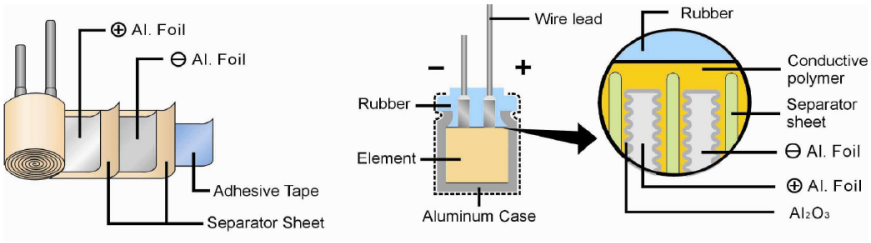
Product Highlight February 2018

Understanding Solid Polymer and Hybrid Polymer Capacitors

Aluminum Electrolytic capacitors have been an integral part of the electronics industry for decades. While these capacitors have been an inexpensive way to provide energy to most electronic products, they are not without drawbacks. New innovations have emerged to try and combat some of these shortcomings. Among these are Solid Organic Polymer and Hybrid Polymer Capacitors.

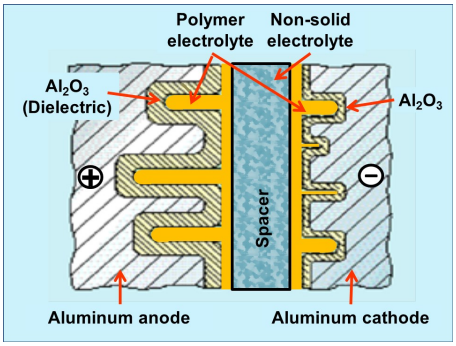
Solid Organic Polymer Capacitors

An organic polymer's construction is nearly identical to Aluminum Electrolytic Capacitors (E-Caps), except for the use of a conductive solid polymer instead of a liquid electrolyte. Building around a conductive polymer can provide several advantages over standard E-Caps, including Low ESR, High Endurance, and High Ripple Current Ratings. You can often obtain a High Ripple Current from a single device, rather than needing to use several E-Caps.



Hybrid Polymer Capacitors

Hybrid Polymer Capacitors utilize both conductive polymer and liquid electrolyte, and therefore merge the benefits of both Aluminum Electrolytic Capacitors and Solid Organic Polymer Capacitors. The mixture of the two creates a less rigid, more flexible core, capable of withstanding more vibration force than a solid polymer capacitor. Hybrid Polymer capacitors also become the obvious choice when leakage current control is critical.



Characteristics	Solid Polymer	Hybrid Polymer	E-Cap
Capacitance Range	6.8 - 2,700 µF	10 - 470 µF	0.33 - 820,000 µF
Voltage Range	2.5 - 63 V	16 - 80 V	4 - 525 V
Ripple Current*	900 - 8,100 mA	700 - 2,900 mA	3 - 1,400 mA
Impedance/ESR*	5 - 90 mΩ	16 - 120 mΩ	46 - 5,000 mΩ
Anti Vibration	△	○	⊙
Allowable Ripple Current	⊙	○	X
Leakage Current Control	X	⊙	⊙
Life Time	⊙	⊙	△
Failure Mode	Open/Short	Open	Open

*Relative to Size and Voltage

⊙ = Excellent ○ = Good △ = Normal X = Bad

For more information involving Surge's Capabilities within any of these 3 technologies, please contact your local Surge Representative or Surge directly by email at sales@surgecomponents.com or by phone 631-595-1818