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[54] **MICROCONTROLLER HAVING A MINIMAL NUMBER OF EXTERNAL COMPONENTS**

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[52] **U.S. Cl.** **327/143**; 327/309; 327/321; 327/333; 327/565

[58] **Field of Search** 327/143, 309, 327/321, 333, 565–6

[56] **References Cited**

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[57] **ABSTRACT**

The present invention relates to a microcontroller that may be configured to operate without the accompaniment of any external components. The microcontroller can function in a proper manner from the application of only power and signal lines with no external components required. The microcontroller has integrated internal reset and oscillator circuitry into the microcontroller. The microcontroller has also integrated simple external components such as current limiting resistors and pull u and pull down resistor into the microcontroller in order to avoid application specific external components.

17 Claims, 4 Drawing Sheets

