

MLCCs & POLYMER CAPACITORS

MLCCs are one of the most common components used in our electronic designs. With expanded use in the Automotive, Mobile and Industrial segments, and with limited manufacturing capacity, MLCC lead-times continue to increase and shortages are now expected to continue into 2020 and beyond. As such, Newark element14 is working with the leading manufacturers to offer alternatives and resources to help you find the correct substitute for your existing or upcoming designs.

Parameters to consider

In order to find an appropriate alternative, there are a number of factors that must be considered when looking for an alternate component. Some of the main parameters to consider are:

- Effective Capacitance
- Voltage
- DC Bias voltage
- Ripple Current (and corresponding ESR needed)
- Frequency
- DC Bias Leakage current
- Operating Temperature and range
- ISO Pulse requirements
- Aging requirements
- Board and height restraints

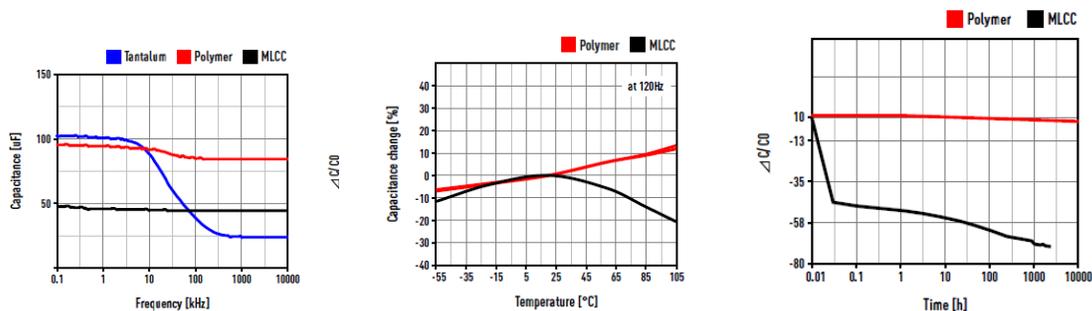
One reason MLCCs are so common is their low cost and low ESR & ESL. Unfortunately, their capacitance can be greatly affected by DC bias, frequency and temperature.

Alternates

The good news is that there are a number of potential alternatives from the leading capacitor manufacturers. The most common Polymer alternatives are:

- Tantalum - Polymer
- Aluminum - Polymer
- Hybrid

These types of polymer capacitors do have some distinct advantages when compared to MLCCs as shown in the graphs below. *



*Graphs courtesy of Panasonic

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Choosing the right alternate for your application

Deciding on which type of capacitor to use as an MLCC replacement in an existing design requires a detailed look at your existing or future design, taking into account the key parameters listed above. To help get you started, we have assembled the most up to date application notes and content to help you get a deeper understanding of the possible polymer capacitor alternatives from all the leading manufacturers.

Design assistance & consultation

Newark element14 can help you find the right alternative through our dedicated Capacitor Technical Support Engineers or through our element14 Design Services group.

For assistance, please contact your local representative or fill out the form below and one of our specialists will be sure to contact you.