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Abstract A small size, low-power, self-cascode and self-biased voltage generator based on a PTAT cell for implantable applications is presented. The approach can be extended to other constant temperature applications. A cut-off transistor is used to determine the biasing current and keep the self-cascode cells in the subthreshold region, thus avoiding the use of dedicated startup circuitry. All the transistors are regular threshold voltage devices in order to reduce the impact of process variations on the overall performance. The proposed circuit has been fabricated in a standard CMOS 180 nm technology and the measured total power consumption at an average human body temperature of 36 °C is 152 pW, with a minimum supply voltage of 0.6 V and a total layout area of only 1060 μm^2 .

Palabras clave Ultra-low power, VPTAT generator, Subthreshold, Voltage reference, Implantable device

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