Title (en)

Precise reference voltage generating device

Title (de)

Referenzspannungsgeneratoreinrichtung mit hoher Genauigkeit

Title (fr)

Dispositif générateur d'une tension de référence précise

Publication

EP 1231529 A1 20020814 (FR)

Application

EP 02290301 A 20020207

Priority

FR 0101821 A 20010209

Abstract (en)

The initialization circuit (4) has a set duration control pulse generator. The control pulse is applied to grid electrode of regulating transistor controlling the transistor regulators total conducting state during an initialization period, this imposes on the output terminal of generator a voltage equal to establishment voltage of the supply voltage. The circuit comprises a bistable circuit synchronized on the start and end instants of the initialization duration. Precise reference voltage generator including a 'band-gap' semiconductor circuit (4) generating the reference voltage and a voltage multiplier (2) fed from a voltage supply. The multiplier circuit includes at least a differential amplifier (20) receiving at its negative terminal the reference voltage. The generator also includes a resistive reaction circuit including a regulating transistor connected between the supply voltage and a resistive bridge reducing the reference voltage on the positive terminal of the differential amplifier. The grid electrode of the regulation transistor is connected to and controlled by the output of the differential amplifier and the junction point between the regulation transistor and the resistive bridge, which form for the generator an output delivering the precise reference voltage. In addition the circuit includes: (a) a galvanic link (3) connecting the output terminal delivering the reference voltage to the semiconductor circuit supply input; an initialization circuit connected to the grid electrode of the regulation transistor which allows in a transitory regime initialization. Initialization is done by applying a voltage to the voltage supply of the generator for replacement of the reference voltage by this establishment voltage which allows (a) in transitory regime, at initialization, supply of the semiconductor circuit from the establishment voltage and (b) in permanent regime, to deliver at the output terminals of the generator the precise reference voltage and supply of the semiconductor circuit from this reference voltage.

Abstract (fr)

L'invention concerne un dispositif générateur de tension de référence précise. Ce dispositif comprend un circuit à semi-conducteurs (1) de type "band-gap" délivrant une tension de référence (Vref) et un circuit (2) multiplieur délivrant une tension de sortie (VOUT) à partir de la tension de référence. Une liaison galvanique (3) permet d'assurer l'alimentation du circuit à semi-conducteurs (1) à partir de la tension de référence précise et un circuit d'initialisation (4) permet, à l'initialisation, de remplacer cette tension de référence précise par la tension d'établissement de la tension d'alimentation. Application aux circuits générateurs de tension de référence des circuits convertisseurs analogiques/numériques en technologie CMOS. <IMAGE>

IPC 1-7

G05F 1/565

IPC 8 full level

G05F 1/565 (2006.01); G05F 1/575 (2006.01)

CPC (source: EP US)

G05F 1/565 (2013.01 - EP US); G05F 1/575 (2013.01 - EP US)

Citation (search report)

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- [A] EP 0971280 A1 20000112 - MOTOROLA SEMICONDUCTEURS [FR]

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EP 1231529 A1 20020814; **EP 1231529 B1 20060614**; DE 60212217 D1 20060727; DE 60212217 T2 20070524; FR 2820904 A1 20020816; FR 2820904 B1 20030613; US 2002136065 A1 20020926; US 6650175 B2 20031118

DOCDB simple family (application)

EP 02290301 A 20020207; DE 60212217 T 20020207; FR 0101821 A 20010209; US 7160502 A 20020208