011 | 2211 |
| 39                                            | 10        | C114(1)390K1X5C(2)   | CK12BX390K     | CKR11BX390K(2)   | 2612                                         | 2812 | 2012 | 2212 |
| 47                                            | 10        | C114(1)470K1X5C(2)   | CK12BX470K     | CKR11BX470K(2)   | 2613                                         | 2813 | 2013 | 2213 |
| 47                                            | 20        | C114(1)470M1X5C(2)   | CK12BX470M     | CKR11BX470M(2)   | 2614                                         | 2814 | 2014 | 2214 |
| 56                                            | 10        | C114(1)560K1X5C(2)   | CK12BX560K     | CKR11BX560K(2)   | 2615                                         | 2815 | 2015 | 2215 |
| 68                                            | 10        | C114(1)680K1X5C(2)   | CK12BX680K     | CKR11BX680K(2)   | 2616                                         | 2816 | 2016 | 2216 |
| 68                                            | 20        | C114(1)680M1X5C(2)   | CK12BX680M     | CKR11BX680M(2)   | 2617                                         | 2817 | 2017 | 2217 |
| 82                                            | 10        | C114(1)820K1X5C(2)   | CK12BX820K     | CKR11BX820K(2)   | 2618                                         | 2818 | 2018 | 2218 |
| 100                                           | 10        | C114(1)101K1X5C(2)   | CK12BX101K     | CKR11BX101K(2)   | 2619                                         | 2819 | 2019 | 2219 |
| 100                                           | 20        | C114(1)101M1X5C(2)   | CK12BX101M     | CKR11BX101M(2)   | 2620                                         | 2820 | 2020 | 2220 |
| 120                                           | 10        | C114(1)121K1X5C(2)   | CK12BX121K     | CKR11BX121K(2)   | 2621                                         | 2821 | 2021 | 2221 |
| 150                                           | 10        | C114(1)151K1X5C(2)   | CK12BX151K     | CKR11BX151K(2)   | 2622                                         | 2822 | 2022 | 2222 |
| 150                                           | 20        | C114(1)151M1X5C(2)   | CK12BX151M     | CKR11BX151M(2)   | 2623                                         | 2823 | 2023 | 2223 |
| 180                                           | 10        | C114(1)181K1X5C(2)   | CK12BX181K     | CKR11BX181K(2)   | 2624                                         | 2824 | 2024 | 2224 |
| 220                                           | 10        | C114(1)221K1X5C(2)   | CK12BX221K     | CKR11BX221K(2)   | 2625                                         | 2825 | 2025 | 2225 |
| 220                                           | 20        | C114(1)221M1X5C(2)   | CK12BX221M     | CKR11BX221M(2)   | 2626                                         | 2826 | 2026 | 2226 |
| 270                                           | 10        | C114(1)271K1X5C(2)   | CK12BX271K     | CKR11BX271K(2)   | 2627                                         | 2827 | 2027 | 2227 |
| 330                                           | 10        | C114(1)331K1X5C(2)   | CK12BX331K     | CKR11BX331K(2)   | 2628                                         | 2828 | 2028 | 2228 |
| 330                                           | 20        | C114(1)331M1X5C(2)   | CK12BX331M     | CKR11BX331M(2)   | 2629                                         | 2829 | 2029 | 2229 |
| 390                                           | 10        | C114(1)391K1X5C(2)   | CK12BX391K     | CKR11BX391K(2)   | 2630                                         | 2830 | 2030 | 2230 |
| 470                                           | 10        | C114(1)471K1X5C(2)   | CK12BX471K     | CKR11BX471K(2)   | 2631                                         | 2831 | 2031 | 2231 |
| 470                                           | 20        | C114(1)471M1X5C(2)   | CK12BX471M     | CKR11BX471M(2)   | 2632                                         | 2832 | 2032 | 2232 |
| 560                                           | 10        | C114(1)561K1X5C(2)   | CK12BX561K     | CKR11BX561K(2)   | 2633                                         | 2833 | 2033 | 2233 |
| 680                                           | 10        | C114(1)681K1X5C(2)   | CK12BX681K     | CKR11BX681K(2)   | 2634                                         | 2834 | 2034 | 2234 |
| 680                                           | 20        | C114(1)681M1X5C(2)   | CK12BX681M     | CKR11BX681M(2)   | 2635                                         | 2835 | 2035 | 2235 |
| 820                                           | 10        | C114(1)821K1X5C(2)   | CK12BX821K     | CKR11BX821K(2)   | 2636                                         | 2836 | 2036 | 2236 |
| 1,000                                         | 10        | C114(1)102K1X5C(2)   | CK12BX102K     | CKR11BX102K(2)   | 2637                                         | 2837 | 2037 | 2237 |
| 1,000                                         | 20        | C114(1)102M1X5C(2)   | CK12BX102M     | CKR11BX102M(2)   | 2638                                         | 2838 | 2038 | 2238 |
| 1,200                                         | 10        | C114(1)122K1X5C(2)   | CK12BX122K     | CKR11BX122K(2)   | 2639                                         | 2839 | 2039 | 2239 |
| 1,500                                         | 10        | C114(1)152K1X5C(2)   | CK12BX152K     | CKR11BX152K(2)   | 2640                                         | 2840 | 2040 | 2240 |
| 1,500                                         | 20        | C114(1)152M1X5C(2)   | CK12BX152M     | CKR11BX152M(2)   | 2641                                         | 2841 | 2041 | 2241 |
| 1,800                                         | 10        | C114(1)182K1X5C(2)   | CK12BX182K     | CKR11BX182K(2)   | 2642                                         | 2842 | 2042 | 2242 |
| 2,200                                         | 10        | C114(1)222K1X5C(2)   | CK12BX222K     | CKR11BX222K(2)   | 2643                                         | 2843 | 2043 | 2243 |
| 2,200                                         | 20        | C114(1)222M1X5C(2)   | CK12BX222M     | CKR11BX222M(2)   | 2644                                         | 2844 | 2044 | 2244 |
| 2,700                                         | 10        | C114(1)272K1X5C(2)   | CK12BX272K     | CKR11BX272K(2)   | 2645                                         | 2845 | 2045 | 2245 |
| 3,300                                         | 10        | C114(1)332K1X5C(2)   | CK12BX332K     | CKR11BX332K(2)   | 2646                                         | 2846 | 2046 | 2246 |
| 3,300                                         | 20        | C114(1)332M1X5C(2)   | CK12BX332M     | CKR11BX332M(2)   | 2647                                         | 2847 | 2047 | 2247 |
| 3,900                                         | 10        | C114(1)392K1X5C(2)   | CK12BX392K     | CKR11BX392K(2)   | 2648                                         | 2848 | 2048 | 2248 |
| 4,700                                         | 10        | C114(1)472K1X5C(2)   | CK12BX472K     | CKR11BX472K(2)   | 2649                                         | 2849 | 2049 | 2249 |
| 4,700                                         | 20        | C114(1)472M1X5C(2)   | CK12BX472M     | CKR11BX472M(2)   | 2650                                         | 2850 | 2050 | 2250 |
| 50 VOLT — C114 SIZE (MILITARY—CK12 or CKR11)  |           |                      |                |                  |                                              |      |      |      |
| 5,600                                         | 10        | C114(1)562K5X5C(2)   | CK12BX562K     | CKR11BX562K(2)   | 2651                                         | 2851 | 2051 | 2251 |
| 6,800                                         | 10        | C114(1)682K5X5C(2)   | CK12BX682K     | CKR11BX682K(2)   | 2652                                         | 2852 | 2052 | 2252 |
| 6,800                                         | 20        | C114(1)682M5X5C(2)   | CK12BX682M     | CKR11BX682M(2)   | 2653                                         | 2853 | 2053 | 2253 |
| 8,200                                         | 10        | C114(1)822K5X5C(2)   | CK12BX822K     | CKR11BX822K(2)   | 2654                                         | 2854 | 2054 | 2254 |
| 10,000                                        | 10        | C114(1)103K5X5C(2)   | CK12BX103K     | CKR11BX103K(2)   | 2655                                         | 2855 | 2055 | 2255 |
| 10,000                                        | 20        | C114(1)103M5X5C(2)   | CK12BX103M     | CKR11BX103M(2)   | 2656                                         | 2856 | 2056 | 2256 |
| 100 VOLT — C124 SIZE (MILITARY—CK13 or CKR12) |           |                      |                |                  |                                              |      |      |      |
| 5,600                                         | 10        | C124(1)562K1X5C(2)   | CK13BX562K     | CKR12BX562K(2)   | 2657                                         | 2857 | 2057 | 2257 |
| 6,800                                         | 10        | C124(1)682K1X5C(2)   | CK13BX682K     | CKR12BX682K(2)   | 2658                                         | 2858 | 2058 | 2258 |
| 6,800                                         | 20        | C124(1)682M1X5C(2)   | CK13BX682M     | CKR12BX682M(2)   | 2659                                         | 2859 | 2059 | 2259 |
| 8,200                                         | 10        | C124(1)822K1X5C(2)   | CK13BX822K     | CKR12BX822K(2)   | 2660                                         | 2860 | 2060 | 2260 |
| 10,000                                        | 10        | C124(1)103K1X5C(2)   | CK13BX103K     | CKR12BX103K(2)   | 2661                                         | 2861 | 2061 | 2261 |
| 10,000                                        | 20        | C124(1)103M1X5C(2)   | CK13BX103M     | CKR12BX103M(2)   | 2662                                         | 2862 | 2062 | 2262 |
| 50 VOLT — C124 SIZE (MILITARY—CK13 or CKR12)  |           |                      |                |                  |                                              |      |      |      |
| 12,000                                        | 10        | C124(1)123K5X5C(2)   | CK13BX123K     | CKR12BX123K(2)   | 2663                                         | 2863 | 2063 | 2263 |
| 15,000                                        | 10        | C124(1)153K5X5C(2)   | CK13BX153K     | CKR12BX153K(2)   | 2664                                         | 2864 | 2064 | 2264 |
| 15,000                                        | 20        | C124(1)153M5X5C(2)   | CK13BX153M     | CKR12BX153M(2)   | 2665                                         | 2865 | 2065 | 2265 |
| 18,000                                        | 10        | C124(1)183K5X5C(2)   | CK13BX183K     | CKR12BX183K(2)   | 2666                                         | 2866 | 2066 | 2266 |
| 22,000                                        | 10        | C124(1)223K5X5C(2)   | CK13BX223K     | CKR12BX223K(2)   | 2667                                         | 2867 | 2067 | 2267 |
| 22,000                                        | 20        | C124(1)223M5X5C(2)   | CK13BX223M     | CKR12BX223M(2)   | 2668                                         | 2868 | 2068 | 2268 |
| 27,000                                        | 10        | C124K273K5R5CA       | CK13BR273K     |                  |                                              |      |      |      |
| 33,000                                        | 10        | C124K333K5R5CA       | CK13BR333K     |                  |                                              |      |      |      |
| 33,000                                        | 20        | C124K333M5R5CA       | CK13BR333M     |                  |                                              |      |      |      |
| 39,000                                        | 10        | C124K393K5R5CA       | CK13BR393K     |                  |                                              |      |      |      |
| 47,000                                        | 10        | C124K473K5R5CA       | CK13BR473K     |                  |                                              |      |      |      |
| 47,000                                        | 20        | C124K473M5R5CA       | CK13BR473M     |                  |                                              |      |      |      |

