

Programmable Voltage Reference for Voltage Accuracy (#3837)

A programmable voltage reference that provides an output voltage proportional to the difference in charge between two floating-gate transistors

Georgia Tech inventors have created a programmable voltage reference that provides an output voltage proportional to the difference in charge between two floating-gate transistors. The proportional reference displays low temperature sensitivity and an in-built startup scheme. The invention includes a floating-gate transistor with a first source, a drain, and a gate. The present invention describes systems and methods to for providing stable and programmable voltage and current reference devices. An exemplary embodiment of the present invention provides a voltage reference device having a first floating-gate transistor with a first source, a first drain, and a first gate.

Benefits/Advantages

- Stable
- Programmable
- Compact
- Low-temperature sensitivity
- In-built startup scheme

Potential Commercial Applications

- Electronic devices
- Integrated circuits

Background/Context for This Invention

An ideal voltage reference is an electronic device that produces a fixed voltage irrespective of the loading on the device, power supply variation, and temperature. Voltage references are critical components in both analog and digital systems. The accuracy, temperature sensitivity and drift of references impact the performance of many circuit blocks, such as analog-to-digital converters, digital-to-analog converters and power management circuitry. The ever decreasing scale of transistors now requires lower reference voltages, and these voltage references must have low temperature sensitivity and high initial accuracy.

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More Information

U.S. Patent Issued - [8054687](#)

Publications

For more information about this technology, please visit:

<https://licensing.research.gatech.edu/technology/programmable-voltage-reference-voltage-accuracy>

Images:

