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Nolan et al.

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[54] **DIGITAL TRIMMING OF ON-CHIP ANALOG COMPONENTS**

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[51] **Int. Cl.**[6] **H03M 1/10**

[52] **U.S. Cl.** **341/120**; 341/121

[58] **Field of Search** 341/118, 119, 341/120, 121

[56] **References Cited**

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[57] **ABSTRACT**

A microcontroller for use in battery charging and monitoring applications is disclosed. The microcontroller includes a microprocessor and various front-end analog circuitry such as a slope A/D converter and a multiplexer for allowing a plurality of analog input signals to be converted to corresponding digital counts indicative of signal level. In order to make the measurements of the selected analog inputs more precise, the microcontroller uses a unique calibration procedure whereby selected parameters associated with the analog circuitry that are subject to variation are measured during test and corresponding calibration constants are calculated therefrom and stored in program memory. These stored calibration constants are subsequently used by the microprocessor in conjunction with the digital counts of the analog input signals for calculating a more precise measurement of the analog input signals.

18 Claims, 16 Drawing Sheets

