

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 426 150 A3

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **90120902.3**

(51) Int. Cl.⁵: **G05F 3/20, G05F 3/22**

(22) Date of filing: **31.10.90**

(30) Priority: **02.11.89 JP 284976/89**

(43) Date of publication of application:
08.05.91 Bulletin 91/19

(84) Designated Contracting States:
DE FR GB

(88) Date of deferred publication of the search report:
02.10.91 Bulletin 91/40

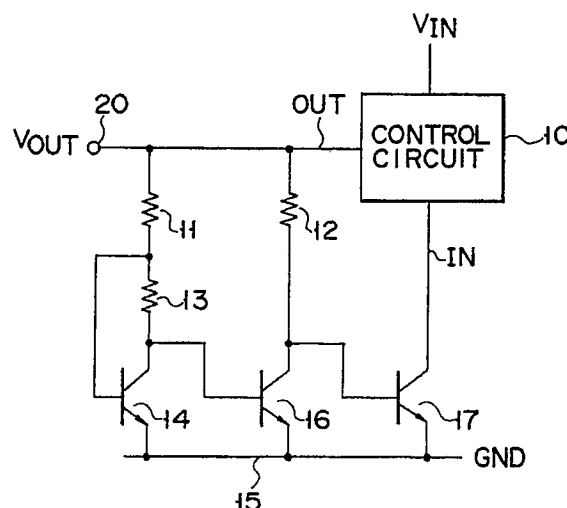
(71) Applicant: **KABUSHIKI KAISHA TOSHIBA**
72, Horikawa-cho Saiwai-ku
Kawasaki-shi Kanagawa-ken 210(JP)

(72) Inventor: **Yoshida, Yoshihiro, c/o Intellectual**
Property Div.
Kabushiki Kaisha Toshiba, 1-1 Shibaura
1-chome
Minato-ku, Tokyo 105(JP)

(74) Representative: **Lehn, Werner, Dipl.-Ing. et al**
Hoffmann, Eitle & Partner Patentanwälte
Arabellastrasse 4
W-8000 München 81(DE)

(54) **Constant voltage circuit.**

(57) In a constant voltage circuit, when a second resistor element (13) is inserted between the base and collector of a first transistor (14) and between the other terminal of a first resistor element (11) and the base of a second transistor (16), a basic equation for calculating a bandgap voltage reference can be calculated free from a base-emitter voltage of the third transistor (17). Therefore, since a change in base-emitter voltage on the basis of a change in current flowing through the third transistor (17) does not appear as an output voltage, the output voltage can be stabilized.



F I G. 4

EP 0 426 150 A3



European
Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 12 0902

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	DE-A-3 321 556 (TELEFUNKEN ELECTRONIC GmbH) * Page 5, line 21 - page 6, line 27; page 7, line 27 - page 8, line 27; page 10, lines 12-22; figures 2,6 *	1-5	G 05 F 3/20 G 05 F 3/22 G 05 F 3/30
Y	---	7-10	
D,Y	US-A-3 617 859 (R.C. DOBKIN et al.) * Column 3, lines 27-45; column 5, line 68 - column 6, line 14; figures 2,3 *	7	
A	---	1,8	
Y	FR-A-2 255 652 (MOTOROLA INC.) * Page 8, lines 27-32; figure 2 *	8-10	
A	---	1,8	
A	PATENT ABSTRACTS OF JAPAN, vol. 10, no. 316 (P-510)[2372], 28th October 1986; & JP-A-61 125 622 (NEC CORP.) 13-06-1986 * The whole document *	1,8	
A	EP-A-0 116 995 (N.V. PHILIPS' GLOEILAMPEN-FABRIEKEN) * Abstract; page 2, line 18 - page 3, line 2; figure 2a *	1,2,8,9	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G 05 F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 10 July 91	Examiner SAAWL.J.P.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document			