by chemicals or plasma in performing etching. Therefore, the present inventors made investigations concerning a photosensitive material. However, the material described in Patent Document 7 has been unable to maintain high sensitivity to exposure and high resolution after long-term storage at room temperature. Further, the material does not give solvent resistance to a cured film formed by low-temperature curing at 200 to 220°C and needs essentially a high curing temperature. That is, the material has a problem of productivity. ~~It is an object~~ Embodiments of the present invention ~~to develop~~ disclose a positive photosensitive resin composition which, without compromising high refractive index and high transparency characteristics, has excellent solvent resistance and resolution after pattern formation even by curing at low temperature, and has high sensitivity to exposure and high resolution, even after long-term storage at room temperature.

SOLUTIONS TO THE PROBLEMS

[0009]

~~In order to solve the above-mentioned problems, the present invention has the following constitution. That is,~~ According to a first aspect of the present invention, there is provided a positive photosensitive resin composition comprising: (a) a polysiloxane synthesised by hydrolysing and partially condensing an organosilane represented by the following general formula (1) and an organosilane that has a carboxyl group and/or a dicarboxylic acid anhydride structure; (d) particles of one

or more metal compounds selected from among an aluminium compound, a tin compound, a titanium compound and a zirconium compound, or composite particles of a silicon compound and one or more metal compounds selected from among an aluminium compound, a tin compound, a titanium compound and a zirconium compound; (b) a naphthoquinone diazide compound; and (c) a solvent:

[0010]

[Chemical Formula 1]

$$\left(R^1\right)_n Si\left(OR^2\right)_{4-n} \quad (1)$$

[0011]

wherein R^1 represents hydrogen, an alkyl group with a carbon number of 1 to 10, an alkenyl group with a carbon number of 2 to 10 or an aryl group with a carbon number of 6 to 16, R^2 represents hydrogen, an alkyl group with a carbon number of 1 to 6, an acyl group with a carbon number of 2 to 6 or an aryl group with a carbon number of 6 to 16, n represents an integer of 0 to 3, and when n is 2 or more, R^1s may be the same or different, respectively, and when n is 2 or less, R^2s may be the same or different, respectively.

~~Or,~~ According to a second aspect of the present invention, there is provided a positive photosensitive resin composition comprising: (a') a polysiloxane containing metal compound-containing particles synthesised by hydrolysing and partially condensing an organosilane represented by the

According to embodiments of the photosensitive composition of the present invention, it is possible to provide a positive photosensitive resin composition capable of giving a cured film which, without compromising high refractive index and high transparency characteristics, has excellent solvent resistance and resolution after pattern formation even by curing at low temperature, and has high sensitivity to exposure, even after long-term storage at room temperature.

EMBODIMENTS OF THE INVENTION

[0015]

A photosensitive composition of the present invention pertains to a positive photosensitive resin composition comprising: (a) a polysiloxane synthesised by hydrolysing and partially condensing an organosilane represented by the following general formula (1) and an organosilane that has a carboxyl group and/or a dicarboxylic acid anhydride structure; (d) particles of one or more metal compounds selected from among an aluminium compound, a tin compound, a titanium compound and a zirconium compound, or composite particles of a silicon compound and one or more metal compounds selected from among an aluminium compound, a tin compound, a titanium compound and a zirconium compound; (b) a naphthoquinone diazide compound; and (c) a solvent:

[0016]

[Chemical Formula 3]