

Best Paper Award was awarded to ROHM SiC at PCIM Europe 2012

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NEWS

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ROHM Co., Ltd. Japan: winner of Best Paper Award 2012 at PCIM in Nuremberg.

Willich-Münchheide/Nuremberg, May 8th 2012 - During the opening ceremony of PCIM Europe 2012 Conference the "Best Paper Award " was awarded to ROHM Co., Ltd. Japan.

For the Conference Directors originality, topicality and quality were the determining criteria when selecting from more than 230 high quality contributions. The award was presented by the Scientific Advisory Board Chairman, Prof. Leo Lorenz of ECPE, Germany.

The award, including an invitation to the PCIM Asia 2013 Conference in Shanghai, goes to Keiji Okumura, ROHM Co., Ltd. Japan for his paper: „Ultra low Ron SiC Trench devices“.



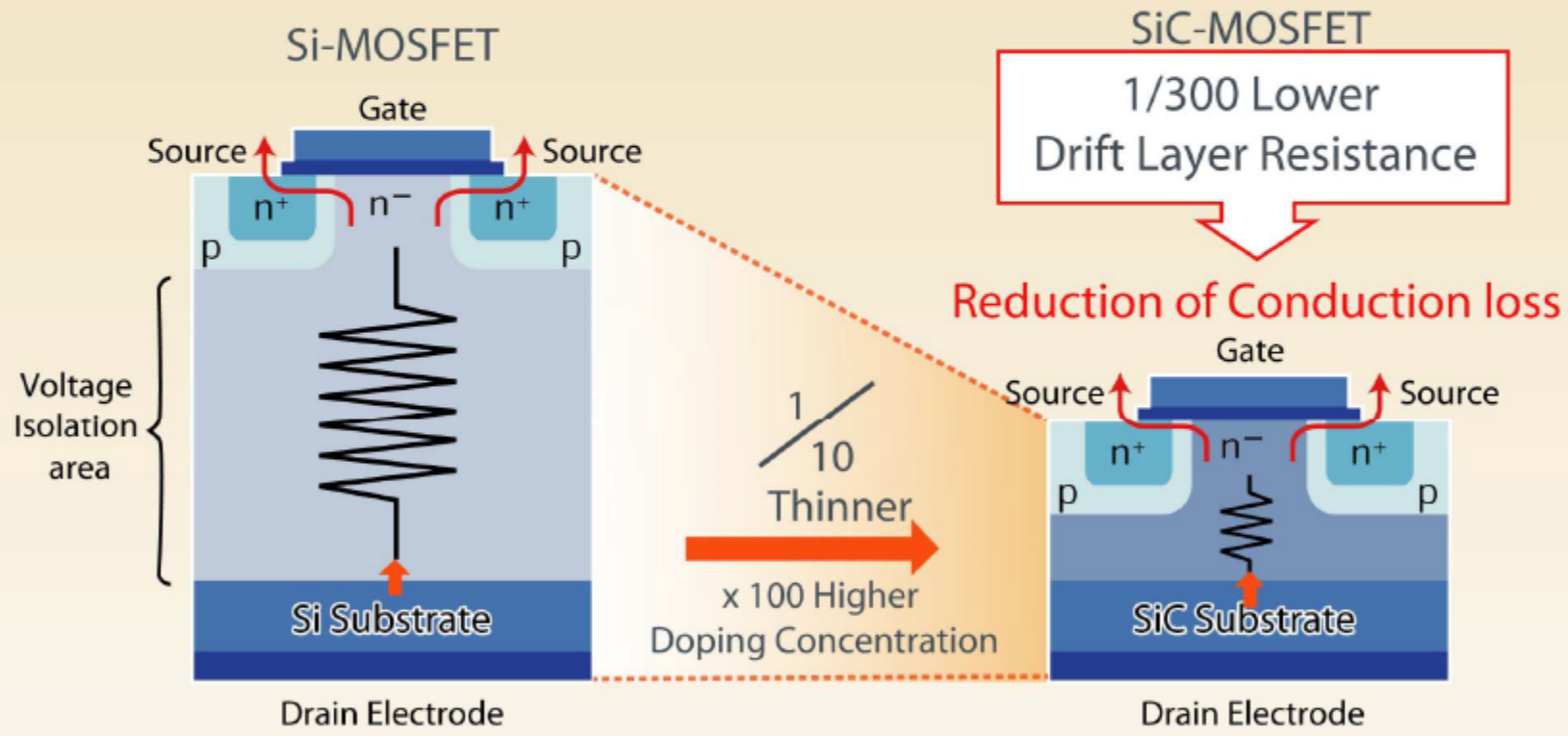
Why SiC in Higher Voltage Application?

