

GENERAL

Working Voltage:

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

Temperature Characteristics:

C0G – 0 \pm 30 PPM/ $^{\circ}$ C from -55° C to $+125^{\circ}$ C
X7R – \pm 15% from -55° 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° 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° C and rated voltage
C0G – 100K megohms or 1000 megohm - μ F, whichever is less.
X7R – 100K megohms or 1000 megohm - μ F, whichever is less.

Dielectric Withstanding Voltage:

250% of rated voltage for 5 seconds with current limited to 50 mA at 25° C.

Life Test:

2000 hours at 200% of rated voltage at 125° C. Post-Test limits at 25° 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 - μ F, whichever is less
X7R – 10K megohms or 100 megohm - μ 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 - μ F, whichever is less
X7R – 10K megohms or 100 megohm - μ 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° C are:

Insulation Resistance:

C0G – 10K megohms or 100 megohm - μ F, whichever is less
X7R – 10K megohms or 100 megohm - μ F, whichever is less

Solderability:

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

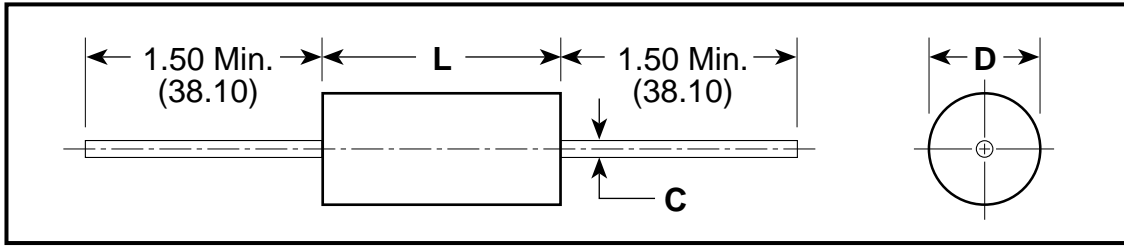
Resistance to Soldering Heat:

MIL-STD-202, Method 210, Condition B (260° 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 standard; 100% tin plated optional

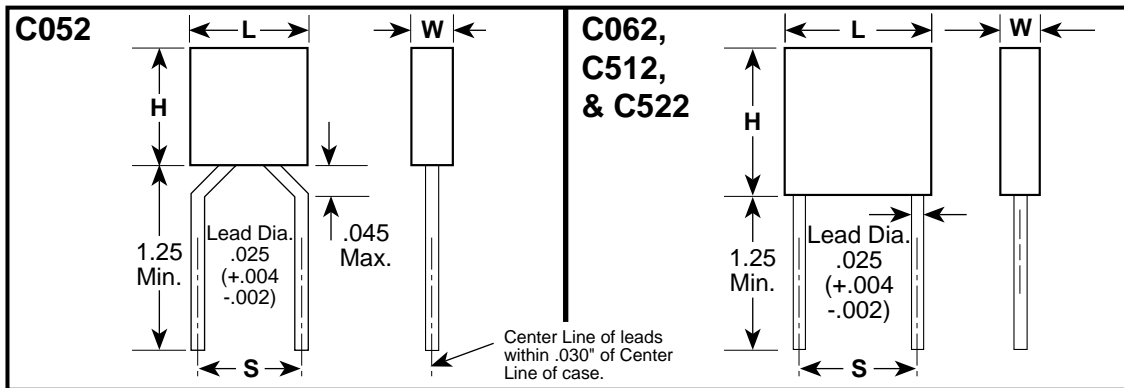
CAPACITOR OUTLINE DRAWINGS — (AXIAL LEADS)



DIMENSIONS—INCHES & (MILLIMETERS)

| CASE SIZE | MILITARY EQUIVALENT STYLES | L | D | C |
|-----------|----------------------------|---------------------------|--------------------------|---------------------------------------|
| C114 | CC75, CCR75 CK12, CKR11 | .160 ± .010 (4.06 ± .25) | .090 ± .010 (2.29 ± .25) | .020, +.000, -.003 (.51, +.00, -.08) |
| C124 | CC76, CCR76 CK13, CKR12 | .250 ± .010 (6.35 ± .25) | .090 ± .010 (2.29 ± .25) | .020, +.000, -.003 (.51, +.00, -.08) |
| C192 | CC77, CCR77 CK14, CKR14 | .390 ± .010 (9.91 ± .25) | .140 ± .010 (3.56 ± .25) | .025, +.004, -.001 (.64, +.10, -.025) |
| C202 | CC78, CCR78 CK15, CKR15 | .500 ± .020 (12.70 ± .51) | .250 ± .015 (6.35 ± .38) | .025, +.004, -.001 (.64, +.10, -.025) |
| C222 | CC79, CCR79 CK16, CKR16 | .690 ± .030 (17.53 ± .76) | .350 ± .020 (8.89 ± .51) | .025, +.004, -.001 (.64, +.10, -.025) |

CAPACITOR OUTLINE DRAWINGS — (RADIAL LEADS)

