

Prof. Ohmi's Paper

January–December, 2013

- E1583 (F) Tomoyuki Suwa, Akinobu Teramoto, Yuki Kumagai, Kenichi Abe, Xiang Li, Yukihisa Nakao, Masashi Yamamoto, Hiroshi Nohira, Takayuki Muro, Toyohiko Kinoshita, Shigetoshi Sugawa, Tadahiro Ohmi, Takeo Hattori, "Chemical Structure of Interfacial Transition Layer Formed on Si(100) and Its Dependence on Oxidation Temperature, Annealing in Forming Gas, and Difference in Oxidizing Species," Japanese Journal of Applied Physics, Vol.52, 031302, February 2013.
- E1583-2 (C) 諏訪智之、寺本章伸、熊谷勇喜、阿部健一、李翔、中尾幸久、山本雅士、野平博司、室隆桂之、木下豊彦、須川成利、大見忠弘、服部健雄、「Chemical Structure of Interfacial Transition Layer Formed on Si(100) and Its Dependence on Oxidation Temperature, Annealing in Forming Gas, and Difference in Oxidizing Species」、第75回応用物理学会秋季学術講演会(公益社団法人応用物理学会)、応用物理学会優秀論文賞受賞記念講演、19a-17-6、2014年9月。
- E1584(F) Hiroshi Kambayashi, Takehiko Nomura, Hirokazu Ueda, Katsushige Harada, Yuichiro Morozumi, Kazuhide Hasebe, Akinobu Teramoto, Shigetoshi Sugawa, and Tadahiro Ohmi, "High Quality $\text{SiO}_2/\text{Al}_2\text{O}_3$ Gate Stack for GaN Metal–Oxide–Semiconductor Field-Effect Transistor," Japanese Journal of Applied Physics, Vol.52, 04CF09, March 2013.
- E1585(C) Hiroshi Kambayashi, Takehiko Nomura, Hirokazu Ueda, Katsushige Harada, Yuichiro Morozumi, Kazuhide Hasebe, Akinobu Teramoto, Shigetoshi Sugawa, Tadahiro Ohmi, "High Integrity $\text{SiO}_2/\text{Al}_2\text{O}_3$ Gate Stack for Normally-off GaN MOSFET," Abstracts, 2013 MRS (Materials Research Society) Spring Meeting and Exhibit, CC2.08, San Francisco, April 2013.
- E1586(C) A. Yonezawa, A. Teramoto, T. Obara, R. Kuroda, S. Sugawa and T. Ohmi, "The Study of Time Constant Analysis in Random Telegraph Noise at the Subthreshold Voltage Region," IEEE International Reliability Physics Symposium 2013, XT.11.1, Monterey, April 2013.
- E1587(C) Takuya Inatsuka, Rihito Kuroda, Akinobu Teramoto, Yuki Kumagai, Shigetoshi Sugawa, and Tadahiro Ohmi, "Demonstrating Distribution of SILC Values at Individual Leakage Spots," IEEE International Reliability Physics Symposium 2013, GD.5.1, Monterey, April 2013.
- E1588-1(C) H. Tanaka, A. Teramoto, T. Motoya, S. Sugawa, T. Ohmi, "Effect of composition rate on erbium silicide work function on different silicon surface orientation," 223rd Meeting of The Electrochemical Society, Abs.773, Toronto, May 2013.
- E1588-2 (P) Hiroaki Tanaka, Akinobu Teramoto, Tsukasa Motoya, Shigetoshi Sugawa, and Tadahiro Ohmi, "Effect of Composition Rate on Erbium Silicide Work Function on Different Silicon Surface Orientation", ECS Transactions, Vol.53, No.1, Graphene, Ge/III-V, and Emerging Materials for Post CMOS Applications 5, pp.343-350, May 2013.
- E1589-1(C) Yukihiro Tsuji, Tadashi Watanabe, Kenichi Nakamura, Isao Makabe, Ken Nakata, Tsukuru Katsuyama, Akinobu Teramoto, Yasuyuki Shirai, Shigetoshi Sugawa and Tadahiro Ohmi, "XPS analysis of the terminated-bonding states at GaN surface after chemical and plasma treatments," The 40th International Symposium on Compound Semiconductors (ISCS2013), MoPC-06-21, Poster, Kobe, May 2013.
