KEMET Organic Capacitor (KO-CAP®) – High Reliability

# T543 Up-Screen Commercial Polymer Electrolytic, 2.5 – 63 VDC

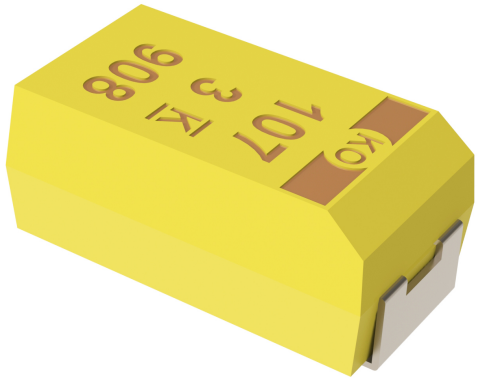
## Overview

The KEMET Organic Capacitor (KO-CAP) is a solid electrolytic capacitor with a conductive polymer cathode capable of delivering very low ESR and improved capacitance retention at high frequencies. KO-CAP combines the low ESR of multilayer ceramic, the high capacitance of aluminum electrolytic, and the volumetric efficiency of tantalum into a single surface mount package. Unlike liquid electrolyte-based capacitors, KO-CAP has a very long operational life and high ripple current capabilities.

The T543 COTS Polymer Electrolytic capacitor is an upscreened version of the industrial T520 KO-CAP. The T543's upscreened option includes surge current testing of 10 cycles at +25°C and 10 cycles at -55°C/+85°C. In addition to 100% Tin (Sn) terminations, a tin-lead (SnPb) option is also available. The recommended application derating for these capacitors is 10 – 20%, rendering them suitable for application voltages from 2.25 to 50 VDC.

## Benefits

- Extremely low ESR
- High frequency capacitance retention
- 100% accelerated steady state aging
- 100% surge current tested
- Tape & Reel standard packaging per EIA 481
- Volumetrically efficienct
- Surge options at 25°C and −55°C/+85°C
- EIA standard case sizes
- Halogen-free epoxy and RoHS compliant

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## Applications

Typical applications include DC/DC converters, switch mode and point of load power supply, radar pulse capacitor, and telecommunications (mobile phone and base station). Other general applications include decoupling and filtering in applications requiring low ESR or a benign failure mode.

When extreme temperatures and humidity are taken into account, polymer tantalum capacitors offer a number of advantages over other types of capacitors, when used in extreme environments. KEMET continues to investigate the behavior of polymer tantalum capacitors in extreme conditions. If you have questions about using these capacitors in a specific environment or application, we suggest you contact your local representative or field application engineer to discuss the specific details of your application (see “Considerations for Polymer Capacitors in Extreme Environments” located at www.kemet.com/ExtremePolymerPaper).



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## Environmental Compliance

RoHS compliant (6/6) according to Directive 2002/95/EC when ordered with 100% Sn solder.

## K-SIM

For a detailed analysis of specific part numbers, please visit ksim.kemet.com to access KEMET's K-SIM software. KEMET K-SIM is designed to simulate behavior of components with respect to frequency, ambient temperature, and DC bias levels.

## Ordering Information

| T | 543 | D | 156 | K | 035 | A | H | E | 100 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Case Size | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VDC) | Failure Rate/ Design | Termination Finish | Surge | ESR | Packaging (C-Spec) |
| T = Tantalum | Polymer Tantalum COTS | A,B, C, D, H, L, M, O, T, U, V, W, X, Y | First two digits represent significant figures. Third digit specifies number of zeros. | K = ±10%<br>M = ±20% | 2R5 = 2.5<br>003 = 3<br>004 = 4<br>006 = 6.3<br>010 = 10<br>12R = 12.5<br>016 = 16<br>020 = 20<br>025 = 25<br>035 = 35<br>050 = 50<br>063 =63 | A = N/A | H = Standard solder coated (SnPb 5% Pb minimum)<br>T = 100% tin (Sn) | E = None<br>S = 10 cycles 25°C<br>W = 10 cycles −55°C and 85°C | ESR in mΩ | Blank = 7" reel<br>7280 = 13" reel<br>7610 = Bulk Bag<br>7640 = Bulk plastic box<br>WAFL = Waffle pack |

## Performance Characteristics

| Item | Performance Characteristics |
|---|---|
| Operating Temperature | −55°C to 105°C/125°C (refer to part number for maximum temperature rating) |
| Rated Capacitance Range | 4.7 – 2,000 µF at 120 Hz/25°C |
| Capacitance Tolerance | K tolerance (10%), M tolerance (20%) |
| Rated Voltage Range | 2.5 – 63 V |
| DF (120 Hz) | Refer to Part Number Electrical Specification Table |
| ESR (100 kHz) | Refer to Part Number Electrical Specification Table |
| Leakage Current | ≤ 0.1 CV (µA) at rated voltage after 5 minutes |

## Qualification

| Test | Condition | | Characteristics | | | |
|---|---|---|---|---|---|---|
| Endurance | 105°C at rated voltage, 2,000 hours<br>125°C at 2/3 rated voltage, 2,000 hours** | | Δ C/C | Within −20/+10 of initial value | | |
| | | | DF | Within initial limits | | |
| | | | DCL | Within 1.25 x initial limit | | |
| | | | ESR | Within 2.0 x initial limit | | |
| Storage Life | 105°C at 0 volts, 2,000 hours<br>125°C at 0 volts, 2,000 hours** | | Δ C/C | Within −20/+10 of initial value | | |
| | | | DF | Within initial limits | | |
| | | | DCL | Within 1.25 x initial limit | | |
| | | | ESR | Within 2.0 x initial limit | | |
| Humidity | 60°C, 90% RH, 500 hours | | Δ C/C | Within −5%/+35% of initial value | | |
| | | | DF | Within initial limits | | |
| | | | DCL | Within 5.0 x initial limit | | |
| | | | ESR | Within 2.0 x initial limit | | |
| Temperature Stability | Extreme temperature exposure at a succession of continuous steps at +25°C, −55°C, +25°C, +85°C, +105°C/+125°C**, +25° C | | | +25°C | −55°C | +85°C | +105°C |
| | | Δ C/C | | IL* | ±20% | ±20% | ±30% |
| | | DF | | IL | IL | 1.2 x IL | 1.5 x IL |
| | | DCL | | IL | N/A | 10 x IL | 10 x IL |
| Surge Voltage | 105°C, 1.32 x rated voltage, 1,000 cycles | | Δ C/C | Within −20/+10 of initial value | | |
| | | | DF | Within initial limits | | |
| | | | DCL | Within initial limits | | |
| | | | ESR | Within initial limits | | |
| Mechanical Shock/ Vibration | MIL–STD–202, Method 213, Condition I, 100 G peak<br>MIL–STD–202, Method 204, Condition D, 10 Hz to 2,000 Hz, 20 G peak | | Δ C/C | Within ±10 of initial value | | |
| | | | DF | Within initial limits | | |
| | | | DCL | Within initial limits | | |

**IL = Initial limit*

***Refer to part number specifications for individual temperature classification*

## Reliability

KO-CAP capacitors have an average failure rate of 0.5 %/1,000 hours at category voltage, $U_C$, and category temperature, $T_C$. These capacitors are qualified using industry test standards at $U_C$ and $T_C$. The minimum test time (1,000 hours or 2,000 hours) is dependent on the product.

The actual life expectancy of KO-CAP capacitors increases when application voltage, $U_A$, and application temperature, $T_A$, are lower than $U_C$ and $T_C$. As a general guideline, when $U_A < 0.9 * U_C$ and $T_A < 85°C$, the life expectancy will typically exceed the useful lifetime of most hardware (> 10 years).

The lifetime of a KO-CAP capacitor at a specific application voltage and temperature can be modeled using the equations below. A failure is defined as passing enough current to blow a 1-amp fuse. The calculation is an estimation based on empirical results and is not a guarantee.

$$VAF = \left(\frac{U_C}{U_A}\right)^n$$

where:
VAF = acceleration factor due to voltage, unitless
$U_C$ = category voltage, volt
$U_A$ = application voltage, volt
n = exponent, 16

$$TAF = e^{\left[\frac{E_a}{k}\left(\frac{1}{273+T_A} - \frac{1}{273+T_C}\right)\right]}$$

where:
TAF = acceleration factor due to temperature, unitless
$E_a$ = activation energy, 1.4 eV
k = Boltzmann's constant, 8.617E-5 eV/K
$T_A$ = application temperature, °C
$T_C$ = category temperature, °C

$$AF = VAF * TAF$$

where:
AF = acceleration factor, unitless
TAF = accerlation factor due to temperature, unitless
VAF = acceleration factor due to voltage, unitless

$$Life_{U_A,T_A} = Life_{U_C,T_C} * AF$$

where:
$Life_{UA, TA}$ = guaranteed life application voltage and temperature, years
$Life_{UC, TC}$ = guaranteed life category voltage and temperature, years
AF = acceleration factor, unitless

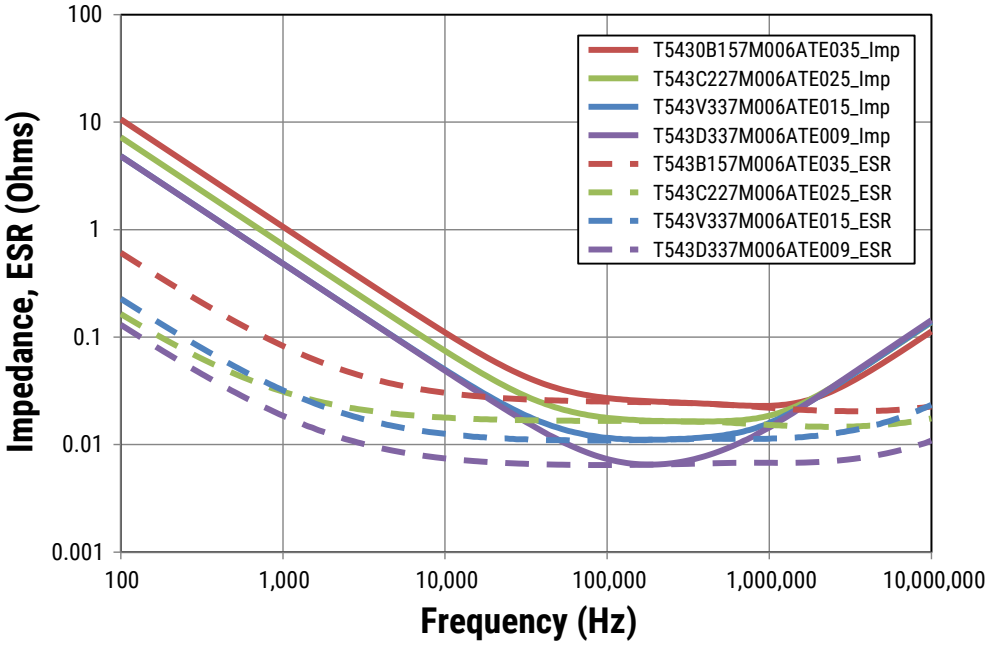
*Terms:*
*Category voltage, $U_C$ : maximum recommended peak DC operating voltage for continuous operation at the category temperature, $T_C$*
*Rated voltage, $U_R$ : maximum recommended peak DC operating voltage for continuous operation up to the rated temperature, $T_R$*
*Category temperature, $T_C$ : maximum recommended operating temperature. Voltage derating may be required at $T_C$*
*Rated temperature, $T_R$ : maximum recommended operating temperature without voltage derating. $T_R$ is equal to or lower than $T_C$*

**Reliability Table 1 – Common temperature range classifications**

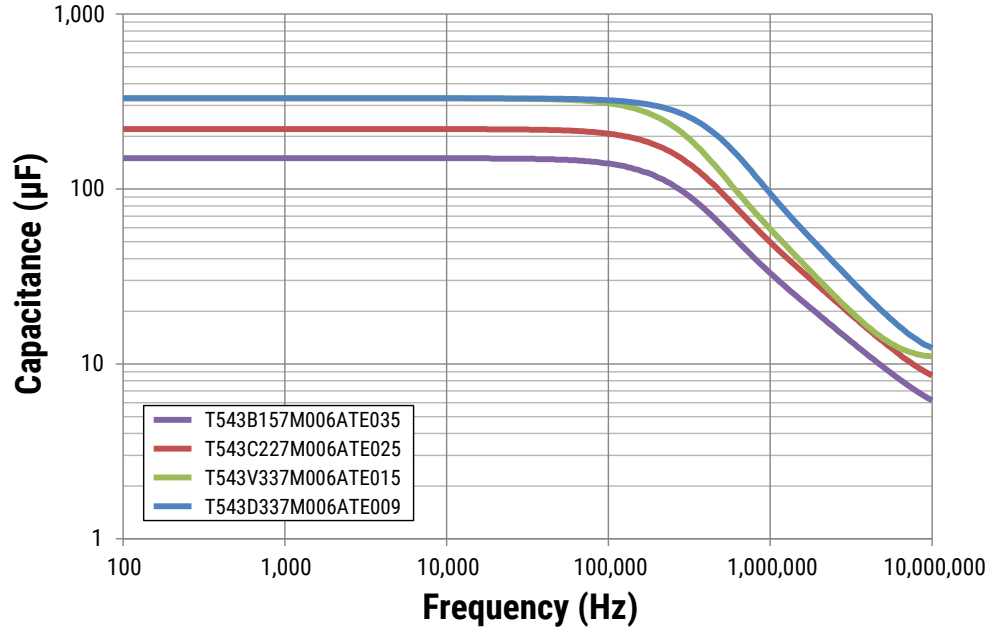
| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85°C ($T_R$) / 85°C ($T_C$) | Rated Voltage ($U_R$) | 2.5 | 4.0 | 6.3 | 8.0 | 10.0 | 12.5 | 16.0 | 20.0 | 25.0 | 35.0 | 50.0 | 63.0 | 75.0 |
| | Category Voltage ($U_C$) | 2.5 | 4.0 | 6.3 | 8.0 | 10.0 | 12.5 | 16.0 | 20.0 | 25.0 | 35.0 | 50.0 | 63.0 | 75.0 |
| 105°C ($T_R$) / 105°C ($T_C$) | Rated Voltage ($U_R$) | 2.5 | 4.0 | 6.3 | 8.0 | 10.0 | 12.5 | 16.0 | 20.0 | 25.0 | 35.0 | 50.0 | 63.0 | 75.0 |
| | Category Voltage ($U_C$) | 2.5 | 4.0 | 6.3 | 8.0 | 10.0 | 12.5 | 16.0 | 20.0 | 25.0 | 35.0 | 50.0 | 63.0 | 75.0 |
| 105°C ($T_R$) / 125°C ($T_C$) | Rated Voltage ($U_R$) | 2.5 | 4.0 | 6.3 | 8.0 | 10.0 | 12.5 | 16.0 | 20.0 | 25.0 | 35.0 | 50.0 | 63.0 | 75.0 |
| | Category Voltage ($U_C$) | 1.7 | 2.7 | 4.2 | 5.4 | 6.7 | 8.4 | 10.7 | 13.4 | 16.8 | 23.5 | 33.5 | 42.2 | 50.3 |

