

DOUBLE-SIDED POLISHING METHOD FOR LARGE-SIZE ULTRATHIN LITHIUM NIOBATE SUBSTRATE

Abstract

Disclosed is a double-sided polishing method for a large-size ultra-thin lithium niobate substrate, comprising the following steps: a) grinding the cut large-size ultra-thin lithium niobate wafer to obtain a large-size ultra-thin lithium niobate double-sided grinding sheet having a rough structure on the surface; b) and then performing double-sided thinning and ultrasonic cleaning to obtain a large-size ultra-thin lithium niobate double-sided thinning sheet having a rough structure on the surface; c) directly performing chemical corrosion in a closed container containing nitric acid, hydrofluoric acid, and a sustained release agent which are uniformly mixed to obtain a large-size ultra-thin lithium niobate corroded sheet having a random disordered depression structure on the surface; and d) performing double-sided polishing by using a double-sided polishing machine and polishing solution, and then performing ultrasonic cleaning to obtain the final large-size ultrathin lithium niobate double polished sheet. According to the present invention, one-time polishing and mass production are achieved, the polishing efficiency is high, and the produced lithium niobate substrate has a high surface flatness. This characteristic determines that the lithium niobate substrate is not easy to break in the device application, the material utilization rate is high, and the processing yield is high.

Figure 1.