(1) Insert proper letter for specification: K — MIL-C-11015; T — MIL-PRF-39014 (2) Failure Rate Designator: A — Not applicable (MIL-C-11015); M — 1%/1000 Hours, P — .1%/1000 Hours, R — .01%/1000 Hours, S — .001%/1000 Hours (MIL-PRF-39014)



# CERAMIC MOLDED/AXIAL — MIL-C-11015 & MIL-PRF-39014

## STABLE TEMPERATURE CHARACTERISTICS—BX & BR (EIA-X7R)

### RATINGS & PART NUMBER REFERENCE

| CAP.<br>pF                                            | TOL.<br>% | KEMET<br>PART NUMBER | MIL-C-11015/20 | MIL-PRF-39014/05 | MIL-PRF-39014/05 For Failure Rate Levels (2) |      |      |      |
|-------------------------------------------------------|-----------|----------------------|----------------|------------------|----------------------------------------------|------|------|------|
|                                                       |           |                      |                |                  | M                                            | P    | R    | S    |
| 50 VOLT — C124 SIZE (MILITARY—CK13 or CKR12) (Cont'd) |           |                      |                |                  |                                              |      |      |      |
| 27,000                                                | 10        | C124T273K5X5C(2)     |                | CKR12BX273K(2)   | 2669                                         | 2869 | 2069 | 2269 |
| 33,000                                                | 10        | C124T333K5X5C(2)     |                | CKR12BX333K(2)   | 2670                                         | 2870 | 2070 | 2270 |
| 33,000                                                | 20        | C124T333M5X5C(2)     |                | CKR12BX333M(2)   | 2671                                         | 2871 | 2071 | 2271 |
| 39,000                                                | 10        | C124T393K5X5C(2)     |                | CKR12BX393K(2)   | 2672                                         | 2872 | 2072 | 2272 |
| 47,000                                                | 10        | C124T473K5X5C(2)     |                | CKR12BX473K(2)   | 2673                                         | 2873 | 2073 | 2273 |
| 47,000                                                | 20        | C124T473M5X5C(2)     |                | CKR12BX473M(2)   | 2674                                         | 2874 | 2074 | 2274 |
| 100 VOLT — C192 SIZE (MILITARY—CK14 or CKR14)         |           |                      |                |                  |                                              |      |      |      |
| 12,000                                                | 10        | C192(1)123K1X5C(2)   | CK14BX123K     | CKR14BX123K(2)   | 2675                                         | 2875 | 2075 | 2275 |
| 15,000                                                | 10        | C192(1)153K1X5C(2)   | CK14BX153K     | CKR14BX153K(2)   | 2676                                         | 2876 | 2076 | 2276 |
| 15,000                                                | 20        | C192(1)153M1X5C(2)   | CK14BX153M     | CKR14BX153M(2)   | 2677                                         | 2877 | 2077 | 2277 |
| 18,000                                                | 10        | C192(1)183K1X5C(2)   | CK14BX183K     | CKR14BX183K(2)   | 2678                                         | 2878 | 2078 | 2278 |
| 22,000                                                | 10        | C192(1)223K1X5C(2)   | CK14BX223K     | CKR14BX223K(2)   | 2679                                         | 2879 | 2079 | 2279 |
| 22,000                                                | 20        | C192(1)223M1X5C(2)   | CK14BX223M     | CKR14BX223M(2)   | 2680                                         | 2880 | 2080 | 2280 |
| 27,000                                                | 10        | C192(1)273K1X5C(2)   | CK14BX273K     | CKR14BX273K(2)   | 2681                                         | 2881 | 2081 | 2281 |
| 33,000                                                | 10        | C192(1)333K1X5C(2)   | CK14BX333K     | CKR14BX333K(2)   | 2682                                         | 2882 | 2082 | 2282 |
| 33,000                                                | 20        | C192(1)333M1X5C(2)   | CK14BX333M     | CKR14BX333M(2)   | 2683                                         | 2883 | 2083 | 2283 |
| 39,000                                                | 10        | C192(1)393K1X5C(2)   | CK14BX393K     | CKR14BX393K(2)   | 2684                                         | 2884 | 2084 | 2284 |
| 47,000                                                | 10        | C192(1)473K1X5C(2)   | CK14BX473K     | CKR14BX473K(2)   | 2685                                         | 2885 | 2085 | 2285 |
| 47,000                                                | 20        | C192(1)473M1X5C(2)   | CK14BX473M     | CKR14BX473M(2)   | 2686                                         | 2886 | 2086 | 2286 |
| 56,000                                                | 10        | C192(1)563K1R5C(2)   | CK14BR563K     | CKR14BR563K(2)   | 2693                                         | 2893 | 2093 | 2293 |
| 68,000                                                | 10        | C192(1)683K1R5C(2)   | CK14BR683K     | CKR14BR683K(2)   | 2694                                         | 2894 | 2094 | 2294 |
| 68,000                                                | 20        | C192(1)683M1R5C(2)   | CK14BR683M     | CKR14BR683M(2)   | 2695                                         | 2895 | 2095 | 2295 |
| 82,000                                                | 10        | C192(1)823K1R5C(2)   | CK14BR823K     | CKR14BR823K(2)   | 2696                                         | 2896 | 2096 | 2296 |
| 100,000                                               | 10        | C192(1)104K1R5C(2)   | CK14BR104K     | CKR14BR104K(2)   | 2697                                         | 2897 | 2097 | 2297 |
| 100,000                                               | 20        | C192(1)104M1R5C(2)   | CK14BR104M     | CKR14BR104M(2)   | 2698                                         | 2898 | 2098 | 2298 |
| 50 VOLT — C192 SIZE (MILITARY—CK14 or CKR14)          |           |                      |                |                  |                                              |      |      |      |
| 56,000                                                | 10        | C192T563K5X5C(2)     |                | CKR14BX563K(2)   | 2687                                         | 2887 | 2087 | 2287 |
| 68,000                                                | 10        | C192T683K5X5C(2)     |                | CKR14BX683K(2)   | 2688                                         | 2888 | 2088 | 2288 |
| 68,000                                                | 20        | C192T683M5X5C(2)     |                | CKR14BX683M(2)   | 2689                                         | 2889 | 2089 | 2289 |
| 82,000                                                | 10        | C192T823K5X5C(2)     |                | CKR14BX823K(2)   | 2690                                         | 2890 | 2090 | 2290 |
| 100,000                                               | 10        | C192T104K5X5C(2)     |                | CKR14BX104K(2)   | 2691                                         | 2891 | 2091 | 2291 |
| 100,000                                               | 20        | C192T104M5X5C(2)     |                | CKR14BX104M(2)   | 2692                                         | 2892 | 2092 | 2292 |
| 120,000                                               | 10        | C192(1)124K5R5C(2)   | CK14BR124K     | CKR14BR124K(2)   | 2699                                         | 2899 | 2099 | 2299 |
| 150,000                                               | 10        | C192(1)154K5R5C(2)   | CK14BR154K     | CKR14BR154K(2)   | 2700                                         | 2900 | 2100 | 2300 |
| 150,000                                               | 20        | C192(1)154M5R5C(2)   | CK14BR154M     | CKR14BR154M(2)   | 2701                                         | 2901 | 2101 | 2301 |