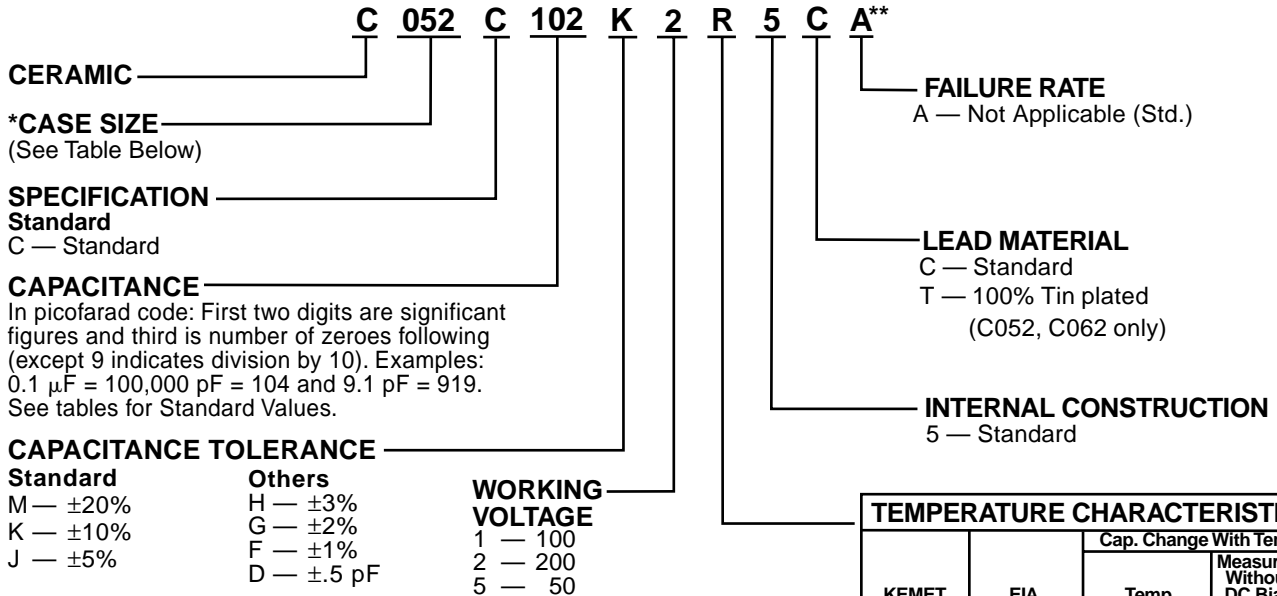


DIMENSIONS—INCHES & (MILLIMETERS)

| CASE SIZE | MILITARY EQUIVALENT STYLES | H HEIGHT | L LENGTH | W WIDTH | S LEAD SPACING |
|-----------|----------------------------|---------------------------|---------------------------|--------------------------|---------------------------|
| C052 | CC05, CCR05 CK05, CKR05 | .190 ± .010 (4.83 ± .25) | .190 ± .010 (4.83 ± .25) | .090 ± .010 (2.29 ± .25) | .200 ± .015 (5.08 ± .38) |
| C062 | CC06, CCR06 CK06, CKR06 | .290 ± .010 (7.37 ± .25) | .290 ± .010 (7.37 ± .25) | .090 ± .010 (2.29 ± .25) | .200 ± .015 (5.08 ± .38) |
| C512 | CC07, CCR07 | .480 ± .020 (12.19 ± .51) | .480 ± .020 (12.19 ± .51) | .140 ± .010 (3.56 ± .25) | .400 ± .020 (10.16 ± .51) |
| C522 | CC08, CCR08 | .480 ± .020 (12.19 ± .51) | .480 ± .020 (12.19 ± .51) | .240 ± .010 (6.10 ± .25) | .400 ± .020 (10.16 ± .51) |

For packaging information, see pages 39, 40 and 41.

ORDERING INFORMATION



Standard tolerances for each Series are shown in the repetitive parts lists.

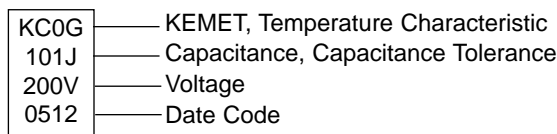
| *CASE SIZES | |
|-------------|-------|
| RADIAL | AXIAL |
| C052 | C114 |
| C062 | C124 |
| C512 | C192 |
| C522 | C202 |
| | C222 |

| TEMPERATURE CHARACTERISTIC | | | |
|----------------------------|----------------|------------------------|----------------------------------|
| KEMET Designator | EIA Equivalent | Cap. Change With Temp. | |
| | | Temp. Range, °C | Measured Without DC Bias Voltage |
| G (Ultra Stable) | C0G (NPO) | -55 to +125 | \pm 30 ppm/°C |
| R (Stable) | X7R | -55 to +125 | \pm 15% |

****Part Number Example: C052C102K2R5CA (14 digits – no spaces)**

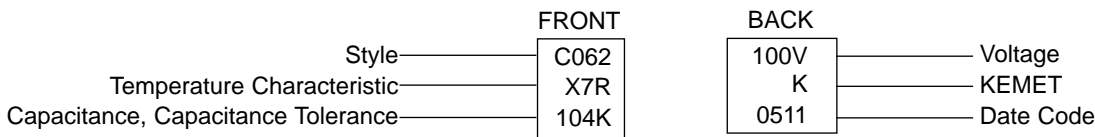
AXIAL CAPACITOR MARKING

STANDARD C114C, C124C, C192C, C202C & C222C

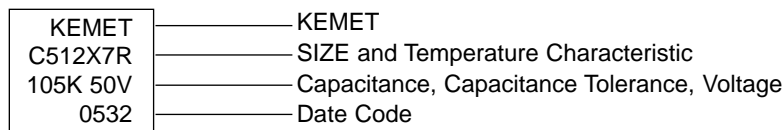


RADIAL CAPACITOR MARKING

C052C & C062C STANDARD MARKING



C512 & C522 STANDARD MARKING



RATINGS & PART NUMBER REFERENCE

| CAPACITANCE pF | KEMET PART NUMBER |
|-------------------------------------|----------------------|
| 200 VOLT — C114 STANDARD C0G | |
| 1.0 | C114C109(1)2G5CA |
| 1.5 | C114C159(1)2G5CA |
| 2.2 | C114C229(1)2G5CA |
| 2.7 | C114C279(1)2G5CA |
| 3.3 | C114C339(1)2G5CA |
| 3.9 | C114C399(1)2G5CA |
| 4.7 | C114C479(1)2G5CA |
| 5.6 | C114C569(1)2G5CA |
| 6.8 | C114C689(1)2G5CA |
| 8.2 | C114C829(1)2G5CA |
| 10.0 | C114C100(2)2G5CA |
| 12.0 | C114C120(2)2G5CA |
| 15.0 | C114C150(2)2G5CA |
| 18.0 | C114C180(2)2G5CA |
| 22.0 | C114C220(2)2G5CA |
| 27.0 | C114C270(3)2G5CA |
| 33.0 | C114C330(3)2G5CA |
| 39.0 | C114C390(3)2G5CA |
| 47.0 | C114C470(3)2G5CA |
| 56.0 | C114C560(4)2G5CA |
| 68.0 | C114C680(4)2G5CA |
| 82.0 | C114C820(4)2G5CA |
| 100.0 | C114C101(4)2G5CA |
| 120.0 | C114C121(4)2G5CA |
| 150.0 | C114C151(4)2G5CA |
| 180.0 | C114C181(4)2G5CA |
| 220.0 | C114C221(4)2G5CA |
| 270.0 | C114C271(4)2G5CA |
| 330.0 | C114C331(4)2G5CA |
| 100 VOLT — C114 STANDARD C0G | |
| 82.0 | C114C820(4)1G5CA |
| 100.0 | C114C101(4)1G5CA |
| 120.0 | C114C121(4)1G5CA |
| 150.0 | C114C151(4)1G5CA |
| 180.0 | C114C181(4)1G5CA |
| 220.0 | C114C221(4)1G5CA |
| 270.0 | C114C271(4)1G5CA |
| 330.0 | C114C331(4)1G5CA |
| 390.0 | C114C391(4)1G5CA |
| 470.0 | C114C471(4)1G5CA |
| 560.0 | C114C561(4)1G5CA |
| 680.0 | C114C681(4)1G5CA |