- E1589-2 (P) Yukihiro Tsuji, Tadashi Watanabe, Kenichi Nakamura, Isao Makabe, Ken Nakata, Tsukuru Katsuyama, Akinobu Teramoto, Yasuyuki Shirai, Shigetoshi Sugawa and Tadahiro Ohmi, "XPS analysis of the terminated-bonding states at GaN surface after chemical and plasma treatments," the physica status solidi (c) journal. 1-4(2013), October 2013.

- E1590(C) Tetsuya Goto, Shigetoshi Sugawa, Tadahiro Ohmi, "Electrical Properties of Amorphous InGaZnO Thin-Film Transistors Prepared by Magnetron Sputtering with Using Kr and Xe Instead of Ar," Society for Information Display, SID International Symposium, Seminar, and Exhibition, DisplayWeek 2013, 52.4, pp.727-730, Distinguished Paper, Vancouver, May 2013.
- E1591(F) Tetsuya Goto, Shigetoshi Sugawa, and Tadahiro Ohmi, "Impact of the Use of Xe on Electrical Properties in Magnetron-Sputtering Deposited Amorphous InGaZnO Thin-Film Transistors," Japanese Journal of Applied Physics, Vol.52, No. 5, Issue 1 of 4, 050203, May 2013.
- E1592(C) Akinobu Teramoto, Shigetoshi Sugawa, Tadahiro Ohmi, "High-Speed and Highly Accurate Evaluation of Electrical Characteristics in MOSFETs," Proceedings of International Conference on IC Design and Technology 2013, pp.187-190, Invited Paper, Pavia, Italy, May 2013.
- E1593(F) Tadashi Watanabe, Akinobu Teramoto, Yukihisa Nakao, Shigetoshi Sugawa, and Tadahiro Ohmi, "Low-Interface-Trap-Density and High-Breakdown-Electric-Field SiN Films on GaN Formed by Plasma Pretreatment Using Microwave-Excited Plasma-Enhanced Chemical Vapor Deposition," IEEE Transactions on Electron Devices, Vol. 60, No. 6, June 2013.
- E1594-1(C) A. Teramoto, H.W. Park, T. Inatsuka, R. Kuroda, S. Sugawa, T. Ohmi, "Stress induced leakage current generated by hot-hole injection," 18th Conference of "Insulating Films on Semiconductors" (infos2013) Book of Abstracts, pp.156-157, June 2013.
- E1594-2(F) Akinobu Teramoto, Hyeonwoo Park, Takuya Inatsuka, Rihito Kuroda, Shigetoshi Sugawa, Tadahiro Ohmi, "Stress induced leakage current generated by hot-hole injection," Microelectronic Engineering, Vol. 109, pp. 298-301, March 2013.
- E1595-1(C) T. Suwa, A. Teramoto, K. Nagata, A. Ogura, T. Muro, T. Kinoshita, T. Ohmi, and T. Hattori, "Angle-Resolved Photoelectron Spectroscopy Study on Interfacial Transition Layer and Oxidation-Induced Residual Stress in Si(100) Substrate Near the Interface," 18th Conference of "Insulating Films on Semiconductors" (infos2013) Book of Abstracts, pp.140-141, June 2013.
- E1595-2(F) Tomoyuki Suwa, Akinobu Teramoto, Kohki Nagata, Atsushi Ogura, Hiroshi Nohira, Takayuki Muro, Toyohiko Kinoshita, Shigetoshi Sugawa, Tadahiro Ohmi, and Takeo Hattori, "Angle-resolved photoelectron spectroscopy study on interfacial transition layer and oxidation-induced residual stress in Si(100) substrate near the interface," Microelectronic Engineering, Vol. 109, pp. 197-199, April 2013.
- E1596-1(C) P. Gaubert, A. Teramoto, S. Sugawa, and T. Ohmi, "1/f noise of accumulation mode p- and n-MOSFETs," Booklet of Abstracts 22nd International Conference on Noise and Fluctuations (ICNF2013), pp.40, Montpellier, June 2013.
