

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 HRA Polymer Electrolytic offers the same performance advantages as other KO-CAP series with screening options associated with high reliability (Hi-Rel) applications. These HRA grade components offer several surge current

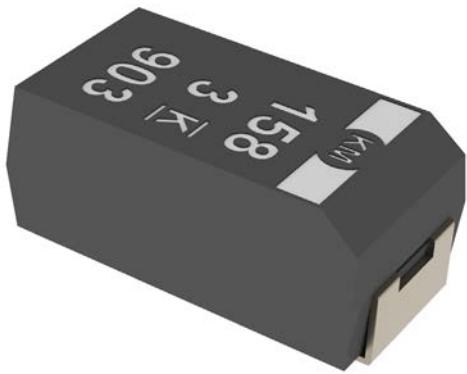
KO-CAP Polymer Capacitors

screening options. The recommended application derating for these capacitors is 10 – 20%, rendering them suitable for application voltages from 2.5 to 63 VDC.

These are the first polymer electrolytic capacitors available with failure rate options as defined by KEMET's KO-CAP Reliability Assessment method. This method utilizes accelerated conditions (voltage and temperature) applied to board-mounted samples to assess long term device reliability. The failure rates available are B (0.1% per 1,000 hours), C (0.01% per 1,000 hours), and D (0.001% per 1,000 hours). The KO-CAP Reliability Assessment method was developed as a result of over 10 years of research and is described in numerous papers available on www.kemet.com.

Benefits

- Approved for DLA Drawing 04051/04052
- B, C, and D failure rates available
- 100% accelerated steady state aging
- High frequency capacitance retention
- Improved humidity capability 85°C/85% RH, 1.0 V_R (in black color epoxy) available
- Very low ESR values down to 5 mΩ
- Surge current testing options
- Volumetrically efficient
- EIA standard case sizes
- KEMET's KO-CAP Reliability Assessment method



Ordering Information – DLA Drawing

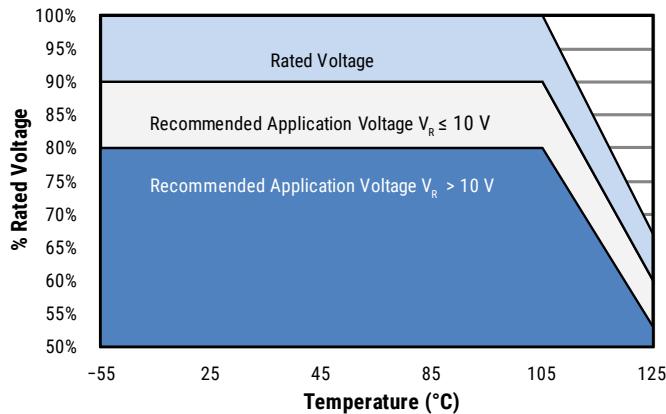
04052-	002	A
Drawing Number	Dash Number	Surge Current Option
04052	See Part Number List	Blank = 4 cycles +25°C ±5°C Before Voltage Aging
04051		A = 10 cycles +25°C ±5°C After Voltage Aging

Performance Characteristics

Item	Performance Characteristics
Operating Temperature	-55°C to 125°C *
Rated Capacitance Range	4.7 – 1,500 µF at 120 Hz/25°C
Capacitance Tolerance	K Tolerance (10%), M Tolerance (20%)
Rated Voltage Range	2.5 – 63 V
DF (120 Hz)	≤ 10%
ESR (100 kHz)	Refer to Part Number Electrical Specification Table
Leakage Current	≤ 0.1 CV (µA) at rated voltage after 5 minutes

* KEMET's Polymer COTS (T540/T541 Series) capacitors are rated for operation between -55°C and +125°C. Parametric electrical performance remains within stated specification limits after 1,000 hours of continuous operation and/or storage at +125°C. Long-term duty cycles or storage at or above +125°C may result in an increase in ESR performance outside of the stated specification limits.

