

# High Energy, High Density Tantalum Capacitors for High Reliability Applications

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Tantalum has always had a volumetric efficiency advantage over other capacitor technologies. It has three times the dielectric constant of aluminum oxide and a dielectric strength over ten times that of ceramics. With many new ratings achieving greater than 1J/cc in volumetric energy density, the designer can pack in more energy in a smaller volume than ever before. Ratings in the range of 100mF at 25V and 7mF at 125V are now available in mass production.

Applications, such as pulsed radar and lasers, need a large energy reservoir to pull from locally until the power supply can respond. There are other applications that need bursts of energy, such as squib initiators, which require upmost reliability, especially in space.

This presentation will highlight the volumetric energy density of these advanced capacitors and their reliability. We will also show other advanced constructions to achieve higher voltages, such as 500V.