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**Abstract:** A capacitor-less (CL) low-dropout (LDO) regulator suitable to be incorporated in an on-chip system with low-voltage micro-energy-harvested supply, is proposed in this contribution. The differential input stage of the error amplifier includes bulk-driven MOS transistors, thus providing the LDO with an output voltage range that extends from the negative rail up to a level very close to the input voltage without the need of using a resistive feedback network. The circuit parameters relying on the feedback factor,  $\beta$ , are maximized thanks to the use of a unitary value for this parameter. The CL-LDO has been designed and fabricated in standard 180-nm CMOS technology and optimized to operate with an input voltage equal to 0.6 V and a reference level of 0.5 V. The experimental characterization of the fabricated prototypes shows that, under these operating conditions, the LDO is able to deliver a load current above 0.75 mA with a total quiescent current of only 7.0 nA. Furthermore, the proposed voltage regulator is able to operate from input voltages as low as 0.4 V, delivering in this case a maximum load current of 30  $\mu\text{A}$ .

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