- E1596-2(P) Philippe Gaubert, Akinobu Teramoto, Shigetoshi Sugawa, and Tadahiro Ohmi, "1/f noise of accumulation mode p- and n-MOSFETs," 22nd International Conference on Noise and Fluctuations (ICNF2013), Mo-B, USB, Montpellier, June 2013.
- E1597(C) H. W. Park, A. Teramoto, T. Inatsuka, R. Kuroda, S. Sugawa, and T. Ohmi, "Impact of Injected Carrier Types to Stress Induced Leakage Current Using Substrate Hot Carrier Injection Stress," 2013 Asia-Pacific Workshop on Fundamentals and Application of Advanced Semiconductor Devices (AWAD 2013), pp. 75-78, Seoul, June 2013.
- E1598(C) Dae-Hee Han, Huiseong Han, Shun-ichiro Ohmi, Tomoyuki Suwa, Philippe Gaubert, and Tadahiro Ohmi, "Si surface roughness influence on nMOSFET characteristics with ultrathin HfON gate insulator formed by ECR plasma sputtering," 2013 Asia-Pacific Workshop on Fundamentals and Application of Advanced Semiconductor Devices (AWAD 2013), pp. 241-244, Seoul, June 2013.
- E1599(C) Tetsuya Goto, Hidekazu Ishii, Shigetoshi Sugawa and Tadahiro Ohmi, "Impact of the Use of Xe and Its Recycling System for Preparing Amorphous InGaZnO Thin Film Transistors by Dual-Target Rotation Magnet Sputtering," The Twelfth International Symposium on Sputtering & Plasma Processes (ISSP 2013), pp.22-25, Kyoto, July 2013.

- E1600(F) Takuya Inatsuka, Yuki Kumagai, Rihito Kuroda, Akinobu Teramoto, Tomoyuki Suwa, Shigetoshi Sugawa, and Tadahiro Ohmi, "A Test Circuit for Extremely Low Gate Leakage Current Measurement of 10 aA for 80 000 MOSFETs in 80 s," IEEE Transactions on Semiconductor Manufacturing, Vol. 26, No. 3, pp.288-295, August 2013.
- E1601(C) Yukihiko Tsuji, Tsukuru Katsuyama, Akinobu Teramoto, Yasuyuki Shirai, Shigetoshi Sugawa, and Tadahiro Ohmi, "Wet cleaning process for GaN Surface at room temperature," Extended Abstracts of the 2013 International Conference on Solid State Devices and Materials, PS-6-11, pp.162-163, Fukuoka, September 2013.
- E1602(C) T. Suwa, K. Nagata, H. Nohira, K. Nakajima, A. Teramoto, A. Ogura, K. Kimura, T. Muro, T. Kinoshita, S. Sugawa, T. Hattori, T. Ohmi, "Detection of oxidation-induced compressive stress in Si(100) substrate near the SiO₂/Si interface with atomic-scale resolution," Extended Abstracts of the 2013 International Conference on Solid State Devices and Materials, B-4-1, pp.610-611, Fukuoka, September 2013.
- E1603(C) Rihito Kuroda, Yukihisa Nakao, Akinobu Teramoto, Shigetoshi Sugawa and Tadahiro Ohmi, "Carrier Mobility on (100), (110), and (551) Oriented Atomically Flattened Si Surfaces for Multi-gate MOSFETs Device Design," Extended Abstracts of the 2013 International Conference on Solid State Devices and Materials, D-1-5, pp.702-703, Fukuoka, September 2013.
- E1604(C) T. Obara, A. Yonezawa, A. Teramoto, R. Kuroda, S. Sugawa, T. Ohmi, "Extraction of Time Constants Ratio over Nine Orders of Magnitude for Understanding Random Telegraph Noise in MOSFETs," Extended Abstracts of the 2013 International Conference on Solid State Devices and Materials, D-4-1, pp.722-723, Fukuoka, September 2013.
- E1605-1(C) H. Tanaka, A. Teramoto, S. Sugawa, T. Ohmi, "Schottky barrier height between erbium silicide and various morphology of Si(100) surface changed by alkaline etching," 224th Meeting of The Electrochemical Society, Abs.2170, San Francisco, October 2013.
