

Exploration of ACC Phenomena in Polymer Tantalum Capacitors

Jonathan Voelm

Ball Aerospace

Jonathan.Voelm@ballaerospace.com

Many polymer tantalum capacitors present a phenomena of drawing/shunting extra current when turning on and having higher extended DC leakage when the polymer becomes very dry. This phenomena is important to understand for space applications where the vacuum environment will dry out the capacitors. This presentation will cover the fundamentals of the ACC phenomena with examples of different part responses. Data on the variability of ACC with respect to part number (value/rating), parts within the same mfg lot, and between different lots of the same part numbers, will be presented. The effects of voltage de-rating, turn on voltage ramp rate, and temperature will be examined. Any effects on part characteristics due to ACC events will be discussed.