

CLAIMS

1. A method for manufacturing a bonded wafer, the method comprising bonding a to-be-bonded wafer and a compound semiconductor wafer that includes a compound semiconductor epitaxially grown on a growth substrate, wherein

a diameter of the to-be-bonded wafer is made larger than a diameter of the compound semiconductor wafer by 50 mm or more, such that an area of a bonding surface of the to-be-bonded wafer is larger than an area of a bonding surface of the compound semiconductor wafer,

the bonding is performed such that a center of the compound semiconductor wafer and a center of the to-be-bonded wafer are arranged to deviate from each other by 5 mm or less, and

the growth substrate is removed after the to-be-bonded wafer is bonded to a side, where the compound semiconductor is epitaxially grown, as the bonding surface of the compound semiconductor wafer.

2. The method for manufacturing a bonded wafer according to claim 1, wherein the bonding of the to-be-bonded wafer and the compound semiconductor wafer is performed by any method of direct bonding with no interposition therebetween, metal bonding with a metal, and bonding with a resin or polymer interposed therebetween.

3. The method for manufacturing a bonded wafer according to claim 2, wherein the metal comprises one or more of Au, Ag, Al, In, and Ga.

4. The method for manufacturing a bonded wafer according to claim 2, wherein the resin or polymer comprises benzocyclobutene, polyimide, or glass with TEOS.

5. The method for manufacturing a bonded wafer according to any one of claims 1 to 4, wherein the compound semiconductor wafer from which the growth substrate has been removed has a total thickness of 15 μm or less.

6. The method for manufacturing a bonded wafer according to any one of claims 1 to 5, wherein the to-be-bonded wafer comprises silicon, sapphire, or quartz.

7. A bonded wafer comprising:
a compound semiconductor wafer; and
a to-be-bonded wafer bonded thereto and having an area larger than an area of a bonding surface of the compound semiconductor wafer, wherein
a diameter of the to-be-bonded wafer is 50 mm or more larger than a diameter of the compound semiconductor wafer,
the bonding is performed such that a center of the compound semiconductor wafer and a center of the to-be-bonded wafer are arranged to deviate from each other by 5 mm or less, and
the compound semiconductor wafer has a total thickness of 15 μm or less.