

# (19) United States

# (12) Patent Application Publication (10) Pub. No.: US 2024/0213949 A1 **DAIMON**

Jun. 27, 2024 (43) **Pub. Date:** 

### (54) ACOUSTIC WAVE DEVICE

(71) Applicant: Murata Manufacturing Co., Ltd.,

Nagaokakyo-shi (JP)

Inventor: Katsuya DAIMON, Nagaokakyo-shi

(21) Appl. No.: 18/596,849

(22) Filed: Mar. 6, 2024

#### Related U.S. Application Data

Continuation of application No. PCT/JP2022/ 035003, filed on Sep. 20, 2022.

(60) Provisional application No. 63/246,449, filed on Sep. 21, 2021.

#### **Publication Classification**

(51) Int. Cl.

H03H 9/02 (2006.01)H03H 9/13 (2006.01)H03H 9/17 (2006.01)

### (52) U.S. Cl.

CPC .... H03H 9/02086 (2013.01); H03H 9/02031 (2013.01); H03H 9/02157 (2013.01); H03H 9/02228 (2013.01); H03H 9/132 (2013.01); H03H 9/173 (2013.01); H03H 9/175 (2013.01); H03H 9/176 (2013.01)

#### (57)**ABSTRACT**

An acoustic wave device includes a support, a piezoelectric layer including lithium niobate or lithium tantalate, and an interdigital transducer electrode including busbars and electrode fingers. An acoustic reflection portion overlaps a portion of the IDT electrode. d/p is about 0.5 or less. An intersecting region includes a central region and edge regions. Gap regions are located between the intersecting region and the busbars. At least one mass addition film is provided in at least one of the edge regions or the gap regions, where any two points, in an electrode finger facing direction, of a portion in which the mass addition film is located are first and second points, thicknesses of the mass addition film at at least a pair of the first point and the second point are different from each other.

