

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2022/0385270 A1 OH et al.

Dec. 1, 2022 (43) **Pub. Date:**

(54) SURFACE ACOUSTIC WAVE DEVICE

(71) Applicant: WISOL CO., LTD., Osan-si (KR)

(72) Inventors: **Hae Kwan OH**, Osan-si (KR);

Takahiro SATO, Osan-si (KR); Yoshikazu KIHARA, Osan-si (KR); Tae Hyun KIM, Osan-si (KR)

(21) Appl. No.: 17/716,733

(22)Filed: Apr. 8, 2022

(30)Foreign Application Priority Data

Jun. 1, 2021	(KR)	10-2021-0071021
Jun. 1, 2021	(KR)	10-2021-0071022
Sep. 23, 2021	(KR)	10-2021-0125931
Sep. 23, 2021	(KR)	10-2021-0125932

Publication Classification

(51) Int. Cl. H03H 9/25 (2006.01)H03H 9/02 (2006.01)H03H 9/145 (2006.01)

(52) U.S. Cl.

CPC H03H 9/25 (2013.01); H03H 9/02559 (2013.01); H03H 9/02574 (2013.01); H03H 9/14538 (2013.01)

ABSTRACT (57)

A surface acoustic wave device according to the present disclosure includes a support substrate; an intermediate layer laminated on the support substrate; a piezoelectric layer laminated on the intermediate layer; and an IDT electrode formed on the piezoelectric layer, an Euler angle of the support substrate is (-45°±10°, -54°±10°, 180°±30°) and an Euler angle of the piezoelectric layer is (0°±5°, 112.5°±22. 5° , $0^{\circ} \pm 5^{\circ}$) or $(0^{\circ} \pm 5^{\circ}, -67.5^{\circ} \pm 22.5^{\circ}, 0^{\circ} \pm 5^{\circ})$.

