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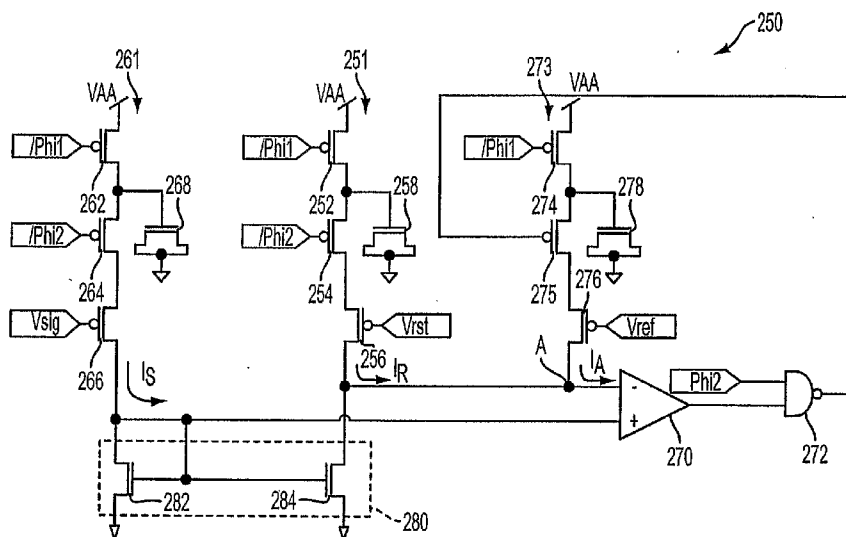
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(54) Title: COLUMN-PARALLEL SIGMA-DELTA ANALOG-TO-DIGITAL CONVERSION FOR IMAGERS



(57) Abstract: A sigma-delta modulation sensing circuit and an analog-to-digital converter for an imager that do not rely on the ratio of the reset and pixel voltage levels being sensed. The sensing circuit includes a regulation branch (273) based on a reference voltage common across multiple columns of the imager. The regulation branch has an adjustable resistance switched capacitor circuit that is modulated during the sensing operation, which creates an adjustment current that is applied during the sensing operation to a current associated with one of the reset and pixel signals. The sensing circuit and analog-to-digital converter can generate a digital code based on the difference between the reset and pixel signal voltage levels, which substantially mitigates noise associated with the pixel and reset signal voltages. The reference voltage can also be used as a gain control for the imager as well.

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