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9:30-11:10 Friday, April 22

FD1-1	Stress Evaluation of Flip Chip Bonding Die by Thermal Compression Bonding using Raman Spectroscopy	Mototaka Ito, Tomoyuki Uchida, Ryuichi Sugie, Toray Research Center / Japan	**465**
FD1-2	Evaluation of Relationship between Residual Stress of ICs and Package Warpage Caused by Flip-Chip Bonding	Toshio Enami[1], Osamu Horiuchi[2], Young-Gun Han[2], Hajime Tomokage[2], [1]Sekisui Chemical, [2]Fukuoka Univ. / Japan	**469**
FD1-3	Novel Processing Scheme for Embedding and Interconnection of Ultra-thin IC Devices in Flexible Chip Foil Packages and Recurrent Bending Reliability Analysis	Christof Landesberger[1], Nagarajan Palavesam[1,2], Waltraud Hell[1], Andreas Drost[1], Robert Faul[1], Horst Gieser[1], Detlef Bonfert[1], Karlheinz Bock[2], Christoph Kutter[1], [1]Fraunhofer Research Institution for Microsystems and Solid State Technologies, [2]Technische Universität Dresden / Germany	**473**
FD1-4	A Novel Approach for Forming Ductile Cu-to-Cu Interconnection	Che-yu Yeh, Yi-kai Kuo, Shih-kang Lin, National Cheng Kung Univ. / Taiwan	**479**

FD2: Interconnection-3

11:20-13:00 Friday, April 22

FD2-1 **<Session Invited>**	Ultra Thermal Stable Cu-to-Cu Interconnection	Shih-kang Lin, Che-yu Yeh, Mei-jun Wang, Hao-miao Chang, National Cheng Kung Univ. / Taiwan	**–**
FD2-2	Advanced Cu-Cu Thermocompression Bonding Methodology for Future 3DICs	Hajime Mitsuishi[1], Takashi Tsuto[1], Masashi Okada[1], Isao Sugaya[1], Kaoru Ohmori[1], Minoru Fukuda[1], Kazuya Okamoto[1,2], [1]Nikon, [2]Osaka Univ. / Japan	**485**
FD2-3	Influence of Pretreatment on Copper Direct Bonding	Po-Hao Chiang, Jenn-Ming Song, National Chung Hsing Univ. / Taiwan	**489**
FD2-4	Bonding of Copper Pillars Using Electroless Ni Plating	Sean Yang, Han-Tang Hong, Yan-Bin Chen, C. Robert Kao, National Taiwan Univ. / Taiwan	**493**

FD3: Interconnection-4

14:00-16:05 Friday, April 22

FD3-1	The Corrosion Behavior of Ag Alloy Wire Bond on Al Pad in Molding Compounds of Various Chlorine Contents under Biased-HAST	Ying-Ta Chiu[1], Tzu-Hsing Chiang[1], Ping-Feng Yang[1], Louie Huang[1], Chih-Pin Hung[1], Shoji Uegaki[2], Kwang-Lung Lin[3], [1]ASE Group / Taiwan, [2]ASE Group / Japan, [3]National Cheng Kung Univ. / Taiwan	**497**
FD3-2	Effect of Ag-4Pd Alloy Bonding Wire Properties and Structure on Bond Strengths and Reliability	Jun Cao[1,2], JunLing Fan[3], WenBin Gao[1], [1]HeNan Polytechnic Univ., [2]HeNan YOUK Electronic Material, [3]Jiaozuo Univ. / China	**502**
FD3-3	Relationship between Mechanical and Electrical Properties of Cu Wire and Al Pad Bonding	Yuji Ishida[1], Kenji Sunahara[2], [1]Yaskawa Electric, [2]Fukuoka Institute of Technology / Japan	**508**
FD3-4	Enabling Cu Wire in 3D Stack Package	Ruby Ann M. Camenforte[1], Ray Fredric de Asis[1], Mahmud Chowdhury[2], [1]Texas Instruments / Philippines, [2]Texas Instruments / USA	**512**

FE1: Materials and Process-5

9:30-11:10 Friday, April 22

FE1-1	Warpage Characterization Analysis for Embedded Package Technology	Tang-Yuan Chen, Meng Kai-Shih, Ming-Hung Chen, Wei-Chung Chen, Shoji Uegaki, Chin-Li Kao, Ping-Feng Yang, Chin-Pin Hung, Advanced Semiconductor Engineering / Taiwan	**518**
FE1-2	Development of a Simple Cup Method for Water Vapor Transmission Rate Measurements under High-temperature Condition	Shinya Iizuka[1], Kazuhide Murata[1], Masahiro Sekine[1,2], Chiaki Sato[3], [1]Saitama Industrial Technology Center, [2]Waseda Univ., [3]Tokyo Institute of Technology / Japan	**522**
FE1-3	Novel Copper Surface Preparation Processes for Copper Alloy Lead Frame Lamination Pretreatment in Embedded Packaging Device	Wei-Chung Chen, Chiu-Wen Lee, Lu-Fu Lin, Yen-Fu Liu, Hau Cheng, Te-Jung Hsu, Kun-Ting Tsai, Ming-Hung Chen, Tang-Yuan Chen, Pin-Feng Yang, Shoji Uegaki, Chih-Pin Hung, Advanced Semiconductor Engineering / Taiwan	**526**

