4H–SiC Lateral RESURF MOSFETs

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We have developed lateral RESURF MOSFETs on 4H-SiC substrates, which has a great potential for SiC power ICs. The 4H-SiC MOS devices, however, had a serious problem that the on-resistance was too high due to its low channel mobility. We have overcome this problem by using 4H-SiC (000-1) C-face substrates. Blocking voltage V_{bd} of 450 V and specific on-resistance R_{ons} of 49 mΩcm^2 were obtained for the lateral RESURF MOSFET on a 4H-SiC C-face. The R_{ons} for the C-face was improved to one thirtieth of the Si-face at the almost same V_{bd}.

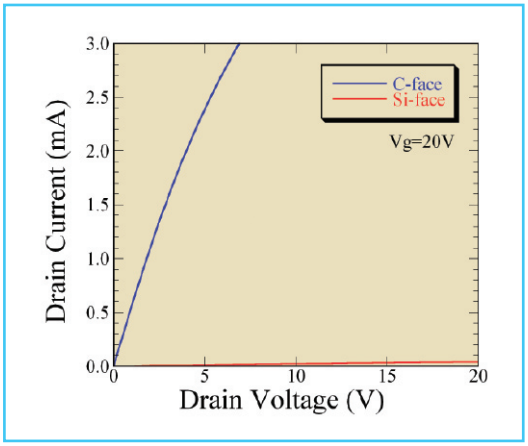

Fig. Drain characteristics of the RESURF MOSFET fabricated on the 4H-SiC Si-face and C-face.

Technology developed by AIST used to neutralize bombs containing poisonous chemicals found in Kanda Port, Fukuoka

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AIST has proven that PCB and other hazardous substances can be neutralized with a high degree of disintegration under the high-temperature and ultrahigh-pressure environment created by an explosion.

Based on the results of these research projects, AIST has successfully developed an unprecedented new technology, for using an explosion to neutralize abandoned chemical weapons (ACWs) produced during World War Two.

This technology was applied in the autumn of 2004 for the destruction of 57 ACWs found in Kanda Port, Fukuoka. The disposal of the ACWs took about one month and was successfully completed without any mishaps or detrimental effect to the surrounding environment. AIST is committed to continuing its research and development to find a swift resolution to this negative legacy.

Photo. Sealed detonation chamber used to dispose of munitions.