

Title (en)
REFERENCE VOLTAGE CIRCUIT.

Title (de)
REFERENZSPANNUNGSSCHALTUNG.

Title (fr)
CIRCUIT DE REFERENCE DE TENSION.

Publication
EP 0084021 A1 19830727 (EN)

Application
EP 81901778 A 19810518

Priority
US 8100699 W 19810518

Abstract (en)
[origin: WO8204143A1] A voltage reference circuit (10) produces a reference voltage at output terminals (66, 76). The output reference voltage is substantially independent of variations in the supply voltage, integrated circuit manufacturing processes and temperature. A current reference circuit (30, 32, 34, 36, 38, 56 and 84) produces constant emitter currents in bipolar transistors (40, 70). The VBE of the bipolar transistors (40, 70) is a stable reference due to the constant emitter current. The bipolar transistors (40, 70) are manufactured with similar geometries to eliminate dependence of the reference voltage upon bipolar processing variations. The VBE of the bipolar transistor (40) produces a reference current which is provided to the base terminal of bipolar transistor (70). The VBE of bipolar transistor (70) is further utilized to produce the output reference voltage. A temperature stabilization circuit (58, 82, 86, 90, 92 and 94) is provided with an opposite temperature coefficient from that of the bipolar transistors (40, 70). The temperature stabilization circuit is connected to counteract the influence of the temperature coefficient of the bipolar transistors on the output reference voltage. There is thus established an output reference voltage which is substantially independent of supply voltage, processing and temperature.

Abstract (fr)
Un circuit de reference de tension (10) produit une tension de reference a des bornes de sortie (66, 76). La tension de reference de sortie est sensiblement independante des variations de la tension d'alimentation, des procedes de fabrication du circuit integre et de la temperature. Un circuit de reference de courant (30, 32, 34, 36, 38, 56 et 84) produit des courants emetteurs constants dans des transistors bipolaires (40, 70). La tension VBE des transistors bipolaires (40, 70) est une reference stable a cause du courant emetteur constant. Les transistors bipolaires (40, 70) sont fabriques avec des geometries analogues pour eviter que la tension de reference ne depende des variations de traitement bipolaire. La tension VBE du transistor bipolaire (40) produit un courant de reference qui est applique a la borne de base du transistor bipolaire (70). La tension VBE du transistor bipolaire (70) est utilisee pour produire la tension de reference des sorties. Un circuit de stabilisation de temperature (58, 82, 86, 90, 92 et 94) presente un coefficient de temperature oppose a celui des transistors bipolaires (40, 70). Le circuit de stabilisation de temperature est connecte de maniere a contrecarrer l'influence du coefficient de temperature des transistors bipolaires sur la tension de reference de sortie. Il s'etablit ainsi une tension de reference de sortie qui est sensiblement independante de la tension d'alimentation, des procedes utilises et de la temperature.

IPC 1-7
G05F 1/58

IPC 8 full level
G05F 3/26 (2006.01)

CPC (source: EP)
G05F 3/267 (2013.01)

Designated contracting state (EPC)
AT CH DE FR GB LI LU NL SE

DOCDB simple family (publication)
WO 8204143 A1 19821125; EP 0084021 A1 19830727

DOCDB simple family (application)
US 8100699 W 19810518; EP 81901778 A 19810518