| CAPACITANCE pF | KEMET PART NUMBER |
|-------------------------------------|----------------------|
| 200 VOLT — C124 STANDARD C0G | |
| 390.0 | C124C391(4)2G5CA |
| 470.0 | C124C471(4)2G5CA |
| 560.0 | C124C561(4)2G5CA |
| 100 VOLT — C124 STANDARD C0G | |
| 820.0 | C124C821(4)1G5CA |
| 1,000.0 | C124C102(4)1G5CA |
| 200 VOLT — C192 STANDARD C0G | |
| 680.0 | C192C681(4)2G5CA |
| 820.0 | C192C821(4)2G5CA |
| 1,000.0 | C192C102(4)2G5CA |
| 1,200.0 | C192C122(4)2G5CA |
| 1,500.0 | C192C152(4)2G5CA |
| 1,800.0 | C192C182(4)2G5CA |
| 2,200.0 | C192C222(4)2G5CA |
| 2,700.0 | C192C272(4)2G5CA |
| 3,300.0 | C192C332(4)2G5CA |
| 3,900.0 | C192C392(4)2G5CA |
| 4,700.0 | C192C472(4)2G5CA |
| 100 VOLT — C192 STANDARD C0G | |
| 1,200.0 | C192C122(4)1G5CA |
| 1,500.0 | C192C152(4)1G5CA |
| 1,800.0 | C192C182(4)1G5CA |
| 2,200.0 | C192C222(4)1G5CA |
| 2,700.0 | C192C272(4)1G5CA |
| 3,300.0 | C192C332(4)1G5CA |
| 3,900.0 | C192C392(4)1G5CA |
| 4,700.0 | C192C472(4)1G5CA |
| 5,600.0 | C192C562(4)1G5CA |
| 6,800.0 | C192C682(4)1G5CA |
| 8,200.0 | C192C822(4)1G5CA |

| CAPACITANCE pF | KEMET PART NUMBER |
|-------------------------------------|----------------------|
| 200 VOLT — C202 STANDARD C0G | |
| 5,600.0 | C202C562(4)2G5CA |
| 6,800.0 | C202C682(4)2G5CA |
| 8,200.0 | C202C822(4)2G5CA |
| 10,000.0 | C202C103(4)2G5CA |
| 12,000.0 | C202C123(4)2G5CA |
| 15,000.0 | C202C153(4)2G5CA |
| 18,000.0 | C202C183(4)2G5CA |
| 22,000.0 | C202C223(4)2G5CA |
| 100 VOLT — C202 STANDARD C0G | |
| 10,000.0 | C202C103(4)1G5CA |
| 12,000.0 | C202C123(4)1G5CA |
| 15,000.0 | C202C153(4)1G5CA |
| 18,000.0 | C202C183(4)1G5CA |
| 22,000.0 | C202C223(4)1G5CA |
| 27,000.0 | C202C273(4)1G5CA |
| 33,000.0 | C202C333(4)1G5CA |
| 200 VOLT — C222 STANDARD C0G | |
| 27,000.0 | C222C273(4)2G5CA |
| 33,000.0 | C222C333(4)2G5CA |
| 39,000.0 | C222C393(4)2G5CA |
| 47,000.0 | C222C473(4)2G5CA |
| 100 VOLT — C222 STANDARD C0G | |
| 39,000.0 | C222C393(4)1G5CA |
| 47,000.0 | C222C473(4)1G5CA |
| 56,000.0 | C222C563(4)1G5CA |
| 68,000.0 | C222C683(4)1G5CA |
| 82,000.0 | C222C823(4)1G5CA |
| 100,000.0 | C222C104(4)1G5CA |

NOTE 1: Insert proper symbol for capacitance tolerance as follows:

- (1) 1.0 pF to 8.2 pF: D— ±5 pF
- (2) 10.0 pF to 22 pF: J— ±5%, K— ±10%
- (3) 27.0 pF to 47 pF: G— ±2%, J— ±5%, K— ±10%
- (4) 56.0 pF and up: F— ±1%, G— ±2%, J— ±5%, K— ±10%

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- (3) 27.0 pF to 47 pF: G— ±2%, J— ±5%, K— ±10%
- (4) 56.0 pF and up: F— ±1%, G— ±2%, J— ±5%, K— ±10%

RATINGS & PART NUMBER REFERENCE

| CAPACITANCE pF | KEMET PART NUMBER |
|---------------------------------|----------------------|
| 200 VOLT — C052 SIZE C0G | |
| 1.0 | C052C109(1)2G5CA |
| 1.5 | C052C159(1)2G5CA |
| 2.2 | C052C229(1)2G5CA |
| 2.7 | C052C279(1)2G5CA |
| 3.3 | C052C339(1)2G5CA |
| 3.9 | C052C399(1)2G5CA |
| 4.7 | C052C479(1)2G5CA |
| 5.6 | C052C569(1)2G5CA |
| 6.8 | C052C689(1)2G5CA |
| 8.2 | C052C829(1)2G5CA |
| 10.0 | C052C100(2)2G5CA |
| 12.0 | C052C120(2)2G5CA |
| 15.0 | C052C150(2)2G5CA |
| 18.0 | C052C180(2)2G5CA |
| 22.0 | C052C220(2)2G5CA |
| 27.0 | C052C270(3)2G5CA |
| 33.0 | C052C330(3)2G5CA |
| 39.0 | C052C390(3)2G5CA |
| 47.0 | C052C470(3)2G5CA |
| 56.0 | C052C560(4)2G5CA |
| 68.0 | C052C680(4)2G5CA |
| 82.0 | C052C820(4)2G5CA |
| 100.0 | C052C101(4)2G5CA |
| 120.0 | C052C121(4)2G5CA |
| 150.0 | C052C151(4)2G5CA |
| 180.0 | C052C181(4)2G5CA |
| 220.0 | C052C221(4)2G5CA |
| 270.0 | C052C271(4)2G5CA |
| 330.0 | C052C331(4)2G5CA |
| 390.0 | C052C391(4)2G5CA |
| 470.0 | C052C471(4)2G5CA |
| 560.0 | C052C561(4)2G5CA |
| 680.0 | C052C681(4)2G5CA |
| 820.0 | C052C821(4)2G5CA |
| 1,000.0 | C052C102(4)2G5CA |
| 1,200.0 | C052C122(4)2G5CA |
| 1,500.0 | C052C152(4)2G5CA |
| 1,800.0 | C052C182(4)2G5CA |
| 2,200.0 | C052C222(4)2G5CA |
| 2,700.0 | C052C272(4)2G5CA |
| 100 VOLT — C052 SIZE C0G | |
| 390.0 | C052C391(4)1G5CA |
| 470.0 | C052C471(4)1G5CA |
| 560.0 | C052C561(4)1G5CA |
| 680.0 | C052C681(4)1G5CA |
| 820.0 | C052C821(4)1G5CA |
| 1,000.0 | C052C102(4)1G5CA |
| 1,200.0 | C052C122(4)1G5CA |
| 1,500.0 | C052C152(4)1G5CA |
| 1,800.0 | C052C182(4)1G5CA |
| 2,200.0 | C052C222(4)1G5CA |
| 2,700.0 | C052C272(4)1G5CA |
| 3,300.0 | C052C332(4)1G5CA |
| 3,900.0 | C052C392(4)1G5CA |
| 4,700.0 | C052C472(4)1G5CA |