| 180,000                                               | 10        | C192(1)184K5R5C(2)   | CK14BR184K     | CKR14BR184K(2)   | 2702                                         | 2902 | 2102 | 2302 |
| 220,000                                               | 10        | C192(1)224K5R5C(2)   | CK14BR224K     | CKR14BR224K(2)   | 2703                                         | 2903 | 2103 | 2303 |
| 220,000                                               | 20        | C192(1)224M5R5C(2)   | CK14BR224M     | CKR14BR224M(2)   | 2704                                         | 2904 | 2104 | 2304 |
| 270,000                                               | 10        | C192(1)274K5R5C(2)   | CK14BR274K     | CKR14BR274K(2)   | 2705                                         | 2905 | 2105 | 2305 |
| 100 VOLT — C202 SIZE (MILITARY—CK15 or CKR15)         |           |                      |                |                  |                                              |      |      |      |
| 56,000                                                | 10        | C202T563K1X5C(2)     |                | CKR15BX563K(2)   | 2706                                         | 2906 | 2106 | 2306 |
| 68,000                                                | 10        | C202T683K1X5C(2)     |                | CKR15BX683K(2)   | 2707                                         | 2907 | 2107 | 2307 |
| 68,000                                                | 20        | C202T683M1X5C(2)     |                | CKR15BX683M(2)   | 2708                                         | 2908 | 2108 | 2308 |
| 82,000                                                | 10        | C202T823K1X5C(2)     |                | CKR15BX823K(2)   | 2709                                         | 2909 | 2109 | 2309 |
| 100,000                                               | 10        | C202(1)104K1X5C(2)   | CK15BX104K     | CKR15BX104K(2)   | 2710                                         | 2910 | 2110 | 2310 |
| 100,000                                               | 20        | C202(1)104M1X5C(2)   | CK15BX104M     | CKR15BX104M(2)   | 2711                                         | 2911 | 2111 | 2311 |
| 120,000                                               | 10        | C202(1)124K1R5C(2)   | CK15BR124K     | CKR15BR124K(2)   | 2712                                         | 2912 | 2112 | 2312 |
| 150,000                                               | 10        | C202(1)154K1R5C(2)   | CK15BR154K     | CKR15BR154K(2)   | 2713                                         | 2913 | 2113 | 2313 |
| 150,000                                               | 20        | C202(1)154M1R5C(2)   | CK15BR154M     | CKR15BR154M(2)   | 2714                                         | 2914 | 2114 | 2314 |
| 180,000                                               | 10        | C202(1)184K1R5C(2)   | CK15BR184K     | CKR15BR184K(2)   | 2715                                         | 2915 | 2115 | 2315 |
| 220,000                                               | 10        | C202(1)224K1R5C(2)   | CK15BR224K     | CKR15BR224K(2)   | 2716                                         | 2916 | 2116 | 2316 |
| 220,000                                               | 20        | C202(1)224M1R5C(2)   | CK15BR224M     | CKR15BR224M(2)   | 2717                                         | 2917 | 2117 | 2317 |
| 270,000                                               | 10        | C202(1)274K1R5C(2)   | CK15BR274K     | CKR15BR274K(2)   | 2718                                         | 2918 | 2118 | 2318 |
| 330,000                                               | 10        | C202(1)334K1R5C(2)   | CK15BR334K     | CKR15BR334K(2)   | 2719                                         | 2919 | 2119 | 2319 |
| 330,000                                               | 20        | C202(1)334M1R5C(2)   | CK15BR334M     | CKR15BR334M(2)   | 2720                                         | 2920 | 2120 | 2320 |
| 50 VOLT — C202 SIZE (MILITARY—CK15 or CKR15)          |           |                      |                |                  |                                              |      |      |      |
| 470,000                                               | 10        | C202(1)474K5R5C(2)   | CK15BR474K     | CKR15BR474K(2)   | 2721                                         | 2921 | 2121 | 2321 |
| 470,000                                               | 20        | C202(1)474M5R5C(2)   | CK15BR474M     | CKR15BR474M(2)   | 2722                                         | 2922 | 2122 | 2322 |
| 680,000                                               | 10        | C202T684K5R5C(2)     |                | CKR15BR684K(2)   | 2723                                         | 2923 | 2123 | 2323 |
| 680,000                                               | 20        | C202T684M5R5C(2)     |                | CKR15BR684M(2)   | 2724                                         | 2924 | 2124 | 2324 |
| 1,000,000                                             | 10        | C202(1)105K5R5C(2)   | CK15BR105K     | CKR15BR105K(2)   | 2725                                         | 2925 | 2125 | 2325 |
| 1,000,000                                             | 20        | C202(1)105M5R5C(2)   | CK15BR105M     | CKR15BR105M(2)   | 2726                                         | 2926 | 2126 | 2326 |
| 100 VOLT — C222 SIZE (MILITARY—CK16 or CKR16)         |           |                      |                |                  |                                              |      |      |      |
| 470,000                                               | 10        | C222(1)474K1R5C(2)   | CK16BR474K     | CKR16BR474K(2)   | 2727                                         | 2927 | 2127 | 2327 |
| 470,000                                               | 20        | C222(1)474M1R5C(2)   | CK16BR474M     | CKR16BR474M(2)   | 2728                                         | 2928 | 2128 | 2328 |
| 680,000                                               | 10        | C222T684K1R5C(2)     |                | CKR16BR684K(2)   | 2729                                         | 2929 | 2129 | 2329 |
| 680,000                                               | 20        | C222T684M1R5C(2)     |                | CKR16BR684M(2)   | 2730                                         | 2930 | 2130 | 2330 |
| 1,000,000                                             | 10        | C222(1)105K1R5C(2)   | CK16BR105K     | CKR16BR105K(2)   | 2731                                         | 2931 | 2131 | 2331 |
| 1,000,000                                             | 20        | C222(1)105M1R5C(2)   | CK16BR105M     | CKR16BR105M(2)   | 2732                                         | 2932 | 2132 | 2332 |
| 50 VOLT — C222 SIZE (MILITARY—CK16 or CKR16)          |           |                      |                |                  |                                              |      |      |      |
| 2,200,000                                             | 10        | C222(1)225K5R5C(2)   | CK16BR225K     | CKR16BR225K(2)   | 2733                                         | 2933 | 2133 | 2333 |
| 2,200,000                                             | 20        | C222(1)225M5R5C(2)   | CK16BR225M     | CKR16BR225M(2)   | 2734                                         | 2934 | 2134 | 2334 |
| 3,300,000                                             | 10        | C222(1)335K5R5C(2)   | CK16BR335M     | CKR16BR335K(2)   | 2735                                         | 2935 | 2135 | 2335 |
| 3,300,000                                             | 20        | C222(1)335M5R5C(2)   | CK16BR335M     | CKR16BR335M(2)   | 2736                                         | 2936 | 2136 | 2336 |

(1) Insert proper letter for specification: K — MIL-C-11015; T — MIL-PRF-39014 (2) Failure Rate Designator: A — Not applicable (MIL-C-11015); M — 1%/1000 Hours, P — .1%/1000 Hours, R — .01%/1000 Hours, S — .001%/1000 Hours (MIL-PRF-39014)



