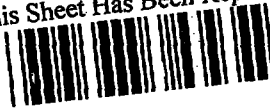


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IR-1223

**BASE RESISTANCE CONTROLLED THYRISTOR STRUCTURE
WITH HIGH-DENSITY LAYOUT FOR INCREASED CURRENT CAPACITY**

ABSTRACT OF THE DISCLOSURE

An insulated gate base resistance controlled thyristor with a high controllable current capability is described. The device has a high density of MOS-channels modulating the resistance of the base region of the NPN transistor of the thyristor structure. The higher MOS channel density is achieved by contacting directly only the N^{++} emitter and the P^+ cells (and not the P base region of the NPN transistor) to the cathode electrode. The N^{++} cells (i.e. the P base regions each containing an N^{++} emitter) and the P^+ cells are connected in certain regions under the MOS gate by a P region to provide a higher base resistance when a positive bias is applied to the MOS gate, thereby facilitating latching of the thyristor. The added MOS gate controlled base resistance between cells allows the P base cells to be designed with smaller dimensions for high maximum controllable current without affecting latch-up capability. The device is preferably provided in a checkerboard style cellular layout.