

Non-Hermetic inherently robust film capacitor designs for embedded power applications in military and space electronics

Zachary Kilsmith

Quantic Paktron

zkilsmith@quanticpaktron.com

Long approval processes and introductions to approved parts list can hinder the ability of some leading-edge capacitors to get MIL-PRF-83421 and NASA-INST-002 approvals in a timely fashion. In addition, some of the requirements, such as true hermetic packaging, are simply not required for these components to be used in space. Oftentimes, alternative approvals such as the automotive industry's AEC-Q200 standard are accepted or even preferred by commercial space engineers. Quantic™ Paktron explains the advantages of using a nonhermetic film capacitor for military and space applications such as smaller size, better heat dissipation characteristics, and the use of leading-edge polymer dielectrics. We also discuss some of the ways to mitigate some of the real concerns of using such technologies in the vacuum of space such as component outgassing mitigation, and voltage clearances and coronal effects.