Confidential

Material Property Comparison between Si and SiC

Breakdown Electric Field (MV/cm): Si \rightarrow SiC
0.3 ➔ 2.8

Higher voltage capability with thinner & lower resistance semiconductor layer



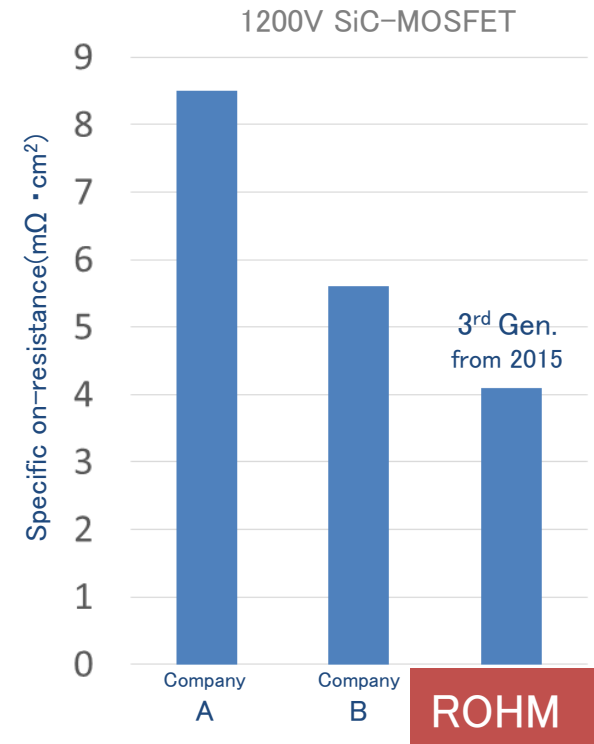
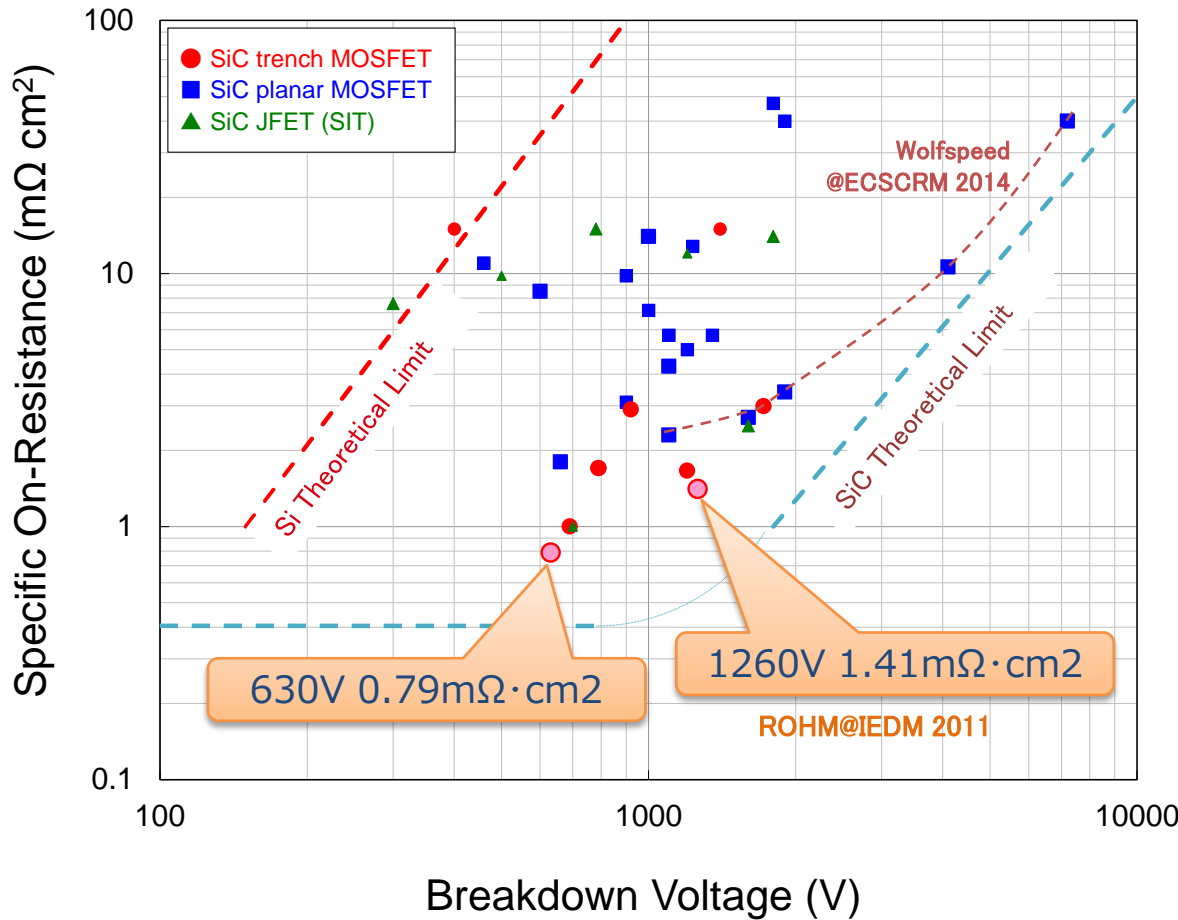
Superior Material Properties of SiC ➔

