

EXHIBIT C



(12) **United States Patent**
Norman et al.

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(54) **RING OSCILLATOR DYNAMIC ADJUSTMENTS FOR AUTO CALIBRATION**

(76) Inventors: **Robert D Norman**, 9135 Chickadee Way, Blaine, WA (US) 98230; **Dominik J. Schmidt**, 580 Arastradero Rd., Palo Alto, CA (US) 94306

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Related U.S. Application Data

(63) Continuation of application No. 11/042,689, filed on Jan. 25, 2005, now Pat. No. 7,068,557, which is a continuation of application No. 09/930,822, filed on Aug. 15, 2001, now Pat. No. 6,853,259.

(51) **Int. Cl.**
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GIIC 11/34 (2006.01)

(52) **U.S. Cl.** **365/212; 365/211; 331/176**

(58) **Field of Classification Search** 331/176
 See application file for complete search history.

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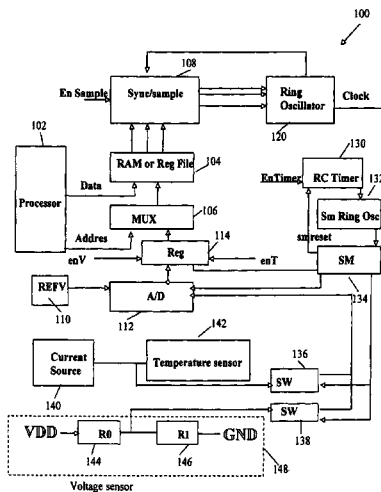
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(57) **ABSTRACT**

An apparatus compensates for voltage and temperature variations on an integrated circuit with: a voltage sensor having a digital voltage output; a temperature sensor having a digital temperature output; a register coupled to the voltage sensor and the temperature sensor, the register adapted to concatenate the digital voltage output and the temperature output into an address output; and a memory device having an address input coupled to the address output of the register, the memory device being adapted to store one or more corrective vectors.

