Abstract summary report - Prototyping and characterization of 1200V, Schottky SiC shottky diode

TWTA market pushed towards more power , higher frequency and compact dimensions able to operate at high temperatures. In order to meet the above TWTA performances and the power/mass and thermal budget, Schottky diodes capable to withstand highest voltage, highest operating temperature, low reverse current at high temperature and good switching performances at high frequency are needed.

SiC Schottky diodes are therefore the ideal candidate. SiC Schottky diode are the only SiC electronic devices offered commercially in a large scale in niche market like HV switch-mode power supply . Extensive efforts in the development of SiC Schottky barrier diodes in the last 15 years have resulted in substantial improvements in both voltage and current capabilities. Micropipes free high quality SiC wafers are commercially available with acceptable cost .

SiC Schottky diode technology showed to have the capability and performances and to have reached the sufficient maturity to be considered for critical space application.

The activity has reached the first run in foundry with multiple design that optimise different electrical parameters w.r.t. the concurrent requirement.