Derating Guidelines



Recommended Application Voltage

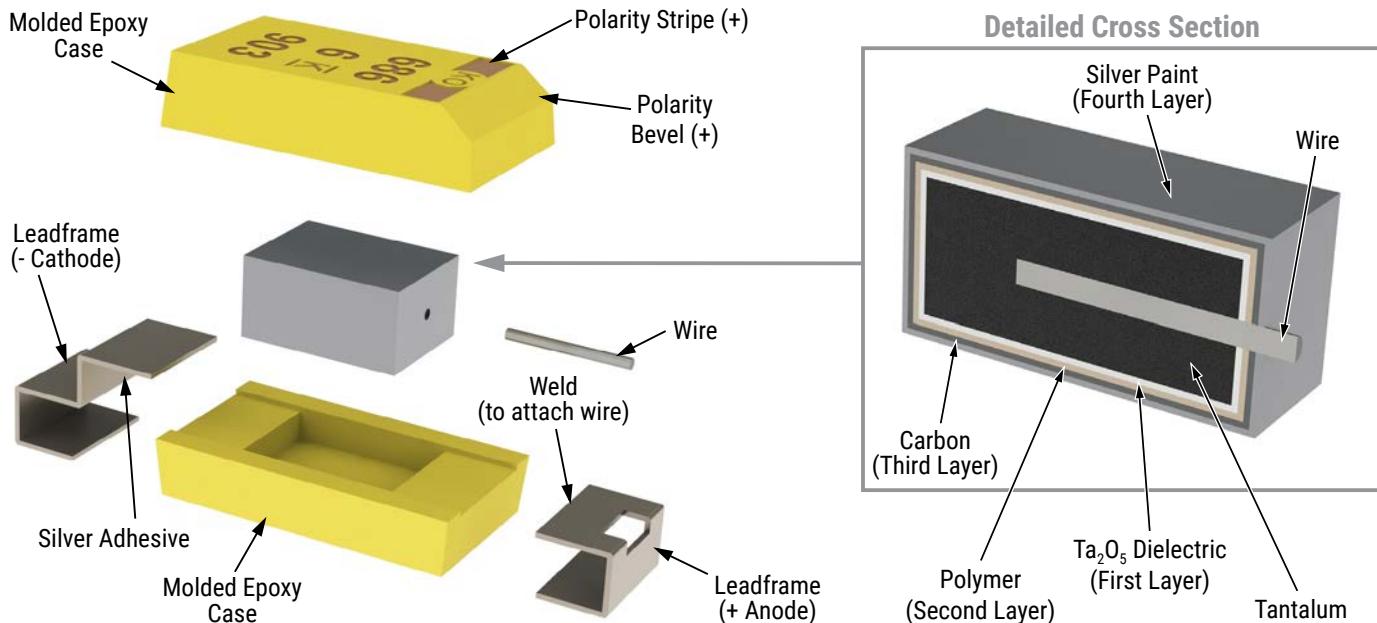
KO-CAPs are solid state capacitors that demonstrate no wearout mechanism when operated within their recommended guidelines. While the KO-CAP can be operated at full rated voltage, most circuit designers seek a minimum level of assurance in long term reliability, which should be demonstrated with data. 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	Maximum Recommended Steady State Voltage
	-55°C to 105°C	105°C to 125°C
2 V ≤ V _R ≤ 10 V	90% of V _R	60% of V _R , See Chart
12.5 V ≤ V _R ≤ 63 V	80% of V _R	54% of V _R , See Chart

