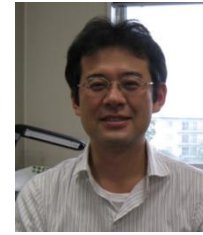


Crystal Growth of Next-Generation Power Device Materials (SiC)

Graduate School of Engineering
Materials Science and Engineering
Crystal Growth Engineering



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CONTACT

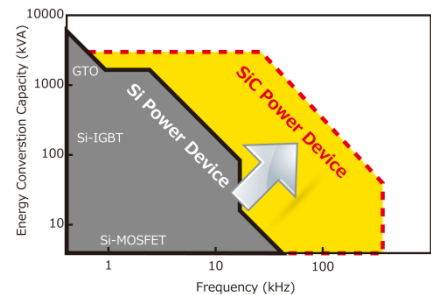
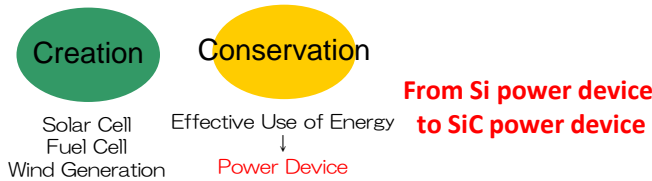
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Next-Generation Power Device Materials (SiC)

SiC Power Device for Effective Use of Energy



To realize SiC power device

- High quality single crystal
- Low cost production technology

is necessary.

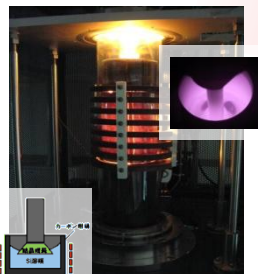
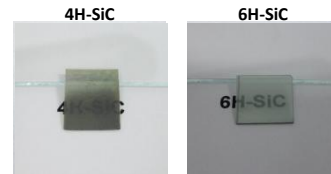
Joint effort between industry and academia

Coordinate on several companies

Development of New Solution growth technique for SiC

- High quality SiC can be produced by solution growth.
- Solution growth can dramatically reduce dislocation density.
- Various types of SiC with different physical properties can be produced by solution growth.

4H-SiC (Power Device Material) 6H-SiC (LED Substrate)
3C-SiC (High speed switching power device)



Establishment of brand new solution growth technique

High quality SiC solution growth

- Micropipe healing
- Elimination of basal plane dislocation
- Drastic reduction of threading screw dislocation

Inverter -1 million t

Vehicle -10~20 million t

Computer -3 million t

CO₂ Emission Reduction