| CAPACITANCE pF | KEMET PART NUMBER |
|---------------------------------|----------------------|
| 200 VOLT — C062 SIZE C0G | |
| 3,300.0 | C062C332(4)2G5CA |
| 3,900.0 | C062C392(4)2G5CA |
| 4,700.0 | C062C472(4)2G5CA |
| 5,600.0 | C062C562(4)2G5CA |
| 6,800.0 | C062C682(4)2G5CA |
| 8,200.0 | C062C822(4)2G5CA |
| 10,000.0 | C062C103(4)2G5CA |
| 100 VOLT — C062 SIZE C0G | |
| 5,600.0 | C062C562(4)1G5CA |
| 6,800.0 | C062C682(4)1G5CA |
| 8,200.0 | C062C822(4)1G5CA |
| 10,000.0 | C062C103(4)1G5CA |
| 12,000.0 | C062C123(4)1G5CA |
| 15,000.0 | C062C153(4)1G5CA |
| 18,000.0 | C062C183(4)1G5CA |
| 22,000.0 | C062C223(4)1G5CA |
| 200 VOLT — C512 SIZE C0G | |
| 12,000.0 | C512C123(4)2G5CA |
| 15,000.0 | C512C153(4)2G5CA |
| 18,000.0 | C512C183(4)2G5CA |
| 22,000.0 | C512C223(4)2G5CA |
| 27,000.0 | C512C273(4)2G5CA |
| 33,000.0 | C512C333(4)2G5CA |
| 39,000.0 | C512C393(4)2G5CA |
| 47,000.0 | C512C473(4)2G5CA |
| 56,000.0 | C512C563(4)2G5CA |
| 68,000.0 | C512C683(4)2G5CA |
| 100 VOLT — C512 SIZE C0G | |
| 27,000.0 | C512C273(4)1G5CA |
| 33,000.0 | C512C333(4)1G5CA |
| 39,000.0 | C512C393(4)1G5CA |
| 47,000.0 | C512C473(4)1G5CA |
| 56,000.0 | C512C563(4)1G5CA |
| 68,000.0 | C512C683(4)1G5CA |
| 82,000.0 | C512C823(4)1G5CA |
| 100,000.0 | C512C104(4)1G5CA |
| 200 VOLT — C522 SIZE C0G | |
| 82,000.0 | C522C823(4)2G5CA |
| 100,000.0 | C522C104(4)2G5CA |
| 100 VOLT — C522 SIZE C0G | |
| 120,000.0 | C522C124(4)1G5CA |
| 150,000.0 | C522C154(4)1G5CA |
| 180,000.0 | C522C184(4)1G5CA |

NOTE 1: Insert proper symbol for capacitance tolerance as follows:

- (1) 1.0 pF to 8.2 pF: D— ±.5 pF
- (2) 10.0 pF to 22 pF: J— ±5%, K— ±10%
- (3) 27.0 pF to 47 pF: G— ±2%, J— ±5%, K— ±10%
- (4) 56.0 pF and up: F— ±1%, G— ±2%, J— ±5%, K— ±10%

NOTE 1: Insert proper symbol for capacitance tolerance as follows:

- (1) 1.0 pF to 8.2 pF: D— ±.5 pF
- (2) 10.0 pF to 22 pF: J— ±5%, K— ±10%
- (3) 27.0 pF to 47 pF: G— ±2%, J— ±5%, K— ±10%
- (4) 56.0 pF and up: F— ±1%, G— ±2%, J— ±5%, K— ±10%

RATINGS & PART NUMBER REFERENCE

| CAPACITANCE pF | TOL. % | KEMET PART NUMBER |
|-----------------------------|-----------|----------------------|
| 100 VOLT — C114 SIZE | | |
| 10 | 10 | C114C100K1R5CA |
| 10 | 20 | C114C100M1R5CA |
| 12 | 10 | C114C120K1R5CA |
| 15 | 10 | C114C150K1R5CA |
| 15 | 20 | C114C150M1R5CA |
| 18 | 10 | C114C180K1R5CA |
| 22 | 20 | C114C220K1R5CA |
| 22 | 10 | C114C220M1R5CA |
| 27 | 10 | C114C270K1R5CA |
| 33 | 10 | C114C330K1R5CA |
| 33 | 20 | C114C330M1R5CA |
| 39 | 10 | C114C390K1R5CA |
| 47 | 10 | C114C470K1R5CA |
| 47 | 20 | C114C470M1R5CA |
| 56 | 10 | C114C560K1R5CA |
| 68 | 10 | C114C680K1R5CA |
| 68 | 20 | C114C680M1R5CA |
| 82 | 10 | C114C820K1R5CA |
| 100 | 10 | C114C101K1R5CA |
| 100 | 20 | C114C101M1R5CA |
| 120 | 10 | C114C121K1R5CA |
| 150 | 10 | C114C151K1R5CA |
| 150 | 20 | C114C151M1R5CA |
| 180 | 10 | C114C181K1R5CA |
| 220 | 10 | C114C221K1R5CA |
| 220 | 20 | C114C221M1R5CA |
| 270 | 10 | C114C271K1R5CA |
| 330 | 10 | C114C331K1R5CA |
| 330 | 20 | C114C331M1R5CA |
| 390 | 10 | C114C391K1R5CA |
| 470 | 10 | C114C471K1R5CA |
| 470 | 20 | C114C471M1R5CA |
| 560 | 10 | C114C561K1R5CA |
| 680 | 10 | C114C681K1R5CA |
| 680 | 20 | C114C681M1R5CA |
| 820 | 10 | C114C821K1R5CA |
| 1,000 | 10 | C114C102K1R5CA |
| 1,000 | 20 | C114C102M1R5CA |
| 1,200 | 10 | C114C122K1R5CA |
| 1,500 | 10 | C114C152K1R5CA |
| 1,500 | 20 | C114C152M1R5CA |
| 1,800 | 10 | C114C182K1R5CA |
| 2,200 | 10 | C114C222K1R5CA |
| 2,200 | 20 | C114C222M1R5CA |
| 2,700 | 10 | C114C272K1R5CA |
| 3,300 | 10 | C114C332K1R5CA |
| 3,300 | 20 | C114C332M1R5CA |
| 3,900 | 10 | C114C392K1R5CA |
| 4,700 | 10 | C114C472K1R5CA |
| 4,700 | 20 | C114C472M1R5CA |
| 50 VOLT — C114 SIZE | | |
| 5,600 | 10 | C114C562K5R5CA |
| 6,800 | 10 | C114C682K5R5CA |
| 6,800 | 20 | C114C682M5R5CA |
| 8,200 | 10 | C114C822K5R5CA |
| 10,000 | 10 | C114C103K5R5CA |
| 10,000 | 20 | C114C103M5R5CA |