## Electrical Characteristics

ESR vs. Frequency

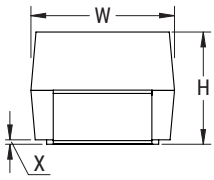



Capacitance vs. Frequency

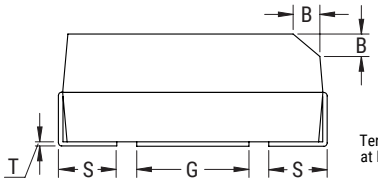


## Dimensions – Millimeters

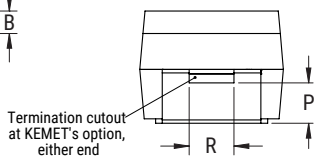
CATHODE (-) END VIEW



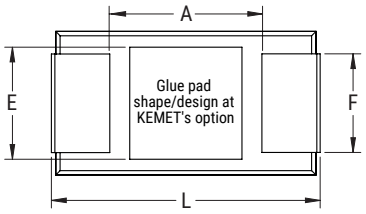

SIDE VIEW




ANODE (+) END VIEW




BOTTOM VIEW




| Case Size | | Component Dimensions | | | | | | | | | | | | | Typical Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEMET | EIA | L | W | H | F ±0.1 ±(0.004) | S ±0.3 ±(0.012) | B ±0.15 (Ref) ±0.006 | X (Ref) | P (Ref) | R (Ref) | T (Ref) | A (Min) | G (Ref) | E (Ref) | (mg) |
| A | 3216–18 | 3.2±0.2 (0.126±0.008) | 1.6±0.2 (0.063 ±0.008) | 1.6±0.2 (0.063±0.008) | 1.2 (0.047) | 0.8 (0.031) | 0.4 (0.016) | 0.10±0.10 (0.004±0.004) | 0.4 (0.016) | 0.4 (0.016) | 0.13 (0.005) | 1.2 (0.047) | 1.1 (0.043) | 1.3 (0.051) | 53.17 |
| B | 3528–21 | 3.5±0.2 (0.138±0.008) | 2.8±0.2 (0.110±0.008) | 1.9±0.2 (0.075±0.008) | 2.2 (0.087) | 0.8 (0.031) | 0.4 (0.016) | 0.10±0.10 (0.004±0.004) | 0.5 (0.020) | 1.0 (0.039) | 0.13 (0.005) | 1.9 (0.075) | 1.8 (0.071) | 2.2 (0.087) | 98.30 |
| C | 6032–28 | 6.0±0.3 (0.236±0.012) | 3.2±0.2 (0.126±0.008) | 2.5±0.3 (0.098±0.012) | 2.2 (0.087) | 1.3 (0.051) | 0.5 (0.020) | 0.10±0.10 (0.004±0.004) | 0.9 (0.035) | 1.0 (0.039) | 0.13 (0.005) | 3.1 (0.122) | 2.8 (0.110) | 2.4 (0.094) | 193.46 |
| D | 7343–31 | 7.3±0.3 (0.287±0.012) | 4.3±0.3 (0.169±0.012) | 2.8±0.3 (0.110±0.012) | 2.4 (0.094) | 1.3 (0.051) | 0.5 (0.020) | 0.10±0.10 (0.004±0.004) | 0.9 (0.035) | 1.0 (0.039) | 0.13 (0.005) | 3.8 (0.150) | 3.5 (0.138) | 3.5 (0.138) | 352.36 |
| H | 7360–20 | 7.3±0.3 (0.287±0.012) | 6.0±0.3 (0.236±0.012) | 1.9±0.1 (0.075±0.004) | 4.1 (0.161) | 1.3 (0.051) | N/A | 0.10±0.10 (0.004±0.004) | N/A | N/A | 0.13 (0.005) | 3.8 (0.150) | 3.5 (0.138) | 3.5 (0.138) | 366.62 |
| L | 6032–19 | 6.0±0.3 (0.236±0.012) | 3.2±0.2 (0.110±0.008) | 1.8±0.1 (0.071±0.004) | 2.2 (0.087) | 1.3 (0.051) | N/A | 0.05 (0.002) | N/A | N/A | 0.13 (0.005) | 3.1 (0.122) | 2.8 (0.110) | 2.4 (0.094) | No data |
| M | 3528–15 | 3.5±0.2 (0.138±0.008) | 2.8±0.2 (0.110±0.008) | 1.4±0.1 (0.055±0.004) | 2.2 (0.087) | 0.8 (0.031) | N/A | 0.05 (0.002) | N/A | N/A | 0.13 (0.005) | 1.9 (0.075) | 1.8 (0.071) | 2.2 (0.087) | 97.99 |
| O | 7360-43 | 7.3±0.3 (0.287±0.012) | 6.0±0.3 (0.236±0.012) | 4.0±0.3 (0.157±0.012) | 4.1 (0.161) | 1.3 (0.051) | N/A | 0.10 ±0.10 (0.004±0.004) | N/A | N/A | 0.13 (0.005) | 3.8 (0.150) | 3.5 (0.138) | 3.5 (0.138) | 696.00 |
| T | 3528–12 | 3.5±0.2 (0.138±0.008) | 2.8±0.2 (0.110±0.008) | 1.1±0.1 (0.043±0.004) | 2.2 (0.087) | 0.8 (0.031) | N/A | 0.05 (0.002) | N/A | N/A | 0.13 (0.005) | 1.9 (0.075) | 1.8 (0.071) | 2.2 (0.087) | 59.38 |
| U | 6032–15 | 6.0±0.3 (0.236±0.012) | 3.2±0.2 (0.110±0.008) | 1.4±0.1 (0.055±0.004) | 2.2 (0.087) | 1.3 (0.051) | N/A | 0.05 (0.002) | N/A | N/A | 0.13 (0.005) | 3.1 (0.122) | 2.8 (0.110) | 2.4 (0.094) | No data |
| V | 7343–20 | 7.3±0.3 (0.287±0.012) | 4.3±0.3 (0.169±0.012) | 1.9±0.1 (0.075±0.004) | 2.4 (0.094) | 1.3 (0.051) | N/A | 0.05 (0.002) | N/A | N/A | 0.13 (0.005) | 3.8 (0.150) | 3.5 (0.138) | 3.5 (0.138) | 262.90 |
| W | 7343–15 | 7.3±0.3 (0.287±0.012) | 4.3±0.3 (0.169±0.012) | 1.4±0.1 (0.055 ±0.004) | 2.4 (0.094) | 1.3 (0.051) | N/A | 0.05 (0.002) | N/A | N/A | 0.13 (0.005) | 3.8 (0.150) | 3.5 (0.138) | 3.5 (0.138) | 222.94 |
| X | 7343–43 | 7.3±0.3 (0.287±0.012) | 4.3±0.3 (0.169±0.012) | 4.0±0.3 (0.157±0.012) | 2.4 (0.094) | 1.3 (0.051) | 0.5 (0.020) | 0.10±0.10 (0.004±0.004) | 1.7 (0.067) | 1.0 (0.039) | 0.13 (0.005) | 3.8 (0.150) | 3.5 (0.138) | 3.5 (0.138) | 588.16 |
| Y | 7343–40 | 7.3±0.3 (0.287±0.012) | 4.3±0.3 (0.169±0.012) | 3.8±0.2 (0.150±0.008) | 2.4 (0.094) | 1.3 (0.051) | 0.5 (0.020) | 0.10±0.10 (0.004±0.004) | 1.7 (0.067) | 1.0 (0.039) | 0.13 (0.005) | 3.8 (0.150) | 3.5 (0.138) | 3.5 (0.138) | 481.55 |

*Notes: (Ref) – Dimensions provided for reference only. For low profile cases, no dimensions are provided for B, P, or R because these cases do not have a bevel or a notch.*

*These weights are provided as reference. If exact weights are needed, please contact your KEMET Sales Representative.*