- E1605-2 (P) Hiroaki Tanaka, Akinobu Teramoto, Shigetoshi Sugawa, and Tadahiro Ohmi, "Schottky Barrier Height Between Erbium Silicide and Various Morphology of Si(100) Surface Changed by Alkaline Etching," ECS Transactions, Vol.58, No.7, Semiconductors, Dielectrics, and Metals for Nanoelectronics 11, pp.349-354, October 2013.
- E1606-1(C) M. Yamaji, T. Tanikawa, T. Yakushijin, T. Funakoshi, S. Yamashita, A. Hidaka, M. Nagase, N. Ikeda, S. Sugawa, and T. Ohmi, "Diaphragm Durability Enhancement for Valves Supplying Gas for Atomic Layer Deposition," 224th Meeting of The Electrochemical Society, Abs.1862, San Francisco, October 2013.
- E1606-2 (P) M. Yamaji, T. Tanikawa, T. Yakushijin, T. Funakoshi, S. Yamashita, A. Hidaka, M. Nagase, N. Ikeda, S. Sugawa, and T. Ohmi, "Diaphragm Durability Enhancement for Valves Supplying Gas for Atomic Layer Deposition", ECS Transactions, Vol.58, No.10, Atomic Layer Deposition Applications 9, pp.41-48, October 2013.
- E1607-1(C) H. Kambayashi, N. Ikeda, T. Nomura, H. Ueda, Y. Morozumi, K. Harada, K. Hasebe, A. Teramoto, S. Sugawa, and T. Ohmi, "High Performance Normally-Off GaN Mosfets On Si Substrates," 224th Meeting of The Electrochemical Society, Abs.1911, San Francisco, October 2013.
- E1607-2 (P) Hiroshi Kambayashi, Nariaki Ikeda, Takehiko Nomura, Hirokazu Ueda, Y. Morozumi, Katsuhige Harada, Kazuhide Hasebe, Akinobu Teramoto, Shigetoshi Sugawa and Tadahiro Ohmi, "High Performance Normally-off GaN MOSFETs on Si Substrates," ECS Transactions, Vol.58, No.4, Gallium Nitride and Silicon Carbide Power Technologies 3, pp.155-166, October 2013.
- E1608 (W) Yukihiko Tsuji, Tadashi Watanabe, Kenichi Nakamura, Kenji Nagao, Tsukuru Katsuyama, Yukihisa Nakao, Akinobu Teramoto, Yasuyuki Shirai, Shigetoshi Sugawa, and Tadahiro Ohmi, "Development of Ultraclean Surface Processing for Gallium Nitride," The 25th International Micro Electronics Conference Proceeding, pp.39-46, November 2013.

- E1609(C) H. Nohira, T. Suwa, K. Nagata, K. Nakajima, A. Teramoto, A. Ogura, K. Kimura, T. Muro, T. Kinoshita, S. Sugawa, T. Hattori, T. Ohmi, "Detection of Oxidation-Induced Compressive Stress in Si(100) Substrate Near the SiO₂/Si Interface by X-Ray Photoelectron Spectroscopy", Extend Abstracts of 2013 International Workshop on Dielectric Thin Films For Future Electron Devices: Science and Technology (IWDTF), pp.111-112, November 2013.
- E1610 (F) Tetsuya Goto, Hidekazu Ishii, Shigetoshi Sugawa, and Tadahiro Ohmi, "Low-cost Xe sputtering of amorphous In-Ga-Zn-O thin-film transistors by rotation magnet sputtering incorporating a Xe recycle-and-supply system," Journal of Vacuum Science & Technology A 32(2) Mar/Apr 2014, 02B105, December 2013.
- E1611(C) Qiu Chen, Koji Kotani, Feifei Lee, and Tadahiro Ohmi, "Face Recognition Combined VQ Histogram and Energy Histogram in DCT Domain", Proceeding of 2013 International Conference on Electrical Engineering and Computer Sciences (EECS 2013), pp. 426-432, Hongkong, December 2013.