US009411236B2

(12) **United States Patent**
Jung et al.

(10) **Patent No.: US 9,411,236 B2**
(45) **Date of Patent: Aug. 9, 2016**

(54) **PATTERNING METHOD USING ELECTRON BEAM AND EXPOSURE SYSTEM CONFIGURED TO PERFORM THE SAME**

(71) Applicant: **Samsung Electronics Co., Ltd.**, Suwon-si (KR)

(72) Inventors: **Yongseok Jung**, Hwaseong-si (KR); **SangHee Lee**, Seongnam-si (KR)

(73) Assignee: **Samsung Electronics Co., Ltd.** (KR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/854,637**

(22) Filed: **Sep. 15, 2015**

(65) **Prior Publication Data**

US 2016/0004161 A1 Jan. 7, 2016

Related U.S. Application Data

(63) Continuation of application No. 14/197,824, filed on Mar. 5, 2014, now Pat. No. 9,164,389.

(30) **Foreign Application Priority Data**

Aug. 29, 2013 (KR) 10-2013-0103462

(51) **Int. Cl.**

G03F 7/20	(2006.01)
H01J 37/06	(2006.01)
G03F 1/20	(2012.01)
H01J 37/317	(2006.01)

(52) **U.S. Cl.**

CPC ***G03F 7/2061*** (2013.01); ***G03F 1/20*** (2013.01); ***G03F 7/20*** (2013.01); ***G03F 7/2059*** (2013.01); ***G03F 7/2063*** (2013.01); ***H01J 37/3174*** (2013.01); *H01J 2237/3045* (2013.01); *H01J 2237/31776* (2013.01)

(58) **Field of Classification Search**

CPC G03F 1/20; G03F 7/20; G03F 7/2061; G03F 7/2059; G03F 7/2063; H01J 37/3174; H01J 2237/3045; H01J 2237/31776

USPC 430/30, 296, 394, 942; 250/492.2

See application file for complete search history.

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"Patterning Method Using Electron Beam and Exposure System Configured to Perform the Same" Specification, Drawings, Claims and Prosecution History, of U.S. Appl. No. 14/197,824, filed Mar. 5, 2014, by Yongseok Jung, et al. which is stored in the United States Patent and Tradmark Office (USPTO) Image File Wrapper (IFW) system.

Primary Examiner — Christopher Young
(74) *Attorney, Agent, or Firm* — Onello & Mello LLP

(57) **ABSTRACT**

A patterning method may employ a particle beam, such as an electron beam (E-beam) and an exposure system that may include preparing an exposure layout defining a spatial distribution of an E-beam, performing an E-beam exposure process to a mask layer, based on the exposure layout, performing a developing process to the mask layer to form mask patterns including a first pattern. The first pattern may be a single solid pattern, and the exposure layout may include a first data associated with a plurality of E-beam conditions defined for a first region corresponding to the first pattern.

14 Claims, 12 Drawing Sheets