

Title (en)

DRIVE CIRCUIT FOR FAST SWITCHING OF DARLINGTON-CONNECTED TRANSISTORS.

Title (de)

TREIBERSCHALTUNG ZUM SCHNELLEN SCHALTEN VON TRANSISTOREN IN DARLINGTONSCHALTUNG.

Title (fr)

CIRCUIT DE PILOTAGE POUR LA COMMUTATION RAPIDE DE TRANSISTORS RELIES SELON LA CONFIGURATION DARLINGTON.

Publication

EP 0245473 A4 19880212 (EN)

Application

EP 86907157 A 19861110

Priority

US 79762585 A 19851113

Abstract (en)

[origin: WO8703153A1] Prior circuits for rapidly switching Darlington-connected transistors between on and off states have accomplished relatively fast switching by applying reverse base drive to the transistors to quickly sweep the excess carriers therefrom. However, such circuits have not accomplished the required degree of reduction of turn off time and have induced localized "hot spots" in the base-collector junctions of the transistors. In order to overcome these problems, a drive circuit (26) according to the present invention includes first (40) and second (48) power sources of first and second polarities, a turn-on network (38) coupled between the first power source (40) and the control electrode of a driver transistor (Q4) of a Darlington-connected pair (Q4-Q6) for selectively turning on the transistor pair, turn-off capacitors (C4, C5, C6) coupled between the turn-on network (38) and the control electrodes of each of the transistors (Q4-Q6) and a turn-off network (46) coupled between the capacitors (C4-C6) and the second power source (48) for coupling the second power source (48) to the capacitors (C4-C6) to rapidly turn off the transistors (Q4-Q6). Means (C2, C3) are included for providing a dwell interval between operation of the turn-on network (38) and operation of the turn-off network (46) to allow recombination of excess carriers in the transistors (Q4-Q6) to minimize the incidence of localized hot spots.

IPC 1-7

H03K 17/60; **H03K 3/01**; **H03K 3/33**; **H03K 3/26**

IPC 8 full level

H02M 7/537 (2006.01); **H03K 17/04** (2006.01); **H03K 17/0412** (2006.01); **H03K 17/615** (2006.01)

CPC (source: EP)

H03K 17/04126 (2013.01); **H03K 17/615** (2013.01)

Citation (search report)

- CONFERENCE RECORD, INDUSTRY APPLICATIONS SOCIETY, IEEE-IAS-1985 ANNUAL MEETING, 6th-11th October 1985, Toronto, pages 1020-1024, IEEE, New York, US; A.K. UPADHYAY et al.: "Base drive for high power/frequency PWM transistor inverter"
- IEE PROCEEDINGS, vol. 131, no. 1, part B, Sections A-I, January 1984, pages 7-12, Old Woking, Surrey, GB; B.W. WILLIAMS: "High-voltage high-frequency power-switching transistor module with switching-aid-circuit energy recovery"
- See references of WO 8703153A1

Designated contracting state (EPC)

FR GB IT

DOCDB simple family (publication)

WO 8703153 A1 19870521; EP 0245473 A1 19871119; EP 0245473 A4 19880212; IL 80472 A0 19870130; JP S63501466 A 19880602

DOCDB simple family (application)

US 8602428 W 19861110; EP 86907157 A 19861110; IL 8047286 A 19861031; JP 50618086 A 19861110