19 Claims, 6 Drawing Sheets



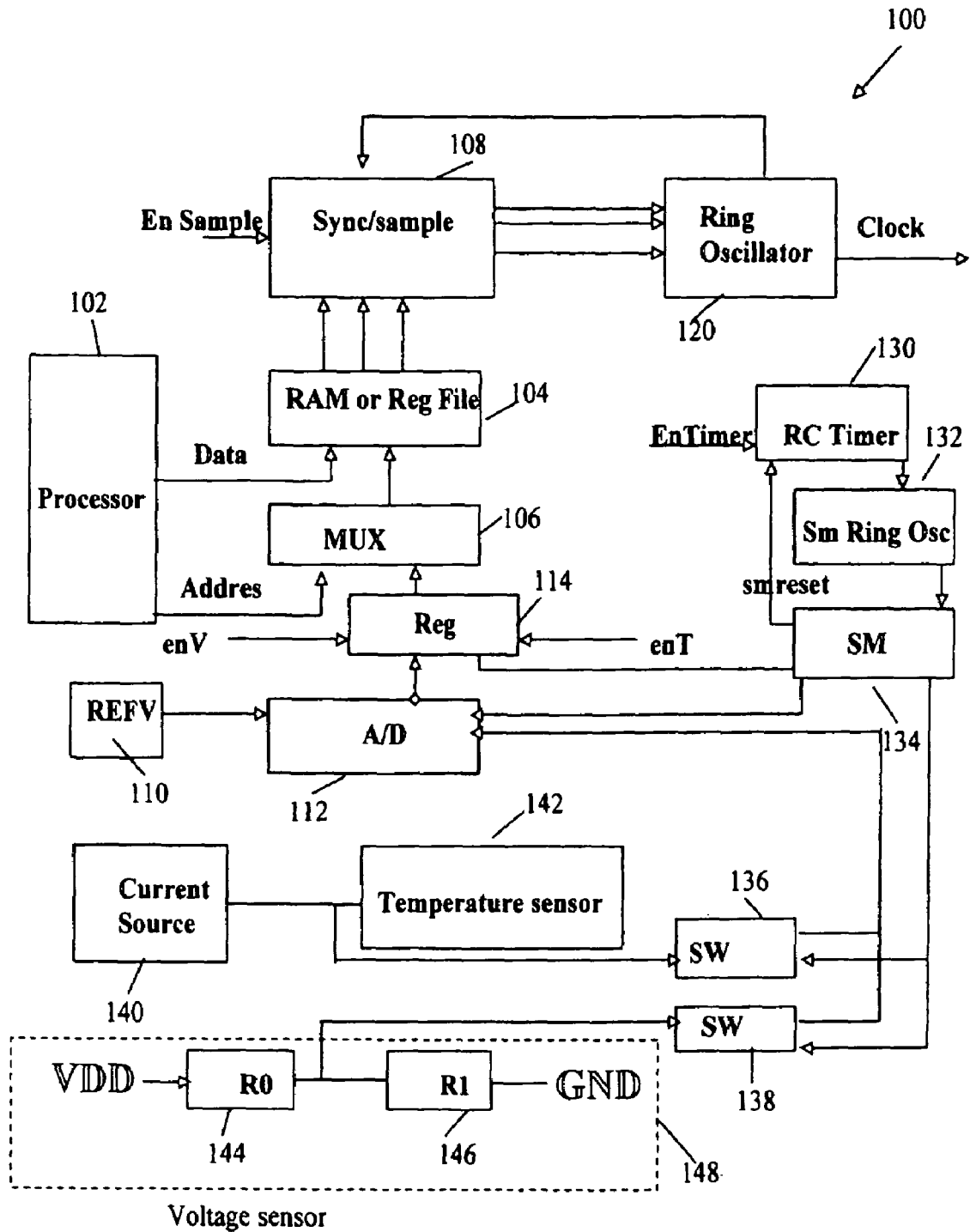


Fig. 1 - Combined V/T with 1 A/D

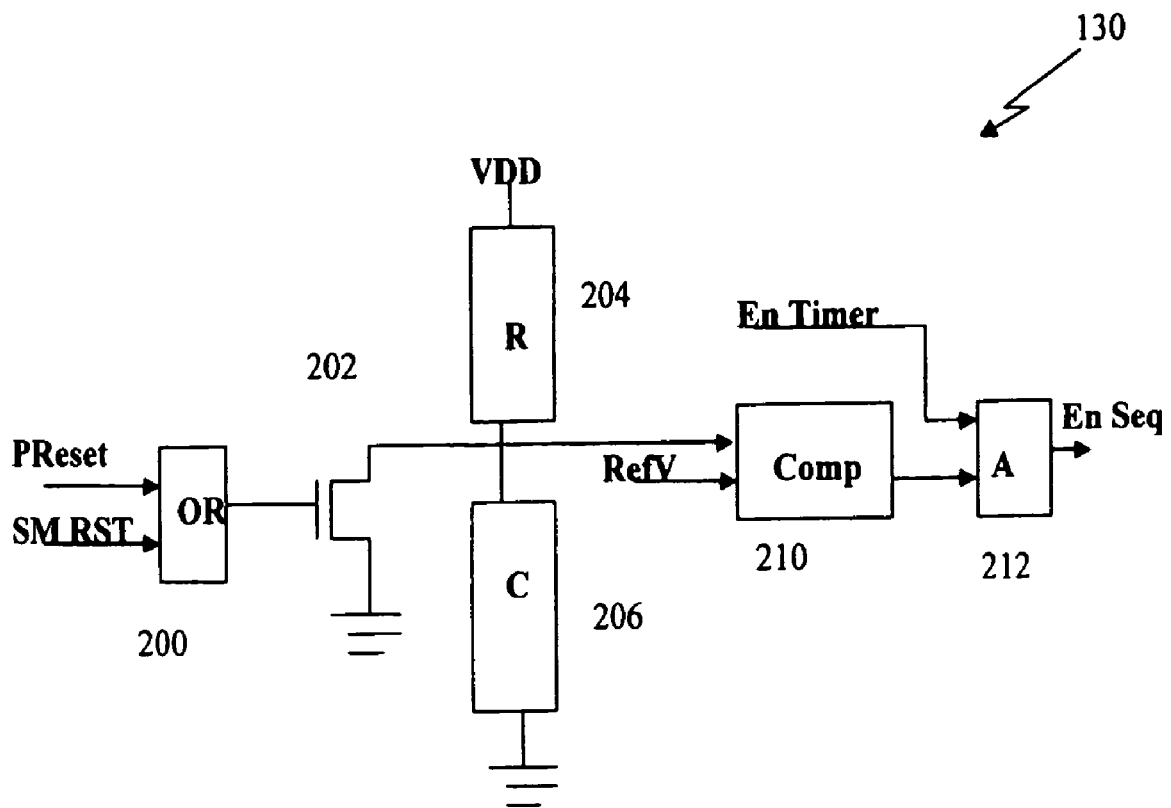


