

Thereafter, the dissolution rate at each exposure dose was measured by using an aqueous 2.38 mass % tetramethylammonium hydroxide (TMAH) solution to obtain a sensitivity curve. The exposure dose when the dissolution rate of the resist was saturated in this sensitivity curve was defined as the sensitivity and also, the dissolution contrast (γ value) was calculated from the gradient in the straight line part of the sensitivity curve. As the γ value is larger, the dissolution contrast is more excellent.

[0188] The results are shown in Table 4.

TABLE 4

	Composition					Evaluation	
	Resin	Sulfonic Acid Generator	Carboxylic Acid Generator	Basic Compound (0.003 g)	Other Component (0.001 g)	Sensitivity (mJ/cm ²)	γ value
Example 21	A-10	B-2 (0.065 g)	C-2 (0.005 g)	D-1	W-1	2.5	8.5
Example 22	A-3	B-3 (0.07 g)	C-4 (0.005 g)	D-3	W-1	3.0	9.5
Example 23	A-7	B-4 (0.07 g)	C-7 (0.004 g)	D-2	W-1	2.5	9.0
Comparative Example 3	C-1	B-2 (0.065 g)		D-1	W-1	3.0	5.0

[0189] It is seen from Table 4 that in the characteristic evaluation by the irradiation with EUV light, the positive resist composition of the present invention exhibits high sensitivity and high contrast and is excellent, as compared with the composition of Comparative Example.

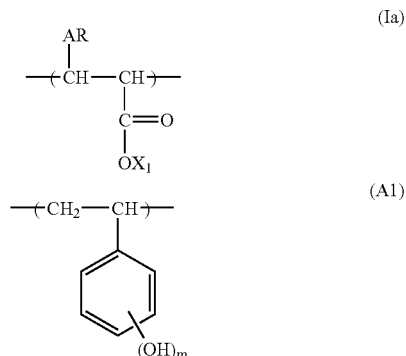
[0190] The present application claims foreign priority based on Japanese Patent Application (JP 2005-285022) filed Sep. 29 of 2005, the contents of which is incorporated herein by reference.

What is claimed is:

1. A positive resist composition comprising:

(A-1) a resin of which a solubility in an alkali developer increases under the action of an acid, the resin comprising a repeating unit represented by formula (1a) and a repeating unit represented by formula (A1); and

(B) a compound capable of generating an acid upon irradiation with one of actinic rays and radiation:



wherein

in the formula (1a), AR represents an aromatic group, and X₁ represents a group having a carbon number of 5 or more and being capable of decomposing under the action of an acid, and

in the formula (A1), m represents an integer of one of 1 and 2.

2. The positive resist composition as claimed in claim 1, wherein X₁ has a tertiary carbon atom bonded to the oxygen atom in formula (1a).

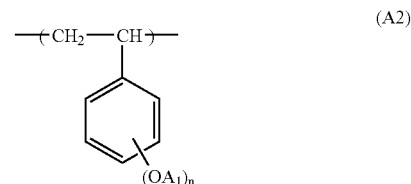
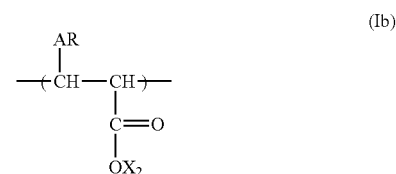
3. The positive resist composition as claimed in claim 1, wherein X₁ has an alicyclic group.

4. A positive resist composition comprising:

(A-2) a resin of which a solubility in an alkali developer increases under the action of an acid, the resin com-

prising a repeating unit represented by formula (1b) and a repeating unit represented by formula (A2); and

(B) a compound capable of generating an acid upon irradiation with one of actinic rays and radiation:



wherein

in the formula (1b), AR represents an aromatic group and X₂ represents one of a hydrogen atom and a hydrocarbon group, and

in the formula (A2), A₁ represents a group containing a group capable of decomposing under the action of the acid, and n represents an integer of one of 1 and 2.

5. The positive resist composition as claimed in claim 4, wherein X₂ is a group capable of decomposing under the action of the acid.

6. The positive resist composition as claimed in claim 5, wherein X₂ is a group having an alicyclic group and being capable of decomposing under the action of the acid.