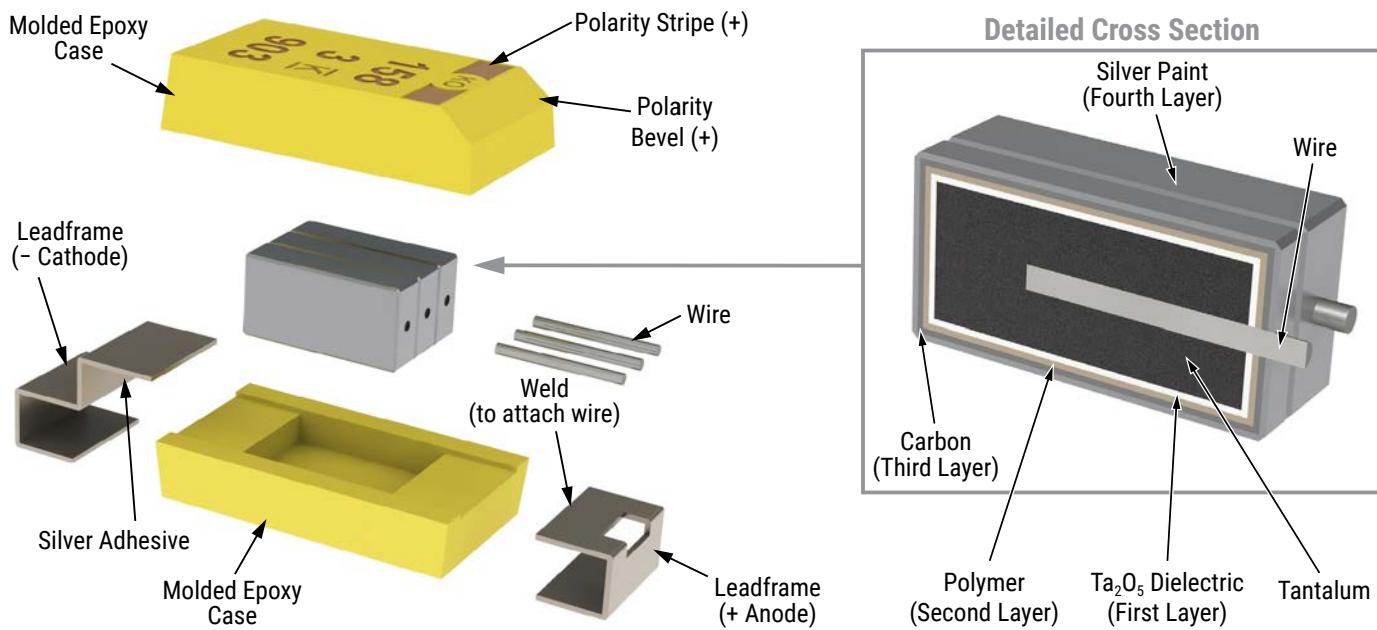
V_R = Rated Voltage

Construction

T540

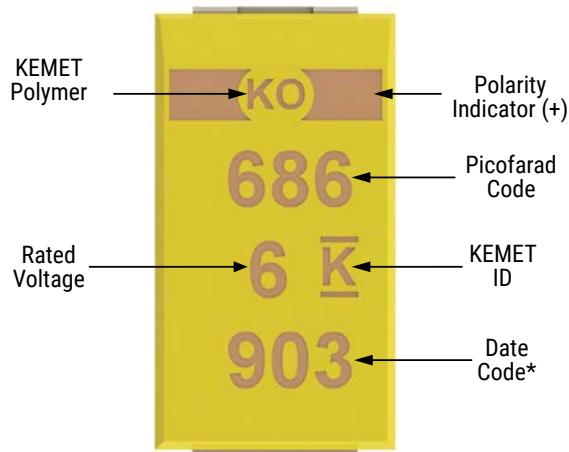


T541 - Multiple Anodes Polymer



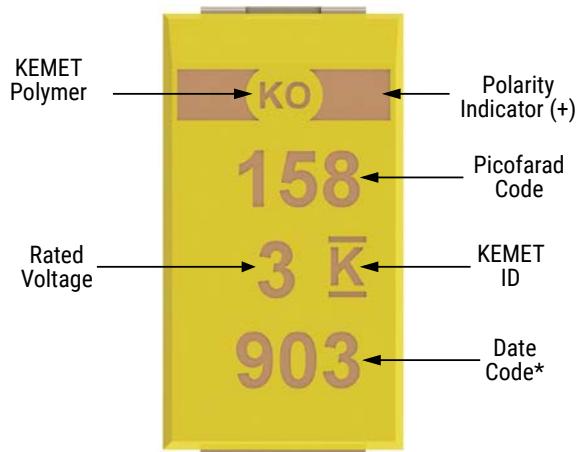
Capacitor Marking

T540



* 903 = 3rd week of 2019

T541



* 903 = 3rd week of 2019

Note: On parts with selected surge codes (8X) the epoxy is black.

Date Code *	
1 st digit = Last number of Year	4 = 2014 5 = 2015 6 = 2016 7 = 2017 8 = 2018 9 = 2019
2 nd and 3 rd digit = Week of the Year	01 = 1 st week of the Year to 52 = 52 nd week of the Year

Figure 6 – Tape Leader & Trailer Dimensions

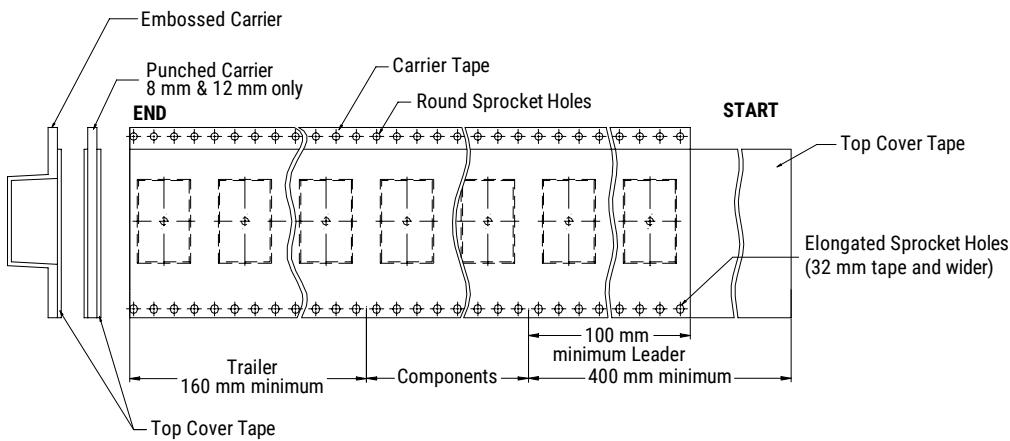
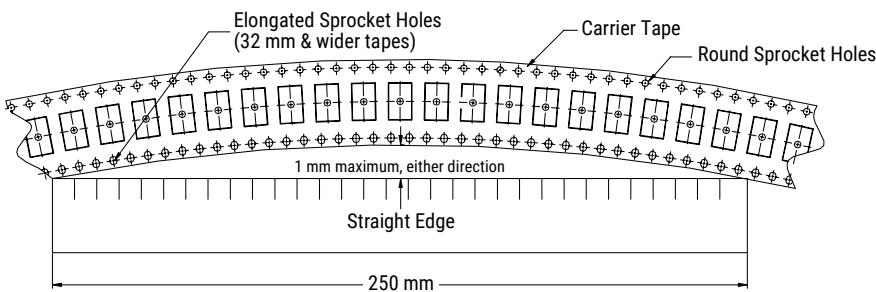


Figure 7 – Maximum Camber



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Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

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Электрон
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