exposed to EUV through a patterned mask. The resist film was baked (PEB) on a hotplate at the temperature shown in Table 2 for 60 seconds and developed in a 2.38 wt % TMAH aqueous solution for 30 seconds to form a hole pattern having a size of 23 nm and a pitch of 46 nm.

The resist pattern was evaluated under CD-SEM (CG-5000, Hitachi High-Technologies Corp.). The exposure dose that provides a hole pattern having a size of 23 nm is reported as sensitivity. The size of 50 holes at that dose was measured, from which a size variation (3σ) was computed and reported as CDU.

The resist composition is shown in Table 2 together with the sensitivity and CDU of EUV lithography.

TABLE 2

		Polymer (pbw)	Acid generator (pbw)	Quencher (pbw)	Organic solvent (pbw)	PEB temp. (° C.)	Sensitivity (mJ/cm^2)	CDU (nm)
Example	2-1	Polymer 3 (100)	—	Quencher 7 (4.00)	PGMEA (400) CyH (2,000) PGME (100)	100	26	2.4
	2-2	Polymer 3 (100)	—	Quencher 8 (4.00)	PGMEA (400) CyH (2,000) PGME (100)	100	28	2.3
	2-3	Polymer 3 (100)	—	Quencher 9 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	24	2.3
	2-4	Polymer 3 (100)	—	Quencher 10 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	25	2.3
	2-5	Polymer 3 (100)	—	Quencher 11 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	26	2.1
	2-6	Polymer 3 (100)	—	Quencher 12 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	28	2.0
	2-7	Polymer 3 (100)	—	Quencher 13 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	24	2.1
	2-8	Polymer 3 (100)	—	Quencher 14 (5.00)	PGMEA (400) CyH (2,000) PGME (100)	100	20	2.2
	2-9	Polymer 3 (100)	PAG 2 (15)	Quencher 13 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	21	2.9
	2-10	Polymer 3 (100)	PAG 3 (15)	Quencher 13 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	16	2.6
	2-11	Polymer 3 (100)	PAG 4 (15)	Quencher 13 (4.50)	PGMEA (400) CyH (2,000) PGME (100)	100	14	2.9
Comparative Example	2-1	Polymer 3 (100)	—	Comparative Quencher 6 (2.50)	PGMEA (400) CyH (2,000) PGME (100)	100	35	4.0

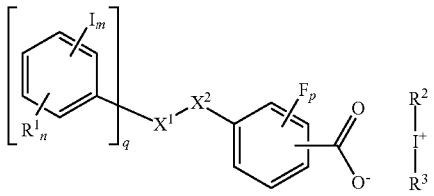
It is demonstrated in Tables 1 and 2 that resist compositions comprising an iodonium salt having formula (A) within the scope of the invention offer a satisfactory resolution and improved LWR and CDU.

Japanese Patent Application No. 2017-052391 is incorporated herein by reference. Although some preferred embodiments have been described, many modifications and variations may be made thereto in light of the above teachings. It is therefore to be understood that the invention may be practiced otherwise than as specifically described without departing from the scope of the appended claims.

The invention claimed is:

1. A resist composition comprising a base polymer, an acid generator and a quencher containing an iodonium salt having the formula (A):

(A)



wherein R^1 is a hydroxyl group, C_1-C_6 straight, branched or cyclic alkyl or alkoxy group, C_2-C_6 straight, branched or cyclic acyloxy group, fluorine, chlorine, bromine, amino, —NR^5—C(=O)—R^6, or —NR^5—C(=O)—O—R^6, R^5 is hydrogen or a C_1-C_6 straight, branched or cyclic alkyl group, R^6 is a C_1-C_6 straight, branched or cyclic alkyl group or C_2-C_8 straight, branched or cyclic alkenyl group; X^1 is a single bond or a (q+1)-valent C_1-C_{20} linking group which may contain at least one moiety selected from ether, carbonyl, ester, amide, sultone, lactam, carbonate, halogen, hydroxyl and carboxyl; X^2 is an ether, ester or amide group; R^2 and R^3 are each independently trifluoromethyl or a C_6-C_{10} aryl, C_2-C_6 alkenyl or C_2-C_6 alkynyl group in