## Table 1 – Ratings & Part Number Reference

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 2.5 | 47 | A/3216-18 | T543A476(1)2R5A(2)(3)090 | 12 | 8 | 90 | 1,116 | 105 | 3 |
| 2.5 | 56 | T/3528-12 | T543T566(1)2R5A(2)(3)040 | 14 | 8 | 40 | 1,620 | 105 | 3 |
| 2.5 | 56 | T/3528-12 | T543T566(1)2R5A(2)(3)070 | 14 | 8 | 70 | 1,225 | 105 | 3 |
| 2.5 | 68 | A/3216-18 | T543A686(1)2R5A(2)(3)070 | 17 | 8 | 70 | 1,265 | 105 | 3 |
| 2.5 | 68 | A/3216-18 | T543A686(1)2R5A(2)(3)080 | 17 | 8 | 80 | 1,183 | 105 | 3 |
| 2.5 | 100 | T/3528-12 | T543T107(1)2R5A(2)(3)040 | 25 | 8 | 40 | 1,620 | 105 | 3 |
| 2.5 | 100 | T/3528-12 | T543T107(1)2R5A(2)(3)070 | 25 | 8 | 70 | 1,225 | 105 | 3 |
| 2.5 | 100 | T/3528-12 | T543T107(1)2R5A(2)(3)080 | 25 | 8 | 80 | 1,146 | 105 | 3 |
| 2.5 | 100 | B/3528-21 | T543B107(1)2R5A(2)(3)025 | 25 | 8 | 25 | 2,254 | 105 | 3 |
| 2.5 | 100 | B/3528-21 | T543B107(1)2R5A(2)(3)035 | 25 | 8 | 35 | 1,905 | 105 | 3 |
| 2.5 | 100 | B/3528-21 | T543B107(1)2R5A(2)(3)040 | 25 | 8 | 40 | 1,782 | 105 | 3 |
| 2.5 | 100 | B/3528-21 | T543B107(1)2R5A(2)(3)070 | 25 | 8 | 70 | 1,347 | 105 | 3 |
| 2.5 | 150 | U/6032-15 | T543U157(1)2R5A(2)(3)055 | 38 | 8 | 55 | 1,567 | 105 | 3 |
| 2.5 | 220 | B/3528-21 | T543B227(1)2R5A(2)(3)025 | 55 | 8 | 25 | 2,254 | 105 | 3 |
| 2.5 | 220 | B/3528-21 | T543B227(1)2R5A(2)(3)030 | 55 | 8 | 30 | 2,058 | 105 | 3 |
| 2.5 | 220 | B/3528-21 | T543B227(1)2R5A(2)(3)035 | 55 | 8 | 35 | 1,905 | 105 | 3 |
| 2.5 | 220 | B/3528-21 | T543B227(1)2R5A(2)(3)055 | 55 | 8 | 55 | 1,520 | 105 | 3 |
| 2.5 | 220 | B/3528-21 | T543B227(1)2R5A(2)(3)070 | 55 | 8 | 70 | 1,347 | 105 | 3 |
| 2.5 | 220 | U/6032-15 | T543U227(1)2R5A(2)(3)055 | 55 | 8 | 55 | 1,567 | 105 | 3 |
| 2.5 | 220 | C/6032-28 | T543C227(1)2R5A(2)(3)025 | 55 | 8 | 25 | 2,569 | 105 | 3 |
| 2.5 | 220 | C/6032-28 | T543C227(1)2R5A(2)(3)045 | 55 | 8 | 45 | 1,915 | 105 | 3 |
| 2.5 | 220 | W/7343-15 | T543W227(1)2R5A(2)(3)025 | 55 | 10 | 25 | 2,683 | 105 | 3 |
| 2.5 | 220 | V/7343-20 | T543V227(1)2R5A(2)(3)015 | 55 | 10 | 15 | 3,531 | 105 | 3 |
| 2.5 | 220 | V/7343-20 | T543V227(1)2R5A(2)(3)025 | 55 | 10 | 25 | 2,735 | 105 | 3 |
| 2.5 | 220 | V/7343-20 | T543V227(1)2R5A(2)(3)045 | 55 | 10 | 45 | 2,039 | 105 | 3 |
| 2.5 | 220 | D-7343-31 | T543D227(1)2R5A(2)(3)040 | 55 | 10 | 40 | 2,372 | 105 | 3 |
| 2.5 | 330 | B/3528-21 | T543B337(1)2R5A(2)(3)035 | 83 | 8 | 35 | 1,905 | 105 | 3 |
| 2.5 | 330 | B/3528-21 | T543B337(1)2R5A(2)(3)045 | 83 | 8 | 45 | 1,680 | 105 | 3 |
| 2.5 | 330 | B/3528-21 | T543B337(1)2R5A(2)(3)070 | 83 | 8 | 70 | 1,347 | 105 | 3 |
| 2.5 | 330 | L/6032-19 | T543L337(1)2R5A(2)(3)012 | 83 | 8 | 12 | 3,536 | 105 | 3 |
| 2.5 | 330 | L/6032-19 | T543L337(1)2R5A(2)(3)025 | 83 | 8 | 25 | 2,449 | 105 | 3 |
| 2.5 | 330 | C/6032-28 | T543C337(1)2R5A(2)(3)015 | 83 | 8 | 15 | 3,317 | 105 | 3 |
| 2.5 | 330 | C/6032-28 | T543C337(1)2R5A(2)(3)018 | 83 | 8 | 18 | 3,028 | 105 | 3 |
| 2.5 | 330 | C/6032-28 | T543C337(1)2R5A(2)(3)025 | 83 | 8 | 25 | 2,569 | 105 | 3 |
| 2.5 | 330 | C/6032-28 | T543C337(1)2R5A(2)(3)045 | 83 | 8 | 45 | 1,915 | 105 | 3 |
| 2.5 | 330 | W/7343-15 | T543W337(1)2R5A(2)(3)015 | 83 | 10 | 15 | 3,464 | 105 | 3 |
| 2.5 | 330 | W/7343-15 | T543W337(1)2R5A(2)(3)025 | 83 | 10 | 25 | 2,683 | 105 | 3 |
| 2.5 | 330 | W/7343-15 | T543W337(1)2R5A(2)(3)040 | 83 | 10 | 40 | 2,121 | 105 | 3 |
| 2.5 | 330 | V/7343-20 | T543V337(1)2R5A(2)(3)015 | 83 | 10 | 15 | 3,531 | 105 | 3 |
| 2.5 | 330 | V/7343-20 | T543V337(1)2R5A(2)(3)018 | 83 | 10 | 18 | 3,223 | 105 | 3 |
| 2.5 | 330 | V/7343-20 | T543V337(1)2R5A(2)(3)025 | 83 | 10 | 25 | 2,735 | 105 | 3 |
| 2.5 | 330 | V/7343-20 | T543V337(1)2R5A(2)(3)040 | 83 | 10 | 40 | 2,162 | 105 | 3 |
| 2.5 | 330 | D-7343-31 | T543D337(1)2R5A(2)(3)006 | 83 | 10 | 6 | 6,124 | 105 | 3 |
| 2.5 | 330 | D-7343-31 | T543D337(1)2R5A(2)(3)007 | 83 | 10 | 7 | 5,669 | 105 | 3 |
| 2.5 | 330 | D-7343-31 | T543D337(1)2R5A(2)(3)025 | 83 | 10 | 25 | 3,000 | 105 | 3 |
| 2.5 | 470 | C/6032-28 | T543C477(1)2R5A(2)(3)025 | 118 | 8 | 25 | 2,569 | 105 | 3 |
| 2.5 | 470 | C/6032-28 | T543C477(1)2R5A(2)(3)045 | 118 | 8 | 45 | 1,915 | 105 | 3 |
| 2.5 | 470 | V/7343-20 | T543V477(1)2R5A(2)(3)018 | 118 | 10 | 18 | 3,223 | 105 | 3 |
| 2.5 | 470 | D-7343-31 | T543D477(1)2R5A(2)(3)005 | 118 | 10 | 5 | 6,708 | 105 | 3 |
| 2.5 | 470 | D-7343-31 | T543D477(1)2R5A(2)(3)006 | 118 | 10 | 6 | 6,124 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 2.5 | 470 | D-7343-31 | T543D477(1)2R5A(2)(3)007 | 118 | 10 | 7 | 5,669 | 105 | 3 |
| 2.5 | 470 | D-7343-31 | T543D477(1)2R5A(2)(3)009 | 118 | 10 | 9 | 5,000 | 105 | 3 |
| 2.5 | 470 | D-7343-31 | T543D477(1)2R5A(2)(3)010 | 118 | 10 | 10 | 4,743 | 105 | 3 |
| 2.5 | 470 | D-7343-31 | T543D477(1)2R5A(2)(3)025 | 118 | 10 | 25 | 3,000 | 105 | 3 |
| 2.5 | 560 | D-7343-31 | T543D567(1)2R5A(2)(3)005 | 140 | 10 | 5 | 6,708 | 105 | 3 |
| 2.5 | 680 | D-7343-31 | T543D687(1)2R5A(2)(3)006 | 170 | 10 | 6 | 6,124 | 125 | 3 |
| 2.5 | 680 | D-7343-31 | T543D687(1)2R5A(2)(3)010 | 170 | 10 | 10 | 4,743 | 125 | 3 |
| 2.5 | 680 | D-7343-31 | T543D687(1)2R5A(2)(3)015 | 170 | 10 | 15 | 3,873 | 125 | 3 |
| 2.5 | 680 | D-7343-31 | T543D687(1)2R5A(2)(3)040 | 170 | 10 | 40 | 2,372 | 125 | 3 |
| 2.5 | 680 | Y/7343-40 | T543Y687(1)2R5A(2)(3)005 | 170 | 10 | 5 | 6,943 | 105 | 3 |
| 2.5 | 680 | Y/7343-40 | T543Y687(1)2R5A(2)(3)006 | 170 | 10 | 6 | 6,338 | 105 | 3 |
| 2.5 | 680 | Y/7343-40 | T543Y687(1)2R5A(2)(3)010 | 170 | 10 | 10 | 4,909 | 105 | 3 |
| 2.5 | 680 | Y/7343-40 | T543Y687(1)2R5A(2)(3)015 | 170 | 10 | 15 | 4,008 | 105 | 3 |
| 2.5 | 680 | Y/7343-40 | T543Y687(1)2R5A(2)(3)025 | 170 | 10 | 25 | 3,105 | 105 | 3 |
| 2.5 | 680 | X/7343-43 | T543X687(1)2R5A(2)(3)006 | 170 | 10 | 6 | 6,416 | 105 | 3 |
| 2.5 | 1000 | Y/7343-40 | T543Y108(1)2R5A(2)(3)005 | 250 | 10 | 5 | 6,943 | 105 | 3 |
| 2.5 | 1000 | Y/7343-40 | T543Y108(1)2R5A(2)(3)006 | 250 | 10 | 6 | 6,338 | 105 | 3 |
| 2.5 | 1000 | Y/7343-40 | T543Y108(1)2R5A(2)(3)010 | 250 | 10 | 10 | 4,909 | 105 | 3 |
| 2.5 | 1000 | Y/7343-40 | T543Y108(1)2R5A(2)(3)015 | 250 | 10 | 15 | 4,008 | 105 | 3 |
| 2.5 | 1000 | Y/7343-40 | T543Y108(1)2R5A(2)(3)025 | 250 | 10 | 25 | 3,105 | 105 | 3 |
| 2.5 | 1000 | X/7343-43 | T543X108(1)2R5A(2)(3)005 | 250 | 10 | 5 | 7,029 | 105 | 3 |
| 2.5 | 1000 | X/7343-43 | T543X108(1)2R5A(2)(3)006 | 250 | 10 | 6 | 6,416 | 105 | 3 |
| 2.5 | 1000 | X/7343-43 | T543X108(1)2R5A(2)(3)010 | 250 | 10 | 10 | 4,970 | 105 | 3 |
| 2.5 | 1500 | X/7343-43 | T543X158(1)2R5A(2)(3)005 | 375 | 10 | 5 | 7,029 | 105 | 3 |
| 2.5 | 1500 | X/7343-43 | T543X158(1)2R5A(2)(3)010 | 375 | 10 | 10 | 4,970 | 105 | 3 |
| 3 | 100 | B/3528-21 | T543B107(1)003A(2)(3)035 | 30 | 8 | 35 | 1,905 | 105 | 3 |
| 3 | 100 | B/3528-21 | T543B107(1)003A(2)(3)040 | 30 | 8 | 40 | 1,782 | 105 | 3 |
| 3 | 100 | B/3528-21 | T543B107(1)003A(2)(3)070 | 30 | 8 | 70 | 1,347 | 105 | 3 |
| 3 | 100 | B/3528-21 | T543B107(1)003A(2)(3)080 | 30 | 8 | 80 | 1,260 | 105 | 3 |
| 3 | 150 | B/3528-21 | T543B157(1)003A(2)(3)035 | 45 | 8 | 35 | 1,905 | 105 | 3 |
| 3 | 150 | B/3528-21 | T543B157(1)003A(2)(3)040 | 45 | 8 | 40 | 1,782 | 105 | 3 |
| 3 | 150 | B/3528-21 | T543B157(1)003A(2)(3)070 | 45 | 8 | 70 | 1,347 | 105 | 3 |
| 3 | 150 | B/3528-21 | T543B157(1)003A(2)(3)080 | 45 | 8 | 80 | 1,260 | 105 | 3 |
| 3 | 330 | V/7343-20 | T543V337(1)003A(2)(3)015 | 99 | 10 | 15 | 3,531 | 105 | 3 |
| 3 | 330 | V/7343-20 | T543V337(1)003A(2)(3)025 | 99 | 10 | 25 | 2,735 | 105 | 3 |
| 3 | 330 | D-7343-31 | T543D337(1)003A(2)(3)025 | 99 | 10 | 25 | 3,000 | 105 | 3 |
| 3 | 470 | D-7343-31 | T543D477(1)003A(2)(3)010 | 141 | 10 | 10 | 4,743 | 105 | 3 |
| 3 | 470 | D-7343-31 | T543D477(1)003A(2)(3)025 | 141 | 10 | 25 | 3,000 | 105 | 3 |
| 3 | 680 | D-7343-31 | T543D687(1)003A(2)(3)010 | 204 | 10 | 10 | 4,743 | 125 | 3 |
| 3 | 680 | D-7343-31 | T543D687(1)003A(2)(3)015 | 204 | 10 | 15 | 3,873 | 125 | 3 |
| 3 | 680 | D-7343-31 | T543D687(1)003A(2)(3)025 | 204 | 10 | 25 | 3,000 | 125 | 3 |
| 3 | 680 | D-7343-31 | T543D687(1)003A(2)(3)040 | 204 | 10 | 40 | 2,372 | 125 | 3 |
| 3 | 1000 | X/7343-43 | T543X108(1)003A(2)(3)010 | 300 | 10 | 10 | 4,970 | 105 | 3 |
| 3 | 1000 | X/7343-43 | T543X108(1)003A(2)(3)015 | 300 | 10 | 15 | 4,058 | 105 | 3 |
| 3 | 1000 | X/7343-43 | T543X108(1)003A(2)(3)030 | 300 | 10 | 30 | 2,869 | 105 | 3 |
| 3 | 1500 | X/7343-43 | T543X158(1)003A(2)(3)008 | 450 | 10 | 8 | 5,557 | 125 | 3 |
| 3 | 2000 | O/7360-43 | T543O208M003A(2)(3)010 | 600 | 10 | 10 | 5,480 | 105 | 3 |
| 4 | 15 | T/3528-12 | T543T156(1)004A(2)(3)100 | 6 | 8 | 100 | 1,025 | 105 | 3 |
| 4 | 33 | A/3216-18 | T543A336(1)004A(2)(3)070 | 13 | 8 | 70 | 1,265 | 105 | 3 |
| 4 | 33 | A/3216-18 | T543A336(1)004A(2)(3)080 | 13 | 8 | 80 | 1,183 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 4 | 47 | A/3216-18 | T543A476(1)004A(2)(3)070 | 19 | 8 | 70 | 1,265 | 105 | 3 |
| 4 | 47 | A/3216-18 | T543A476(1)004A(2)(3)080 | 19 | 8 | 80 | 1,183 | 105 | 3 |
| 4 | 47 | T/3528-12 | T543T476(1)004A(2)(3)070 | 19 | 8 | 70 | 1,225 | 105 | 3 |
| 4 | 68 | T/3528-12 | T543T686(1)004A(2)(3)070 | 27 | 8 | 70 | 1,225 | 105 | 3 |
| 4 | 68 | T/3528-12 | T543T686(1)004A(2)(3)080 | 27 | 8 | 80 | 1,146 | 105 | 3 |
| 4 | 68 | B/3528-21 | T543B686(1)004A(2)(3)035 | 27 | 8 | 35 | 1,905 | 105 | 3 |
| 4 | 68 | B/3528-21 | T543B686(1)004A(2)(3)040 | 27 | 8 | 40 | 1,782 | 105 | 3 |
| 4 | 68 | B/3528-21 | T543B686(1)004A(2)(3)070 | 27 | 8 | 70 | 1,347 | 105 | 3 |
| 4 | 68 | B/3528-21 | T543B686(1)004A(2)(3)080 | 27 | 8 | 80 | 1,260 | 105 | 3 |
| 4 | 68 | U/6032-15 | T543U686(1)004A(2)(3)055 | 27 | 8 | 55 | 1,567 | 105 | 3 |
| 4 | 100 | A/3216-18 | T543A107(1)004A(2)(3)150 | 40 | 8 | 150 | 864 | 105 | 3 |
| 4 | 100 | A/3216-18 | T543A107(1)004A(2)(3)200 | 40 | 8 | 200 | 748 | 105 | 3 |
| 4 | 100 | T/3528-12 | T543T107(1)004A(2)(3)070 | 40 | 8 | 70 | 1,225 | 105 | 3 |
| 4 | 100 | T/3528-12 | T543T107(1)004A(2)(3)150 | 40 | 8 | 150 | 837 | 105 | 3 |
| 4 | 100 | B/3528-21 | T543B107(1)004A(2)(3)035 | 40 | 8 | 35 | 1,905 | 105 | 3 |
| 4 | 100 | B/3528-21 | T543B107(1)004A(2)(3)040 | 40 | 8 | 40 | 1,782 | 105 | 3 |
| 4 | 100 | B/3528-21 | T543B107(1)004A(2)(3)070 | 40 | 8 | 70 | 1,347 | 105 | 3 |
| 4 | 100 | B/3528-21 | T543B107(1)004A(2)(3)080 | 40 | 8 | 80 | 1,260 | 105 | 3 |
| 4 | 100 | U/6032-15 | T543U107(1)004A(2)(3)055 | 40 | 8 | 55 | 1,567 | 105 | 3 |
| 4 | 150 | B/3528-21 | T543B157(1)004A(2)(3)035 | 60 | 8 | 35 | 1,905 | 105 | 3 |
| 4 | 150 | B/3528-21 | T543B157(1)004A(2)(3)040 | 60 | 8 | 40 | 1,782 | 105 | 3 |
| 4 | 150 | B/3528-21 | T543B157(1)004A(2)(3)070 | 60 | 8 | 70 | 1,347 | 105 | 3 |
| 4 | 150 | U/6032-15 | T543U157(1)004A(2)(3)055 | 60 | 8 | 55 | 1,567 | 105 | 3 |
| 4 | 150 | C/6032-28 | T543C157(1)004A(2)(3)015 | 60 | 8 | 15 | 3,317 | 105 | 3 |
| 4 | 150 | C/6032-28 | T543C157(1)004A(2)(3)025 | 60 | 8 | 25 | 2,569 | 105 | 3 |
| 4 | 150 | C/6032-28 | T543C157(1)004A(2)(3)045 | 60 | 8 | 45 | 1,915 | 105 | 3 |
| 4 | 150 | C/6032-28 | T543C157(1)004A(2)(3)100 | 60 | 8 | 100 | 1,285 | 105 | 3 |
| 4 | 150 | V/7343-20 | T543V157(1)004A(2)(3)015 | 60 | 10 | 15 | 3,531 | 105 | 3 |
| 4 | 150 | V/7343-20 | T543V157(1)004A(2)(3)025 | 60 | 10 | 25 | 2,735 | 105 | 3 |
| 4 | 220 | B/3528-21 | T543B227(1)004A(2)(3)035 | 88 | 8 | 35 | 1,905 | 105 | 3 |
| 4 | 220 | B/3528-21 | T543B227(1)004A(2)(3)045 | 88 | 8 | 45 | 1,680 | 105 | 3 |
| 4 | 220 | B/3528-21 | T543B227(1)004A(2)(3)070 | 88 | 8 | 70 | 1,347 | 105 | 3 |
| 4 | 220 | L/6032-19 | T543L227(1)004A(2)(3)012 | 88 | 8 | 12 | 3,536 | 105 | 3 |
| 4 | 220 | L/6032-19 | T543L227(1)004A(2)(3)025 | 88 | 8 | 25 | 2,449 | 105 | 3 |
| 4 | 220 | C/6032-28 | T543C227(1)004A(2)(3)015 | 88 | 8 | 15 | 3,317 | 105 | 3 |
| 4 | 220 | C/6032-28 | T543C227(1)004A(2)(3)018 | 88 | 8 | 18 | 3,028 | 105 | 3 |
| 4 | 220 | C/6032-28 | T543C227(1)004A(2)(3)025 | 88 | 8 | 25 | 2,569 | 105 | 3 |
| 4 | 220 | C/6032-28 | T543C227(1)004A(2)(3)045 | 88 | 8 | 45 | 1,915 | 105 | 3 |
| 4 | 220 | C/6032-28 | T543C227(1)004A(2)(3)055 | 88 | 8 | 55 | 1,732 | 105 | 3 |
| 4 | 220 | W/7343-15 | T543W227(1)004A(2)(3)025 | 88 | 10 | 25 | 2,683 | 105 | 3 |
| 4 | 220 | W/7343-15 | T543W227(1)004A(2)(3)040 | 88 | 10 | 40 | 2,121 | 105 | 3 |
| 4 | 220 | V/7343-20 | T543V227(1)004A(2)(3)015 | 88 | 10 | 15 | 3,531 | 105 | 3 |
| 4 | 220 | V/7343-20 | T543V227(1)004A(2)(3)018 | 88 | 10 | 18 | 3,223 | 105 | 3 |
| 4 | 220 | V/7343-20 | T543V227(1)004A(2)(3)025 | 88 | 10 | 25 | 2,735 | 105 | 3 |
| 4 | 220 | V/7343-20 | T543V227(1)004A(2)(3)040 | 88 | 10 | 40 | 2,162 | 105 | 3 |
| 4 | 220 | V/7343-20 | T543V227(1)004A(2)(3)045 | 88 | 10 | 45 | 2,039 | 105 | 3 |
| 4 | 220 | D-7343-31 | T543D227(1)004A(2)(3)025 | 88 | 10 | 25 | 3,000 | 105 | 3 |
| 4 | 220 | D-7343-31 | T543D227(1)004A(2)(3)065 | 88 | 10 | 65 | 1,861 | 105 | 3 |
| 4 | 330 | C/6032-28 | T543C337(1)004A(2)(3)025 | 132 | 8 | 25 | 2,569 | 105 | 3 |
| 4 | 330 | C/6032-28 | T543C337(1)004A(2)(3)045 | 132 | 8 | 45 | 1,915 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 4 | 330 | V/7343-20 | T543V337(1)004A(2)(3)018 | 132 | 10 | 18 | 3,223 | 105 | 3 |
| 4 | 330 | V/7343-20 | T543V337(1)004A(2)(3)025 | 132 | 10 | 25 | 2,735 | 105 | 3 |
| 4 | 330 | V/7343-20 | T543V337(1)004A(2)(3)040 | 132 | 10 | 40 | 2,162 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)005 | 132 | 10 | 5 | 6,708 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)006 | 132 | 10 | 6 | 6,124 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)007 | 132 | 10 | 7 | 5,669 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)009 | 132 | 10 | 9 | 5,000 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)010 | 132 | 10 | 10 | 4,743 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)012 | 132 | 10 | 12 | 4,330 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)015 | 132 | 10 | 15 | 3,873 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)025 | 132 | 10 | 25 | 3,000 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)040 | 132 | 10 | 40 | 2,372 | 105 | 3 |
| 4 | 330 | D-7343-31 | T543D337(1)004A(2)(3)045 | 132 | 10 | 45 | 2,236 | 105 | 3 |
| 4 | 470 | D-7343-31 | T543D477(1)004A(2)(3)006 | 188 | 10 | 6 | 6,124 | 105 | 3 |
| 4 | 470 | D-7343-31 | T543D477(1)004A(2)(3)010 | 188 | 10 | 10 | 4,743 | 105 | 3 |
| 4 | 470 | D-7343-31 | T543D477(1)004A(2)(3)012 | 188 | 10 | 12 | 4,330 | 105 | 3 |
| 4 | 470 | D-7343-31 | T543D477(1)004A(2)(3)015 | 188 | 10 | 15 | 3,873 | 105 | 3 |
