



IR-1071

**BIDIRECTIONAL THYRISTOR WITH MOS
TURN-OFF CAPABILITY WITH A SINGLE GATE**

ABSTRACT OF THE DISCLOSURE

5 A bidirectional thyristor structure with a
single MOS gate controlled turn off capability. In a
vertical conduction embodiment, the device has a six
layer structure including a backside diffusion. One
vertical conduction structure includes a single body
region at the first surface of the device for conduction
in both the forward and reverse directions. Another
vertical conduction structure includes a two body regions
at the first surface, one for controlling forward
10 conduction and the other for controlling reverse
conduction. The vertical conduction embodiments are
preferably implemented in a cellular geometry, with a
large number of symmetrical cells connected in parallel.
The bidirectional thyristor of the present invention can
15 also be provided in a lateral conduction structure for
power IC applications.