SiC NEMS for High Temperature Logic

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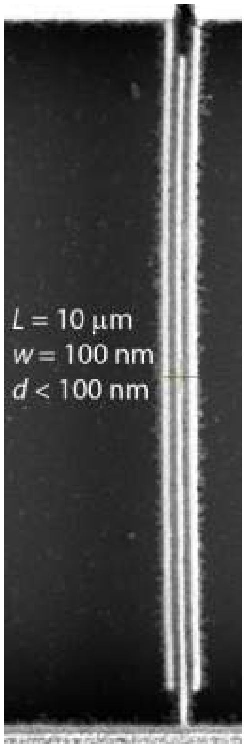
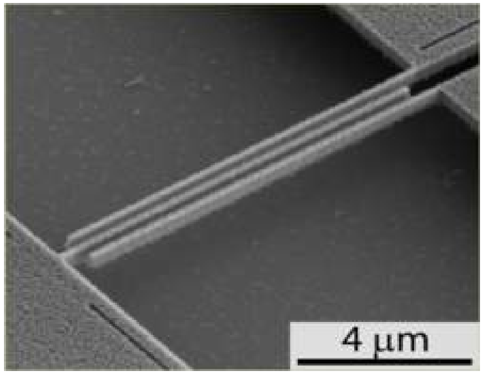
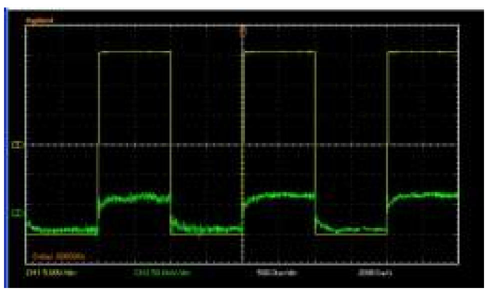


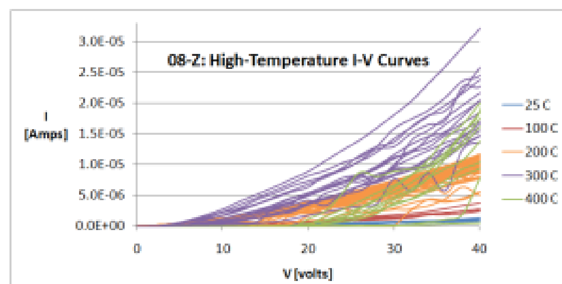


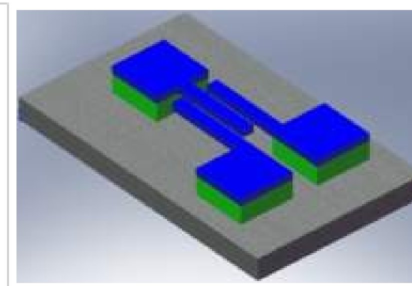


Switching waveform obtained from an e-beam patterned SiC switch with ~ 150 nm gap.

Because of their potential to eliminate OFF-state power losses, switching systems based on NEMS devices are of recent and broad interest.

We have successfully fabricated SiC NEMS switch with ~ 150 nm gap using e-beam lithography patterning. Switches have been demonstrated to operate reliably at elevated temperatures (up to 400°C) with a threshold voltage smaller than 5 V.





T. –H. Lee, *et al., IEEE Transducers'09, Denver, USA* , 900-903 (2009).

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Advanced nanolithography available in NNIN was used to achieve a switch gap size less than 100 nm, which significantly reduces the operating voltage (<5 V).