## RATINGS &amp; PART NUMBER REFERENCE

| CAP.<br>pF                                         | TOL.<br>% | KEMET                | MIL-C-11015/18 | MIL-PRF-39014/01  | MIL-PRF-39014/01 For Failure Rate Levels (2) |         |         |         |
|----------------------------------------------------|-----------|----------------------|----------------|-------------------|----------------------------------------------|---------|---------|---------|
|                                                    |           | PART NUMBER          |                |                   | M                                            | P       | R       | S       |
| 200 VOLT — C052/C056 SIZE (MILITARY—CK05 or CKR05) |           |                      |                |                   |                                              |         |         |         |
| 10                                                 | 10        | C05(4)(1)100K2X5C(2) | CK05BX100K     | CKR05BX100K(2)(3) | 1201(3)                                      | 1241(3) | 1281(3) | 1321(3) |
| 10                                                 | 20        | C05(4)(1)100M2X5C(2) | CK05BX100M     | CKR05BX100M(2)(3) | 1202(3)                                      | 1242(3) | 1282(3) | 1322(3) |
| 12                                                 | 10        | C05(4)(1)120K2X5C(2) | CK05BX120K     | CKR05BX120K(2)(3) | 1203(3)                                      | 1243(3) | 1283(3) | 1323(3) |
| 15                                                 | 10        | C05(4)(1)150K2X5C(2) | CK05BX150K     | CKR05BX150K(2)(3) | 1204(3)                                      | 1244(3) | 1284(3) | 1324(3) |
| 15                                                 | 20        | C05(4)(1)150M2X5C(2) | CK05BX150M     | CKR05BX150M(2)(3) | 1205(3)                                      | 1245(3) | 1285(3) | 1325(3) |
| 18                                                 | 10        | C05(4)(1)180K2X5C(2) | CK05BX180K     | CKR05BX180K(2)(3) | 1206(3)                                      | 1246(3) | 1286(3) | 1326(3) |
| 22                                                 | 10        | C05(4)(1)220K2X5C(2) | CK05BX220K     | CKR05BX220K(2)(3) | 1207(3)                                      | 1247(3) | 1287(3) | 1327(3) |
| 22                                                 | 20        | C05(4)(1)220M2X5C(2) | CK05BX220M     | CKR05BX220M(2)(3) | 1208(3)                                      | 1248(3) | 1288(3) | 1328(3) |
| 27                                                 | 10        | C05(4)(1)270K2X5C(2) | CK05BX270K     | CKR05BX270K(2)(3) | 1209(3)                                      | 1249(3) | 1289(3) | 1329(3) |
| 33                                                 | 10        | C05(4)(1)330K2X5C(2) | CK05BX330K     | CKR05BX330K(2)(3) | 1210(3)                                      | 1250(3) | 1290(3) | 1330(3) |
| 33                                                 | 20        | C05(4)(1)330M2X5C(2) | CK05BX330M     | CKR05BX330M(2)(3) | 1211(3)                                      | 1251(3) | 1291(3) | 1331(3) |
| 39                                                 | 10        | C05(4)(1)390K2X5C(2) | CK05BX390K     | CKR05BX390K(2)(3) | 1212(3)                                      | 1252(3) | 1292(3) | 1332(3) |
| 47                                                 | 10        | C05(4)(1)470K2X5C(2) | CK05BX470K     | CKR05BX470K(2)(3) | 1213(3)                                      | 1253(3) | 1293(3) | 1333(3) |
| 47                                                 | 20        | C05(4)(1)470M2X5C(2) | CK05BX470M     | CKR05BX470M(2)(3) | 1214(3)                                      | 1254(3) | 1294(3) | 1334(3) |
| 56                                                 | 10        | C05(4)(1)560K2X5C(2) | CK05BX560K     | CKR05BX560K(2)(3) | 1215(3)                                      | 1255(3) | 1295(3) | 1335(3) |
| 68                                                 | 10        | C05(4)(1)680K2X5C(2) | CK05BX680K     | CKR05BX680K(2)(3) | 1216(3)                                      | 1256(3) | 1296(3) | 1336(3) |
| 68                                                 | 20        | C05(4)(1)680M2X5C(2) | CK05BX680M     | CKR05BX680M(2)(3) | 1217(3)                                      | 1257(3) | 1297(3) | 1337(3) |
| 82                                                 | 10        | C05(4)(1)820K2X5C(2) | CK05BX820K     | CKR05BX820K(2)(3) | 1218(3)                                      | 1258(3) | 1298(3) | 1338(3) |
| 100                                                | 10        | C05(4)(1)101K2X5C(2) | CK05BX101K     | CKR05BX101K(2)(3) | 1219(3)                                      | 1259(3) | 1299(3) | 1339(3) |
| 100                                                | 20        | C05(4)(1)101M2X5C(2) | CK05BX101M     | CKR05BX101M(2)(3) | 1220(3)                                      | 1260(3) | 1300(3) | 1340(3) |
| 120                                                | 10        | C05(4)(1)121K2X5C(2) | CK05BX121K     | CKR05BX121K(2)(3) | 1221(3)                                      | 1261(3) | 1301(3) | 1341(3) |
| 150                                                | 10        | C05(4)(1)151K2X5C(2) | CK05BX151K     | CKR05BX151K(2)(3) | 1222(3)                                      | 1262(3) | 1302(3) | 1342(3) |
| 150                                                | 20        | C05(4)(1)151M2X5C(2) | CK05BX151M     | CKR05BX151M(2)(3) | 1223(3)                                      | 1263(3) | 1303(3) | 1343(3) |
| 180                                                | 10        | C05(4)(1)181K2X5C(2) | CK05BX181K     | CKR05BX181K(2)(3) | 1224(3)                                      | 1264(3) | 1304(3) | 1344(3) |
| 220                                                | 10        | C05(4)(1)221K2X5C(2) | CK05BX221K     | CKR05BX221K(2)(3) | 1225(3)                                      | 1265(3) | 1305(3) | 1345(3) |
| 220                                                | 20        | C05(4)(1)221M2X5C(2) | CK05BX221M     | CKR05BX221M(2)(3) | 1226(3)                                      | 1266(3) | 1306(3) | 1346(3) |
| 270                                                | 10        | C05(4)(1)271K2X5C(2) | CK05BX271K     | CKR05BX271K(2)(3) | 1227(3)                                      | 1267(3) | 1307(3) | 1347(3) |
| 330                                                | 10        | C05(4)(1)331K2X5C(2) | CK05BX331K     | CKR05BX331K(2)(3) | 1228(3)                                      | 1268(3) | 1308(3) | 1348(3) |
| 330                                                | 20        | C05(4)(1)331M2X5C(2) | CK05BX331M     | CKR05BX331M(2)(3) | 1229(3)                                      | 1269(3) | 1309(3) | 1349(3) |
| 390                                                | 10        | C05(4)(1)391K2X5C(2) | CK05BX391K     | CKR05BX391K(2)(3) | 1230(3)                                      | 1270(3) | 1310(3) | 1350(3) |
| 470                                                | 10        | C05(4)(1)471K2X5C(2) | CK05BX471K     | CKR05BX471K(2)(3) | 1231(3)                                      | 1271(3) | 1311(3) | 1351(3) |
| 470                                                | 20        | C05(4)(1)471M2X5C(2) | CK05BX471M     | CKR05BX471M(2)(3) | 1232(3)                                      | 1272(3) | 1312(3) | 1352(3) |
| 560                                                | 10        | C05(4)(1)561K2X5C(2) | CK05BX561K     | CKR05BX561K(2)(3) | 1233(3)                                      | 1273(3) | 1313(3) | 1353(3) |
| 680                                                | 10        | C05(4)(1)681K2X5C(2) | CK05BX681K     | CKR05BX681K(2)(3) | 1234(3)                                      | 1274(3) | 1314(3) | 1354(3) |
| 680                                                | 20        | C05(4)(1)681M2X5C(2) | CK05BX681M     | CKR05BX681M(2)(3) | 1235(3)                                      | 1275(3) | 1315(3) | 1355(3) |
| 820                                                | 10        | C05(4)(1)821K2X5C(2) | CK05BX821K     | CKR05BX821K(2)(3) | 1236(3)                                      | 1276(3) | 1316(3) | 1356(3) |
