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(54) **Title:** SCHOTTKY BARRIER DIODE WITH PERIMETER CAPACITANCE WELL JUNCTION

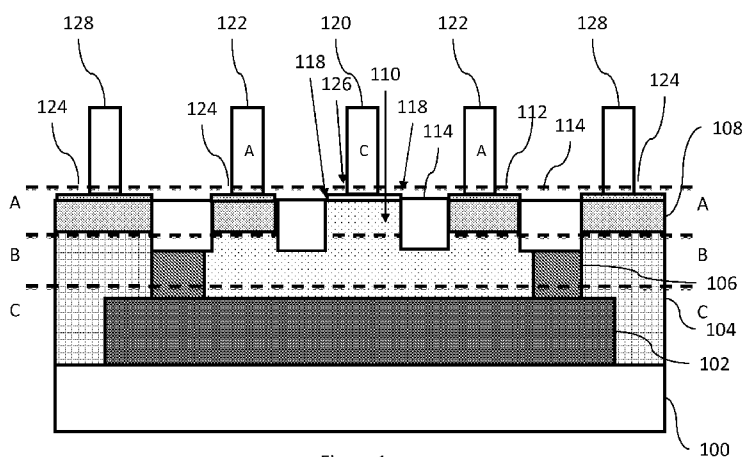


Figure 1

(57) **Abstract:** A Schottky barrier diode comprises a first-type substrate (100), a second-type well isolation region (102) on the first-type substrate, and a first-type well region (110) on the second-type well isolation region. With embodiments herein a feature referred to as a perimeter capacitance well junction ring (106) is on the second-type well isolation region. A second-type well region (104) is on the second-type well isolation region. The perimeter capacitance well junction ring is positioned between and separates the first-type well region and the second-type well region. A second-type contact region (108) is on the second-type well region, and a first-type contact region (112) contacts the inner portion of the first-type well region. The inner portion of the first-type well region is positioned within the center of the first-type contact region. Additionally, a first ohmic metallic layer (124) is on the first-type contact region and a second ohmic metallic layer (126) is on the first-type well region. The first ohmic metallic layer contacts the second ohmic metallic layer at a junction that makes up the Schottky barrier of the Schottky barrier diode.



**A. CLASSIFICATION OF SUBJECT MATTER****H01L 29/872(2006.01)i, H01L 29/47(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

H01L 29/872; H01L 21/76

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords: Schottky barrier diode, perimeter capacitance, undoped ring

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-2006-0093428 A (SAMSUNG ELECTRONICS CO., LTD.) 25 August 2006 See page 3, lines 5-35, and figures 3, 4j	1-24
A	KR 10-2007-0055867 A (MAGNACHIP SEMICONDUCTOR, LTD.) 31 May 2007 See page 3, lines 10-28, and figure 2	1-24
A	KR 10-2009-0071805 A (DONGBU HITEK CO., LTD.) 02 July 2009 See paragraphs [0013]-[0020], and figure 2	1-24

 Further documents are listed in the continuation of Box C. See patent family annex.

\* Special categories of cited documents:

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"&amp;" document member of the same patent family

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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