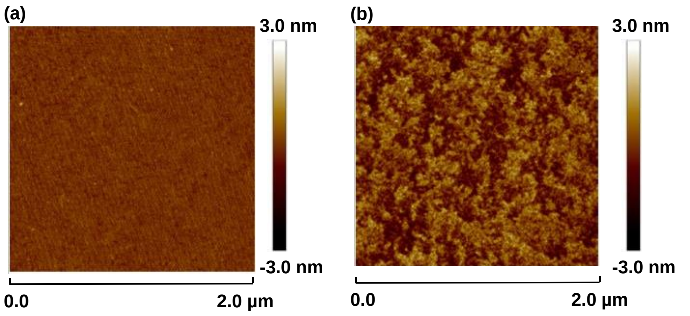

Figure 1 Surface morphology of (-201) Ga_2O_3 and (0001) N-polar GaN substrates. The RMS surface roughnesses were 0.20 nm and 0.61 nm for (-201) Ga_2O_3 and (0001) N-polar GaN, respectively.

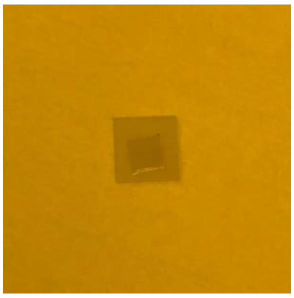

Figure 2 Optical images of 10×10 mm^2 (-201) Ga_2O_3 bonded with 5×5 mm^2 (0001) N-polar GaN substrates with ZnO interlayer. The surfaces were fully bonded.

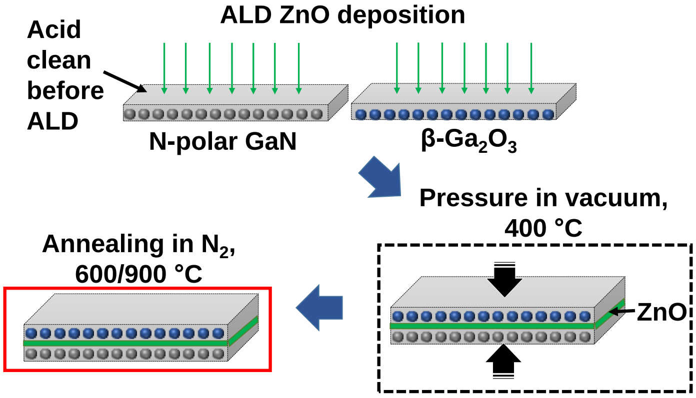

Figure 3 Schematic process flow of heterogeneous integration of N-polar GaN and Ga_2O_3 substrates with ZnO interlayer deposited by atomic layer deposition at 200 °C.

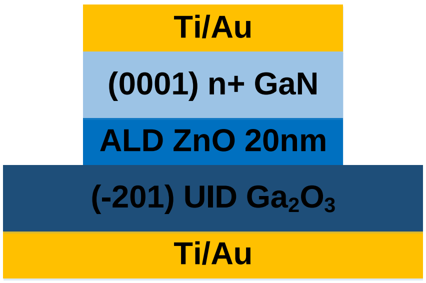

Figure 4 Cross-sectional schematic of the (-201) Ga_2O_3 /ZnO/(0001) N-polar GaN test structure.

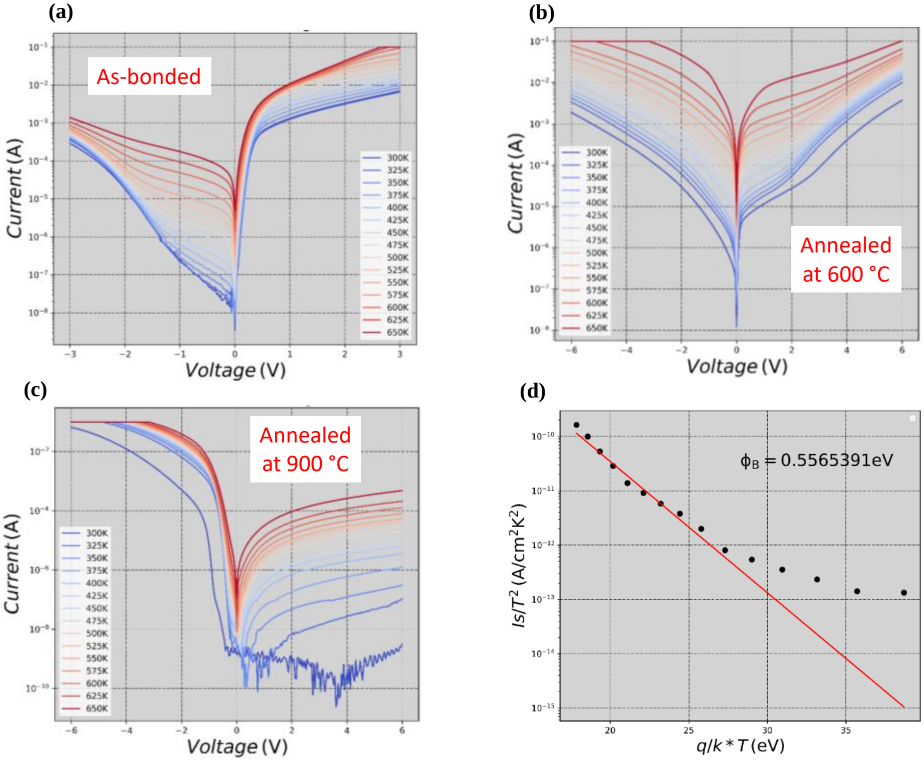

Figure 5 I-V-T characteristics in semi-log scale measured at temperatures from 300 K to 650 K with step increment of 25 K for the test structure of Ga_2O_3/ZnO/N-polar GaN (a) as-bonded (b) annealed at 600 °C (c) annealed at 900 °C. (d) The corresponding Richardson plot for as-bonded Ga_2O_3/ZnO/N-polar GaN test structure.