Supporting Information

Relation between Work Function and Structural Properties of Triangular Defect in 4H-SiC Epitaxial Layer: Kelvin Probe Force Microscopic and Spectroscopic Analyses

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Fig. S1. Photoluminescence (PL) measurement of the triangular defect. (a) PL wavelength mapping which has the highest intensity at each wavelength corresponding to the 4H-SiC (390 nm, navy), single Shockley stacking fault (424 nm, cyan), and 3C-SiC (540 nm, wine); the single Shockley stacking fault may be formed during the PL measurement due to the instable interface conditions. (b) PL intensity mapping image at 390 nm (navy). (c) PL intensity mapping image at 424 nm (cyan). (d) PL intensity mapping image at 540 nm (wine); the triangular defect had the 3C polytype and various structural defects.



Fig. S2. Result of ultraviolet photoelectron spectroscopy (UPS) from the 4H-SiC epitaxial layer



Fig. S3. Enlarged (a) topographic and (b) surface potential images at the vicinal face showing the disordered terraces.



Fig. S4. High-resolution (scanning) transmission electron microscopy (HR(S)TEM) images for the stacking faults at the interface between the 4H-SiC matrix and the triangular defect.