| 4 | 470 | D-7343-31 | T543D477(1)004A(2)(3)018 | 188 | 10 | 18 | 3,536 | 105 | 3 |
| 4 | 470 | D-7343-31 | T543D477(1)004A(2)(3)025 | 188 | 10 | 25 | 3,000 | 105 | 3 |
| 4 | 470 | D-7343-31 | T543D477(1)004A(2)(3)040 | 188 | 10 | 40 | 2,372 | 105 | 3 |
| 4 | 470 | Y/7343-40 | T543Y477(1)004A(2)(3)005 | 188 | 10 | 5 | 6,943 | 125 | 3 |
| 4 | 470 | Y/7343-40 | T543Y477(1)004A(2)(3)006 | 188 | 10 | 6 | 6,338 | 125 | 3 |
| 4 | 470 | Y/7343-40 | T543Y477(1)004A(2)(3)010 | 188 | 10 | 10 | 4,909 | 125 | 3 |
| 4 | 470 | Y/7343-40 | T543Y477(1)004A(2)(3)025 | 188 | 10 | 25 | 3,105 | 125 | 3 |
| 4 | 470 | Y/7343-40 | T543Y477(1)004A(2)(3)040 | 188 | 10 | 40 | 2,455 | 125 | 3 |
| 4 | 680 | D-7343-31 | T543D687(1)004A(2)(3)025 | 272 | 10 | 25 | 3,000 | 125 | 3 |
| 4 | 680 | Y/7343-40 | T543Y687(1)004A(2)(3)005 | 272 | 10 | 5 | 6,943 | 105 | 3 |
| 4 | 680 | Y/7343-40 | T543Y687(1)004A(2)(3)010 | 272 | 10 | 10 | 4,909 | 105 | 3 |
| 4 | 680 | Y/7343-40 | T543Y687(1)004A(2)(3)015 | 272 | 10 | 15 | 4,008 | 105 | 3 |
| 4 | 680 | Y/7343-40 | T543Y687(1)004A(2)(3)025 | 272 | 10 | 25 | 3,105 | 105 | 3 |
| 4 | 680 | X/7343-43 | T543X687(1)004A(2)(3)005 | 272 | 10 | 5 | 7,029 | 125 | 3 |
| 4 | 680 | X/7343-43 | T543X687(1)004A(2)(3)006 | 272 | 10 | 6 | 6,416 | 125 | 3 |
| 4 | 680 | X/7343-43 | T543X687(1)004A(2)(3)010 | 272 | 10 | 10 | 4,970 | 125 | 3 |
| 4 | 680 | X/7343-43 | T543X687(1)004A(2)(3)015 | 272 | 10 | 15 | 4,058 | 125 | 3 |
| 4 | 680 | X/7343-43 | T543X687(1)004A(2)(3)035 | 272 | 10 | 35 | 2,657 | 125 | 3 |
| 4 | 1000 | X/7343-43 | T543X108(1)004A(2)(3)006 | 400 | 10 | 6 | 6,416 | 105 | 3 |
| 4 | 1000 | X/7343-43 | T543X108(1)004A(2)(3)010 | 400 | 10 | 10 | 4,970 | 105 | 3 |
| 4 | 1500 | O/7360-43 | T543O158M004A(2)(3)010 | 600 | 10 | 10 | 5,480 | 105 | 3 |
| 6.3 | 15 | T/3528-12 | T543T156(1)006A(2)(3)100 | 9 | 8 | 100 | 1,025 | 105 | 3 |
| 6.3 | 22 | A/3216-18 | T543A226(1)006A(2)(3)090 | 14 | 8 | 90 | 1,116 | 105 | 3 |
| 6.3 | 22 | A/3216-18 | T543A226(1)006A(2)(3)100 | 14 | 8 | 100 | 1,058 | 105 | 3 |
| 6.3 | 33 | A/3216-18 | T543A336(1)006A(2)(3)070 | 21 | 8 | 70 | 1,265 | 105 | 3 |
| 6.3 | 33 | A/3216-18 | T543A336(1)006A(2)(3)080 | 21 | 8 | 80 | 1,183 | 105 | 3 |
| 6.3 | 33 | A/3216-18 | T543A336(1)006A(2)(3)120 | 21 | 8 | 120 | 966 | 105 | 3 |
| 6.3 | 33 | T/3528-12 | T543T336(1)006A(2)(3)070 | 21 | 8 | 70 | 1,225 | 105 | 3 |
| 6.3 | 33 | B/3528-21 | T543B336(1)006A(2)(3)025 | 21 | 8 | 25 | 2,254 | 105 | 3 |
| 6.3 | 33 | B/3528-21 | T543B336(1)006A(2)(3)035 | 21 | 8 | 35 | 1,905 | 105 | 3 |
| 6.3 | 33 | B/3528-21 | T543B336(1)006A(2)(3)040 | 21 | 8 | 40 | 1,782 | 105 | 3 |
| 6.3 | 33 | B/3528-21 | T543B336(1)006A(2)(3)070 | 21 | 8 | 70 | 1,347 | 105 | 3 |
| 6.3 | 33 | B/3528-21 | T543B336(1)006A(2)(3)080 | 21 | 8 | 80 | 1,260 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 6.3 | 33 | C/6032-28 | T543C336(1)006A(2)(3)100 | 21 | 8 | 100 | 1,285 | 105 | 3 |
| 6.3 | 47 | A/3216-18 | T543A476(1)006A(2)(3)150 | 30 | 8 | 150 | 864 | 105 | 3 |
| 6.3 | 47 | T/3528-12 | T543T476(1)006A(2)(3)070 | 30 | 8 | 70 | 1,225 | 105 | 3 |
| 6.3 | 47 | T/3528-12 | T543T476(1)006A(2)(3)080 | 30 | 8 | 80 | 1,146 | 105 | 3 |
| 6.3 | 47 | B/3528-21 | T543B476(1)006A(2)(3)025 | 30 | 8 | 25 | 2,254 | 125 | 3 |
| 6.3 | 47 | B/3528-21 | T543B476(1)006A(2)(3)035 | 30 | 8 | 35 | 1,905 | 105 | 3 |
| 6.3 | 47 | B/3528-21 | T543B476(1)006A(2)(3)040 | 30 | 8 | 40 | 1,782 | 105 | 3 |
| 6.3 | 47 | B/3528-21 | T543B476(1)006A(2)(3)070 | 30 | 8 | 70 | 1,347 | 105 | 3 |
| 6.3 | 47 | B/3528-21 | T543B476(1)006A(2)(3)080 | 30 | 8 | 80 | 1,260 | 105 | 3 |
| 6.3 | 68 | A/3216-18 | T543A686(1)006A(2)(3)150 | 43 | 8 | 150 | 864 | 105 | 3 |
| 6.3 | 68 | T/3528-12 | T543T686(1)006A(2)(3)070 | 43 | 8 | 70 | 1,225 | 105 | 3 |
| 6.3 | 68 | T/3528-12 | T543T686(1)006A(2)(3)150 | 43 | 8 | 150 | 837 | 105 | 3 |
| 6.3 | 68 | B/3528-21 | T543B686(1)006A(2)(3)025 | 43 | 8 | 25 | 2,254 | 105 | 3 |
| 6.3 | 68 | B/3528-21 | T543B686(1)006A(2)(3)035 | 43 | 8 | 35 | 1,905 | 105 | 3 |
| 6.3 | 68 | B/3528-21 | T543B686(1)006A(2)(3)040 | 43 | 8 | 40 | 1,782 | 105 | 3 |
| 6.3 | 68 | B/3528-21 | T543B686(1)006A(2)(3)070 | 43 | 8 | 70 | 1,347 | 105 | 3 |
| 6.3 | 68 | B/3528-21 | T543B686(1)006A(2)(3)080 | 43 | 8 | 80 | 1,260 | 105 | 3 |
| 6.3 | 68 | U/6032-15 | T543U686(1)006A(2)(3)055 | 43 | 8 | 55 | 1,567 | 105 | 3 |
| 6.3 | 68 | U/6032-15 | T543U686(1)006A(2)(3)070 | 43 | 8 | 70 | 1,389 | 105 | 3 |
| 6.3 | 68 | C/6032-28 | T543C686(1)006A(2)(3)100 | 43 | 8 | 100 | 1,285 | 105 | 3 |
| 6.3 | 100 | T/3528-12 | T543T107(1)006A(2)(3)070 | 63 | 8 | 70 | 1,225 | 105 | 3 |
| 6.3 | 100 | B/3528-21 | T543B107(1)006A(2)(3)025 | 63 | 8 | 25 | 2,254 | 105 | 3 |
| 6.3 | 100 | B/3528-21 | T543B107(1)006A(2)(3)035 | 63 | 8 | 35 | 1,905 | 105 | 3 |
| 6.3 | 100 | B/3528-21 | T543B107(1)006A(2)(3)040 | 63 | 8 | 40 | 1,782 | 105 | 3 |
| 6.3 | 100 | B/3528-21 | T543B107(1)006A(2)(3)045 | 63 | 8 | 45 | 1,680 | 105 | 3 |
| 6.3 | 100 | B/3528-21 | T543B107(1)006A(2)(3)070 | 63 | 8 | 70 | 1,347 | 105 | 3 |
| 6.3 | 100 | U/6032-15 | T543U107(1)006A(2)(3)055 | 63 | 8 | 55 | 1,567 | 105 | 3 |
| 6.3 | 100 | C/6032-28 | T543C107(1)006A(2)(3)025 | 63 | 8 | 25 | 2,569 | 105 | 3 |
| 6.3 | 100 | C/6032-28 | T543C107(1)006A(2)(3)045 | 63 | 8 | 45 | 1,915 | 105 | 3 |
| 6.3 | 100 | W/7343-15 | T543W107(1)006A(2)(3)040 | 63 | 10 | 40 | 2,121 | 105 | 3 |
| 6.3 | 100 | V/7343-20 | T543V107(1)006A(2)(3)015 | 63 | 10 | 15 | 3,531 | 105 | 3 |
| 6.3 | 100 | V/7343-20 | T543V107(1)006A(2)(3)045 | 63 | 10 | 45 | 2,039 | 105 | 3 |
| 6.3 | 120 | B/3528-21 | T543B127(1)006A(2)(3)035 | 76 | 8 | 35 | 1,905 | 105 | 3 |
| 6.3 | 150 | M/3528-15 | T543M157(1)006A(2)(3)070 | 95 | 8 | 70 | 1,309 | 105 | 3 |
| 6.3 | 150 | M/3528-15 | T543M157(1)006A(2)(3)150 | 95 | 8 | 150 | 894 | 105 | 3 |
| 6.3 | 150 | B/3528-21 | T543B157(1)006A(2)(3)025 | 95 | 8 | 25 | 2,254 | 105 | 3 |
| 6.3 | 150 | B/3528-21 | T543B157(1)006A(2)(3)035 | 95 | 8 | 35 | 1,905 | 105 | 3 |
| 6.3 | 150 | B/3528-21 | T543B157(1)006A(2)(3)045 | 95 | 8 | 45 | 1,680 | 105 | 3 |
| 6.3 | 150 | B/3528-21 | T543B157(1)006A(2)(3)070 | 95 | 8 | 70 | 1,347 | 105 | 3 |
| 6.3 | 150 | U/6032-15 | T543U157(1)006A(2)(3)045 | 95 | 8 | 45 | 1,732 | 105 | 3 |
| 6.3 | 150 | U/6032-15 | T543U157(1)006A(2)(3)055 | 95 | 8 | 55 | 1,567 | 105 | 3 |
| 6.3 | 150 | L/6032-19 | T543L157(1)006A(2)(3)012 | 95 | 8 | 12 | 3,536 | 105 | 3 |
| 6.3 | 150 | L/6032-19 | T543L157(1)006A(2)(3)025 | 95 | 8 | 25 | 2,449 | 105 | 3 |
| 6.3 | 150 | C/6032-28 | T543C157(1)006A(2)(3)015 | 95 | 8 | 15 | 3,317 | 105 | 3 |
| 6.3 | 150 | C/6032-28 | T543C157(1)006A(2)(3)025 | 95 | 8 | 25 | 2,569 | 105 | 3 |
| 6.3 | 150 | C/6032-28 | T543C157(1)006A(2)(3)045 | 95 | 8 | 45 | 1,915 | 105 | 3 |
| 6.3 | 150 | C/6032-28 | T543C157(1)006A(2)(3)055 | 95 | 8 | 55 | 1,732 | 105 | 3 |
| 6.3 | 150 | W/7343-15 | T543W157(1)006A(2)(3)025 | 95 | 10 | 25 | 2,683 | 105 | 3 |
| 6.3 | 150 | W/7343-15 | T543W157(1)006A(2)(3)040 | 95 | 10 | 40 | 2,121 | 105 | 3 |
| 6.3 | 150 | V/7343-20 | T543V157(1)006A(2)(3)015 | 95 | 10 | 15 | 3,531 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 6.3 | 150 | V/7343-20 | T543V157(1)006A(2)(3)018 | 95 | 10 | 18 | 3,223 | 105 | 3 |
| 6.3 | 150 | V/7343-20 | T543V157(1)006A(2)(3)025 | 95 | 10 | 25 | 2,735 | 105 | 3 |
| 6.3 | 150 | V/7343-20 | T543V157(1)006A(2)(3)040 | 95 | 10 | 40 | 2,162 | 105 | 3 |
| 6.3 | 150 | V/7343-20 | T543V157(1)006A(2)(3)045 | 95 | 10 | 45 | 2,039 | 105 | 3 |
| 6.3 | 150 | D-7343-31 | T543D157(1)006A(2)(3)015 | 95 | 10 | 15 | 3,873 | 105 | 3 |
| 6.3 | 150 | D-7343-31 | T543D157(1)006A(2)(3)025 | 95 | 10 | 25 | 3,000 | 105 | 3 |
| 6.3 | 150 | D-7343-31 | T543D157(1)006A(2)(3)055 | 95 | 10 | 55 | 2,023 | 105 | 3 |
| 6.3 | 220 | B/3528-21 | T543B227(1)006A(2)(3)035 | 139 | 8 | 35 | 1,905 | 105 | 3 |
| 6.3 | 220 | B/3528-21 | T543B227(1)006A(2)(3)045 | 139 | 8 | 45 | 1,680 | 105 | 3 |
| 6.3 | 220 | B/3528-21 | T543B227(1)006A(2)(3)070 | 139 | 8 | 70 | 1,347 | 105 | 3 |
| 6.3 | 220 | C/6032-28 | T543C227(1)006A(2)(3)015 | 139 | 8 | 15 | 3,317 | 105 | 3 |
| 6.3 | 220 | C/6032-28 | T543C227(1)006A(2)(3)018 | 139 | 8 | 18 | 3,028 | 105 | 3 |
| 6.3 | 220 | C/6032-28 | T543C227(1)006A(2)(3)025 | 139 | 8 | 25 | 2,569 | 105 | 3 |
| 6.3 | 220 | C/6032-28 | T543C227(1)006A(2)(3)045 | 139 | 8 | 45 | 1,915 | 105 | 3 |
| 6.3 | 220 | V/7343-20 | T543V227(1)006A(2)(3)018 | 139 | 10 | 18 | 3,223 | 105 | 3 |
| 6.3 | 220 | V/7343-20 | T543V227(1)006A(2)(3)025 | 139 | 10 | 25 | 2,735 | 105 | 3 |
| 6.3 | 220 | V/7343-20 | T543V227(1)006A(2)(3)040 | 139 | 10 | 40 | 2,162 | 105 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)005 | 139 | 10 | 5 | 6,708 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)006 | 139 | 10 | 6 | 6,124 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)007 | 139 | 10 | 7 | 5,669 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)009 | 139 | 10 | 9 | 5,000 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)010 | 139 | 10 | 10 | 4,743 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)015 | 139 | 10 | 15 | 3,873 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)018 | 139 | 10 | 18 | 3,536 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)025 | 139 | 10 | 25 | 3,000 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)040 | 139 | 10 | 40 | 2,372 | 125 | 3 |
| 6.3 | 220 | D-7343-31 | T543D227(1)006A(2)(3)050 | 139 | 10 | 50 | 2,121 | 125 | 3 |
| 6.3 | 330 | V/7343-20 | T543V337(1)006A(2)(3)015 | 208 | 10 | 15 | 3,531 | 105 | 3 |
| 6.3 | 330 | V/7343-20 | T543V337(1)006A(2)(3)018 | 208 | 10 | 18 | 3,223 | 105 | 3 |
| 6.3 | 330 | V/7343-20 | T543V337(1)006A(2)(3)025 | 208 | 10 | 25 | 2,735 | 105 | 3 |
| 6.3 | 330 | V/7343-20 | T543V337(1)006A(2)(3)040 | 208 | 10 | 40 | 2,162 | 105 | 3 |
| 6.3 | 330 | V/7343-20 | T543V337(1)006A(2)(3)045 | 208 | 10 | 45 | 2,039 | 105 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)006 | 208 | 10 | 6 | 6,124 | 125 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)009 | 208 | 10 | 9 | 5,000 | 125 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)010 | 208 | 10 | 10 | 4,743 | 125 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)015 | 208 | 10 | 15 | 3,873 | 125 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)018 | 208 | 10 | 18 | 3,536 | 125 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)025 | 208 | 10 | 25 | 3,000 | 125 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)040 | 208 | 10 | 40 | 2,372 | 125 | 3 |
| 6.3 | 330 | D-7343-31 | T543D337(1)006A(2)(3)045 | 208 | 10 | 45 | 2,236 | 125 | 3 |
| 6.3 | 330 | Y/7343-40 | T543Y337(1)006A(2)(3)005 | 208 | 10 | 5 | 6,943 | 125 | 3 |
| 6.3 | 330 | Y/7343-40 | T543Y337(1)006A(2)(3)006 | 208 | 10 | 6 | 6,338 | 125 | 3 |
| 6.3 | 330 | Y/7343-40 | T543Y337(1)006A(2)(3)010 | 208 | 10 | 10 | 4,909 | 125 | 3 |
| 6.3 | 330 | Y/7343-40 | T543Y337(1)006A(2)(3)015 | 208 | 10 | 15 | 4,008 | 125 | 3 |
| 6.3 | 330 | Y/7343-40 | T543Y337(1)006A(2)(3)025 | 208 | 10 | 25 | 3,105 | 125 | 3 |
| 6.3 | 330 | Y/7343-40 | T543Y337(1)006A(2)(3)040 | 208 | 10 | 40 | 2,455 | 125 | 3 |
| 6.3 | 470 | W/7343-15 | T543W477(1)006A(2)(3)055 | 296 | 10 | 55 | 1,809 | 85 | 3 |
| 6.3 | 470 | W/7343-15 | T543W477(1)006A(2)(3)035 | 296 | 10 | 35 | 2,268 | 85 | 3 |
| 6.3 | 470 | V/7343-20 | T543V477(1)006A(2)(3)055 | 296 | 10 | 55 | 1,844 | 85 | 3 |
| 6.3 | 470 | D-7343-31 | T543D477(1)006A(2)(3)015 | 296 | 10 | 15 | 3,873 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 6.3 | 470 | D-7343-31 | T543D477(1)006A(2)(3)025 | 296 | 10 | 25 | 3,000 | 105 | 3 |
| 6.3 | 470 | D-7343-31 | T543D477(1)006A(2)(3)030 | 296 | 10 | 30 | 2,739 | 105 | 3 |
| 6.3 | 470 | Y/7343-40 | T543Y477(1)006A(2)(3)005 | 296 | 10 | 5 | 6,943 | 105 | 3 |
| 6.3 | 470 | Y/7343-40 | T543Y477(1)006A(2)(3)010 | 296 | 10 | 10 | 4,909 | 105 | 3 |
| 6.3 | 470 | Y/7343-40 | T543Y477(1)006A(2)(3)015 | 296 | 10 | 15 | 4,008 | 105 | 3 |
| 6.3 | 470 | Y/7343-40 | T543Y477(1)006A(2)(3)018 | 296 | 10 | 18 | 3,659 | 105 | 3 |
| 6.3 | 470 | Y/7343-40 | T543Y477(1)006A(2)(3)025 | 296 | 10 | 25 | 3,105 | 105 | 3 |
| 6.3 | 470 | Y/7343-40 | T543Y477(1)006A(2)(3)035 | 296 | 10 | 35 | 2,624 | 105 | 3 |
| 6.3 | 470 | X/7343-43 | T543X477(1)006A(2)(3)005 | 296 | 10 | 5 | 7,029 | 125 | 3 |
| 6.3 | 470 | X/7343-43 | T543X477(1)006A(2)(3)006 | 296 | 10 | 6 | 6,416 | 125 | 3 |
| 6.3 | 470 | X/7343-43 | T543X477(1)006A(2)(3)010 | 296 | 10 | 10 | 4,970 | 125 | 3 |
| 6.3 | 470 | X/7343-43 | T543X477(1)006A(2)(3)018 | 296 | 10 | 18 | 3,704 | 125 | 3 |
| 6.3 | 470 | X/7343-43 | T543X477(1)006A(2)(3)035 | 296 | 10 | 35 | 2,657 | 125 | 3 |
| 6.3 | 470 | X/7343-43 | T543X477(1)006A(2)(3)040 | 296 | 10 | 40 | 2,485 | 125 | 3 |
| 6.3 | 680 | X/7343-43 | T543X687(1)006A(2)(3)010 | 428 | 10 | 10 | 4,970 | 125 | 3 |
| 6.3 | 680 | X/7343-43 | T543X687(1)006A(2)(3)018 | 428 | 10 | 18 | 3,704 | 125 | 3 |
| 6.3 | 1000 | H/7360-20 | T543H108(1)006A(2)(3)055 | 630 | 20 | 55 | 1,844 | 85 | 4 |
| 6.3 | 1000 | O/7360-43 | T543O108M006A(2)(3)010 | 630 | 10 | 10 | 5,480 | 105 | 3 |
| 6.3 | 1000 | O/7360-43 | T543O108M006A(2)(3)015 | 630 | 10 | 15 | 4,470 | 105 | 3 |
| 6.3 | 1500 | H/7360-20 | T543H158(1)006A(2)(3)055 | 945 | 20 | 55 | 1,844 | 85 | 4 |
| 8 | 33 | T/3528-12 | T543T336(1)008A(2)(3)070 | 26 | 8 | 70 | 1,225 | 105 | 3 |
| 8 | 33 | T/3528-12 | T543T336(1)008A(2)(3)080 | 26 | 8 | 80 | 1,146 | 105 | 3 |
| 8 | 33 | B/3528-21 | T543B336(1)008A(2)(3)025 | 26 | 8 | 25 | 2,254 | 105 | 3 |
| 8 | 33 | B/3528-21 | T543B336(1)008A(2)(3)035 | 26 | 8 | 35 | 1,905 | 105 | 3 |
| 8 | 33 | B/3528-21 | T543B336(1)008A(2)(3)040 | 26 | 8 | 40 | 1,782 | 105 | 3 |
| 8 | 33 | B/3528-21 | T543B336(1)008A(2)(3)070 | 26 | 8 | 70 | 1,347 | 105 | 3 |
| 8 | 33 | U/6032-15 | T543U336(1)008A(2)(3)070 | 26 | 8 | 70 | 1,389 | 105 | 3 |
| 8 | 47 | B/3528-21 | T543B476(1)008A(2)(3)035 | 38 | 8 | 35 | 1,905 | 105 | 3 |
| 8 | 47 | B/3528-21 | T543B476(1)008A(2)(3)070 | 38 | 8 | 70 | 1,347 | 105 | 3 |
| 8 | 150 | V/7343-20 | T543V157(1)008A(2)(3)040 | 120 | 10 | 40 | 2,162 | 105 | 3 |
| 8 | 150 | D-7343-31 | T543D157(1)008A(2)(3)025 | 120 | 10 | 25 | 3,000 | 105 | 3 |
| 8 | 150 | D-7343-31 | T543D157(1)008A(2)(3)040 | 120 | 10 | 40 | 2,372 | 105 | 3 |
| 8 | 150 | D-7343-31 | T543D157(1)008A(2)(3)055 | 120 | 10 | 55 | 2,023 | 105 | 3 |
| 10 | 10 | A/3216-18 | T543A106(1)010A(2)(3)080 | 10 | 8 | 80 | 1,183 | 105 | 3 |
