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Marneweck et al.

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[54] **METHOD, SYSTEM AND APPARATUS FOR DETERMINING THAT A PROGRAMMING VOLTAGE LEVEL IS SUFFICIENT FOR RELIABLY PROGRAMMING AN EEPROM**

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[58] **Field of Search** 365/189.09, 226, 365/228, 229, 185.24, 185.28, 185.18

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[57] **ABSTRACT**

An electronic system, comprising a digital processor and an EEPROM, has circuit logic and program software or firmware for determining if a programming voltage level is sufficient for reliably programming the EEPROM. A charge pump is enabled and generates a voltage used for programming of the EEPROM. The enabled charge pump thereby loads a battery power supply. In addition, a test load may be connected to the output of the charge pump to simulate the EEPROM load during a programming operation to the EEPROM. The charge pump output voltage is measured to determine if at least a desired voltage value is obtained. Once the charge pump voltage level has been pre-qualified for the desired voltage value, an actual programming operation to the EEPROM may be performed. If the voltage level does not reach the desired value then a programming operation is inhibited and the electronic system may alarm or shut down operation. The charge pump voltage level is a good indication and measure of battery charge condition under actual EEPROM programming load conditions.

48 Claims, 6 Drawing Sheets

