

Which type of capacitor is used for thin films?

Specifically for thin films, two types of capacitor configurations, parallel-plate capacitor and planar capacitor, are constructed in order to measure the dielectric properties of ferroelectric materials. Parallel-plate capacitors require bottom electrodes. Bottom electrodes are usually Pt if Si substrates are used.

What is the dielectric tunability of a thin film?

A dielectric tunability of 80% at 8 V/mm was obtained for the thin film. At microwave frequency, dielectric characterization revealed that the film had good dielectric properties and very low dielectric insertion loss over 10-30 GHz. However, the dielectric constant of the thin film seemed too high (1200 at 12.6 GHz) for many real applications.

Does 111 highly oriented thin film have high dielectric tunability?

High dielectric tunability ($\sim 80\%$ at 1500 kV/cm) and high thermal stability (variation $\sim \pm 2\%$ from RT to ~ 450 K) were obtained in the (111) highly oriented thin film. Moreover, the (111) highly oriented thin film exhibits a high frequency stability of dielectric tunability.

What is flexible tunable capacitor?

The flexible tunable capacitor retains its mechanical and electrical stability after 24 000 high-frequency bending cycles, which provides potential uses in bendable, collapsible tunable capacitors at the radio frequency range. 1.). 2.). 3. Adv. Intell. Syst.). 4. ACS Appl. Mater. Interfaces).

What is the dielectric tunability of ATN thin film?

A varactor based ATN thin film of 0.4 mm in thickness on an Al_2O_3 substrate had a dielectric tunability of 4.7% at 200 kV/cm, 20 GHz and a loss tangent of 0.068. Fabrication and characterization of ATN ceramics and thick films for microwave applications were reported by Zimmermann et al. .

What is the dielectric performance of NKN thin films?

The NKN target was prepared by solid-state reaction and hot isostatic pressure sintering. Dielectric tunabilities of the thin films reported by Abadei et al. were 16, 13 and $>10\%$ at 10, 40 and 50 GHz, respectively. The authors believed that dielectric performances of the thin films could be further improved by optimizing the capacitor structures.

Film dielectric capacitors enabled with large breakdown field strength and high energy density play a key role for compact and integrated power systems. Nevertheless, the ...

In this work, a high tunable capacitor using a multi-layer dielectric of BZN/BST/BZN is designed and characterized for reconfigurable RF applications. By utilizing a ...

Dielectric measurements indicated that the $\text{Ba}_{0.6}\text{Sr}_{0.4}\text{TiO}_3\text{-Bi}_{1.5}\text{Mg}_{1.0}\text{Nb}_{1.5}\text{O}_7$ composite thin-film capacitors exhibited medium capacitance of about 442 ...

With the rapid development of electric industry, there are great, needs for advanced electric energy-storage systems, and thus for innovative energy-storage materials ...

In this thesis, the results of intensive electrical characterization, modeling and the design of hardware with thin film tunable capacitors, i.e., dielectric varactors, has been ...

A tunable capacitor based on a ferroelectric thin film grown on a dielectric substrate is a promising component for reconfigurable and tunable devices for numerous RF ...

Hence, we propose to fabricate ultra-high energy storage thin-film capacitors by using a heterostructure-- $\text{BaSn}_{0.15}\text{Ti}_{0.85}\text{O}_3$ /BST bilayer system. In addition, there ...

For example, in hybrid vehicles, through continuous improvement of circuit design, the required operating voltage has been reduced to several hundred volts, and the discharge ...

Thin Solid Films 259 (1995) 218-224 ELSEVIER Fabrication and characterization of $\text{Ba}_{1-x}\text{Sr}_x\text{TiO}_3$ tunable thin film capacitors Abdelkader bDepartment Outzourhit ...

Properties of thin film barium strontium titanate (BST) based capacitors for RF and microwave components were studied. The capacitors were measured for their tunability, loss tangent, ...

Finally, NiO thin film capacitors annealed at $300\text{ }^\circ\text{C}$ present the highest tunability (68.1% @100 kHz) under a small applied field of 82 kV/cm. ... Interlayer Dielectric Capacitors; ...

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