Supporting information

1. Synthesis and characterization of β-Ga_2O_3/amorphous-SnO_2 core/shell microribbons.

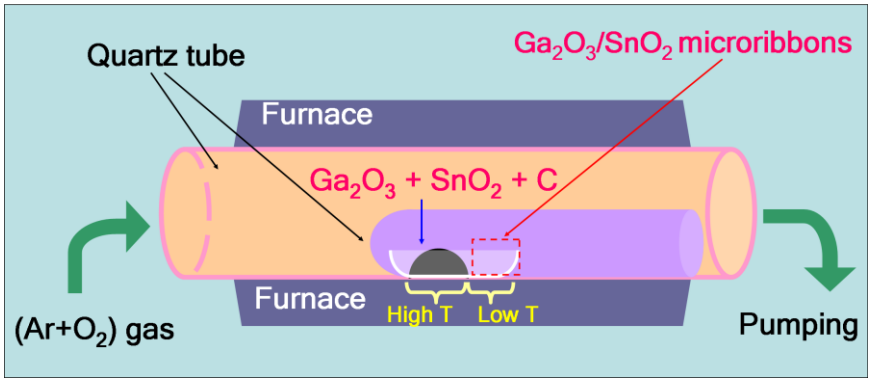

Figure S1. Schematic diagram of experimental apparatus for growth of β-Ga_2O_3/amorphous-SnO_2 core/shell microribbons.

2. Measurement of core/shell microribbon device.

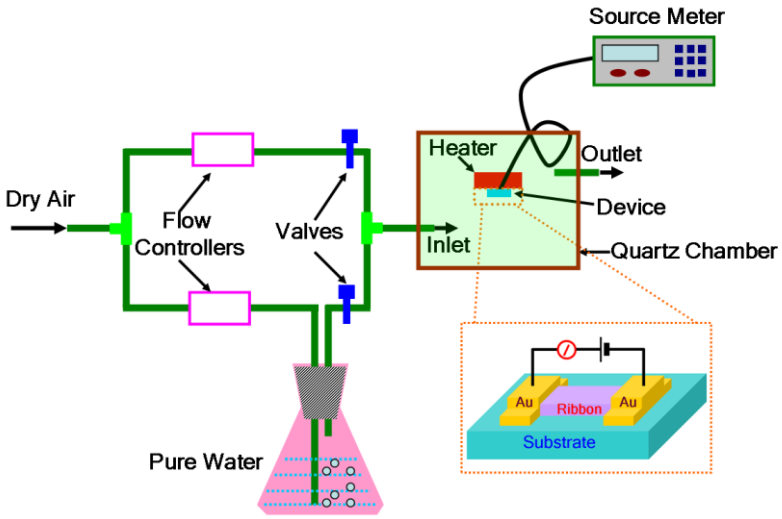

Figure S2. Schematic diagram of a system to measure the gas-sensing and thermal-switchable properties of β-Ga_2O_3/amorphous-SnO_2 core/shell microribbon.

3. Electrical response of core/shell microribbon device.

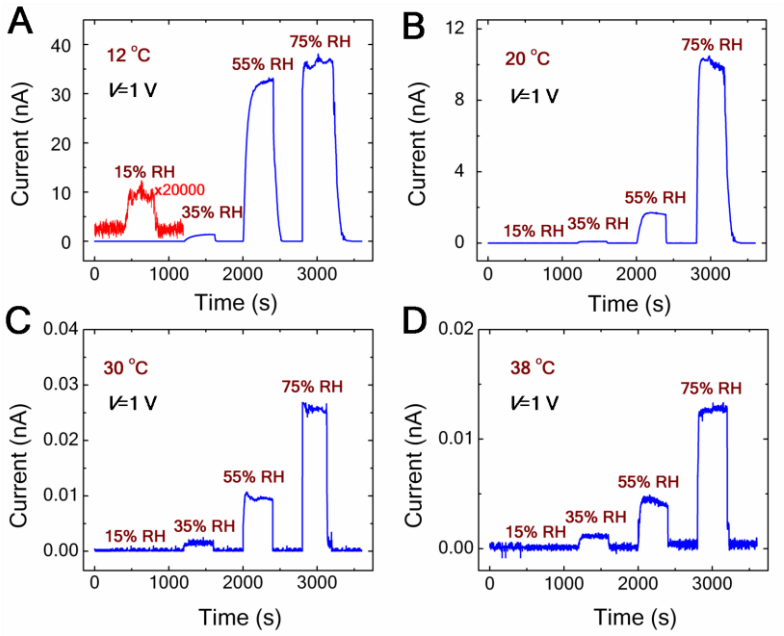

Figure S3. Electrical response of core/shell microribbon-based humidity sensor during cyclic exposure to increasing RH between 15 and 75% in dry air at different operation temperatures of A) 12, B) 20, C) 30 and D) 38 °C. Current was measured at a fixed voltage of 1 V.