Supplementary Information

Stoichiometry-controlled growth of $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ thin films and their electrical behavior in heterojunction assemblies

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**Figure 1S.** Cross-sectional FESEM images of multiple-coated $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ thin films (Case I).
**Figure 2S.** Cross-sectional FESEM images of multiple-coated Ba$_x$Sr$_{1-x}$TiO$_3$ thin films (Case II).

**Figure 3S.** The atomic force microscopy images of the Ba$_x$Sr$_{1-x}$TiO$_3$ thin films annealed at 700 °C.
Figure 4S. The room temperature Raman spectra of the commercial quartz used in the present study.

Figure 5S. The Capacitance-Voltage plot of Ag/p-Si(110)/Ag at different frequencies.