CLAIMS

[Claim 1]

A curable resin film for forming a first protective film on a surface having bumps of a semiconductor wafer by being attached to the surface and being cured,

wherein a haze (h_1) of a surface of the curable resin film after being cured is 50 or lower when the curable resin film is cured by heating at 160°C for one hour.

[Claim 2]

A curable resin film for forming a first protective film on a surface having bumps of a semiconductor wafer by being attached to the surface and being cured,

wherein a haze (h_2) of a surface of the curable resin film after being cured is 50 or lower when the curable resin film is cured by being irradiated with ultra violet ray in a condition where intensity of illumination is 230 mW/cm^2 and quantity of light is 510 mJ/cm^2.

[Claim 3]

The curable resin film according to claim 1 or 2, wherein the curable resin film includes a filler with an average particle diameter of 250 nm or less.

[Claim 4]

The curable resin film according to any one of claims 1 to 3, wherein the curable resin film is for forming the first protective film by covering an area other than the top surface of the bump of the semiconductor wafer and a portion in the vicinity thereof and being close contact with a surface other than the top surface of the bump and the portion in the vicinity thereof and a circuit surface of the semiconductor wafer.

[Claim 5]

The curable resin film according to any one of claims 1 to 4, wherein the haze (h_1) or (h_2) of the curable resin film is set to be 50 or lower so as to recognize a position and a shape of a dicing line or an alignment mark existing on the surface of the semiconductor wafer.

[Claim 6]

A sheet for forming a first protective film comprising:

the curable resin film according to any one of claims 1 to 5 on one surface of a first supporting sheet.

[Claim 7]

A method for forming a first protective film comprising:

attaching the curable resin film according to any one of claims 1 to 5 to the surface having the bumps of the semiconductor wafer;

covering the area other than the top surface of the bump of the semiconductor wafer and a portion in the vicinity thereof by heating the curable resin film and being close contact with the surface other than the top surface of the bump and the portion in the vicinity thereof and a circuit surface of the semiconductor wafer; and

curing the curable resin film.