

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
01 October 2020 (01.10.2020)



(10) International Publication Number
WO 2020/198405 A1

(51) International Patent Classification:

H01L 21/67 (2006.01) G01N 23/2251 (2018.01)
H01L 21/66 (2006.01)

(21) International Application Number:

PCT/US2020/024804

(22) International Filing Date:

26 March 2020 (26.03.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/824,900 27 March 2019 (27.03.2019) US
16/439,465 12 June 2019 (12.06.2019) US

(71) Applicant: **KLA CORPORATION** [US/US]; Legal Department, One Technology Drive, Milpitas, CA 95035 (US).

(72) Inventors: **LIM, Alex (Teng Song)**; Blk 258A, Punggol Field, #08-15, Punggol Field 821258 (SG).
MEENAKSHISUNDARAM, Ganesh; 9400, W. Parmer Ln., Apt# 937, Austin, TX 78717 (US).

(74) Agent: **MCANDREWS, Kevin et al.**; KLA Corporation, Legal Department, One Technology Drive, Milpitas, CA 95035 (US).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every

kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: DIE SCREENING USING INLINE DEFECT INFORMATION

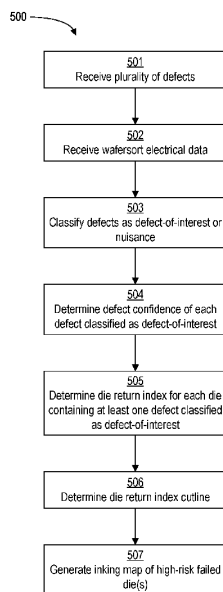


FIG. 5

(57) Abstract: Embodiments herein include methods, systems, and apparatuses for die screening using inline defect information. Such embodiments may include receiving a plurality of defects, receiving wafersort electrical data for a plurality of dies, classifying each of the defects as a defect-of-interest, or nuisance, determining a defect-of-interest confidence for each of the defects-of-interest, determining a die return index for each of the dies containing at least one of the defects-of-interest, determining a die return index cutline, and generating an inking map. Each of the defects may be associated with a die in the plurality of dies. Each of the dies may be tagged as passing a wafersort electrical test or failing the wafersort electrical test. Classifying each of the defects as a defect-of-interest or nuisance may be accomplished using a defect classification model, which may include machine learning. The inking map may be electronically communicated to an inking system.

WO 2020/198405 A1

[Continued on next page]

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*