| CAPACITANCE pF | TOL. % | KEMET PART NUMBER |
|-----------------------------|-----------|----------------------|
| 100 VOLT — C124 SIZE | | |
| 5,600 | 10 | C124C562K1R5CA |
| 6,800 | 10 | C124C682K1R5CA |
| 6,800 | 20 | C124C682M1R5CA |
| 8,200 | 10 | C124C822K1R5CA |
| 10,000 | 10 | C124C103K1R5CA |
| 10,000 | 20 | C124C103M1R5CA |
| 50 VOLT — C124 SIZE | | |
| 12,000 | 10 | C124C123K5R5CA |
| 15,000 | 10 | C124C153K5R5CA |
| 15,000 | 20 | C124C153M5R5CA |
| 18,000 | 10 | C124C183K5R5CA |
| 22,000 | 10 | C124C223K5R5CA |
| 22,000 | 20 | C124C223M5R5CA |
| 27,000 | 10 | C124C273K5R5CA |
| 33,000 | 10 | C124C333K5R5CA |
| 33,000 | 20 | C124C333M5R5CA |
| 39,000 | 10 | C124C393K5R5CA |
| 47,000 | 10 | C124C473K5R5CA |
| 47,000 | 20 | C124C473M5R5CA |
| 100 VOLT — C192 SIZE | | |
| 12,000 | 10 | C192C123K1R5CA |
| 15,000 | 10 | C192C153K1R5CA |
| 15,000 | 20 | C192C153M1R5CA |
| 18,000 | 10 | C192C183K1R5CA |
| 22,000 | 10 | C192C223K1R5CA |
| 22,000 | 20 | C192C223M1R5CA |
| 27,000 | 10 | C192C273K1R5CA |
| 33,000 | 10 | C192C333K1R5CA |
| 33,000 | 20 | C192C333M1R5CA |
| 39,000 | 10 | C192C393K1R5CA |
| 47,000 | 10 | C192C473K1R5CA |
| 47,000 | 20 | C192C473M1R5CA |
| 56,000 | 10 | C192C563K1R5CA |
| 68,000 | 10 | C192C683K1R5CA |
| 68,000 | 20 | C192C683M1R5CA |
| 82,000 | 10 | C192C823K1R5CA |
| 100,000 | 10 | C192C104K1R5CA |
| 100,000 | 20 | C192C104M1R5CA |
| 50 VOLT — C192 SIZE | | |
| 56,000 | 10 | C192C563K5R5CA |
| 68,000 | 10 | C192C683K5R5CA |
| 68,000 | 20 | C192C683M5R5CA |
| 82,000 | 10 | C192C823K5R5CA |
| 100,000 | 10 | C192C104K5R5CA |
| 100,000 | 20 | C192C104M5R5CA |
| 120,000 | 10 | C192C124K5R5CA |
| 150,000 | 10 | C192C154K5R5CA |
| 150,000 | 20 | C192C154M5R5CA |
| 180,000 | 10 | C192C184K5R5CA |
| 220,000 | 10 | C192C224K5R5CA |
| 220,000 | 20 | C192C224M5R5CA |
| 270,000 | 10 | C192C274K5R5CA |

| CAPACITANCE pF | TOL. % | KEMET PART NUMBER |
|-----------------------------|-----------|----------------------|
| 100 VOLT — C202 SIZE | | |
| 56,000 | 10 | C202C563K1R5CA |
| 68,000 | 10 | C202C683K1R5CA |
| 68,000 | 20 | C202C683M1R5CA |
| 82,000 | 10 | C202C823K1R5CA |
| 100,000 | 10 | C202C104K1R5CA |
| 100,000 | 20 | C202C104M1R5CA |
| 120,000 | 10 | C202C124K1R5CA |
| 150,000 | 10 | C202C154K1R5CA |
| 150,000 | 20 | C202C154M1R5CA |
| 180,000 | 10 | C202C184K1R5CA |
| 220,000 | 10 | C202C224K1R5CA |
| 220,000 | 20 | C202C224M1R5CA |
| 270,000 | 10 | C202C274K1R5CA |
| 330,000 | 10 | C202C334K1R5CA |
| 330,000 | 20 | C202C334M1R5CA |
| 50 VOLT — C202 SIZE | | |
| 470,000 | 10 | C202C474K5R5CA |
| 470,000 | 20 | C202C474M5R5CA |
| 680,000 | 10 | C202C684K5R5CA |
| 680,000 | 20 | C202C684M5R5CA |
| 1,000,000 | 10 | C202C105K5R5CA |
| 1,000,000 | 20 | C202C105M5R5CA |
| 100 VOLT — C222 SIZE | | |
| 470,000 | 10 | C222C474K1R5CA |
| 470,000 | 20 | C222C474M1R5CA |
| 680,000 | 10 | C222C684K1R5CA |
| 680,000 | 20 | C222C684M1R5CA |
| 1,000,000 | 10 | C222C105K1R5CA |
| 1,000,000 | 20 | C222C105M1R5CA |
| 50 VOLT — C222 SIZE | | |
| 2,200,000 | 10 | C222C225K5R5CA |
| 2,200,000 | 20 | C222C225M5R5CA |
| 3,300,000 | 10 | C222C335K5R5CA |
| 3,300,000 | 20 | C222C335M5R5CA |

