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(54) **CURRENT GENERATION ARCHITECTURE FOR AN IMPLANTABLE STIMULATOR DEVICE**

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(57) **ABSTRACT**

Digital-to-Analog (DAC) circuitry for an implantable pulse generator is disclosed which is used to program currents at the electrodes. Calibration circuitry allows the positive and negative currents produced at each electrode to be independently calibrated to achieve an ideal (linear) response across a range of amplitude values provided to the DAC circuitry by a digital amplitude bus. The calibration circuitry includes electrode gain and electrode offset circuitry for each of the electrodes. Current range DAC circuitry is also provided which can be used to adjust the gain and offset current at all of the electrodes. The current range DAC circuitry is particularly useful when spanning a range of therapeutic currents for a patient, and allows all possible amplitude values provided by the digital bus to be used to span the range. This can improve (reduce) the current resolution of the electrode currents with each amplitude value step.