Lower Power Losses of SiC Power Devices

Technology leader in SiC power device

R&D Area

Mass Production Products

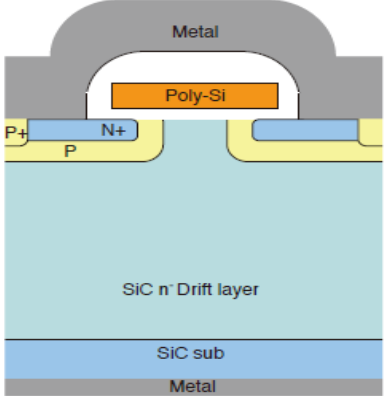
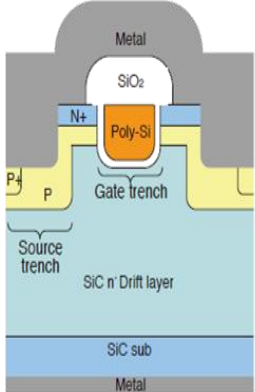


As of Feb. 2017

Schedule is target and subject to change without notice

ROHM has been a technology leader in both research & mass-production areas of SiC power device

3rd generation SiC MOSFETs

| Generation | <i>2nd generation SiC-MOSFET</i> | <i>3rd generation SiC-MOSFET</i> |
|------------|--|---|
| Structure | Planar gate (DMOS)  | Trench gate (UMOS)  |
| RonA 1200V | 8.5 mΩ cm ² | 4.1 mΩ cm² |
| RonA 650V | 6.5 mΩ cm ² | 3.1 mΩ cm² |

Datasheet comparison of SiC MOSFET

1200V SiC MOSFET with same die size

| Device | | 2G DMOS SCT2080KE | 3G UMOS SCT3040KL <i><u>New</u></i> |
|----------------|--------------------|----------------------|--|
| Package | | TO247 | TO247 |
| Tjmax | | 175°C | 175°C |
| Pd Tc=25°C | | 262W | 262W |
| Id Tc=25°C | | 40A | 55A |
| Vgs | | -6 ~ 22V | -4 ~ 22V |
| Ron | Tj=25°C | 80 mΩ | 40 mΩ |
| | Tj=125°C | 125 mΩ | 62 mΩ |
| Eon | Vdd=800V Id=20A | 760uJ | 550uJ |
| Eoff | | 120uJ | 90uJ |
| Ciss/Coss/Crss | | 2080 / 77 / 16 (pF) | 1337 / 76 / 27 (pF) |
| Qg | | 106 nC | 107 nC |
| Rg | | 6.3Ω | 7Ω |