

Title (en)

Electronic circuit for measuring short time-intervals

Title (de)

Elektronische Schaltung zum Messen eines kurzen Zeitintervalls

Title (fr)

Circuit électronique pour la mesure de périodes de temps courtes

Publication

EP 0508232 B1 19960306 (DE)

Application

EP 92105260 A 19920327

Priority

DE 4111350 A 19910409

Abstract (en)

[origin: EP0508232A2] An electronic circuit for measuring a short time interval which is present in the form of an electric measurement pulse comprises a ring oscillator (OSC) which consists of a chain of series-connected inverters (I3 - I16). A controllable element consisting of NAND gates (NA) and two additional inverters (I1, I2) switches the ring oscillator (OSC) on and off. The full clock periods of the latter are counted in a first pulse counter (C1) and a second pulse counter (C2). A phase indicator consisting of memory chain (SPK) and evaluating logic (LOG) registers the phase angle of the last clock period of the ring oscillator (OSC) at the instance of switching-off. An arithmetic logic unit (ALU) uses the registered phase angle to decide which of the two pulse counters (C1) or (C2) contains the correct count and calculates from the selected count and the registered phase angle the length of the measurement pulse with an accuracy corresponding to the transit time of one inverter. The proposed circuit is distinguished by extremely high measuring accuracy within a range of 200 picoseconds and can be inexpensively implemented in a single integrated CMOS circuit. <IMAGE>

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IPC 8 full level

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CPC (source: EP)

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Cited by

EP1314253A4; EP0886198A3; DE102007032227B4; US6369563B1; EP3339985A1; CN110226133A; DE10119080A1; DE10119080B4; GB2296142A; US5684760A; GB2296142B; EP0717329A3; US6918707B2; US12072254B2; US7192120B2; US7067067B2; US7252366B2; WO2018114401A1; WO2007069139A3; US6690183B2; EP0717329A2; TWI662794B; EP0885373B1; DE102007032227A1; US7999593B2; US10671025B2

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