Ceramic Molded Axial/Radial - Standard



CERAMIC MOLDED/RADIAL – STANDARD

STABLE TEMPERATURE CHARACTERISTIC—X7R

RATINGS & PART NUMBER REFERENCE

| CAPACITANCE pF | TOL. % | KEMET PART NUMBER |
|-----------------------------|-----------|----------------------|
| 200 VOLT — C052 SIZE | | |
| 10 | 10 | C052C100K2R5CA |
| 10 | 20 | C052C100M2R5CA |
| 12 | 10 | C052C120K2R5CA |
| 15 | 10 | C052C150K2R5CA |
| 15 | 20 | C052C150M2R5CA |
| 18 | 10 | C052C180K2R5CA |
| 22 | 10 | C052C220K2R5CA |
| 22 | 20 | C052C220M2R5CA |
| 27 | 10 | C052C270K2R5CA |
| 33 | 10 | C052C330K2R5CA |
| 33 | 20 | C052C330M2R5CA |
| 39 | 10 | C052C390K2R5CA |
| 47 | 10 | C052C470K2R5CA |
| 47 | 20 | C052C470M2R5CA |
| 56 | 10 | C052C560K2R5CA |
| 68 | 10 | C052C680K2R5CA |
| 68 | 20 | C052C680M2R5CA |
| 82 | 10 | C052C820K2R5CA |
| 100 | 10 | C052C101K2R5CA |
| 100 | 20 | C052C101M2R5CA |
| 120 | 10 | C052C121K2R5CA |
| 150 | 10 | C052C151K2R5CA |
| 150 | 20 | C052C151M2R5CA |
| 180 | 10 | C052C181K2R5CA |
| 220 | 10 | C052C221K2R5CA |
| 220 | 20 | C052C221M2R5CA |
| 270 | 10 | C052C271K2R5CA |
| 330 | 10 | C052C331K2R5CA |
| 330 | 20 | C052C331M2R5CA |
| 390 | 10 | C052C391K2R5CA |
| 470 | 10 | C052C471K2R5CA |
| 470 | 20 | C052C471M2R5CA |
| 560 | 10 | C052C561K2R5CA |
| 680 | 10 | C052C681K2R5CA |
| 680 | 20 | C052C681M2R5CA |
| 820 | 10 | C052C821K2R5CA |
| 1,000 | 10 | C052C102K2R5CA |
| 1,000 | 20 | C052C102M2R5CA |

| CAPACITANCE pF | TOL. % | KEMET PART NUMBER |
|-----------------------------|-----------|----------------------|
| 100 VOLT — C052 SIZE | | |
| 1,200 | 10 | C052C122K1R5CA |
| 1,500 | 10 | C052C152K1R5CA |
| 1,500 | 20 | C052C152M1R5CA |
| 1,800 | 10 | C052C182K1R5CA |
| 2,200 | 10 | C052C222K1R5CA |
| 2,200 | 20 | C052C222M1R5CA |
| 2,700 | 10 | C052C272K1R5CA |
| 3,300 | 10 | C052C332K1R5CA |
| 3,300 | 20 | C052C332M1R5CA |
| 3,900 | 10 | C052C392K1R5CA |
| 4,700 | 10 | C052C472K1R5CA |
| 4,700 | 20 | C052C472M1R5CA |
| 5,600 | 10 | C052C562K1R5CA |
| 6,800 | 10 | C052C682K1R5CA |
| 6,800 | 20 | C052C682M1R5CA |
| 8,200 | 10 | C052C822K1R5CA |
| 10,000 | 10 | C052C103K1R5CA |
| 10,000 | 20 | C052C103M1R5CA |
| 50 VOLT — C052 SIZE | | |
| 12,000 | 10 | C052C123K5R5CA |
| 15,000 | 10 | C052C153K5R5CA |
| 15,000 | 20 | C052C153M5R5CA |
| 18,000 | 10 | C052C183K5R5CA |
| 22,000 | 10 | C052C223K5R5CA |
| 22,000 | 20 | C052C223M5R5CA |
| 27,000 | 10 | C052C273K5R5CA |
| 33,000 | 10 | C052C333K5R5CA |
| 33,000 | 20 | C052C333M5R5CA |
| 39,000 | 10 | C052C393K5R5CA |
| 47,000 | 10 | C052C473K5R5CA |
| 47,000 | 20 | C052C473M5R5CA |
| 56,000 | 10 | C052C563K5R5CA |
| 68,000 | 10 | C052C683K5R5CA |
| 68,000 | 20 | C052C683M5R5CA |
| 82,000 | 10 | C052C823K5R5CA |
| 100,000 | 10 | C052C104K5R5CA |
| 100,000 | 20 | C052C104M5R5CA |
| 200 VOLT — C062 SIZE | | |
| 1,200 | 10 | C062C122K2R5CA |
| 1,500 | 10 | C062C152K2R5CA |
| 1,500 | 20 | C062C152M2R5CA |
| 1,800 | 10 | C062C182K2R5CA |
| 2,200 | 10 | C062C222K2R5CA |
| 2,200 | 20 | C062C222M2R5CA |
| 2,700 | 10 | C062C272K2R5CA |
| 3,300 | 10 | C062C332K2R5CA |
| 3,300 | 20 | C062C332M2R5CA |
| 3,900 | 10 | C062C392K2R5CA |
| 4,700 | 10 | C062C472K2R5CA |
| 4,700 | 20 | C062C472M2R5CA |
| 5,600 | 10 | C062C562K2R5CA |
| 6,800 | 10 | C062C682K2R5CA |
| 6,800 | 20 | C062C682M2R5CA |
| 8,200 | 10 | C062C822K2R5CA |
| 10,000 | 10 | C062C103K2R5CA |
| 10,000 | 20 | C062C103M2R5CA |