| 1,000                                              | 10        | C05(4)(1)102K2X5C(2) | CK05BX102K     | CKR05BX102K(2)(3) | 1237(3)                                      | 1277(3) | 1317(3) | 1357(3) |
| 1,000                                              | 20        | C05(4)(1)102M2X5C(2) | CK05BX102M     | CKR05BX102M(2)(3) | 1238(3)                                      | 1278(3) | 1318(3) | 1358(3) |
| 100 VOLT — C052/C056 SIZE (MILITARY—CK05 or CKR05) |           |                      |                |                   |                                              |         |         |         |
| 1,200                                              | 10        | C05(4)(1)122K1X5C(2) | CK05BX122K     | CKR05BX122K(2)(3) | 1239(3)                                      | 1279(3) | 1319(3) | 1359(3) |
| 1,500                                              | 10        | C05(4)(1)152K1X5C(2) | CK05BX152K     | CKR05BX152K(2)(3) | 1240(3)                                      | 1280(3) | 1320(3) | 1360(3) |
| 1,500                                              | 20        | C05(4)(1)152M1X5C(2) | CK05BX152M     | CKR05BX152M(2)(3) | 1441(3)                                      | 1481(3) | 1521(3) | 1561(3) |
| 1,800                                              | 10        | C05(4)(1)182K1X5C(2) | CK05BX182K     | CKR05BX182K(2)(3) | 1442(3)                                      | 1482(3) | 1522(3) | 1562(3) |
| 2,200                                              | 10        | C05(4)(1)222K1X5C(2) | CK05BX222K     | CKR05BX222K(2)(3) | 1443(3)                                      | 1483(3) | 1523(3) | 1563(3) |
| 2,200                                              | 20        | C05(4)(1)222M1X5C(2) | CK05BX222M     | CKR05BX222M(2)(3) | 1444(3)                                      | 1484(3) | 1524(3) | 1564(3) |
| 2,700                                              | 10        | C05(4)(1)272K1X5C(2) | CK05BX272K     | CKR05BX272K(2)(3) | 1445(3)                                      | 1485(3) | 1525(3) | 1565(3) |
| 3,300                                              | 10        | C05(4)(1)332K1X5C(2) | CK05BX332K     | CKR05BX332K(2)(3) | 1446(3)                                      | 1486(3) | 1526(3) | 1566(3) |
| 3,300                                              | 20        | C05(4)(1)332M1X5C(2) | CK05BX332M     | CKR05BX332M(2)(3) | 1447(3)                                      | 1487(3) | 1527(3) | 1567(3) |
| 3,900                                              | 10        | C05(4)(1)392K1X5C(2) | CK05BX392K     | CKR05BX392K(2)(3) | 1448(3)                                      | 1488(3) | 1528(3) | 1568(3) |
| 4,700                                              | 10        | C05(4)(1)472K1X5C(2) | CK05BX472K     | CKR05BX472K(2)(3) | 1449(3)                                      | 1489(3) | 1529(3) | 1569(3) |
| 4,700                                              | 20        | C05(4)(1)472M1X5C(2) | CK05BX472M     | CKR05BX472M(2)(3) | 1450(3)                                      | 1490(3) | 1530(3) | 1570(3) |
| 5,600                                              | 10        | C05(4)(1)562K1X5C(2) | CK05BX562K     | CKR05BX562K(2)(3) | 1451(3)                                      | 1491(3) | 1531(3) | 1571(3) |
| 6,800                                              | 10        | C05(4)(1)682K1X5C(2) | CK05BX682K     | CKR05BX682K(2)(3) | 1452(3)                                      | 1492(3) | 1532(3) | 1572(3) |
| 6,800                                              | 20        | C05(4)(1)682M1X5C(2) | CK05BX682M     | CKR05BX682M(2)(3) | 1453(3)                                      | 1493(3) | 1533(3) | 1573(3) |
| 8,200                                              | 10        | C05(4)(1)822K1X5C(2) | CK05BX822K     | CKR05BX822K(2)(3) | 1454(3)                                      | 1494(3) | 1534(3) | 1574(3) |
| 10,000                                             | 10        | C05(4)(1)103K1X5C(2) | CK05BX103K     | CKR05BX103K(2)(3) | 1455(3)                                      | 1495(3) | 1535(3) | 1575(3) |
| 10,000                                             | 20        | C05(4)(1)103M1X5C(2) | CK05BX103M     | CKR05BX103M(2)(3) | 1456(3)                                      | 1496(3) | 1536(3) | 1576(3) |
| 50 VOLT — C052/C056 SIZE (MILITARY—CK05 or CKR05)  |           |                      |                |                   |                                              |         |         |         |
| 12,000                                             | 10        | C05(4)(1)123K5X5C(2) | CK05BX123K     | CKR05BX123K(2)(3) | 1457(3)                                      | 1497(3) | 1537(3) | 1577(3) |
| 15,000                                             | 10        | C05(4)(1)153K5X5C(2) | CK05BX153K     | CKR05BX153K(2)(3) | 1458(3)                                      | 1498(3) | 1538(3) | 1578(3) |
| 15,000                                             | 20        | C05(4)(1)153M5X5C(2) | CK05BX153M     | CKR05BX153M(2)(3) | 1459(3)                                      | 1499(3) | 1539(3) | 1579(3) |
| 18,000                                             | 10        | C05(4)(1)183K5X5C(2) | CK05BX183K     | CKR05BX183K(2)(3) | 1460(3)                                      | 1500(3) | 1540(3) | 1580(3) |
| 22,000                                             | 10        | C05(4)(1)223K5X5C(2) | CK05BX223K     | CKR05BX223K(2)(3) | 1461(3)                                      | 1501(3) | 1541(3) | 1581(3) |
| 22,000                                             | 20        | C05(4)(1)223M5X5C(2) | CK05BX223M     | CKR05BX223M(2)(3) | 1462(3)                                      | 1502(3) | 1542(3) | 1582(3) |
| 27,000                                             | 10        | C05(4)(1)273K5X5C(2) | CK05BX273K     | CKR05BX273K(2)(3) | 1463(3)                                      | 1503(3) | 1543(3) | 1583(3) |
| 33,000                                             | 10        | C05(4)(1)333K5X5C(2) | CK05BX333K     | CKR05BX333K(2)(3) | 1464(3)                                      | 1504(3) | 1544(3) | 1584(3) |
| 33,000                                             | 20        | C05(4)(1)333M5X5C(2) | CK05BX333M     | CKR05BX333M(2)(3) | 1465(3)                                      | 1505(3) | 1545(3) | 1585(3) |
| 39,000                                             | 10        | C05(4)(1)393K5X5C(2) | CK05BX393K     | CKR05BX393K(2)(3) | 1466(3)                                      | 1506(3) | 1546(3) | 1586(3) |
| 47,000                                             | 10        | C05(4)(1)473K5X5C(2) | CK05BX473K     | CKR05BX473K(2)(3) | 1467(3)                                      | 1507(3) | 1547(3) | 1587(3) |
| 47,000                                             | 20        | C05(4)(1)473M5X5C(2) | CK05BX473M     | CKR05BX473M(2)(3) | 1468(3)                                      | 1508(3) | 1548(3) | 1588(3) |
| 56,000                                             | 10        | C05(4)(1)563K5X5C(2) | CK05BX563K     | CKR05BX563K(2)(3) | 1469(3)                                      | 1509(3) | 1549(3) | 1589(3) |
| 68,000                                             | 10        | C05(4)(1)683K5X5C(2) | CK05BX683K     | CKR05BX683K(2)(3) | 1470(3)                                      | 1510(3) | 1550(3) | 1590(3) |
| 68,000                                             | 20        | C05(4)(1)683M5X5C(2) | CK05BX683M     | CKR05BX683M(2)(3) | 1471(3)                                      | 1511(3) | 1551(3) | 1591(3) |
| 82,000                                             | 10        | C05(4)(1)823K5X5C(2) | CK05BX823K     | CKR05BX823K(2)(3) | 1472(3)                                      | 1512(3) | 1552(3) | 1592(3) |
| 100,000                                            | 10        | C05(4)(1)104K5X5C(2) | CK05BX104K     | CKR05BX104K(2)(3) | 1473(3)                                      | 1513(3) | 1553(3) | 1593(3) |
| 100,000                                            | 20        | C05(4)(1)104M5X5C(2) | CK05BX104M     | CKR05BX104M(2)(3) | 1474(3)                                      | 1514(3) | 1554(3) | 1594(3) |

