Why Capacitors Do What They Do

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Capacitors are passive devices that store energy in an electrostatic field. While the mechanism by which they store energy is remarkably simple, it stands in stark contrast to the wide variety of roles they perform in electronic systems. Over one trillion discrete capacitors are manufactured each year. These components play a vital role in nearly every corner of today's technological world, from consumer appliances to advanced weaponry. Despite their ubiquitous presence in electronic circuits, capacitors are often poorly understood, leading to confusion about why they behave the way they do. This presentation offers a unique approach in explaining how such a simple energy storing device plays a crucial role in the modern world and why we choose capacitor technologies based on their parameters and parasitics.