Wolfspeed Development of T-Gate Structure by Electron Beam Lithography

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Primary CNF Tools Used: JEOL 9500

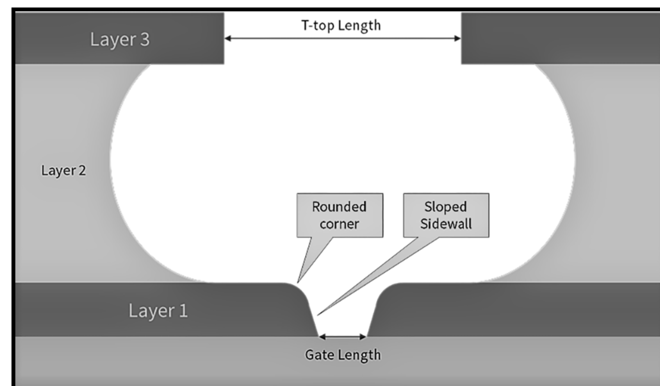

Figure 1: Schematic of target cross section.

Abstract:

Wolfspeed aims to add electron-beam lithography (EBL) processes to our toolset to improve our competitive position in the RF electronics markets.

Summary of Research:

Near term goals to be accomplished at Cornell NanoScale Facility (CNF) over a time range of 12 to 24 months include gain experience in EBL, identify baseline functional process for transfer into NC Fabrication upon toolset installation, and identify EBL toolset and facility specifications based on development work. Prototype demonstration of fully functional "T-Gate" HEMT 90 nm gate length with 30 nm overlay on 100 mm wafer processing. Long term goals to be accomplished beyond work at CNF include fully outfit EBL toolset, transfer process knowledge into NC Fab, and fully staff EBL process organization. A schematic of the target "T-Gate" profile is shown in Figure 1.

Conclusions and Future Steps:

Work was initiated in the summer of 2023.

References:

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