| 10 | 15 | A/3216-18 | T543A156(1)010A(2)(3)080 | 15 | 8 | 80 | 1,183 | 105 | 3 |
| 10 | 22 | A/3216-18 | T543A226(1)010A(2)(3)080 | 22 | 8 | 80 | 1,183 | 105 | 3 |
| 10 | 22 | B/3528-21 | T543B226(1)010A(2)(3)080 | 22 | 8 | 80 | 1,260 | 105 | 3 |
| 10 | 33 | T/3528-12 | T543T336(1)010A(2)(3)070 | 33 | 8 | 70 | 1,225 | 105 | 3 |
| 10 | 33 | T/3528-12 | T543T336(1)010A(2)(3)080 | 33 | 8 | 80 | 1,146 | 105 | 3 |
| 10 | 33 | B/3528-21 | T543B336(1)010A(2)(3)025 | 33 | 8 | 25 | 2,254 | 105 | 3 |
| 10 | 33 | B/3528-21 | T543B336(1)010A(2)(3)035 | 33 | 8 | 35 | 1,905 | 105 | 3 |
| 10 | 33 | B/3528-21 | T543B336(1)010A(2)(3)040 | 33 | 8 | 40 | 1,782 | 105 | 3 |
| 10 | 33 | B/3528-21 | T543B336(1)010A(2)(3)070 | 33 | 8 | 70 | 1,347 | 105 | 3 |
| 10 | 33 | B/3528-21 | T543B336(1)010A(2)(3)080 | 33 | 8 | 80 | 1,260 | 105 | 3 |
| 10 | 33 | U/6032-15 | T543U336(1)010A(2)(3)070 | 33 | 8 | 70 | 1,389 | 105 | 3 |
| 10 | 47 | B/3528-21 | T543B476(1)010A(2)(3)035 | 47 | 8 | 35 | 1,905 | 105 | 3 |
| 10 | 47 | B/3528-21 | T543B476(1)010A(2)(3)070 | 47 | 8 | 70 | 1,347 | 105 | 3 |
| 10 | 47 | U/6032-15 | T543U476(1)010A(2)(3)055 | 47 | 8 | 55 | 1,567 | 105 | 3 |
| 10 | 47 | C/6032-28 | T543C476(1)010A(2)(3)100 | 47 | 8 | 100 | 1,285 | 105 | 3 |
| 10 | 68 | U/6032-15 | T543U686(1)010A(2)(3)055 | 68 | 8 | 55 | 1,567 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 10 | 68 | C/6032-28 | T543C686(1)010A(2)(3)045 | 68 | 8 | 45 | 1,915 | 105 | 3 |
| 10 | 68 | W/7343-15 | T543W686(1)010A(2)(3)025 | 68 | 10 | 25 | 2,683 | 105 | 3 |
| 10 | 68 | W/7343-15 | T543W686(1)010A(2)(3)040 | 68 | 10 | 40 | 2,121 | 105 | 3 |
| 10 | 68 | V/7343-20 | T543V686(1)010A(2)(3)025 | 68 | 10 | 25 | 2,735 | 105 | 3 |
| 10 | 68 | V/7343-20 | T543V686(1)010A(2)(3)040 | 68 | 10 | 40 | 2,162 | 105 | 3 |
| 10 | 68 | V/7343-20 | T543V686(1)010A(2)(3)045 | 68 | 10 | 45 | 2,039 | 105 | 3 |
| 10 | 68 | V/7343-20 | T543V686(1)010A(2)(3)060 | 68 | 10 | 60 | 1,765 | 105 | 3 |
| 10 | 68 | V/7343-20 | T543V686(1)010A(2)(3)100 | 68 | 10 | 100 | 1,367 | 105 | 3 |
| 10 | 68 | D-7343-31 | T543D686(1)010A(2)(3)100 | 68 | 10 | 100 | 1,500 | 105 | 3 |
| 10 | 100 | B/3528-21 | T543B107(1)010A(2)(3)150 | 100 | 10 | 150 | 920 | 105 | 3 |
| 10 | 100 | L/6032-19 | T543L107(1)010A(2)(3)025 | 100 | 8 | 25 | 2,449 | 105 | 3 |
| 10 | 100 | C/6032-28 | T543C107(1)010A(2)(3)025 | 100 | 8 | 25 | 2,569 | 105 | 3 |
| 10 | 100 | C/6032-28 | T543C107(1)010A(2)(3)045 | 100 | 8 | 45 | 1,915 | 105 | 3 |
| 10 | 100 | W/7343-15 | T543W107(1)010A(2)(3)040 | 100 | 10 | 40 | 2,121 | 105 | 3 |
| 10 | 100 | V/7343-20 | T543V107(1)010A(2)(3)018 | 100 | 10 | 18 | 3,223 | 105 | 3 |
| 10 | 100 | V/7343-20 | T543V107(1)010A(2)(3)025 | 100 | 10 | 25 | 2,735 | 105 | 3 |
| 10 | 100 | V/7343-20 | T543V107(1)010A(2)(3)045 | 100 | 10 | 45 | 2,039 | 105 | 3 |
| 10 | 100 | V/7343-20 | T543V107(1)010A(2)(3)050 | 100 | 10 | 50 | 1,934 | 105 | 3 |
| 10 | 100 | D-7343-31 | T543D107(1)010A(2)(3)018 | 100 | 10 | 18 | 3,536 | 125 | 3 |
| 10 | 100 | D-7343-31 | T543D107(1)010A(2)(3)025 | 100 | 10 | 25 | 3,000 | 125 | 3 |
| 10 | 100 | D-7343-31 | T543D107(1)010A(2)(3)055 | 100 | 10 | 55 | 2,023 | 125 | 3 |
| 10 | 100 | D-7343-31 | T543D107(1)010A(2)(3)080 | 100 | 10 | 80 | 1,677 | 125 | 3 |
| 10 | 150 | C/6032-28 | T543C157(1)010A(2)(3)055 | 150 | 8 | 55 | 1,732 | 105 | 3 |
| 10 | 150 | V/7343-20 | T543V157(1)010A(2)(3)025 | 150 | 10 | 25 | 2,735 | 105 | 3 |
| 10 | 150 | V/7343-20 | T543V157(1)010A(2)(3)040 | 150 | 10 | 40 | 2,162 | 105 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)005 | 150 | 10 | 5 | 6,708 | 125 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)006 | 150 | 10 | 6 | 6,124 | 125 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)010 | 150 | 10 | 10 | 4,743 | 125 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)015 | 150 | 10 | 15 | 3,873 | 125 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)018 | 150 | 10 | 18 | 3,536 | 125 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)025 | 150 | 10 | 25 | 3,000 | 125 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)040 | 150 | 10 | 40 | 2,372 | 125 | 3 |
| 10 | 150 | D-7343-31 | T543D157(1)010A(2)(3)055 | 150 | 10 | 55 | 2,023 | 125 | 3 |
| 10 | 150 | Y/7343-40 | T543Y157(1)010A(2)(3)018 | 150 | 10 | 18 | 3,659 | 105 | 3 |
| 10 | 150 | Y/7343-40 | T543Y157(1)010A(2)(3)025 | 150 | 10 | 25 | 3,105 | 105 | 3 |
| 10 | 220 | V/7343-20 | T543V227(1)010A(2)(3)025 | 220 | 10 | 25 | 2,735 | 105 | 3 |
| 10 | 220 | V/7343-20 | T543V227(1)010A(2)(3)045 | 220 | 10 | 45 | 2,039 | 105 | 3 |
| 10 | 220 | D-7343-31 | T543D227(1)010A(2)(3)006 | 220 | 10 | 6 | 6,124 | 125 | 3 |
| 10 | 220 | D-7343-31 | T543D227(1)010A(2)(3)010 | 220 | 10 | 10 | 4,743 | 125 | 3 |
| 10 | 220 | D-7343-31 | T543D227(1)010A(2)(3)018 | 220 | 10 | 18 | 3,536 | 125 | 3 |
| 10 | 220 | D-7343-31 | T543D227(1)010A(2)(3)025 | 220 | 10 | 25 | 3,000 | 125 | 3 |
| 10 | 220 | D-7343-31 | T543D227(1)010A(2)(3)040 | 220 | 10 | 40 | 2,372 | 125 | 3 |
| 10 | 220 | Y/7343-40 | T543Y227(1)010A(2)(3)006 | 220 | 10 | 6 | 6,338 | 125 | 3 |
| 10 | 220 | Y/7343-40 | T543Y227(1)010A(2)(3)010 | 220 | 10 | 10 | 4,909 | 125 | 3 |
| 10 | 220 | Y/7343-40 | T543Y227(1)010A(2)(3)040 | 220 | 10 | 40 | 2,455 | 125 | 3 |
| 10 | 330 | Y/7343-40 | T543Y337(1)010A(2)(3)015 | 330 | 10 | 15 | 4,008 | 105 | 3 |
| 10 | 330 | Y/7343-40 | T543Y337(1)010A(2)(3)035 | 330 | 10 | 35 | 2,624 | 105 | 3 |
| 10 | 330 | X/7343-43 | T543X337(1)010A(2)(3)005 | 330 | 10 | 5 | 7,029 | 125 | 3 |
| 10 | 330 | X/7343-43 | T543X337(1)010A(2)(3)006 | 330 | 10 | 6 | 6,416 | 125 | 3 |
| 10 | 330 | X/7343-43 | T543X337(1)010A(2)(3)010 | 330 | 10 | 10 | 4,970 | 125 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 10 | 330 | X/7343-43 | T543X337(1)010A(2)(3)025 | 330 | 10 | 25 | 3,143 | 125 | 3 |
| 10 | 330 | X/7343-43 | T543X337(1)010A(2)(3)040 | 330 | 10 | 40 | 2,485 | 125 | 3 |
| 10 | 470 | X/7343-43 | T543X477(1)010A(2)(3)020 | 470 | 10 | 20 | 3,674 | 105 | 3 |
| 10 | 680 | O/7360-43 | T543O687M010A(2)(3)015 | 680 | 10 | 15 | 4,470 | 105 | 3 |
| 12.5 | 10 | T/3528-12 | T543T106(1)12RA(2)(3)150 | 13 | 8 | 150 | 837 | 105 | 3 |
| 12.5 | 15 | T/3528-12 | T543T156(1)12RA(2)(3)080 | 19 | 8 | 80 | 1,146 | 105 | 3 |
| 12.5 | 330 | X/7343-43 | T543X337(1)12RA(2)(3)015 | 413 | 10 | 15 | 4,058 | 105 | 3 |
| 16 | 10 | B/3528-21 | T543B106(1)016A(2)(3)100 | 16 | 8 | 100 | 1,127 | 105 | 3 |
| 16 | 22 | C/6032-28 | T543C226(1)016A(2)(3)080 | 35 | 8 | 80 | 1,436 | 105 | 3 |
| 16 | 33 | W/7343-15 | T543W336(1)016A(2)(3)045 | 53 | 10 | 45 | 2,000 | 105 | 3 |
| 16 | 33 | V/7343-20 | T543V336(1)016A(2)(3)045 | 53 | 10 | 45 | 2,039 | 105 | 3 |
| 16 | 33 | V/7343-20 | T543V336(1)016A(2)(3)060 | 53 | 10 | 60 | 1,765 | 105 | 3 |
| 16 | 33 | V/7343-20 | T543V336(1)016A(2)(3)070 | 53 | 10 | 70 | 1,634 | 105 | 3 |
| 16 | 47 | W/7343-15 | T543W476(1)016A(2)(3)045 | 75 | 10 | 45 | 2,000 | 105 | 3 |
| 16 | 47 | V/7343-20 | T543V476(1)016A(2)(3)045 | 75 | 10 | 45 | 2,039 | 105 | 3 |
| 16 | 47 | V/7343-20 | T543V476(1)016A(2)(3)070 | 75 | 10 | 70 | 1,634 | 105 | 3 |
| 16 | 47 | V/7343-20 | T543V476(1)016A(2)(3)080 | 75 | 10 | 80 | 1,529 | 105 | 3 |
| 16 | 47 | D-7343-31 | T543D476(1)016A(2)(3)035 | 75 | 10 | 35 | 2,535 | 125 | 3 |
| 16 | 47 | D-7343-31 | T543D476(1)016A(2)(3)065 | 75 | 10 | 65 | 1,861 | 125 | 3 |
| 16 | 47 | D-7343-31 | T543D476(1)016A(2)(3)070 | 75 | 10 | 70 | 1,793 | 125 | 3 |
| 16 | 68 | V/7343-20 | T543V686(1)016A(2)(3)050 | 109 | 10 | 50 | 1,934 | 105 | 3 |
| 16 | 68 | V/7343-20 | T543V686(1)016A(2)(3)090 | 109 | 10 | 90 | 1,441 | 105 | 3 |
| 16 | 100 | V/7343-20 | T543V107(1)016A(2)(3)050 | 160 | 10 | 50 | 1,934 | 105 | 3 |
| 16 | 100 | D-7343-31 | T543D107(1)016A(2)(3)035 | 160 | 10 | 35 | 2,535 | 125 | 3 |
| 16 | 100 | D-7343-31 | T543D107(1)016A(2)(3)050 | 160 | 10 | 50 | 2,121 | 125 | 3 |
| 16 | 150 | X/7343-43 | T543X157(1)016A(2)(3)015 | 240 | 10 | 15 | 4,058 | 125 | 3 |
| 16 | 150 | X/7343-43 | T543X157(1)016A(2)(3)025 | 240 | 10 | 25 | 3,143 | 125 | 3 |
| 16 | 150 | X/7343-43 | T543X157(1)016A(2)(3)040 | 240 | 10 | 40 | 2,485 | 125 | 3 |
| 16 | 150 | X/7343-43 | T543X157(1)016A(2)(3)080 | 240 | 10 | 80 | 1,757 | 125 | 3 |
| 16 | 220 | X/7343-43 | T543X227(1)016A(2)(3)035 | 352 | 10 | 35 | 2,657 | 125 | 3 |
| 16 | 220 | X/7343-43 | T543X227(1)016A(2)(3)080 | 352 | 10 | 80 | 1,757 | 125 | 3 |
| 16 | 330 | X/7343-43 | T543X337(1)016A(2)(3)025 | 528 | 10 | 25 | 3,143 | 125 | 3 |
| 16 | 330 | X/7343-43 | T543X337(1)016A(2)(3)050 | 528 | 10 | 50 | 2,223 | 125 | 3 |
| 16 | 470 | O/7360-43 | T543O477M016A(2)(3)020 | 752 | 10 | 20 | 3,870 | 105 | 3 |
| 16 | 470 | O/7360-43 | T543O477M016A(2)(3)040 | 752 | 10 | 40 | 2,740 | 105 | 3 |
| 20 | 22 | V/7343-20 | T543V226(1)020A(2)(3)040 | 44 | 10 | 40 | 2,162 | 105 | 3 |
| 20 | 22 | V/7343-20 | T543V226(1)020A(2)(3)045 | 44 | 10 | 45 | 2,039 | 105 | 3 |
| 20 | 22 | V/7343-20 | T543V226(1)020A(2)(3)090 | 44 | 10 | 90 | 1,441 | 105 | 3 |
| 20 | 22 | D-7343-31 | T543D226(1)020A(2)(3)040 | 44 | 10 | 40 | 2,372 | 105 | 3 |
| 20 | 22 | D-7343-31 | T543D226(1)020A(2)(3)045 | 44 | 10 | 45 | 2,236 | 105 | 3 |
| 20 | 22 | D-7343-31 | T543D226(1)020A(2)(3)090 | 44 | 10 | 90 | 1,581 | 105 | 3 |
| 20 | 33 | D-7343-31 | T543D336(1)020A(2)(3)060 | 66 | 10 | 60 | 1,936 | 125 | 3 |
| 20 | 47 | V/7343-20 | T543V476(1)020A(2)(3)055 | 94 | 10 | 55 | 1,844 | 105 | 3 |
| 20 | 47 | V/7343-20 | T543V476(1)020A(2)(3)090 | 94 | 10 | 90 | 1,441 | 105 | 3 |
| 20 | 47 | D-7343-31 | T543D476(1)020A(2)(3)055 | 94 | 10 | 55 | 2,023 | 105 | 3 |
| 20 | 100 | X/7343-43 | T543X107(1)020A(2)(3)035 | 200 | 10 | 35 | 2,657 | 125 | 3 |
| 20 | 100 | X/7343-43 | T543X107(1)020A(2)(3)050 | 200 | 10 | 50 | 2,223 | 125 | 3 |
| 25 | 10 | B/3528-21 | T543B106(1)025A(2)(3)100 | 25 | 10 | 100 | 1,127 | 105 | 3 |
| 25 | 15 | V/7343-20 | T543V156(1)025A(2)(3)090 | 38 | 10 | 90 | 1,441 | 105 | 3 |
| 25 | 15 | D-7343-31 | T543D156(1)025A(2)(3)060 | 38 | 10 | 60 | 1,936 | 125 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 25 | 15 | D-7343-31 | T543D156(1)025A(2)(3)080 | 38 | 10 | 80 | 1,677 | 125 | 3 |
| 25 | 22 | C/6032-28 | T543C226(1)025A(2)(3)080 | 55 | 8 | 80 | 1,436 | 105 | 3 |
| 25 | 22 | D-7343-31 | T543D226(1)025A(2)(3)075 | 55 | 10 | 75 | 1,732 | 125 | 3 |
| 25 | 22 | V/7343-20 | T543V226(1)025A(2)(3)060 | 55 | 10 | 60 | 1,765 | 105 | 3 |
| 25 | 22 | V/7343-20 | T543V226(1)025A(2)(3)090 | 55 | 10 | 90 | 1,441 | 105 | 3 |
| 25 | 33 | V/7343-20 | T543V336(1)025A(2)(3)060 | 83 | 10 | 60 | 1,765 | 105 | 3 |
| 25 | 33 | D-7343-31 | T543D336(1)025A(2)(3)060 | 83 | 10 | 60 | 1,936 | 105 | 3 |
| 25 | 68 | X/7343-43 | T543X686(1)025A(2)(3)035 | 170 | 10 | 35 | 2,657 | 125 | 3 |
| 25 | 68 | X/7343-43 | T543X686(1)025A(2)(3)050 | 170 | 10 | 50 | 2,223 | 125 | 3 |
| 25 | 100 | X/7343-43 | T543X107(1)025A(2)(3)060 | 250 | 10 | 60 | 2,029 | 125 | 3 |
| 25 | 150 | O/7360-43 | T543O157M025A(2)(3)045 | 375 | 10 | 45 | 2,580 | 105 | 3 |
| 30 | 22 | D-7343-31 | T543D226(1)030A(2)(3)075 | 66 | 10 | 75 | 1,732 | 105 | 3 |
| 30 | 33 | D-7343-31 | T543D336(1)030A(2)(3)100 | 99 | 10 | 100 | 1,500 | 105 | 3 |
| 30 | 47 | X/7343-43 | T543X476(1)030A(2)(3)050 | 141 | 10 | 50 | 2,223 | 105 | 3 |
| 30 | 68 | X/7343-43 | T543X686(1)030A(2)(3)035 | 204 | 10 | 35 | 2,657 | 125 | 3 |
| 30 | 68 | X/7343-43 | T543X686(1)030A(2)(3)050 | 204 | 10 | 50 | 2,223 | 125 | 3 |
| 30 | 100 | X/7343-43 | T543X107(1)030A(2)(3)035 | 300 | 10 | 35 | 2,657 | 105 | 3 |
| 30 | 100 | X/7343-43 | T543X107(1)030A(2)(3)060 | 300 | 10 | 60 | 2,029 | 105 | 3 |
| 30 | 100 | X/7343-43 | T543X107(1)030A(2)(3)070 | 300 | 10 | 70 | 1,878 | 105 | 3 |
| 30 | 150 | O/7360-43 | T543O157M030A(2)(3)030 | 450 | 10 | 30 | 3,160 | 105 | 3 |
| 30 | 150 | O/7360-43 | T543O157M030A(2)(3)045 | 450 | 10 | 45 | 2,580 | 105 | 3 |
| 30 | 150 | O/7360-43 | T543O157M030A(2)(3)055 | 450 | 10 | 55 | 2,340 | 105 | 3 |
| 35 | 15 | V/7343-20 | T543V156(1)035A(2)(3)100 | 53 | 10 | 100 | 1,367 | 105 | 3 |
| 35 | 15 | V/7343-20 | T543V156(1)035A(2)(3)125 | 53 | 10 | 125 | 1,223 | 105 | 3 |
| 35 | 15 | D-7343-31 | T543D156(1)035A(2)(3)100 | 53 | 10 | 100 | 1,500 | 125 | 3 |
| 35 | 15 | D-7343-31 | T543D156(1)035A(2)(3)125 | 53 | 10 | 125 | 1,342 | 125 | 3 |
| 35 | 33 | X/7343-43 | T543X336(1)035A(2)(3)065 | 116 | 10 | 65 | 1,949 | 105 | 3 |
| 35 | 47 | X/7343-43 | T543X476(1)035A(2)(3)030 | 165 | 10 | 30 | 2,869 | 125 | 3 |
| 35 | 47 | X/7343-43 | T543X476(1)035A(2)(3)060 | 165 | 10 | 60 | 2,029 | 125 | 3 |
| 35 | 68 | O/7360-43 | T543O686M035A(2)(3)025 | 238 | 10 | 25 | 3,460 | 105 | 3 |
| 35 | 68 | O/7360-43 | T543O686M035A(2)(3)045 | 238 | 10 | 45 | 2,580 | 105 | 3 |
| 50 | 5.6 | D-7343-31 | T543D565(1)050A(2)(3)070 | 28 | 10 | 70 | 1,793 | 105 | 3 |
| 50 | 5.6 | D-7343-31 | T543D565(1)050A(2)(3)090 | 28 | 10 | 90 | 1,581 | 105 | 3 |
| 50 | 6.8 | V/7343-20 | T543V685(1)050A(2)(3)065 | 34 | 10 | 65 | 1,934 | 125 | 3 |
| 50 | 10 | D-7343-31 | T543D106(1)050A(2)(3)090 | 50 | 10 | 90 | 1,581 | 125 | 3 |
| 50 | 10 | D-7343-31 | T543D106(1)050A(2)(3)100 | 50 | 10 | 100 | 1,500 | 125 | 3 |
| 50 | 10 | D-7343-31 | T543D106(1)050A(2)(3)120 | 50 | 10 | 120 | 1,369 | 125 | 3 |
| 50 | 15 | X/7343-43 | T543X156(1)050A(2)(3)035 | 75 | 10 | 35 | 2,657 | 105 | 3 |
| 50 | 15 | X/7343-43 | T543X156(1)050A(2)(3)070 | 75 | 10 | 70 | 1,878 | 105 | 3 |
| 50 | 18 | X/7343-43 | T543X186(1)050A(2)(3)035 | 90 | 10 | 35 | 2,657 | 125 | 3 |
| 50 | 18 | X/7343-43 | T543X186(1)050A(2)(3)070 | 90 | 10 | 70 | 1,878 | 125 | 3 |
| 50 | 22 | X/7343-43 | T543X226(1)050A(2)(3)040 | 110 | 10 | 40 | 2,485 | 125 | 3 |
| 50 | 22 | X/7343-43 | T543X226(1)050A(2)(3)075 | 110 | 10 | 75 | 1,815 | 125 | 3 |
| 50 | 33 | X/7343-43 | T543X336(1)050A(2)(3)040 | 165 | 10 | 40 | 2,485 | 125 | 3 |
| 50 | 33 | X/7343-43 | T543X336(1)050A(2)(3)075 | 165 | 10 | 75 | 1,815 | 125 | 3 |
| 50 | 47 | O/7360-43 | T543O476M050A(2)(3)060 | 235 | 10 | 60 | 2,240 | 105 | 3 |
| 63 | 4.7 | D-7343-31 | T543D475(1)063A(2)(3)075 | 30 | 10 | 75 | 1,732 | 125 | 3 |
| 63 | 4.7 | D-7343-31 | T543D475(1)063A(2)(3)100 | 30 | 10 | 100 | 1,500 | 125 | 3 |
| 63 | 4.7 | D-7343-31 | T543D475(1)063A(2)(3)120 | 30 | 10 | 120 | 1,369 | 125 | 3 |
| 63 | 6.8 | D-7343-31 | T543D685(1)063A(2)(3)075 | 43 | 10 | 75 | 1,700 | 125 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