Fig 2 - RC Timer

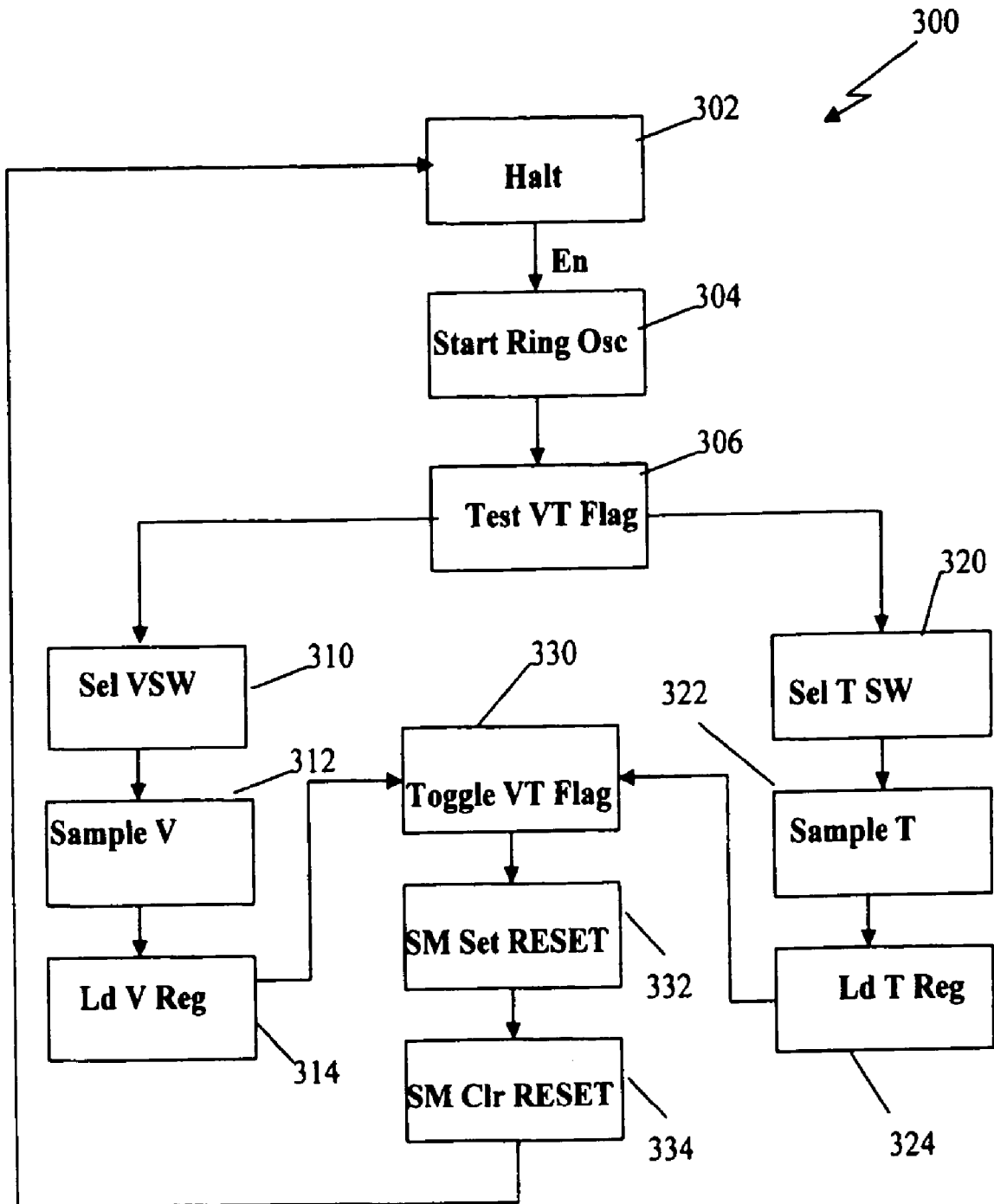


Fig 3 - SM Sequence

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