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(54) **SILICON CARBIDE LATERAL METAL-OXIDE SEMICONDUCTOR FIELD-EFFECT TRANSISTOR HAVING A SELF-ALIGNED DRIFT REGION AND METHOD FOR FORMING THE SAME**

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(58) **Field of Search** 438/931, 301

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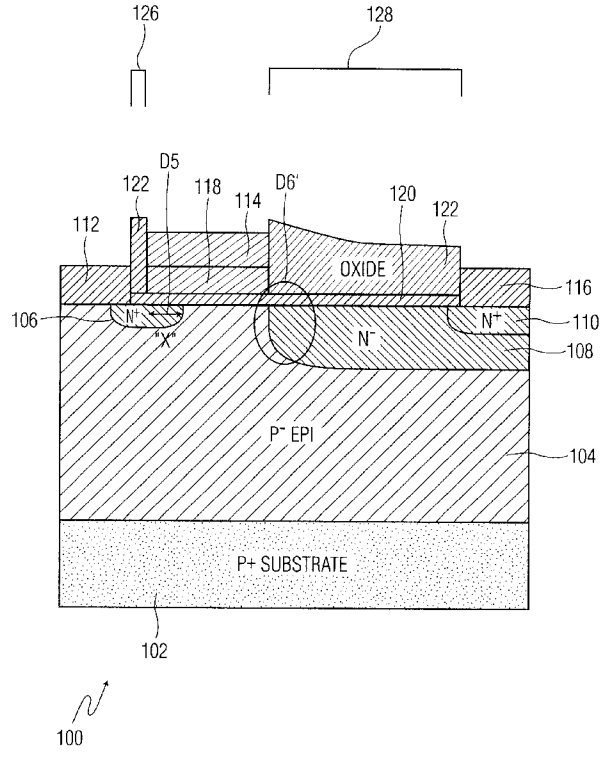
(57) **ABSTRACT**

A silicon carbide lateral metal-oxide-semiconductor field-effect transistor (SiC LMOSFET) having a self-aligned drift region and method for forming the same is provided. Specifically, the SiC LMOSFET includes a source region, a drift region and a drain region. The source and drain regions are implanted using non self-aligned technology (i.e., prior to formation of the gate electrode and the gate oxide layer), while the drift region is implanted using self-aligned technology (i.e., after formation of the gate electrode and the gate oxide layer). By self-aligning the drift region to the gate electrode, the overlap between the two is minimized, which reduces the capacitance of the device. When capacitance is reduced, performance is improved.

5 Claims, 3 Drawing Sheets