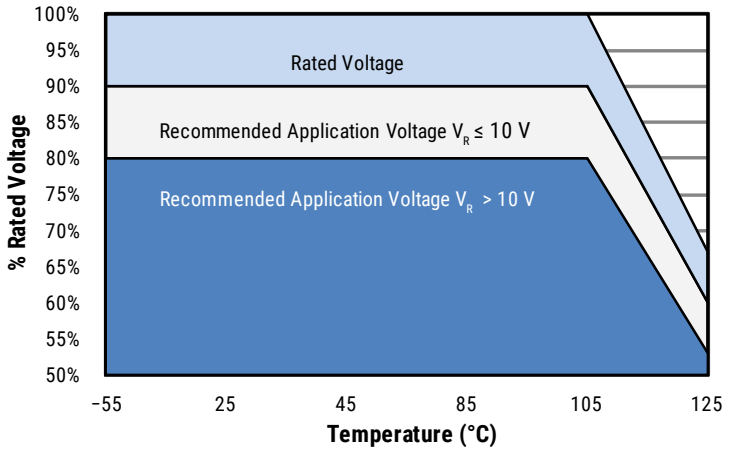
*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Table 1 – Ratings & Part Number Reference cont.

| Rated Voltage VDC at 105°C | Rated Cap | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |
|---|---|---|---|---|---|---|---|---|---|
| Not all parts are 105°C rated | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| 63 | 10 | X/7343-43 | T543X106(1)063A(2)(3)050 | 63 | 10 | 50 | 2,223 | 125 | 3 |
| 63 | 10 | X/7343-43 | T543X106(1)063A(2)(3)075 | 63 | 10 | 75 | 1,815 | 125 | 3 |
| 63 | 10 | X/7343-43 | T543X106(1)063A(2)(3)100 | 63 | 10 | 100 | 1,572 | 125 | 3 |
| 63 | 10 | X/7343-43 | T543X106(1)063A(2)(3)150 | 63 | 10 | 150 | 1,283 | 125 | 3 |
| 63 | 15 | X/7343-43 | T543X156(1)063A(2)(3)035 | 95 | 10 | 35 | 2,657 | 125 | 3 |
| 63 | 15 | X/7343-43 | T543X156(1)063A(2)(3)050 | 95 | 10 | 50 | 2,223 | 125 | 3 |
| 63 | 22 | X/7343-43 | T543X226(1)063A(2)(3)075 | 138.6 | 10 | 75 | 1,815 | 125 | 3 |
| 63 | 22 | O/7360-43 | T543O226M063A(2)(3)030 | 139 | 10 | 30 | 3,160 | 105 | 3 |
| 63 | 22 | O/7360-43 | T543O226M063A(2)(3)040 | 139 | 10 | 40 | 2,740 | 105 | 3 |
| VDC at 105°C | µF | KEMET/EIA | (See below for part options) | µA at $V_R$, 25°C Maximum/ 5 Minutes | % at 25°C 120 Hz Maximum | mΩ at 25°C 100 kHz Maximum | (rms) mA at 45°C 100 kHz | °C | Reflow Temp ≤ 260°C |
| Rated Voltage | Rated Capacitance | Case Code/ Case Size | KEMET Part Number | DC Leakage | DF | ESR | Maximum Allowable Ripple Current | Maximum Operating Temp. | MSL |

*(1) To complete KEMET part number, insert M for ±20%, K for ±10%. Designates capacitance tolerance.*
*(2) To complete KEMET part number, H = Solder-Plated, T = 100% Tin (Sn). Designates termination finish.*
*(3) To complete KEMET part number, insert E = None, S = 10 cycles +25°C, W = 10 cycles −55°C +85°C. Designates surge current option.*
*Refer to Ordering Information for additional detail.*
***Part Numbers marked in blue font are "Under Development." Engineering samples available upon request.***

## Derating Guidelines




### Recommended Application Voltage

KO-CAPs are solid state capacitors that demonstrate no wearout mechanism when operated within their recommended guidelines. While the KO-CAP can be operated at full rated voltage, most circuit designers seek a minimum level of assurance in long term reliability, which should be demonstrated with data. A voltage derating can provide the desired level of demonstrated reliability based on industry accepted acceleration models. Since most applications do require long term reliability, KEMET recommends that designers consider a voltage derating, according the graphic above, for the maximum steady state voltage.

| Voltage Rating | Maximum Recommended Steady State Voltage |
|---|---|
| −55°C to 105°C | |
| 2.5 V ≤ $V_R$ ≤ 10 V | 90% of $V_R$ |
| 12.5 V ≤ $V_R$ ≤ 63 V | 80% of $V_R$ |

*$V_R$= Rated Voltage*

## Ripple Current/Ripple Voltage

Permissible AC ripple voltage and current are related to equivalent series resistance (ESR) and the power dissipation capabilities of the device. Permissible AC ripple voltage which may be applied is limited by two criteria:

1. The positive peak AC voltage plus the DC bias voltage, if any, must not exceed the DC voltage rating of the capacitor.
2. The negative peak AC voltage in combination with bias voltage, if any, must not exceed the allowable limits specified for reverse voltage. See the Reverse Voltage section for allowable limits.

