

Title (en)
SEMICONDUCTOR SWITCHES WITH EVENLY DISTRIBUTED FINE CONTROL STRUCTURES

Title (de)
HALBLEITERSCHALTER MIT GLEICHMÄSSIG VERTEILTEN FEINEN STEUERSTRUKTUREN

Title (fr)
INTERRUPTEUR A SEMICONDUCTEURS DOTE DE FINES STRUCTURES DE COMMANDE DE REPARTITION UNIFORME

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Application
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Abstract (en)
[origin: DE19848596A1] The invention relates to semiconductors switches that can be used in various forms to switch currents. Such switches are used for certain circuits (I converters, matrix converters), e.g. voltage levels of up to several thousand volts of reverse voltages or blocking voltages. The objective of the invention is to create a monolithic switch that does not need to be constructed in a hybrid manner using several components and to reduce forward and reverse power losses. According to the invention, the semiconductor switch is made of a non-doped or only slightly doped semiconductor crystal with an active area (1) and an edge area (50, 51). At least one and especially both opposite-lying surfaces of the active area (1) of the semiconductor switch is/are provided with fine structures (10, 11, 12, 13, 14) that are distributed over a wide area an that are configured in very much the same manner, whereby each of them has a conductive connecting surface (KA, KB) through which charge carriers can be controlled and conducted into the active area (1) of the semiconductor crystal via said fine structures (GA, GB). The concentration of the charge carriers in the active area (1) and therefore the turn-on state of the semiconductor switch is controlled in such a manner.

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