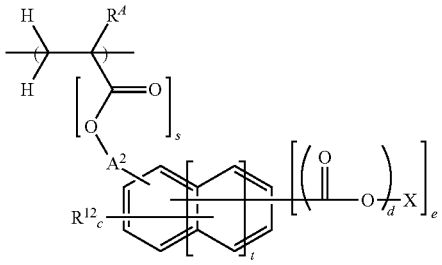
(B2)



wherein R^A has the same meaning as defined above; each R^{12} independently represents a halogen atom, a linear, branched, or cyclic acyloxy group having 2 to 8 carbon atoms optionally substituted with a halogen atom, a linear, branched, or cyclic alkyl group having 1 to 6 carbon atoms optionally substituted with a halogen atom, or a linear, branched, or cyclic alkoxy group having 1 to 6 carbon atoms optionally substituted with a halogen atom; A^2 represents a single bond or a linear, branched, or cyclic alkylene group having 1 to 10 carbon atoms optionally having an ether bond between a carbon-carbon bond thereof; "s" is 0 or 1; "t" is an integer of 0 to 2; "c" is an integer satisfying $0 \leq c \leq 5+2t-e$; "d" is 0 or 1; "e" is an integer of 1 to 3; X is an acid-liable group when "e" is 1, and is a hydrogen atom or an acid-liable group when "e" is 2 or more with the proviso that at least one of X is an acid-liable group.

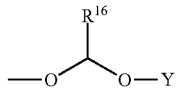
[0113] In the repeating unit B2, one or more of the phenolic hydroxyl group bonded to an aromatic ring is protected by an acid-liable group, or the carboxyl group bonded to an aromatic ring is protected by an acid-liable group. The acid-liable group like this is not particularly limited, and any group can be adopted so long as it is decomposed by an acid to form an acidic group that have been used for many known chemically amplified resist components.

[0114] In the general formula (B2), it is preferable to select a tertiary alkyl group as the acid-liable group of X. When X is a tertiary alkyl group, it is possible to provide a pattern with small LER even when a resist film is formed so as to have a film thickness of 10 to 100 nm and a fine pattern is formed so as to have a line width of 45 nm or less. These tertiary alkyl groups each have 4 to 18 carbon atoms so as to obtain a monomer for the polymerization by distillation. Illustrative examples of the alkyl substituent on the tertiary carbon of the tertiary alkyl group include a linear, branched, or cyclic alkyl substituent having 1 to 15 carbon atoms optionally having an oxygen-containing functional group(s) such as an ether group and a carbonyl group, in which the alkyl substituents on the tertiary carbon may be bonded with each other to form a ring.

[0115] Illustrative examples of the alkyl substituent on the tertiary carbon of the tertiary alkyl group include a methyl group, an ethyl group, a propyl group, an adamantyl group, a norbornyl group, a tetrahydrofuran-2-yl group, 7-oxanorbornan-2-yl group, a cyclopentyl group, 2-tetrahydrofuril group, a tricyclo[5.2.1.$0^{2,6}$]decyl group, a tetracyclo[4.4.0.$1^{2,5}$.$1^{7,10}$]dodecyl group, and 3-oxo-1-cyclohexyl group. The tertiary alkyl group that has these substituents is not particularly limited, and illustrative examples thereof include a tert-butyl group, a tert-pentyl group, a 1-ethyl-1-methylpropyl group, a 1,1-diethylpropyl group, a 1,1,2-trimethylpropyl group, a 1-adamantyl-1-methylethyl group, a 1-methyl-1-(2-norbornyl)ethyl group, a 1-methyl-1-(tetrahydrofuran-2-yl)ethyl group, a 1-methyl-1-(7-oxanorbornan-2-yl)ethyl group, a 1-methylcyclopentyl group, a 1-ethylcyclopentyl group, a 1-propylcyclopentyl group, a 1-cyclopentylcyclopentyl group, a 1-cyclohexylcyclopentyl group, a 1-(2-tetrahydrofuril)cyclopentyl group, a 1-(7-oxanorbornan-2-yl)cyclopentyl group, a 1-methylcyclohexyl group, a 1-ethylcyclohexyl group, a 1-cyclopentylcyclohexyl group, a 1-cyclohexylcyclohexyl group, a 2-methyl-2-norbornyl group, a 2-ethyl-2-norbornyl group, a 8-methyl-8-tricyclo[5.2.1.$0^{2,6}$]decyl group, a 8-ethyl-8-tricyclo[5.2.1.$0^{2,6}$]decyl group, a 3-methyl-3-tetracyclo[4.4.0.$1^{2,5}$.$1^{7,10}$]dodecyl group, a 3-ethyl-3-tetracyclo[4.4.0.$1^{2,5}$.$1^{7,10}$]dodecyl group, a 2-methyl-2-adamantyl group, a 2-ethyl-2-adamantyl group, a 1-methyl-3-oxo-1-cyclohexyl group, a 1-methyl-1-(tetrahydrofuran-2-yl)ethyl group, a 5-hydroxy-2-methyl-2-adamantyl group, and 5-hydroxy-2-ethyl-2-adamantyl group.

[0116] In addition, an acetal group shown by the following general formula (B2-1) is often used as the acid-labile group. This acetal group is a useful choice as an acid-labile group that stably provides a pattern whose interface with a substrate is relatively rectangular,

(B2-1)



wherein R^{16} represents a hydrogen atom, or a linear, branched, or cyclic alkyl group having 1 to 10 carbon atoms; and Y represents a linear, branched, or cyclic alkyl group having 1 to 30 carbon atoms.

[0117] In this formula, R^{16} is appropriately selected in accordance with design of the group decomposable by an acid. For example, a hydrogen atom is selected in design including decomposition by a strong acid while securing relatively high stability, and a linear alkyl group is selected in design using relatively high reactivity for higher sensitivity to pH. In case of designing larger change of solubility by decomposition with the terminal being substituted with a relatively large alkyl group, R^{16} preferably contains a secondary carbon having a bond with an acetal carbon, although it depends on the combination of an acid generator and a basic compound that are blended to the resist composition of the present invention. Illustrative examples of R^{16} in which acetal carbon is bonded to a secondary carbon include an isopropyl group, a sec-butyl group, a cyclopentyl group, and a cyclohexyl group.

[0118] In the general formula (B2-1), Y preferably represents a polycyclic alkyl group having 7 to 30 carbon atoms. These Y enables the inventive resist composition to have higher resolution. When Y represents a polycyclic alkyl group, it is preferable to form a bond between the acetal oxygen and the secondary carbon constituting the polycyclic structure. When the bond is on a secondary carbon of the ring structure, the polymer compound is more stable and the resist composition has better storage stability compared to the case in which the bond is on a tertiary carbon, thereby preventing the resolution from degradation. This instance is preferable compared to the case in which Y is bonded on a primary carbon that mediate the linear alkyl having one or