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(54) **SWITCHING REGULATOR, SYSTEM-ON-CHIP INCLUDING THE SWITCHING REGULATOR, AND OPERATING METHOD OF THE SWITCHING REGULATOR**

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(57) **ABSTRACT**

A switching regulator, system-on-chip including the switching regulator, and operating method of the switching regulator are provided. The switching regulator comprises a first inductor having a first end connected to a first node and a second end connected to an output terminal, a second inductor having a first end connected to a second node and a second end connected to the output terminal, a flying capacitor having a first end connected to the first node and a second end connected to the second node, and control circuitry configured to at each of first through fourth times control the first switch, the second switch, the third switch, the fourth switch, the fifth switch, the sixth switch, the seventh switch, and the eighth switch to cause the flying capacitor to store a voltage corresponding to a difference between currents flowing in the first inductor and the second inductor.

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10

