



Energy-Efficient Smart Temperature Sensors in CMOS Technology (Analog Circuits and Signal Processing)

By Kofi Makinwa

Springer. Hardcover. Condition: New. 158 pages. This book describes the design and implementation of energy-efficient smart (digital output) temperature sensors in CMOS technology. To accomplish this, a new readout topology, namely the zoom-ADC, is presented. It combines a coarse SAR-ADC with a fine Sigma-Delta (SD) ADC. The digital result obtained from the coarse ADC is used to set the reference levels of the SD-ADC, thereby zooming its full-scale range into a small region around the input signal. This technique considerably reduces the SD-ADCs full-scale range, and notably relaxes the number of clock cycles needed for a given resolution, as well as the DC-gain and swing of the loop-filter. Both conversion time and power-efficiency can be improved, which results in a substantial improvement in energy-efficiency. Two BJT-based sensor prototypes based on 1st-order and 2nd-order zoom-ADCs are presented. They both achieve inaccuracies of less than 0.2°C over the military temperature range (-55°C to 125°C). A prototype capable of sensing temperatures up to 200°C is also presented. As an alternative to BJTs, sensors based on dynamic threshold MOSTs (DTMOSTs) are also presented. It is shown that DTMOSTs are capable of achieving low inaccuracy (0.4°C over the military temperature range) as well...



READ ONLINE
[6.86 MB]

Reviews

This written publication is wonderful. It really is loaded with knowledge and wisdom You will not really feel monotony at at any time of your time (that's what catalogues are for relating to if you ask me).

-- **Desmond Becker**

Absolutely essential go through publication. I am quite late in start reading this one, but better then never. You will not feel monotony at at any time of the time (that's what catalogues are for regarding if you ask me).

-- **Ambrose Thompson II**

Other PDFs



[Summer Fit Preschool to Kindergarten Math, Reading, Writing, Language Arts Fitness, Nutrition and Values](#)

Summer Fit Learning. Paperback. Book Condition: New. Paperback. 160 pages. Dimensions: 10.6in. x 8.3in. x 0.5in.Summer Fit Activity Books move summer learning beyond academics to also prepare children physically and socially for the grade ahead. Academic exercises are based on Common Core...



[Shepherds Hey, Bfms 16: Study Score](#)

Petrucci Library Press. Paperback. Book Condition: New. Paperback. 22 pages. Dimensions: 9.4in. x 7.1in. x 0.0in.Percy Grainger, like his contemporary Bela Bartok, was intensely interested in folk music and became a member of the English Folk-Song Society soon after his arrival in...



[Molly on the Shore, BFMS 1 Study score](#)

Petrucci Library Press. Paperback. Book Condition: New. Paperback. 26 pages. Dimensions: 9.7in. x 6.9in. x 0.3in.Percy Grainger, like his contemporary Bela Bartok, was intensely interested in folk music and became a member of the English Folk-Song Society soon after his arrival in...



[Magnificat in D Major, Bwv 243 Study Score Latin Edition](#)

Petrucci Library Press. Paperback. Book Condition: New. Paperback. 70 pages. Dimensions: 9.8in. x 7.2in. x 0.3in.Bach composed the first version of this piece in 1723 using the key of E-flat major for the Christmas Vespers in Leipzig which contained several Christmas texts...



[Gypsy Breynton](#)

Echo Library. Paperback. Book Condition: New. Paperback. 88 pages. Dimensions: 9.0in. x 6.0in. x 0.2in.Hon. Gypsy Breynton, Esq. , M. A. , D. D. , LL. D. , c. , c. Gypsy Breynton, R. R. Tom was very proud of his handwriting....



[The Day I Forgot to Pray](#)

Tate Publishing. Paperback. Book Condition: New. Paperback. 28 pages. Dimensions: 8.7in. x 5.8in. x 0.3in.Alexis is an ordinary five-year-old who likes to run and play in the sandbox. On her first day of Kindergarten, she makes her first school-aged friend, Elizabeth, and...