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(54) **POWER SEMICONDUCTOR DEVICES INCLUDING A TRENCHED GATE AND METHODS OF FORMING SUCH DEVICES**

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(57) **ABSTRACT**

Semiconductor devices and methods of forming the devices are provided. Semiconductor devices include a semiconductor layer structure comprising a trench in an upper surface thereof, a dielectric layer in a lower portion of the trench, and a gate electrode in the trench and on the dielectric layer opposite the semiconductor layer structure. The trench may include rounded upper corner and a rounded lower corner. A center portion of a top surface of the dielectric layer may be curved, and the dielectric layer may be on opposed sidewalls of the trench. The dielectric layer may include a bottom dielectric layer on a bottom surface of the trench and on lower portions of the sidewalls of the trench and a gate dielectric layer on upper portions of the sidewalls of the trench and on the bottom dielectric layer.