CLAIMS

1. A semiconductor device, comprising:
a base material,
a semiconductor element, and
an adhesive layer intervening the space between the base material and the semiconductor element to adhere the base material and the semiconductor element,
wherein thermal conductive filler is dispersed in the adhesive layer, and
when the content of the thermal conductive filler dispersed in the whole of the adhesive layer is expressed as C,
the content of the thermal conductive filler in the region 1 ranging from the interface of the adhesive layer at the side of the semiconductor element to the depth by 2μm is expressed as C1, and
the content of the thermal conductive filler in the region 2 ranging from the interface of the adhesive layer at the side of the base material to the depth by 2μm is expressed as C2, the following formulae are satisfied:
C1<C, and C2<C.

2. The semiconductor device as set forth in Claim 1, wherein the following formulae are satisfied:
0.75< C1/C <0.97, and 0.75< C2/C <0.97.

3. The semiconductor device as set forth in Claim 1 or 2, wherein the thermal conductive filler contains at least one kind of particle selected from the group consisting of silver, copper, gold, aluminum, nickel, alumina and silica.

4. The semiconductor device as set forth in any one of Claims 1 to 3, wherein the base material is a leadframe, a heat sink or a BGA substrate.

5. The semiconductor device as set forth in any one of Claims 1 to 4, wherein the semiconductor element is a power device having electric power consumption of 1.7 W or more.

Claims:

1. The semiconductor device as set forth in Claim 9, wherein the thermal conductive filler contains at least one kind of particle selected from the group consisting of silver, copper, gold, aluminum, nickel, alumina and silica.

2. The semiconductor device as set forth in claim 9, wherein the base material is a leadframe, a heat sink or a BGA substrate.

3. The semiconductor device as set forth in Claim 9, wherein the semiconductor element is a power device having electric power consumption of 1.7 W or more.

4. The semiconductor device as set forth in Claim 10, wherein the thermal conductive filler contains at least one kind of particle selected from the group consisting of silver, copper, gold, aluminum, nickel, alumina and silica.

5. The semiconductor device as set forth in claim 10, wherein the base material is a leadframe, a heat sink or a BGA substrate.

6. The semiconductor device as set forth in claim 10, wherein the semiconductor element is a power device having electric power consumption of 1.7 W or more.

7. The semiconductor device as set forth in Claim 9, wherein the thermal conductive filler contains at least one kind of particle selected from the group consisting of silver, copper, gold, aluminum, and nickel.

8. The semiconductor device as set forth in Claim 10, wherein the thermal conductive filler contains at least one kind of particle selected from the group consisting of silver, copper, gold, aluminum, and nickel.

9. A semiconductor device, comprising:

a base material,

a semiconductor element, and

an adhesive layer consisting of a cured die attach paste, intervening the space between the base material and the semiconductor element to adhere the base material and the semiconductor element,

wherein thermal conductive filler is dispersed in the adhesive layer,

wherein when the content of the thermal conductive filler dispersed in the whole of the adhesive layer is expressed as C,

the content of the thermal conductive filler in the region 1 ranging from the interface of the adhesive layer at the side of the semiconductor element to the depth by 2μm is expressed as Cl,

and the content of the thermal conductive filler in the region 2 ranging from the interface of the adhesive layer at the side of the base material to the depth by 2μm is expressed as C2, the following formulae are satisfied:

Cl<C, and C2<C; and

wherein the semiconductor device is a wire-bonding type semiconductor device.

10. A semiconductor device, comprising:

a base material,

a semiconductor element, and

an adhesive layer consisting of a cured die attach paste, intervening the space between the base material and the semiconductor element to adhere the base material and the semiconductor element,

wherein thermal conductive filler is dispersed in the adhesive layer,

wherein when the content of the thermal conductive filler dispersed in the whole of the adhesive layer is expressed as C,

the content of the thermal conductive filler in the region 1 ranging from the interface of the adhesive layer at the side of the semiconductor element to the depth by 2μm is expressed as C1 ,

the content of the thermal conductive filler in the region 2 ranging from the interface of the adhesive layer at the side of the base material to the depth by 2μm is expressed as C2, the following formulae are satisfied:

$0.75< Cl/C <0.97$, and $0.75< C2/C <0.97$; and

wherein the semiconductor device is a wire-bonding type semiconductor device.