

METAL SEMICONDUCTOR METAL PHOTODETECTORS

Abstract

MSM-photodetectors are produced using implanted n-type Si and interdigitated electrodes (13, 14) deposited on the implanted surface (15). The
5 implantation process decreases the carrier lifetime by several orders of magnitude. By implanting silicon with fluorine or oxygen, the bandwidth is increased relatively to unimplanted MSM photodetectors. Exemplary implanted photodetectors exhibited 3-dB bandwidths which were faster by an order of magnitude compared to their unimplanted counterparts. The detectors are thus compatible with multi-gigabit
10 per second operation and monolithic integration with silicon electronics.

Figure 1