(1) Insert proper letter for specification: K — MIL-C-11015; T — MIL-PRF-39014 (2) Failure Rate Designator: A — Not applicable (MIL-C-11015); M — 1%/1000 Hours, P — .1%/1000 Hours, R — .01%/1000 Hours, S — .001%/1000 Hours (MIL-PRF-39014)

(3) Insert "V" for standard design (C056). Leave blank for the flat bottom design (C052).

(4) Insert "2" for standard design (Style C052) } Note: Stand-offs are available only  
Insert "6" for stand-off design (Style C056) } with the CKR, not the CK.



# CERAMIC MOLDED/RADIAL — MIL-C-11015 & MIL-PRF-39014

## STABLE TEMPERATURE CHARACTERISTICS—BX & BR (EIA-X7R)

### RATINGS & PART NUMBER REFERENCE

| CAP.<br>pF                                         | TOL.<br>% | KEMET<br>PART NUMBER | MIL-C-11015/19 | MIL-PRF-39014/02  | MIL-PRF-39014/02 For Failure Rate Levels (2) |         |         |         |
|----------------------------------------------------|-----------|----------------------|----------------|-------------------|----------------------------------------------|---------|---------|---------|
|                                                    |           |                      |                |                   | M                                            | P       | R       | S       |
| 200 VOLT — C062/C066 SIZE (MILITARY—CK06 or CKR06) |           |                      |                |                   |                                              |         |         |         |
| 1,200                                              | 10        | C06(4)(1)122K2X5C(2) | CK06BX122K     | CKR06BX122K(2)(3) | 1201(3)                                      | 1241(3) | 1281(3) | 1321(3) |
| 1,500                                              | 10        | C06(4)(1)152K2X5C(2) | CK06BX152K     | CKR06BX152K(2)(3) | 1202(3)                                      | 1242(3) | 1282(3) | 1322(3) |
| 1,500                                              | 20        | C06(4)(1)152M2X5C(2) | CK06BX152M     | CKR06BX152M(2)(3) | 1203(3)                                      | 1243(3) | 1283(3) | 1323(3) |
| 1,800                                              | 10        | C06(4)(1)182K2X5C(2) | CK06BX182K     | CKR06BX182K(2)(3) | 1204(3)                                      | 1244(3) | 1284(3) | 1324(3) |
| 2,200                                              | 10        | C06(4)(1)222K2X5C(2) | CK06BX222K     | CKR06BX222K(2)(3) | 1206(3)                                      | 1246(3) | 1286(3) | 1326(3) |
| 2,200                                              | 20        | C06(4)(1)222M2X5C(2) | CK06BX222M     | CKR06BX222M(2)(3) | 1207(3)                                      | 1247(3) | 1287(3) | 1327(3) |
| 2,700                                              | 10        | C06(4)(1)272K2X5C(2) | CK06BX272K     | CKR06BX272K(2)(3) | 1208(3)                                      | 1248(3) | 1288(3) | 1328(3) |
| 3,300                                              | 10        | C06(4)(1)332K2X5C(2) | CK06BX332K     | CKR06BX332K(2)(3) | 1209(3)                                      | 1249(3) | 1289(3) | 1329(3) |
| 3,300                                              | 20        | C06(4)(1)332M2X5C(2) | CK06BX332M     | CKR06BX332M(2)(3) | 1210(3)                                      | 1250(3) | 1290(3) | 1330(3) |
| 3,900                                              | 10        | C06(4)(1)392K2X5C(2) | CK06BX392K     | CKR06BX392K(2)(3) | 1211(3)                                      | 1251(3) | 1291(3) | 1331(3) |
| 4,700                                              | 10        | C06(4)(1)472K2X5C(2) | CK06BX472K     | CKR06BX472K(2)(3) | 1212(3)                                      | 1252(3) | 1292(3) | 1332(3) |
| 4,700                                              | 20        | C06(4)(1)472M2X5C(2) | CK06BX472M     | CKR06BX472M(2)(3) | 1213(3)                                      | 1253(3) | 1293(3) | 1333(3) |
| 5,600                                              | 10        | C06(4)(1)562K2X5C(2) | CK06BX562K     | CKR06BX562K(2)(3) | 1214(3)                                      | 1254(3) | 1294(3) | 1334(3) |
| 6,800                                              | 10        | C06(4)(1)682K2X5C(2) | CK06BX682K     | CKR06BX682K(2)(3) | 1215(3)                                      | 1255(3) | 1295(3) | 1335(3) |
| 6,800                                              | 20        | C06(4)(1)682M2X5C(2) | CK06BX682M     | CKR06BX682M(2)(3) | 1216(3)                                      | 1256(3) | 1296(3) | 1336(3) |
| 8,200                                              | 10        | C06(4)(1)822K2X5C(2) | CK06BX822K     | CKR06BX822K(2)(3) | 1217(3)                                      | 1257(3) | 1297(3) | 1337(3) |
| 10,000                                             | 10        | C06(4)(1)103K2X5C(2) | CK06BX103K     | CKR06BX103K(2)(3) | 1218(3)                                      | 1258(3) | 1298(3) | 1338(3) |
| 10,000                                             | 20        | C06(4)(1)103M2X5C(2) | CK06BX103M     | CKR06BX103M(2)(3) | 1219(3)                                      | 1259(3) | 1299(3) | 1339(3) |
| 100 VOLT — C062/C066 SIZE (MILITARY—CK06 or CKR06) |           |                      |                |                   |                                              |         |         |         |
| 12,000                                             | 10        | C06(4)(1)123K1X5C(2) | CK06BX123K     | CKR06BX123K(2)(3) | 1231(3)                                      | 1271(3) | 1311(3) | 1351(3) |
| 15,000                                             | 10        | C06(4)(1)153K1X5C(2) | CK06BX153K     | CKR06BX153K(2)(3) | 1220(3)                                      | 1260(3) | 1300(3) | 1340(3) |
| 15,000                                             | 20        | C062K153M1X5CA       | CK06BX153M     |                   |                                              |         |         |         |
| 18,000                                             | 10        | C06(4)(1)183K1X5C(2) | CK06BX183K     | CKR06BX183K(2)(3) | 1221(3)                                      | 1261(3) | 1301(3) | 1341(3) |
| 22,000                                             | 10        | C06(4)(1)223K1X5C(2) | CK06BX223K     | CKR06BX223K(2)(3) | 1222(3)                                      | 1262(3) | 1302(3) | 1342(3) |
| 22,000                                             | 20        | C062K223M1X5CA       | CK06BX223M     |                   |                                              |         |         |         |
| 27,000                                             | 10        | C06(4)(1)273K1X5C(2) | CK06BX273K     | CKR06BX273K(2)(3) | 1232(3)                                      | 1272(3) | 1312(3) | 1352(3) |
| 33,000                                             | 10        | C06(4)(1)333K1X5C(2) | CK06BX333K     | CKR06BX333K(2)(3) | 1223(3)                                      | 1263(3) | 1303(3) | 1343(3) |
| 33,000                                             | 20        | C062K333M1X5CA       | CK06BX333M     |                   |                                              |         |         |         |
| 39,000                                             | 10        | C06(4)(1)393K1X5C(2) | CK06BX393K     | CKR06BX393K(2)(3) | 1224(3)                                      | 1264(3) | 1304(3) | 1344(3) |
| 47,000                                             | 10        | C06(4)(1)473K1X5C(2) | CK06BX473K     | CKR06BX473K(2)(3) | 1225(3)                                      | 1265(3) | 1305(3) | 1345(3) |
| 47,000                                             | 20        | C062K473M1X5CA       | CK06BX473M     |                   |                                              |         |         |         |
| 56,000                                             | 10        | C06(4)(1)563K1X5C(2) | CK06BX563K     | CKR06BX563K(2)(3) | 1226(3)                                      | 1266(3) | 1306(3) | 1346(3) |
| 68,000                                             | 10        | C06(4)(1)683K1X5C(2) | CK06BX683K     | CKR06BX683K(2)(3) | 1227(3)                                      | 1267(3) | 1307(3) | 1347(3) |
| 68,000                                             | 20        | C062K683M1X5CA       | CK06BX683M     |                   |                                              |         |         |         |
| 82,000                                             | 10        | C06(4)(1)823K1X5C(2) | CK06BX823K     | CKR06BX823K(2)(3) | 1229(3)                                      | 1269(3) | 1309(3) | 1349(3) |
| 100,000                                            | 10        | C06(4)(1)104K1X5C(2) | CK06BX104K     | CKR06BX104K(2)(3) | 1230(3)                                      | 1270(3) | 1310(3) | 1350(3) |
| 100,000                                            | 20        | C062K104M1X5CA       | CK06BX104M     |                   |                                              |         |         |         |
| 50 VOLT — C062/C066 SIZE (MILITARY—CK06 or CKR06)  |           |                      |                |                   |                                              |         |         |         |
| 120,000                                            | 10        | C06(4)(1)124K5X5C(2) | CK06BX124K     | CKR06BX124K(2)(3) | 1233(3)                                      | 1273(3) | 1313(3) | 1353(3) |
| 150,000                                            | 10        | C06(4)(1)154K5X5C(2) | CK06BX154K     | CKR06BX154K(2)(3) | 1234(3)                                      | 1274(3) | 1314(3) | 1354(3) |
| 150,000                                            | 20        | C062K154M5X5CA       | CK06BX154M     |                   |                                              |         |         |         |
| 180,000                                            | 10        | C06(4)(1)184K5X5C(2) | CK06BX184K     | CKR06BX184K(2)(3) | 1235(3)                                      | 1275(3) | 1315(3) | 1355(3) |
| 220,000                                            | 10        | C06(4)(1)224K5X5C(2) | CK06BX224K     | CKR06BX224K(2)(3) | 1236(3)                                      | 1276(3) | 1316(3) | 1356(3) |
| 220,000                                            | 20        | C062K224M5X5CA       | CK06BX224M     |                   |                                              |         |         |         |
| 270,000                                            | 10        | C06(4)(1)274K5X5C(2) | CK06BX274K     | CKR06BX274K(2)(3) | 1237(3)                                      | 1277(3) | 1317(3) | 1357(3) |
| 330,000                                            | 10        | C06(4)(1)334K5X5C(2) | CK06BX334K     | CKR06BX334K(2)(3) | 1238(3)                                      | 1278(3) | 1318(3) | 1358(3) |
| 330,000                                            | 20        | C062K334M5X5CA       | CK06BX334M     |                   |                                              |         |         |         |
| 390,000                                            | 10        | C06(4)(1)394K5X5C(2) | CK06BX394K     | CKR06BX394K(2)(3) | 1239(3)                                      | 1279(3) | 1319(3) | 1359(3) |
| 470,000                                            | 10        | C06(4)(1)474K5X5C(2) | CK06BX474K     | CKR06BX474K(2)(3) | 1240(3)                                      | 1280(3) | 1320(3) | 1360(3) |
| 470,000                                            | 20        | C062K474M5X5CA       | CK06BX474M     |                   |                                              |         |         |         |
| 560,000                                            | 10        | C06(4)(1)564K5X5C(2) | CK06BX564K     | CKR06BX564K(2)(3) | 1404(3)                                      | 1408(3) | 1412(3) | 1416(3) |
| 680,000                                            | 10        | C06(4)(1)684K5X5C(2) | CK06BX684K     | CKR06BX684K(2)(3) | 1405(3)                                      | 1409(3) | 1413(3) | 1417(3) |
| 680,000                                            | 20        | C062K684M5X5CA       | CK06BX684M     |                   |                                              |         |         |         |
| 820,000                                            | 10        | C06(4)(1)824K5X5C(2) | CK06BX824K     | CKR06BX824K(2)(3) | 1406(3)                                      | 1410(3) | 1414(3) | 1418(3) |
| 1,000,000                                          | 10        | C06(4)(1)105K5X5C(2) | CK06BX105K     | CKR06BX105K(2)(3) | 1407(3)                                      | 1411(3) | 1415(3) | 1419(3) |
| 1,000,000                                          | 20        | C062K105M5X5CA       | CK06BX105M     |                   |                                              |         |         |         |

(1) Insert proper letter for specification: K — MIL-C-11015; T — MIL-PRF-39014.

(2) Failure Rate Designator: A — Not applicable (MIL-C-11015); M — 1%/1000 Hours, P — .1%/1000 Hours, R — .01%/1000 Hours, S — .001%/1000 Hours (MIL-PRF-39014)

(3) Add "V" for stand-off design (C066). Leave blank for the flat bottom design (C062).