The maximum power dissipation by case size can be determined using the table at right. The maximum power dissipation rating stated in the table must be reduced with increasing environmental operating temperatures. Refer to the table below for temperature compensation requirements.

| Temperature Compensation Multipliers for Maximum Ripple Current | | |
|---|---|---|
| T ≤ 45°C | 45° C < T ≤ 85°C | 85°C < T ≤ 125°C |
| 1.00 | 0.70 | 0.25 |

*T = Environmental temperature*

*The maximum power dissipation rating must be reduced with increasing environmental operating temperatures. Refer to the Temperature Compensation Multiplier table for details.*

| Case Code | EIA Case Code | Maximum Power Dissipation (Pmax) mWatts at 45°C with +30°C Rise |
|---|---|---|
| A | 3216-18 | 112 |
| B | 3528-21 | 127 |
| C | 6032-28 | 165 |
| D | 7343-31 | 225 |
| H | 7360-20 | 187 |
| L | 6032-19 | 150 |
| M | 3528-15 | 120 |
| O | 7360-43 | 300 |
| T | 3528-12 | 105 |
| U | 6032-15 | 135 |
| V | 7343-20 | 187 |
| W | 7343-15 | 180 |
| X | 7343-43 | 247 |
| Y | 7343-40 | 241 |

Using the Pmax of the device, the maximum allowable rms ripple current or voltage may be determined.

$I(max) = \sqrt{Pmax/R}$
$E(max) = Z\sqrt{Pmax/R}$

*I = rms ripple current (amperes)*
*E = rms ripple voltage (volts)*
*Pmax = maximum power dissipation (watts)*
*R = ESR at specified frequency (ohms)*
*Z = Impedance at specified frequency (ohms)*

## Surge Voltage

Surge voltage is the maximum voltage (peak value) which may be applied to the capacitor.
The surge voltage must not be applied for periodic charging and discharging in the course of normal operation and cannot be part of the application voltage.
Surge voltage capability is demonstrated by application of 1,000cycles at relevant voltage at 105°C and 125°C.
The parts are charged through a 33 Ohm resistor for 30 seconds and then discharged though a 33 Ohm resistor for each cycle.

| Rated Voltage (V) | Surge Voltage (V) | Category Voltage (V) | Category Surge Voltage (V) |
|---|---|---|---|
| –55°C to 105°C | | up to 125°C | |
| 2.5 | 3.3 | 1.7 | 2.2 |
| 6.3 | 8.2 | 4.2 | 5.5 |
| 10 | 13 | 6.7 | 8.7 |
| 16 | 20.8 | 10.7 | 13.9 |
| 20 | 26 | 13.4 | 17.4 |
| 25 | 32.5 | 16.8 | 21.8 |
| 35 | 45.5 | 23.5 | 30.5 |
| 50 | 65 | 33.5 | 43.6 |

## Reverse Voltage

Polymer electrolytic capacitors are polar devices and may be permanently damaged or destroyed if connected in the wrong polarity. These devices will withstand a small degree of transient voltage reversal for short periods as shown in the below table.

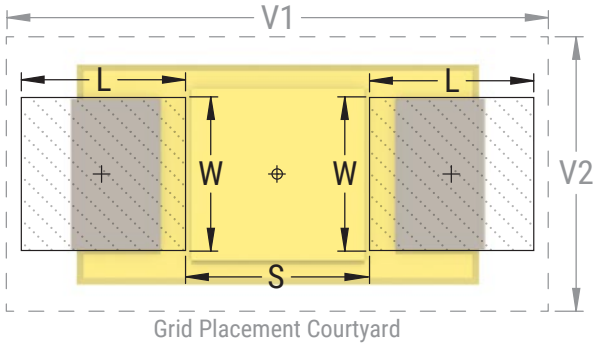
| Temperature | Permissible Transient Reverse Voltage |
|---|---|
| 25°C | 15% of rated voltage |
| 55°C | 10% of rated voltage |
| 85°C | 5% of rated voltage |
| 105°C | 3% of rated voltage |
| 125°C* | 1% of rated voltage |

**For series rated to 125°C*

## Table 2 – Land Dimensions/Courtyard

| KEMET | Metric Size Code | Density Level A: Maximum (Most) Land Protrusion (mm) | | | | | Density Level B: Median (Nominal) Land Protrusion (mm) | | | | | Density Level C: Minimum (Least) Land Protrusion (mm) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Case | EIA | W | L | S | V1 | V2 | W | L | S | V1 | V2 | W | L | S | V1 | V2 |
| A | 3216–18 | 1.35 | 2.20 | 0.62 | 6.02 | 2.80 | 1.23 | 1.80 | 0.82 | 4.92 | 2.30 | 1.13 | 1.42 | 0.98 | 4.06 | 2.04 |
| B | 3528–21 | 2.35 | 2.21 | 0.92 | 6.32 | 4.00 | 2.23 | 1.80 | 1.12 | 5.22 | 3.50 | 2.13 | 1.42 | 1.28 | 4.36 | 3.24 |
| C | 6032–28 | 2.35 | 2.77 | 2.37 | 8.92 | 4.50 | 2.23 | 2.37 | 2.57 | 7.82 | 4.00 | 2.13 | 1.99 | 2.73 | 6.96 | 3.74 |
| D | 7343–31 | 2.55 | 2.77 | 3.67 | 10.22 | 5.60 | 2.43 | 2.37 | 3.87 | 9.12 | 5.10 | 2.33 | 1.99 | 4.03 | 8.26 | 4.84 |
| L | 6032-19 | 2.35 | 2.77 | 2.37 | 8.92 | 4.50 | 2.23 | 2.37 | 2.57 | 7.82 | 4.00 | 2.13 | 1.99 | 2.73 | 6.96 | 3.74 |
| M | 3528-15 | 2.35 | 2.20 | 0.92 | 6.32 | 4.00 | 2.23 | 1.80 | 1.12 | 5.22 | 3.50 | 2.13 | 1.42 | 1.28 | 4.36 | 3.24 |
| O | 7360-43 | 4.25 | 2.77 | 3.67 | 10.22 | 7.30 | 4.13 | 2.37 | 3.87 | 9.12 | 6.80 | 4.03 | 1.99 | 4.03 | 8.26 | 6.54 |
| H | 7360-20 | 4.25 | 2.77 | 3.67 | 10.22 | 7.30 | 4.13 | 2.37 | 3.87 | 9.12 | 6.80 | 4.03 | 1.99 | 4.03 | 8.26 | 6.54 |
| T | 3528–12 | 2.35 | 2.20 | 0.92 | 6.32 | 4.00 | 2.23 | 1.80 | 1.12 | 5.22 | 3.50 | 2.13 | 1.42 | 1.28 | 4.36 | 3.24 |
| U | 6032–15 | 2.35 | 2.77 | 2.37 | 8.92 | 4.50 | 2.23 | 2.37 | 2.57 | 7.82 | 4.00 | 2.13 | 1.99 | 2.73 | 6.96 | 3.74 |
| V | 7343–21 | 2.55 | 2.77 | 3.67 | 10.22 | 5.60 | 2.43 | 2.37 | 3.87 | 9.12 | 5.10 | 2.33 | 1.99 | 4.03 | 8.26 | 4.84 |
| W | 7343–15 | 2.55 | 2.77 | 3.67 | 10.22 | 5.60 | 2.43 | 2.37 | 3.87 | 9.12 | 5.10 | 2.33 | 1.99 | 4.03 | 8.26 | 4.84 |
| X[1] | 7343–43 | 2.55 | 2.77 | 3.67 | 10.22 | 5.60 | 2.43 | 2.37 | 3.87 | 9.12 | 5.10 | 2.33 | 1.99 | 4.03 | 8.26 | 4.84 |
| Y[1] | 7343–40 | 2.55 | 2.77 | 3.67 | 10.22 | 5.60 | 2.43 | 2.37 | 3.87 | 9.12 | 5.10 | 2.33 | 1.99 | 4.03 | 8.26 | 4.84 |

***Density Level A:*** *For low-density product applications. Recommended for wave solder applications and provides a wider process window for reflow solder processes.*
***Density Level B:*** *For products with a moderate level of component density. Provides a robust solder attachment condition for reflow solder processes.*
***Density Level C:*** *For high component density product applications. Before adapting the minimum land pattern variations the user should perform qualification testing based on the conditions outlined in IPC standard 7351 (IPC–7351).*
[1] *Height of these chips may create problems in wave soldering.*
[2] *Land pattern geometry is too small for silkscreen outline.*



## Soldering Process

The KEMET families of surface mount capacitors are compatible with wave (single or dual), convection, IR, or vapor phase reflow techniques. Preheating of these components is recommended to avoid extreme thermal stress. KEMET's recommended profile conditions for convection and IR reflow reflect the profile conditions of the IPC/J–STD–020D standard for moisture sensitivity testing. The devices can safely withstand a maximum of three reflow passes at these conditions.

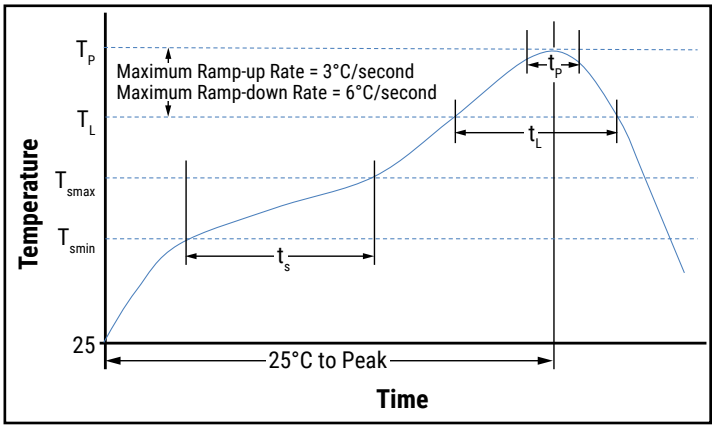
Please note that although the X/7343–43 case size can withstand wave soldering, the tall profile (4.3 mm maximum) dictates care in wave process development.

Hand soldering should be performed with care due to the difficulty in process control. If performed, care should be taken to avoid contact of the soldering iron to the molded case. The iron should be used to heat the solder pad, applying solder between the pad and the termination, until reflow occurs. Once reflow occurs, the iron should be removed immediately. “Wiping” the edges of a chip and heating the top surface is not recommended.

During typical reflow operations, a slight darkening of the gold-colored epoxy may be observed. This slight darkening is normal and not harmful to the product. Marking permanency is not affected by this change.

| Profile Feature | SnPb Assembly | Pb-Free Assembly |
|---|---|---|
| Preheat/Soak | | |
| Temperature Minimum ($T_{Smin}$) | 100°C | 150°C |
| Temperature Maximum ($T_{Smax}$) | 150°C | 200°C |
| Time ($t_s$) from $T_{smin}$ to $T_{smax}$) | 60 – 120 seconds | 60 – 120 seconds |
| Ramp-up Rate ($T_L$ to $T_P$) | 3°C/second maximum | 3°C/second maximum |
| Liquidous Temperature ($T_L$) | 183°C | 217°C |
| Time Above Liquidous ($t_L$) | 60 – 150 seconds | 60 – 150 seconds |
| Peak Temperature ($T_P$) | 220°C*<br>235°C** | 250°C*<br>260°C** |
| Time within 5°C of Maximum Peak Temperature ($t_P$) | 20 seconds maximum | 30 seconds maximum |
| Ramp-down Rate ($T_P$ to $T_L$) | 6°C/second maximum | 6°C/second maximum |
| Time 25°C to Peak Temperature | 6 minutes maximum | 8 minutes maximum |

*Note: All temperatures refer to the center of the package, measured on the package body surface that is facing up during assembly reflow.*
** For Case Size height > 2.5 mm*
*** For Case Size height ≤ 2.5 mm*



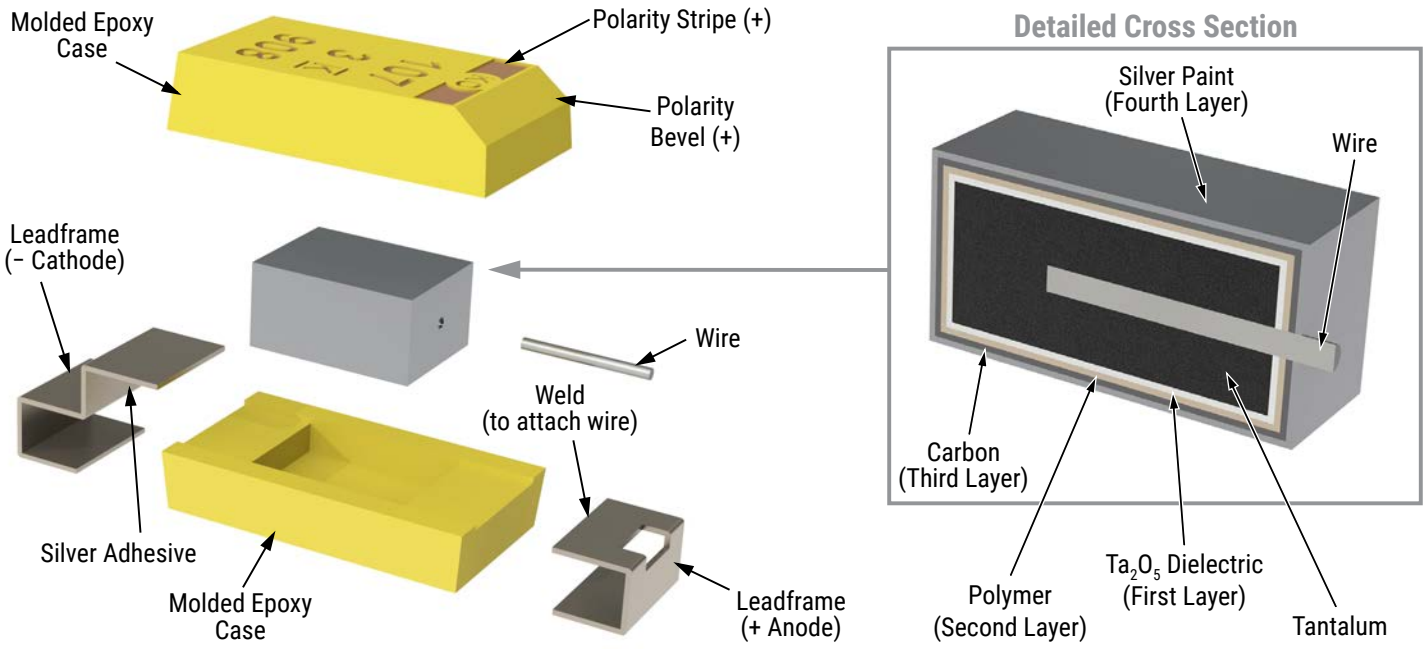

## Storage

All KO-Cap are shipped in moisture barrier bags (MBBs) with desiccant and humidity indicator card (HIC). These parts are classified as moisture sensitivity level 3 (MSL3) or moisture sensitivity level 4 (MSL4) per IPC/JEDEC J-STD-020 and packaged per IPC/JEDEC J-STD-033. Refer to Table 1 for part type specification. MSL3 specifies a floor time of 168H at 30°C maximum temperature and 60% relative humidity. MSL4 specifies a floor time of 72H at 30°C maximum temperature and 60% relative humidity. Unused capacitors should be sealed in a MBB with fresh desiccant.

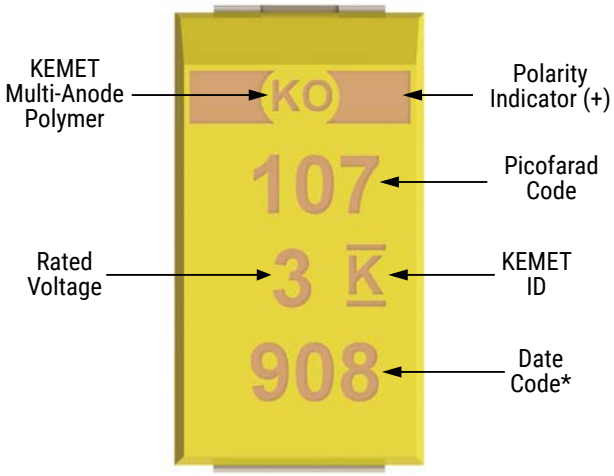
Calculated shelf life in sealed bag:
– 12 months from bag seal date in a storage environment of < 40°C and humidity < 90% RH
– 24 months from bag seal date in a storage environment of < 30°C and humidity < 70% RH

If baking is required, refer to IPC/JEDEC J–STD–033 for bake procedure

## Construction




## Capacitor Marking

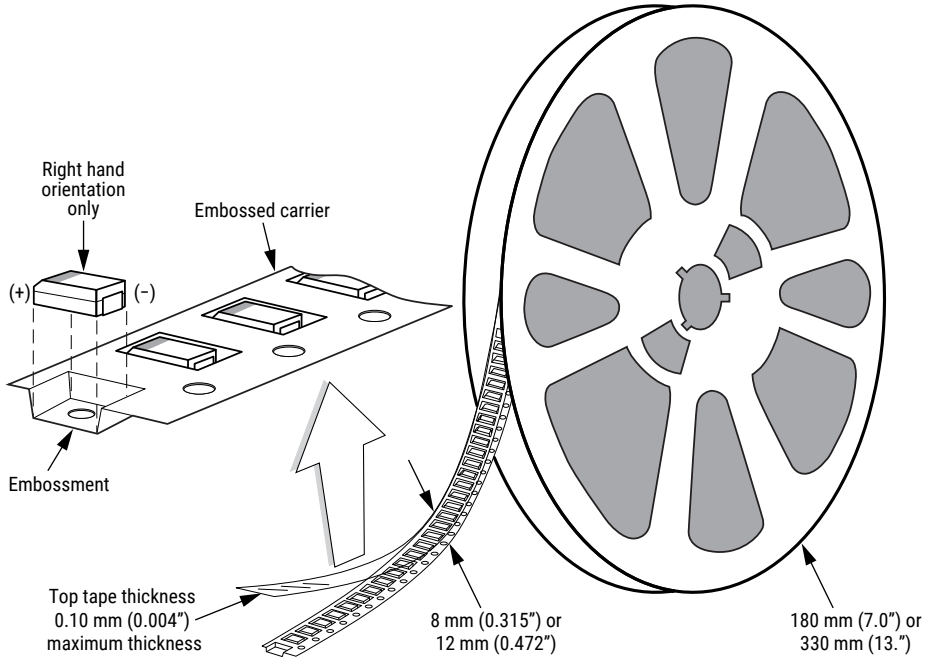



* 908 = 8th week of 2019

| Date Code * | |
|---|---|
| 1st digit = last number of year | 5 = 2015<br>6 = 2016<br>7 = 2017<br>8 = 2018<br>9 = 2019 |
| 2nd and 3rd digit = week of the year | 01 = 1st week of the year to<br>52 = 52nd week of the year |

## Tape & Reel Packaging Information

KEMET's molded chip capacitor families are packaged in 8 and 12 mm plastic tape on 7" and 13" reels in accordance with *EIA Standard 481*: Embossed Carrier Taping of Surface Mount Components for Automatic Handling. This packaging system is compatible with all tape-fed automatic pick-and-place systems.