| CAPACITANCE pF | TOL. % | KEMET PART NUMBER |
|-----------------------------|-----------|----------------------|
| 100 VOLT — C062 SIZE | | |
| 12,000 | 10 | C062C123K1R5CA |
| 15,000 | 10 | C062C153K1R5CA |
| 15,000 | 20 | C062C153M1R5CA |
| 18,000 | 10 | C062C183K1R5CA |
| 22,000 | 10 | C062C223K1R5CA |
| 22,000 | 20 | C062C223M1R5CA |
| 27,000 | 10 | C062C273K1R5CA |
| 33,000 | 10 | C062C333K1R5CA |
| 33,000 | 20 | C062C333M1R5CA |
| 39,000 | 10 | C062C393K1R5CA |
| 47,000 | 10 | C062C473K1R5CA |
| 47,000 | 20 | C062C473M1R5CA |
| 56,000 | 10 | C062C563K1R5CA |
| 68,000 | 10 | C062C683K1R5CA |
| 68,000 | 20 | C062C683M1R5CA |
| 82,000 | 10 | C062C823K1R5CA |
| 100,000 | 10 | C062C104K1R5CA |
| 100,000 | 20 | C062C104M1R5CA |
| 50 VOLT — C062 SIZE | | |
| 120,000 | 10 | C062C124K5R5CA |
| 150,000 | 10 | C062C154K5R5CA |
| 150,000 | 20 | C062C154M5R5CA |
| 180,000 | 10 | C062C184K5R5CA |
| 220,000 | 10 | C062C224K5R5CA |
| 220,000 | 20 | C062C224M5R5CA |
| 270,000 | 10 | C062C274K5R5CA |
| 330,000 | 10 | C062C334K5R5CA |
| 330,000 | 20 | C062C334M5R5CA |
| 390,000 | 10 | C062C394K5R5CA |
| 470,000 | 10 | C062C474K5R5CA |
| 470,000 | 20 | C062C474M5R5CA |
| 560,000 | 10 | C062C564K5R5CA |
| 680,000 | 10 | C062C684K5R5CA |
| 680,000 | 20 | C062C684M5R5CA |
| 820,000 | 10 | C062C824K5R5CA |
| 1,000,000 | 10 | C062C105K5R5CA |
| 1,000,000 | 20 | C062C105M5R5CA |
| 50 VOLT — C512 SIZE | | |
| 1,000,000 | 10 | C512C105K5X5CA |
| 1,000,000 | 20 | C512C105M5X5CA |
| 1,500,000 | 10 | C512C155K5X5CA |
| 1,500,000 | 20 | C512C155M5X5CA |
| 2,000,000 | 10 | C512C205K5X5CA |
| 2,000,000 | 20 | C512C205M5X5CA |
| 2,200,000 | 10 | C512C225K5X5CA |
| 2,200,000 | 20 | C512C225M5X5CA |
| 100 VOLT — C522 SIZE | | |
| 1,000,000 | 10 | C522C105K1X5CA |
| 1,000,000 | 20 | C522C105M1X5CA |
| 50 VOLT — C522 SIZE | | |
| 2,700,000 | 10 | C522C275K5X5CA |
| 2,700,000 | 20 | C522C275M5X5CA |
| 3,300,000 | 10 | C522C335K5X5CA |
| 3,300,000 | 20 | C522C335M5X5CA |

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 ± 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

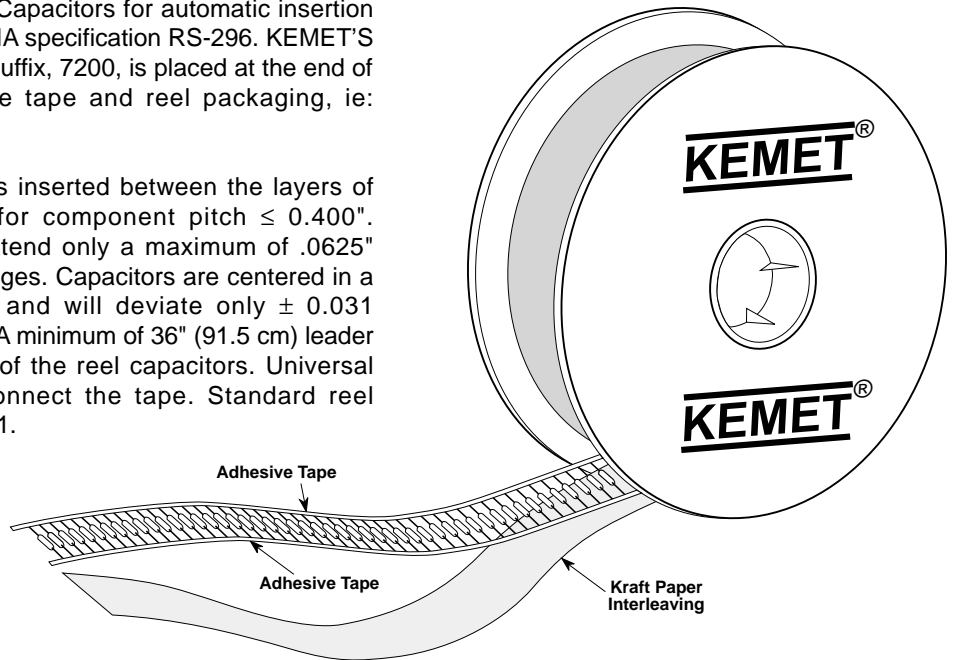


Figure 2

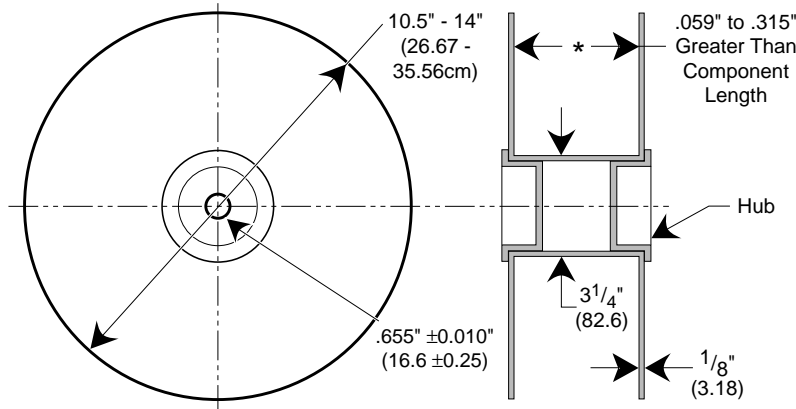


Figure 3

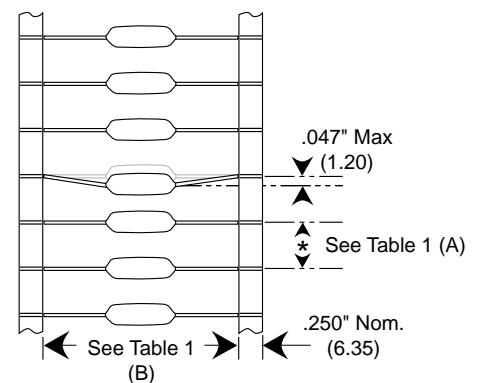


Table 1 Dimensions in Inches & (Millimeters)

| 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" (5.01mm) to 0.394" (10mm) | 0.197" or (5mm) 0.394" or (10mm) | 2.062" (52.4mm) | 2.874" (73mm) |

* Not Available for Conformally Coated Parts.