(4) Insert "2" for standard design (Style C062). Insert "6" for stand-off design (Style C066). Note: Stand-offs are available only with the CKR, not the CK.

## Ceramic Axial Lead Tape and Reel Packaging

KEMET offers standard reeling of Molded and Conformally Coated Axial Leaded Ceramic Capacitors for automatic insertion or lead forming machines per EIA specification RS-296. KEMET'S internal specification four-digit suffix, 7200, is placed at the end of the part number to designate tape and reel packaging, ie: C410C104Z5U5CA7200.

Paper (50 lb.) test minimum is inserted between the layers of capacitors wound on reels for component pitch  $\leq 0.400"$ . Capacitor lead length may extend only a maximum of  $.0625"$  (1.59mm) beyond the tapes' edges. Capacitors are centered in a row between the two tapes and will deviate only  $\pm 0.031$  (0.79mm) from the row center. A minimum of 36" (91.5 cm) leader tape is provided at each end of the reel capacitors. Universal splicing clips are used to connect the tape. Standard reel quantities are shown on page 41.

Figure 1

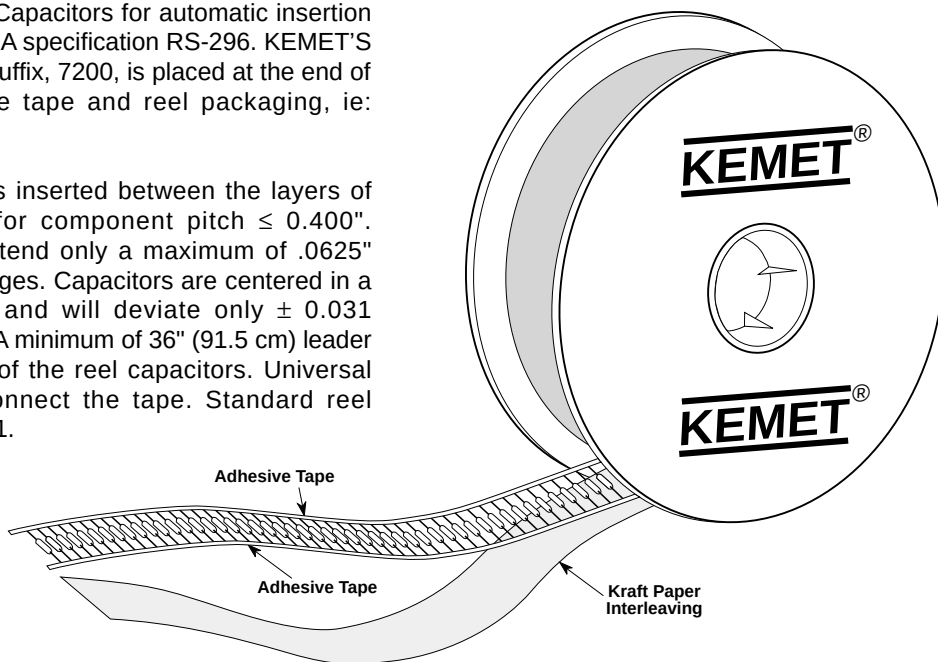


Figure 2

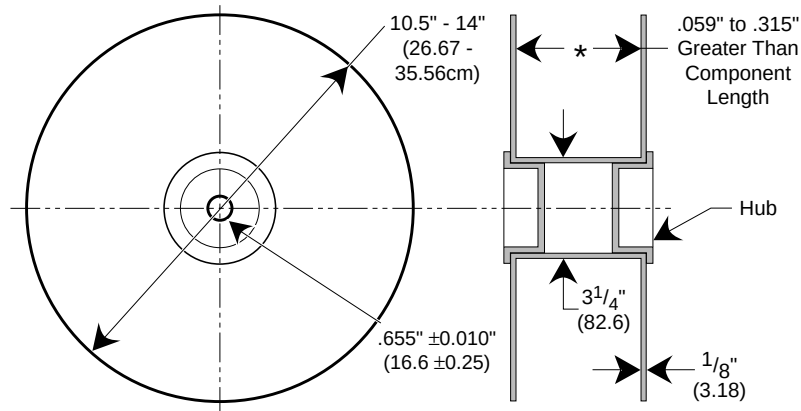


Figure 3

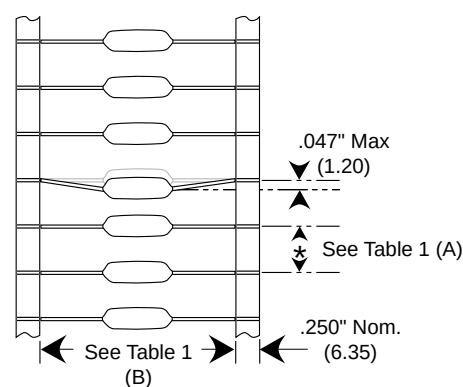


Table 1 Dimensions in Inches & (Millimeters)

| Component Body Diameter          | Component Pitch "A" | Inside Tape Spacing "B" $\pm 1.5\text{mm}$ (0.059") |               |
|----------------------------------|---------------------|-----------------------------------------------------|---------------|
|                                  |                     | I                                                   | III*          |
| 0" (0mm) to 0.197" (5mm)         | 0.197" or (5mm)     | 2.062" (52.4mm)                                     |               |
| 0.197" (5.01mm) to 0.394" (10mm) | 0.394" or (10mm)    |                                                     | 2.874" (73mm) |

\* Not Available for Conformally Coated Parts.



## Ceramic Radial Lead Tape and Reel Packaging

KEMET offers standard reeling of Molded and Conformally Coated Radial Leaded Ceramic Capacitors for automatic insertion per EIA specification RS-468. Parts are taped to a tagboard carrier strip, and wound on a reel as shown in Figure 1. Kraft paper interleaving is inserted between the layers of capacitors on the reel. Ammopack is also available, with the same lead tape configuration and package quantities.

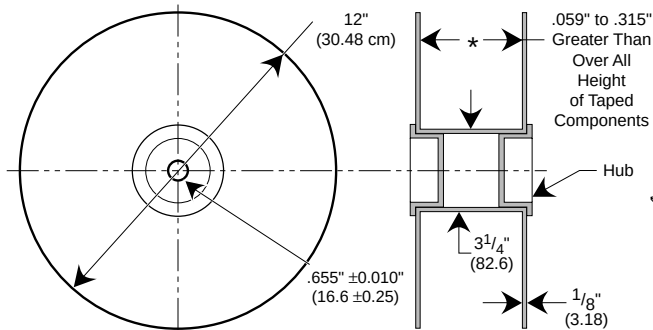


Figure 3: Standard Reel

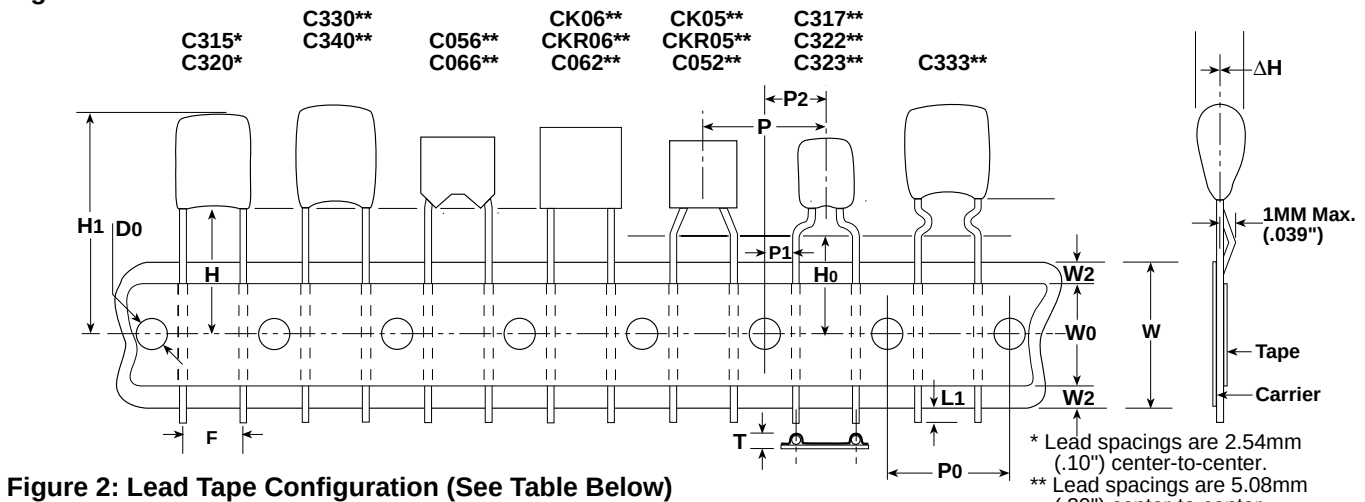
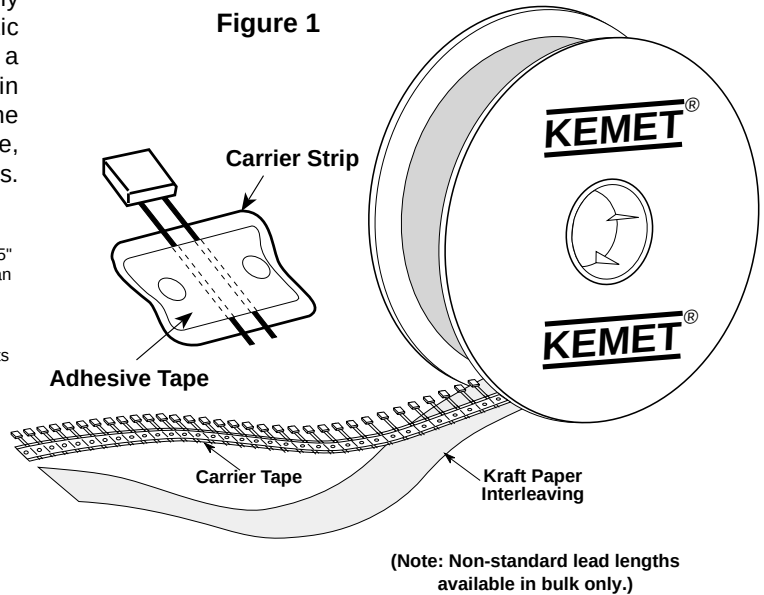


