

Can flexible thick-film structures be used for energy storage?

(1) Currently, there is a lack of scientific reports dealing with the integration of flexible thick-film structures (film thickness of at least several μm) for energy storage. To date, there is only one report on the fabrication of thick films for energy storage.

Are annealed thick films good for energy storage?

Both, as-deposited and annealed thick films, exhibit P - E characteristics, which are promising for energy storage. In addition, both exhibit high dielectric breakdown strength (DBS), that is, 1085 and 986 $\text{kV}\cdot\text{cm}^{-1}$ in as-deposited and annealed thick films, respectively.

How to improve energy storage performance of multilayer films?

Current methods for enhancing the energy storage performance of multilayer films are various, including component ratio tuning, interface engineering, diffusion control, stress manipulation, and conduction mechanism modulation.

Does ultra-thin N_2O_4 film improve energy storage performance?

Ultimately, in the ultra-thin N_2O_4 film, with each layer having a thickness of 6.7 nm, we achieved a remarkable enhancement of energy storage performance, with W_{rec} reaching 65.8 $\text{J}\cdot\text{cm}^{-3}$ and efficiency reaching 72.3%.

2. Experimental 2.1. Synthesis of BiFeO_3 and SrTiO_3 precursors

How thick is a dielectric film?

However, an ultra-thin film faces a challenge in lowered dielectric constant and voltage withstanding capability, so dielectric films with a thickness range of 1-5 μm worth extensive investigations.

Are high-temperature dielectric films suitable for energy storage?

Summary of high-temperature dielectric films recently developed for energy storage. Crosslinking is a good strategy to limit the molecular chain motion and is studied in several published works, demonstrating the reduced dielectric relaxation, improved breakdown strength, and efficiency of the film capacitors.

Energy storage container film thickness



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