Temperature dependence of the Seebeck coefficient of epitaxial $\beta$-Ga$_2$O$_3$ thin films
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Short Abstract
We measured the temperature dependence of the Seebeck coefficient of homoepitaxial metal organic vapour phase grown, silicon doped $\beta$-Ga$_2$O$_3$ thin films. For room temperature, we found the relative Seebeck coefficient of $S_{\beta$-Ga$_2$O$_3$-Al} = -300 +/- 20 $\mu$V/K. At high bath temperatures $T > 240$ K, the scattering is determined by electron-phonon-interaction. Between $T = 100$ K and 300 K, an increase in the magnitude of the Seebeck coefficient is explained in the frame of Stratton's formula.

Above. Schematic of the thermoelectric measurement setup.