What is claimed is:

1. An acoustic wave device comprising:

a piezoelectric substrate of which four sides of an upper surface are approximate cleavage directions; and

an electrode that is formed on the upper surface of the piezoelectric substrate and excites an acoustic wave propagating in a direction different from the approximate cleavage directions.

2. The acoustic wave device according to claim 1, wherein

the piezoelectric substrate is a lithium tantalate substrate.

3. The acoustic wave device according to claim 2, wherein

the propagation direction is an X direction.

4. The acoustic wave device according to claim 3, wherein

the piezoelectric substrate is a greater than or equal to 39° and less than or equal to 48° Y-cut X-propagation lithium tantalate substrate.

5. The acoustic wave device according to any one of claims 1 through 4, further comprising:

~~a support substrate to which the piezoelectric substrate is bonded.~~

6. The acoustic wave device according to any one of claims 1 through 5, further comprising:

an input or output pad formed on the upper surface of the piezoelectric substrate, wherein

the electrode includes electrode fingers, and bus bars to which the electrode fingers are coupled, and

a bus bar, out of the bus bars, that is located closest to the input or output pad is electrically coupled to the input or output pad.

7. A method of fabricating an acoustic wave device, the method comprising:

forming an electrode exciting an acoustic wave on an upper surface of a piezoelectric substrate;

forming grooves or modified regions that extend in two approximate cleavage directions that differ from a propagation direction of the acoustic wave and intersect with each other in the piezoelectric substrate; and

breaking the piezoelectric substrate along the grooves or the modified regions.

8. The method according to claim 7, wherein

the piezoelectric substrate is a lithium tantalate substrate.

9. The method according to claim 7 or 8, wherein

the forming of the grooves or the modified regions includes irradiating the piezoelectric substrate with a laser beam.

CLAIMS

What is claimed is:

1. An acoustic wave device comprising:

a piezoelectric substrate made of a piezoelectric crystal having cleavage directions that intersect with each other, the piezoelectric substrate being formed such that four sides of an upper surface of the piezoelectric substrate are parallel to said cleavage directions of the piezoelectric crystal; and

a plurality of electrodes that are formed on the upper surface of the piezoelectric substrate and excites an acoustic wave propagating in a propagation direction different from the cleavage directions, each of the plurality of electrodes including electrode fingers and bus bars to which the electrode fingers are coupled,

wherein an extending direction of each of the four sides is different from the propagation direction,

wherein the plurality of electrodes are arranged in a direction inclined from the four sides of the upper surface of the piezoelectric substrate, and

wherein a length of the bus bars of a central electrode among the plurality of electrodes is longer than a length of a shortest side among the four sides.

2. The acoustic wave device according to claim 1, further comprising:

a support substrate to which the piezoelectric substrate is bonded.

3. The acoustic wave device according to claim 1, further comprising:

an input or output pad formed on the upper surface of the piezoelectric substrate, wherein

a bus bar, out of the bus bars, that is located closest to the input or output pad is electrically coupled to the input or output pad.

4. The acoustic wave device according to claim 1,

wherein the piezoelectric substrate is a lithium tantalate substrate.

5. The acoustic wave device according to claim 4,

wherein the propagation direction is an X direction.

6. The acoustic wave device according to claim 5, wherein

an Y-cut direction of the lithium tantalate substrate is 42° so that an angle between each of the four sides and the propagation direction is 45°.

7. The acoustic wave device according to claim 5,

wherein an Y-cut direction of the lithium tantalate substrate is greater than or equal to 39° and less than or equal to 48°.

8. A method of fabricating an acoustic wave device, the method comprising:

preparing a piezoelectric substrate made of a piezoelectric crystal having cleavage directions that intersect with each other;

forming a plurality of electrodes for exciting an acoustic wave on an upper surface of the piezoelectric substrate such that a propagation direction of the acoustic wave excited by the

electrode differs from said cleavage directions, each of the plurality of electrodes including electrode fingers and bus bars to which the electrode fingers are coupled;

forming grooves or modified regions that extend in said cleavage directions in the piezoelectric substrate; and

breaking the piezoelectric substrate along the grooves or the modified regions,

wherein the plurality of electrodes are arranged in a direction inclined from the four sides of the upper surface of the piezoelectric substrate, and

wherein a length of the bus bars of a central electrode among the plurality of electrodes is longer than a length of a shortest side among the four sides.

9. The method according to claim 8, wherein

the forming of the grooves or the modified regions includes irradiating the piezoelectric substrate with a laser beam.

10. The method according to claim 8, wherein

wherein the piezoelectric substrate is a lithium tantalate substrate,

wherein the propagation direction is an X direction, and

wherein an Y-cut direction of the lithium tantalate substrate is 42° so that an angle between each of the four sides and the propagation direction is 45°.