Abstracts

Photovoltaic-FET for Optoelectronic RF/µwave Switching (Short Papers)

C.K. Sun, R. Nguyen, C.T. Chang and D.J. Albares. "Photovoltaic-FET for Optoelectronic RF/µwave Switching (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.10 (Oct. 1996, Part I [T-MTT]): 1747-1750.

A photovoltaic-FET (PV-FET) is demonstrated for RF/µwave switching with performance improved over other optoelectronic switches reported while operating with 10-100 times less optical power. The PV-FET characteristics were 3 Omega on-resistance, > 30 MOmega off-resistance under <1 mW optical power, and 300 fF switch capacitance. This PV-FET was inductor tuned at 790 MHz and 7.4GHz to enhance isolation, intended for reconfigurable antenna applications. The measured insertion loss and isolation agree well with those from theoretical calculation and numerical circuit simulation based on the switch parameters. The measured switch rise and fall times were 20 µm and 2 µs, respectively. Controlled by light via opticaf fiber, the PV-FET can be used for remote RF/µwave switching control with no electrical bias, complete electromagnetic, and good thermal isolation.

❑ Return to main document.