Tape and Reel Packaging

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.

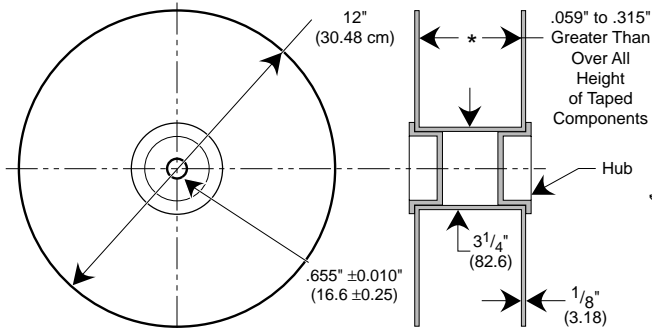


Figure 3: Standard Reel

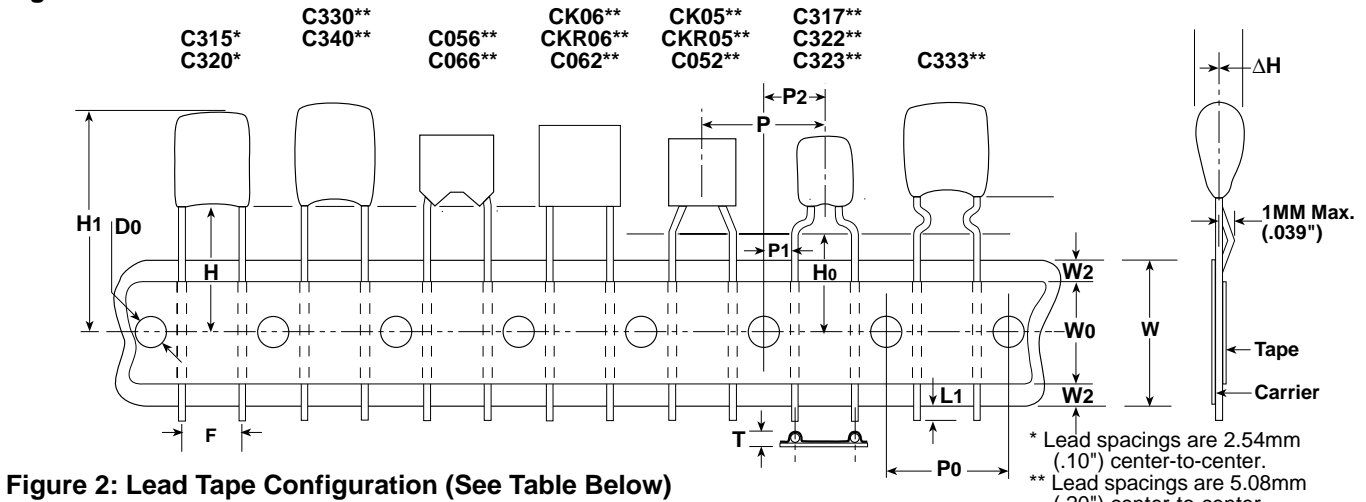
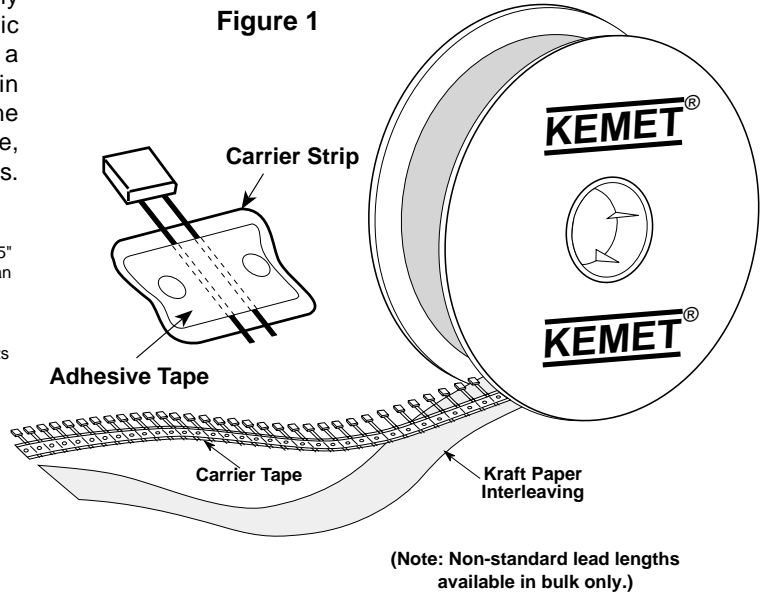


Figure 2: Lead Tape Configuration (See Table Below)

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

| Dimension | Symbol | Nominal mm (inch) | Tolerance mm (inch) | Dimension | Symbol | Nominal mm (inch) | Tolerance mm (inch) |
|--|--------|--------------------------------------|----------------------------------|--|--------|--------------------------------------|----------------------------------|
| Sprocket Hole Diameter | Do | 4.0 (.157) | ± 0.2 (.008) | Height to Seating Plane (formed leads) (2) | H0 | 7301 7303 16.0 (.630) 18.0 (.709) | 7301 7303 ±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 (.20) 2.54 (.10) | +0.6 -0.2 (+.024 -.008) | Composite Tape Thickness | t | 0.7 (.051) | ±0.2 (.008) |
| Sprocket Hole Center to Lead Center (1) | P1 | 3.81 (.150) 5.08 (.200) | ± 0.7 (.028) | 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 (+.039 -.020) |
| Height to Seating Plane (straight leads) (2) | H | 7301 7303 16.0 (.630) 18.0 (.709) | 7301 7303 ±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

| CERAMIC PACKAGING | | | | | | |
|--------------------------|-----------------------|-------------------------------|-----------------------------------|-----------------------------------|------------------------------|------------------|
| KEMET Series | Military Style | Military Specification | Standard (1) Bulk Quantity | Ammo Pack Quantity Maximum | Maximum Reel Quantity | Reel Size |
| C114C-K-G | CK12, CC75 | MIL-C-11015/ | 200/Box | | 5000 | 12" |
| C124C-K-G | CK13, CC76 | MIL-PRF-20 | 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.

Tape and Reel Packaging