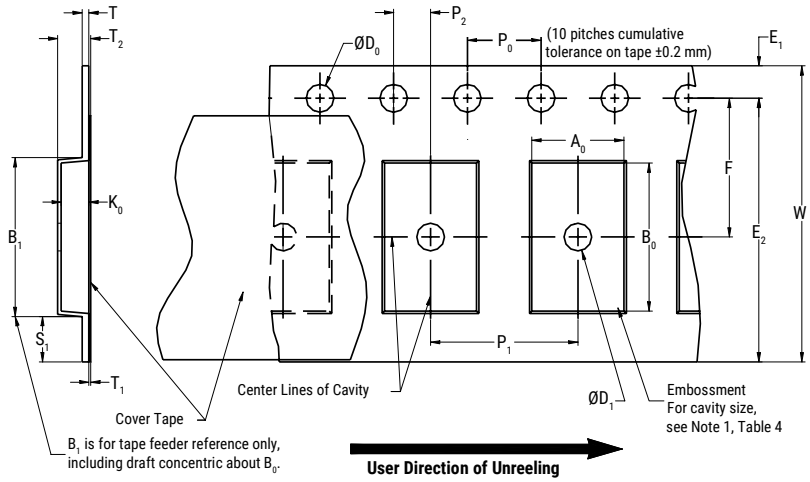



## Table 3 – Packaging Quantity

| Case Code | | Tape Width (mm) | 7" Reel* | 13" Reel* |
|---|---|---|---|---|
| KEMET | EIA | | | |
| P | 2012-10 | 8 | 3,000 | N/A |
| R | 2012-12 | 8 | 2,500 | 10,000 |
| I | 3216-10 | 8 | 3,000 | N/A |
| S | 3216-12 | 8 | 2,500 | 10,000 |
| A | 3216-18 | 8 | 2,000 | N/A |
| T | 3528-12 | 8 | 3,000 | 10,000 |
| M | 3528-15 | 8 | 2,500 | 8,000 |
| B | 3528-21 | 8 | 2,000 | 8,000 |
| U | 6032-15 | 12 | 1,000 | 5,000 |
| L | 6032-19 | 12 | 1,000 | 3,000 |
| C | 6032-28 | 12 | 500 | 3,000 |
| Q | 7343-12 | 12 | 1,000 | 3,000 |
| W | 7343-15 | 12 | 1,000 | 3,000 |
| Z | 7343-17 | 12 | 1,000 | 3,000 |
| V | 7343-19 | 12 | 1,000 | 3,000 |
| D | 7343-31 | 12 | 500 | 2,500 |
| Y | 7343-40 | 12 | 500 | 2,000 |
| X | 7343-43 | 12 | 500 | 2,000 |
| J | 7360-15 | 12 | 1,000 | 3,000 |
| H | 7360-20 | 12 | 1,000 | 3,000 |
| O | 7360-43 | 12 | 250 | 1,000 |

** No C-Spec required for 7" reel packaging. C-7280 required for 13" reel packaging.*

## Figure 1 – Embossed (Plastic) Carrier Tape Dimensions




## Table 4 – Embossed (Plastic) Carrier Tape Dimensions

Metric will govern

| Constant Dimensions — Millimeters (Inches) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Tape Size | $D_0$ | $D_1$ Minimum Note 1 | $E_1$ | $P_0$ | $P_2$ | R Reference Note 2 | $S_1$ Minimum Note 3 | T Maximum | $T_1$ Maximum |
| 8 mm | 1.5 +0.10/−0.0 (0.059 +0.004/−0.0) | 1.0 (0.039) | 1.75 ±0.10 (0.069 ±0.004) | 4.0 ±0.10 (0.157 ±0.004) | 2.0 ±0.05 (0.079 ±0.002) | 25.0 (0.984) | 0.600 (0.024) | 0.600 (0.024) | 0.100 (0.004) |
| 12 mm | | 1.5 (0.059) | | | | 30 (1.181) | | | |

| Variable Dimensions — Millimeters (Inches) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Tape Size | Pitch | $B_1$ Maximum Note 4 | $E_2$ Minimum | F | $P_1$ | $T_2$ Maximum | W Maximum | $A_0$, $B_0$ & $K_0$ |
| 8 mm | Single (4 mm) | 4.35 (0.171) | 6.25 (0.246) | 3.5 ±0.05 (0.138 ±0.002) | 2.0 ±0.05 or 4.0 ±0.10 (0.079 ±0.002 or 0.157 ±0.004) | 2.5 (0.098) | 8.3 (0.327) | Note 5 |
| 12 mm | Single (4 mm) and Double (8 mm) | 8.2 (0.323) | 10.25 (0.404) | 5.5 ±0.05 (0.217 ±0.002) | 2.0 ±0.05 (0.079 ±0.002) or 4.0 ±0.10 (0.157 ±0.004) or 8.0 ±0.10 (0.315 ±0.004) | 4.6 (0.181) | 12.3 (0.484) | |

*1. The embossment hole location shall be measured from the sprocket hole controlling the location of the embossment. Dimensions of embossment location and hole location shall be applied independent of each other.*

*2. The tape, with or without components, shall pass around R without damage (see Figure 4).*

*3. If $S_1$ < 1.0 mm, there may not be enough area for cover tape to be properly applied (see EIA Standard 481–D, paragraph 4.3, section b).*

*4. $B_1$ dimension is a reference dimension for tape feeder clearance only.*

*5. The cavity defined by $A_0$, $B_0$ and $K_0$ shall surround the component with sufficient clearance that:*

*(a) the component does not protrude above the top surface of the carrier tape.*

*(b) the component can be removed from the cavity in a vertical direction without mechanical restriction, after the top cover tape has been removed.*

*(c) rotation of the component is limited to 20° maximum for 8 and 12 mm tapes (see Figure 2).*

*(d) lateral movement of the component is restricted to 0.5 mm maximum for 8 mm and 12 mm wide tape (see Figure 3).*

*(e) see Addendum in EIA Standard 481–D for standards relating to more precise taping requirements.*

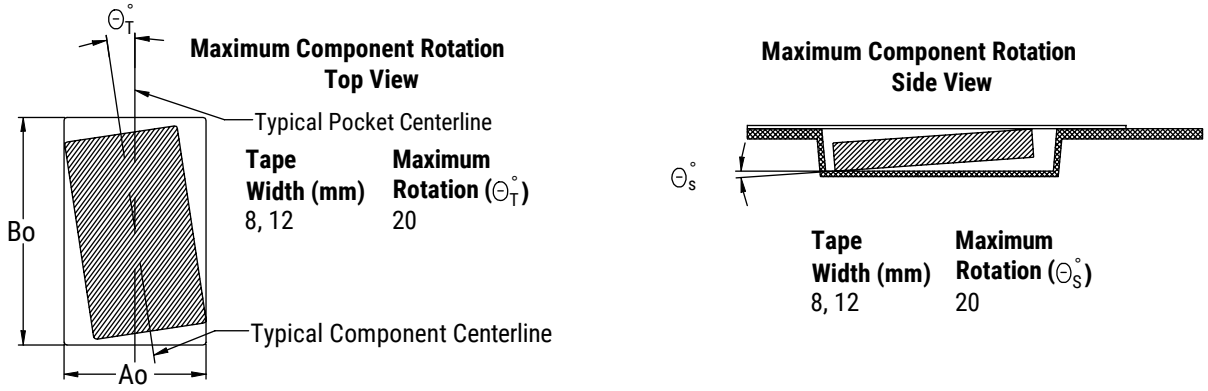
## Packaging Information Performance Notes

**1. Cover tape break force:** 1.0 kg minimum.
**2. Cover tape peel strength:** The total peel strength of the cover tape from the carrier tape shall be:

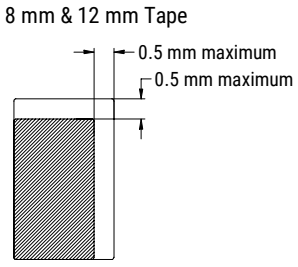
| Tape Width | Peel Strength |
|---|---|
| 8 mm | 0.1 to 1.0 newton (10 to 100 gf) |
| 12 mm | 0.1 to 1.3 newton (10 to 130 gf) |

The direction of the pull shall be opposite the direction of the carrier tape travel. The pull angle of the carrier tape shall be 165° to 180° from the plane of the carrier tape. During peeling, the carrier and/or cover tape shall be pulled at a velocity of 300 ±10 mm/minute.
**3. Labeling:** Bar code labeling (standard or custom) shall be on the side of the reel opposite the sprocket holes. *Refer to EIA Standards 556 and 624*.

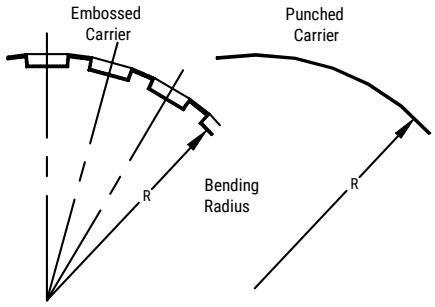
## Figure 2 – Maximum Component Rotation



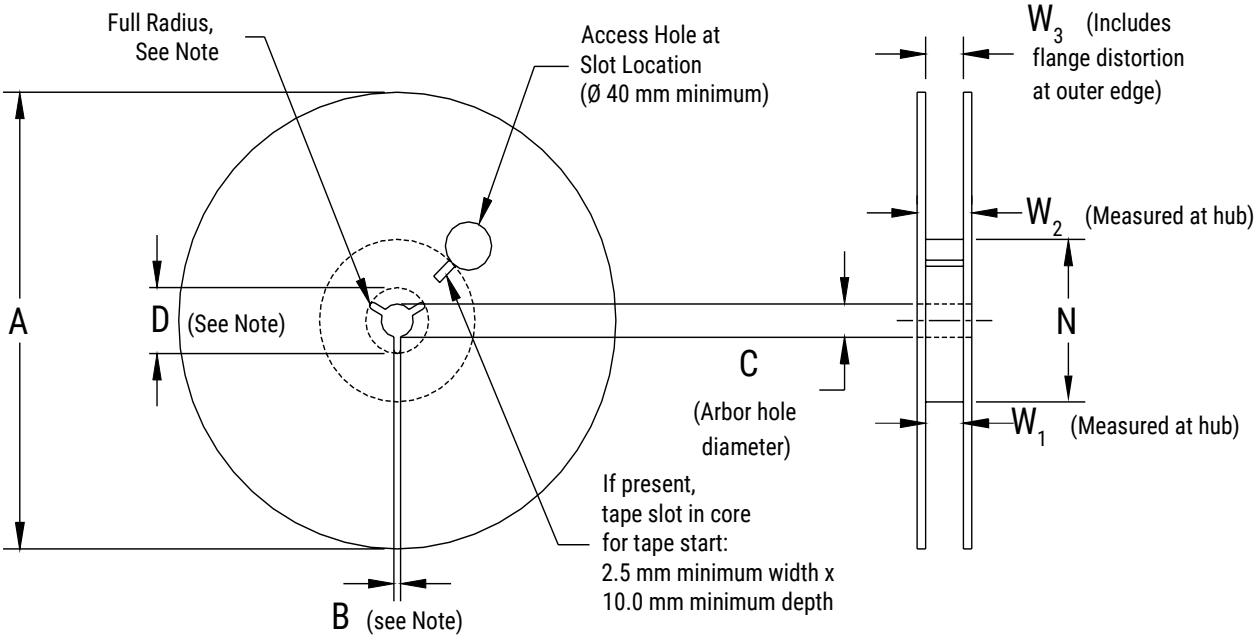

## Figure 3 – Maximum Lateral Movement




## Figure 4 – Bending Radius



## Figure 5 – Reel Dimensions




Note: Drive spokes optional; if used, dimensions B and D shall apply.

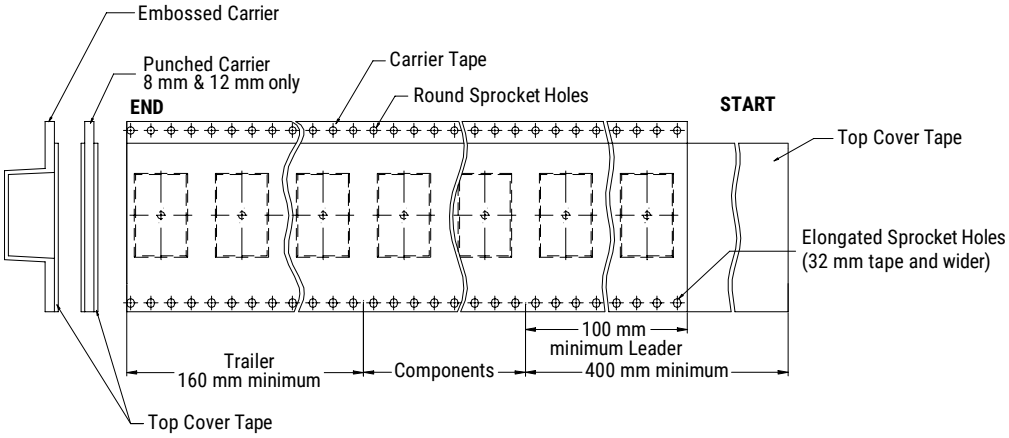
## Table 5 – Reel Dimensions

Metric will govern

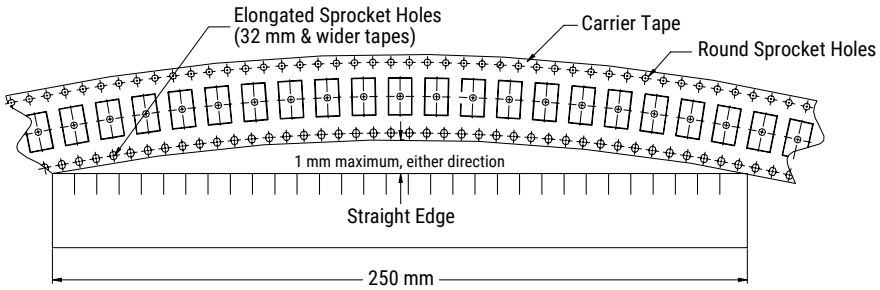
| Constant Dimensions — Millimeters (Inches) | | | | |
|---|---|---|---|---|
| Tape Size | A | B Minimum | C | D Minimum |
| 8 mm | 178 ±0.20 (7.008 ±0.008) or 330 ±0.20 (13.000 ±0.008) | 1.5 (0.059) | 13.0 +0.5/−0.2 (0.521 +0.02/−0.008) | 20.2 (0.795) |
| 12 mm | | | | |

| Variable Dimensions — Millimeters (Inches) | | | | |
|---|---|---|---|---|
| Tape Size | N Minimum | $W_1$ | $W_2$ Maximum | $W_3$ |
| 8 mm | 50 (1.969) | 8.4 +1.5/−0.0 (0.331 +0.059/−0.0) | 14.4 (0.567) | Shall accommodate tape width without interference |
| 12 mm | | 12.4 +2.0/−0.0 (0.488 +0.078/−0.0) | 18.4 (0.724) | |

## Figure 6 – Tape Leader & Trailer Dimensions




## Figure 7 – Maximum Camber



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Телефон: 8 (812) 309-75-97 (многоканальный)
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Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А