Abstracts

Experimental results for a CW-mode optically controlled microwave switch with a carrier-confinement structure

Sangil Lee, Y. Kuga and R.A. Mullen. "Experimental results for a CW-mode optically controlled microwave switch with a carrier-confinement structure." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 1289-1292 vol.2.

A new design for a CW-mode optically controlled microwave switch (CW-mode OMS) on a semiconductor coplanar waveguide (CPW) is investigated, which is based on a silicon (Si) substrate etching for both top and bottom to confine the optically generated free-carriers. We fabricate the CW-mode OMS with and without carrier-confinement structures using a micro-fabrication technique, and the insertion loss is measured and compared. With the new carrier-confined CW-mode OMS, we are able to obtain less than 2 dB of insertion loss which is an improvement of more than 5 dB from without the carrier-confinement structure. Also, more than 20 dB of the ON/OFF difference is obtained up to 20 GHz.

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