Title (en)

BI-DIRECTIONAL SEMICONDUCTOR SWITCH, AND SWITCH CIRCUIT FOR BATTERY-POWERED EQUIPMENT

Title (de)

BIDIREKTIONALER HALBLEITERSCHALTER UND SCHALTKREIS FÜR BATTERIEBETRIEBENE VORRICHTUNG

Title (fr)

INTERRUPTEUR BIDIRECTIONNEL A SEMI-CONDUCTEUR ET CIRCUIT DE COMMUTATION POUR EQUIPEMENTS ALIMENTES PAR BATTERIE

Publication

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Application

**EP 99969847 A 19990908**

Priority

- EP 9906629 W 19990908
- GB 9820904 A 19980926

Abstract (en)

[origin: WO0019540A1] The invention provides a trench-gate bi-directional semiconductor switch (101), suitable for connecting and disconnecting a battery (103) in a battery-powered equipment, for example a portable computer. The switch has plane p-n junctions (31, 32) which are formed by a channel-accommodating body region (3) between first and second regions (1, 2) and are separated from respective first and second main electrodes (11, 12) by these first and second regions (1, 2). The trench-gate (13) extends in a trench (33) through this sandwiched region structure (1, 3, 2). The body region (3) has a substantially uniform first-conductivity-type doping concentration (P) that is of smaller magnitude than the doping concentrations (N +) of the second conductivity type of the first and second regions (1, 2). The dimensions (X, Y) and doping concentration (P) of the body region (3) are sufficiently large that the body region (3) retains an undepleted first-conductivity-type area (3a) of floating potential in all bias conditions of the first and second main electrodes (11, 12) and of the trench-gate (13) so as to give the switch (101) in an off-state a blocking voltage capability between the first and second main electrodes (11, 12) that is determined by the plane p-n junctions (31, 32).

IPC 1-7

**H01L 29/78**

IPC 8 full level

**H01L 29/78** (2006.01)

CPC (source: EP US)

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Citation (search report)

See references of WO 0019540A1

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