inorganic filler into the adhesive and controlling its content and particle size have been disclosed. (For example, see Patent Documents 1 and 2.) However, although the linear expansion coefficient of the adhesive can be decreased by increasing the content of the inorganic filler, the elastic modulus increases at the same time, adding large stress on the semiconductor chip that is bonded, causing problems of peeling and cracking to occur easily and diminishing the reliability of the semiconductor device.

RELATED ART

Patent Documents

[0005] [Patent Document 1] JP-A-2010-028087

[Patent Document 2] JP-A-2011-228642

SUMMARY

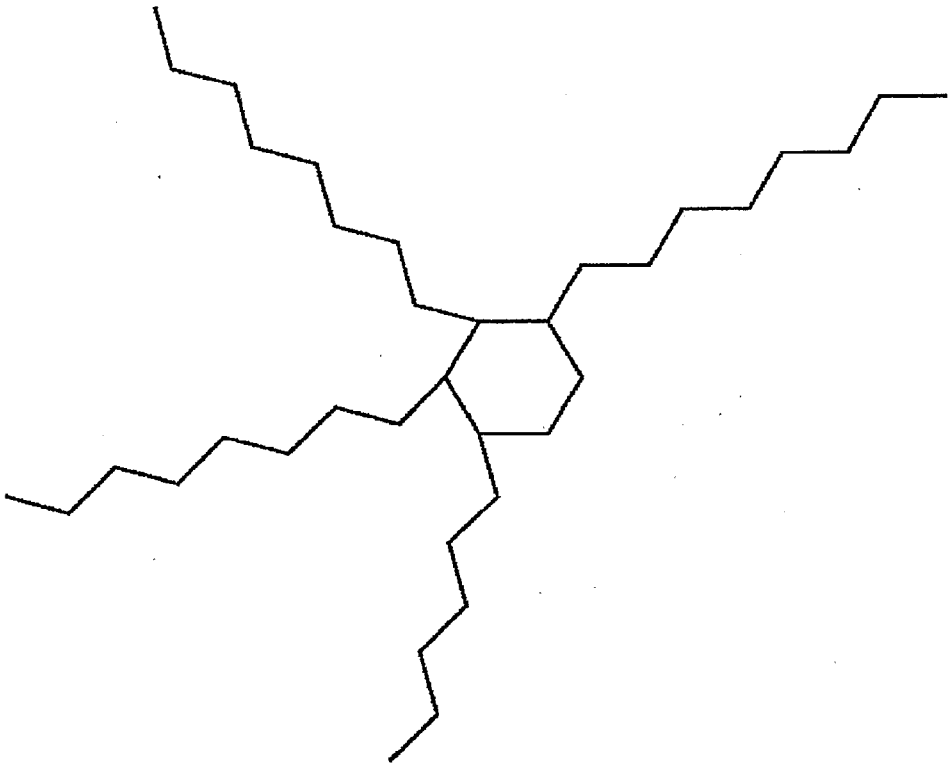
[0006] The present disclosure was made in view of the above problems, and its object is to provide a highly reliable adhesive film that does not add large stress on the adherend, that can also mitigate curving due to the difference in linear expansion coefficients of the adherends.

[0007] That is, the present disclosure provides an adhesive film, which comprises (A) a curable resin with a structure containing an alicyclic hydrocarbon with 5 to 8 carbons, which is substituted by at least 4 alkyl groups of 4 to 12 carbons, which further contains at least one curable part, and (B) a polymerization initiator with a one-hour half-life temperature of 140°C or higher.

[0008] Further, the present disclosure relates to the above-described adhesive film, which comprises the structure shown by the following General Formula (1).

General Formula (1)

[Chemical Formula 1]



[0009] Further, the present disclosure relates to the above-described adhesive film, wherein the content of (A) is 50% by mass or more of the resin component constituting the film.

[0010] Furthermore, the present disclosure relates to the above-described adhesive film, which further comprises a filler.

[0011] In addition, the present relation relates to an adhesive film with dicing tape, which comprises the above-described adhesive film laminated on to a dicing tape.

[0011a] In an aspect, there is provided an adhesive film, comprising:

(A) a curable resin with a structure containing an alicyclic hydrocarbon with 5 to 8 carbons, which is substituted by at least 4 alkyl groups of 4 to 12 carbons, which further contains at least one curable part selected from thiol, vinyl ester, acrylate, methacrylate, norbornyl, maleimide, and nadimide; and

(B) a peroxide or hydrocarbon radical polymerization initiator with a one-hour half-life temperature of 170°C or higher.

[0011b] In another aspect, there is provided an adhesive film with dicing tape, which comprises the adhesive film as defined above laminated on to a dicing tape

Effect

[0012] The present disclosure successfully provides a highly reliable adhesive film that shows excellent stress relaxation and moisture resistance, as well as a semiconductor device that utilizes such an adhesive film.

BRIEF DESCRIPTION OF DRAWINGS

[0013] [FIG. 1] FIG. 1 shows an adhesive film with dicing tape that utilizes and comprises the adhesive agent of the present invention.

Claims

1. An adhesive film, comprising:

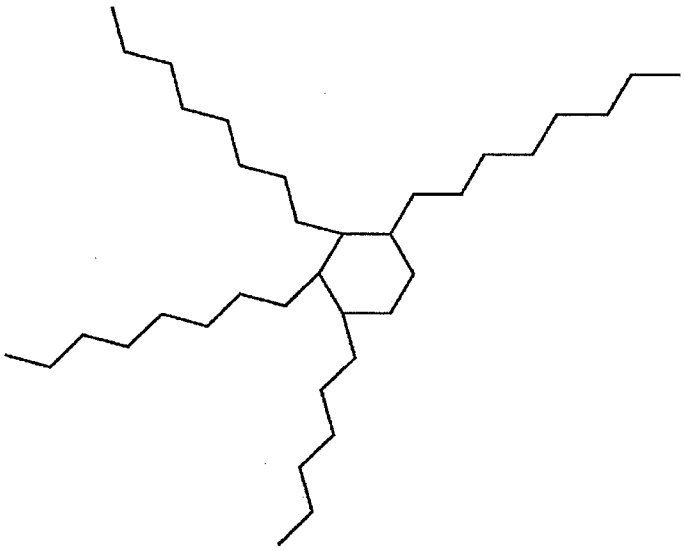
(A) a curable resin with a structure containing an alicyclic hydrocarbon with 5 to 8 carbons, which is substituted by at least 4 alkyl groups of 4 to 12 carbons, which further contains at least one curable part selected from thiol, vinyl ester, acrylate, methacrylate, norbornyl, maleimide, and nadimide; and

(B) a peroxide or hydrocarbon radical polymerization initiator with a one-hour half-life temperature of 170°C or higher.

2. The adhesive film according to Claim 1, which comprises the structure shown by the following General Formula (1).

General Formula (1)

[Chemical Formula 1]



3. The adhesive film according to any one of Claims 1 or 2, wherein the content of (A) is 50% by mass or more of the resin component constituting the film.

4. The adhesive film according to any one of Claims 1 to 3, which further comprises a filler.