

# The Use of Advanced Tantalum Commercial Products in High Reliability Applications

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Over the past several years, there has been a push to use commercial grade products in high reliability applications in both military and space arenas. This presentation will discuss the advancements in tantalum technology and the ramifications of using these products.

Commercial products are very reliable but are constantly evolving as suppliers implement continuous improvement actions and implement cost-down initiatives in order to meet commercial customer expectations of price reductions year-over-year. Automotive grade products add the extra reliability standards that drive product development. Military and space grade products have the added benefits of established reliability.

Commercial parts are always on the cutting edge of technology. In tantalum, we are constantly evolving and looking at higher charge powders to improve capacitance values available to our customers. With the finer grain powder, one can achieve higher capacitance density thereby reducing the amount of tantalum needed to achieve a given rating. As price pressures increase, this is one way to try and improve cost. Manufacturers will change commercial part formulations at any given time based on these pressures.

As advancements are made in commercial offerings, manufacturers will use military qualification and reliability standards to drive development of DLA (Defense Logistics Agency) drawings as an alternative to efforts updating M39006 slash sheets with new ratings as an example. There are multiple DLA series of parts available for these high-rel applications.

Over the past several years, both the military and space arenas have been exploring the use of commercial products to reduce the cost of their systems. Most of these applications are in non-mission critical and high-volume areas, such as LEO satellite constellations, eVTOL as commercial air transportation and communication and IoT devices in the LEO position. We have mitigated the risk of using these newer products with testing and screening capabilities applied to these newer commercial products.

This presentation will go through the advancements in product offerings available for high reliability use. The user will understand what is available and the ramifications of their application.