Figure 2: Lead Tape Configuration (See Table Below)

### Ceramic Radial Tape and Reel Dimensions in Millimeters & (Inches)

| Dimension                                    | Symbol | Nominal<br>mm (inch)                 | Tolerance<br>mm (inch)           | Dimension                                  | Symbol | Nominal<br>mm (inch)                 | Tolerance<br>mm (inch)           |
|----------------------------------------------|--------|--------------------------------------|----------------------------------|--------------------------------------------|--------|--------------------------------------|----------------------------------|
| Sprocket Hole Diameter                       | D0     | 4.0 (.157)                           | ± 0.2 (.008)                     | Height to Seating Plane (formed leads) (2) | H0     | 7301 7303<br>16.0 (.630) 18.0 (.709) | 7301 7303<br>±0.5 (.020) Minimum |
| Sprocket Hole Pitch                          | P0     | 12.7 (.500)                          | ± 0.3 (.012)                     | Component Alignment                        | Δh     | 4.0 (.157)                           | ±0.2 (.008)                      |
| Component Pitch                              | P      | 12.7 (.500)                          | ± 0.3 (.012)                     | Lead Protrusion                            | L1     | 1.0 (.039)                           | Maximum                          |
| Lead Spacing (1)                             | F      | 5.08<br>(.20)                        | 2.54<br>(.10)                    | Composite Tape Thickness                   | t      | 0.7 (.051)                           | ±0.2 (.008)                      |
| Sprocket Hole Center to Lead Center (1)      | P1     | 3.81<br>(.150)                       | 5.08<br>(.200)                   | Overall Tape and Lead Thickness            | T      | 1.5 (.059)                           | Maximum                          |
| Sprocket Hole Center to Component Center     | P2     | 6.35 (.250)                          | ± 1.3 (.051)                     | Carrier Tape Width                         | W      | 18.0 (.709)                          | +1.0 - 0.5<br>(+.039 -.020)      |
| Height to Seating Plane (straight leads) (2) | H      | 7301 7303<br>16.0 (.630) 18.0 (.709) | 7301 7303<br>±0.5 (.020) Minimum | Hold-Down Tape Width                       | W0     | 5.0 (.197)                           | Minimum                          |
| Component Height Above Tape Center           | H1     | 32.2 (1.27)                          | Maximum                          | Hold-Down Tape Location                    | W2     | 3.0 (.118)                           | Maximum                          |

(1) Measured at the egress from the carrier tape, on the component side.

(2) Determined by a 4 digit suffix placed at the end of the part number, as follows:

7301 = Recommended for parts with formed leads. Example: C322C104K5R5CA7301  
7303 = Recommended for parts with straight leads. Example: C320C104K5R5CA7303

| <b>CERAMIC PACKAGING</b> |                       |                               |                                   |                                   |                              |                  |
|--------------------------|-----------------------|-------------------------------|-----------------------------------|-----------------------------------|------------------------------|------------------|
| <b>KEMET Series</b>      | <b>Military Style</b> | <b>Military Specification</b> | <b>Standard (1) Bulk Quantity</b> | <b>Ammo Pack Quantity Maximum</b> | <b>Maximum Reel Quantity</b> | <b>Reel Size</b> |
| C114C-K-G                | CK12, CC75            | MIL-C-11015/<br>MIL-PRF-20    | 200/Box                           |                                   | 5000                         | 12"              |
| C124C-K-G                | CK13, CC76            |                               | 200/Box                           |                                   | 5000                         | 12"              |
| C192C-K-G                | CK14, CC77            |                               | 100/Box                           |                                   | 3000                         | 12"              |
| C202C-K                  | CK15                  |                               | 25/Box                            |                                   | 500                          | 12"              |
| C222C-K                  | CK16                  |                               | 10/Tray                           |                                   | 300                          | 12"              |
| C052C-K-G                | CK05, CC05            |                               | 100/Bag                           | 2000                              | 2000                         | 12"              |
| C062C-K-G                | CK06, CC06            |                               | 100/Bag                           | 1500                              | 1500                         | 12"              |
| C114G                    | CCR75                 | MIL-PRF-20                    | 200/Box                           |                                   | 5000                         | 12"              |
| C124G                    | CCR76                 |                               | 200/Box                           |                                   | 5000                         | 12"              |
| C192G                    | CCR77                 |                               | 100/Box                           |                                   | 3000                         | 12"              |
| C202G                    | CC78-CCR78            |                               | 25/Box                            |                                   | 500                          | 12"              |
| C222G                    | CC79-CCR79            |                               | 10/Tray                           |                                   | 300                          | 12"              |
| C052/56G                 | CCR05                 |                               | 100/Bag                           |                                   | 1700                         | 12"              |
| C062/66G                 | CCR06                 |                               | 100/Bag                           |                                   | 1500                         | 12"              |
| C512G                    | CC07-CCR07            |                               | Footnote (2)                      |                                   | N/A                          | N/A              |
| C522G                    | CC08-CCR08            |                               | Footnote (2)                      |                                   | N/A                          | N/A              |
| C114T                    | CKR11                 | MIL-PRF-39014                 | 200/Box                           |                                   | 5000                         | 12"              |
| C124T                    | CKR12                 |                               | 200/Box                           |                                   | 5000                         | 12"              |
| C192T                    | CKR14                 |                               | 100/Box                           |                                   | 3000                         | 12"              |
| C202T                    | CKR15                 |                               | 25/Box                            |                                   | 500                          | 12"              |
| C222T                    | CKR16                 |                               | 10/Tray                           |                                   | 300                          | 12"              |
| C052/56T                 | CKR05                 |                               | 100/Bag                           |                                   | 1700                         | 12"              |
| C062/66T                 | CKR06                 |                               | 100/Bag                           |                                   | 1500                         | 12"              |
| C31X                     |                       |                               | 500/Bag                           | 2500                              | 2500                         | 12"              |
| C32X                     |                       |                               | 500/Bag                           | 2500                              | 2500                         | 12"              |
| C33X                     |                       |                               | 250/Bag                           | 1500                              | 1500                         | 12"              |
| C340                     |                       |                               | 100/Bag                           | 1000                              | 1000                         | 12"              |
| C350                     |                       |                               | 50/Bag                            | N/A                               | N/A                          | N/A              |
| C410                     |                       |                               | 300/Box                           | 4000                              | 5000                         | 12"              |
| C412                     |                       |                               | 200/Box                           | 4000                              | 5000                         | 12"              |
| C420                     |                       |                               | 300/Box                           | 4000                              | 5000                         | 12"              |
| C430                     |                       |                               | 200/Box                           | 2000                              | 2500                         | 12"              |
| C440                     |                       |                               | 200/Box                           | 2000                              | 2500                         | 12"              |
| C512                     | N/A                   | N/A                           | Footnote (2)                      |                                   | N/A                          | N/A              |
| C522                     | N/A                   | N/A                           | Footnote (2)                      |                                   | N/A                          | N/A              |
| C617                     |                       |                               | 500/Bag                           |                                   |                              |                  |
| C622/C623                |                       |                               | 500/Bag                           |                                   |                              |                  |
| C627/C628                |                       |                               | 500/Bag                           |                                   |                              |                  |
| C630/C631                |                       |                               | 250/Bag                           |                                   |                              |                  |
| C637/C638                |                       |                               | 250/Bag                           |                                   |                              |                  |
| C640/C641                |                       |                               | 100/Bag                           |                                   |                              |                  |
| C642/C643                |                       |                               | 100/Bag                           |                                   |                              |                  |
| C647/C648                |                       |                               | 100/Bag                           |                                   |                              |                  |
| C657/C658                |                       |                               | 50/Bag                            |                                   |                              |                  |
| C667/C668                |                       |                               | 50/Bag                            |                                   |                              |                  |

NOTE: (1) Standard packaging refers to number of pieces per bag, tray or vial.

(2) Quantity varies. For further details, please consult the factory.