FE2: Materials and Process-6

11:20-13:00 Friday, April 22

FE2-1	Partial Discharges in Ceramic Substrates - Correlation of Electric Field Strength Simulations with Phase Resolved Partial Discharge Measurements	Christoph Friedrich Bayer, Uwe Waltrich, Amal Soueidan, Eberhard Baer, Andreas Schletz, Fraunhofer Institute for Integrated Systems and Device Technology / Germany	**530**
FE2-2	Enhancement of the Partial Discharge Inception Voltage of Ceramic Substrates for Power Modules by Trench Coating	Uwe Waltrich[1], Christoph Friedrich Bayer[1], Martin Reger[2], Andreas Meyer[2], Xinhe Tang[2], Andreas Schletz[1], [1]Fraunhofer Institute for Integrated Systems and Device Technology, [2]Rogers Germany / Germany	**536**
FE2-3	Study on Effect of Thermo-Structural loading on the PCB during Selective Soldering Process using Finite Element Analysis	Subraya Krishna Bhat[1], Raghavendra Deshpande[2], Peter Beck[3], Sudarshan Hegde[2], Y.S. Upadhyaya[1], Chandan Kumar Ghosh[2], [1]Manipal Univ., [2]Robert Bosch Engineering and Business Solutions / India, [3]Robert Bosch / Hungary	**542**
FE2-4	Viscoelastic Analysis of Multistage Stacked Via Structure in Build-up Substrate	Hideaki Nagaoka, Tomoyuki Akahoshi, Masaharu Furuyama, Daisuke Mizutani, Fujitsu Laboratories / Japan	**548**

FE3: Materials and Process-7

14:00-16:05 Friday, April 22

FE3-1	Epoxy Molding Compound for Fingerprint Sensor	Junichi Tabei, Hideaki Sasajima, Takeshi Mori, Sumitomo Bakelite / Japan	**553**
FE3-2	The Novel Liquid Molding Compound for Fan-out Wafer Level Package	Katsushi Kan[1], Yosuke Oi[1], Yasuhito Fujii[1], Masato Miwa[2], Michiyasu Sugahara[2], [1]Nagase ChemteX, [2]Nagase & / Japan	**557**
FE3-3	Ultra Thick Photo Resist for FO-WLP	Keiichi Satou, Makoto Katsurayama, Akito Hiro, Hirokazu Sakakibara, Kenji Okamoto, Kouichi Hasegawa, JSR / Japan	**562**
FE3-4	Investigation of Electrochromic Properties of Novel Tungsten Trioxide Nano-structure Preparation Using Hydrothermal Process	Jia-Cian Hsieh, Wen-Jen Liu, I-Shou Univ. / Taiwan	**567**

Poster Session

P01	Electrical Analysis of Low Distortion Transmission Design and Stacking TSVs on Silicon Interposer	Chih-Wen Kuo[1], Hung-Chun Kuo[1], Chen-Chao Wang[2], [1]National Sun Yat-sen Univ., [2]Advanced Semiconductor Engineering / Taiwan	**573**
P02	Photolithography Study for Advanced Packaging Technologies	Hiromi Suda, Masaki Mizutani, Shin-Ichiro Hirai, Ken-Ichiro Mori, Seiya Miura, CANON / Japan	**577**
P03	Robust Packaging Solutions through Innovative Designs in Clip-QFN	Roxanna Samson-Caguioa, Ruby Ann Merto-Camenforte, Lorraine Duldulao, Texas Instruments Philippines / Philippines	**N/A**
P04	Print Lead QFN Package	Ping Wu, Peng Liu, Bo Zhao, QingChun He, George Ye, Freescale Semiconductor / China	**N/A**
P05	New Process Flow to Make QFN Package with Stand-off	Ping Wu, Peng Liu, Bo Zhao, QingChun He, George Ye, Freescale Semiconductor / China	**N/A**
P06	Through Mold Via (TMV) by Gas-Aided Laser	Hsiang-Chen Hsu[1], Shih-Jeh Wu[1], Wen-Fei Lin[1], Chi-Shiung Hsi[2], Hsing-Yi Pao[2], Pin-Chieh Wang[1], [1]I-Shou Univ., [2]National United Univ. / Taiwan	**593**
P07	Automatic Alignment System for Wafer Based on Machine Vision	Hailong Liao, Dasong Ge, Junhui Li, Wenhui Zhu, Central South Univ. / China	**N/A**
P08	Study of QFP E-pad Package VS. PCB Land Pattern Design Soldering and Reliability	Pai-Chou Liu, Sung-Mao Wu, National Univ. of Kaohsiung / Taiwan	**N/A**
P09	Novel PC Miniature Board	Chan Kim Lee, Wee Hoe, Say Thong Tan, Siang Yeong Tan, Choy Mei Yeow, Chow Soon Lim, Khai Ern See, Intel Malaysia / Malaysia	**607**
P10	Investigation on Graphene/Ag Nano-Particles Composite Ink for Flexible Electronics	Hu He, Zhuo Chen, Yanni Li, Fuliang Wang, Wenhui Zhu, Central South Univ. / China	**N/A**
P11	A Novel High Electrically Conductive Silver Paste	Jia-Min Lin, Wei-Nung Chen, Chiao-Yang Lin, Ching-Fen Lin, Jiin-Chyuan Chang, Solar Applied Materials Technology / Taiwan	**615**
P12	Large Area Direct Transfer Technique for Graphene onto Substrates using Self-Assembly Monolayer	Masahisa Fujino, Kentro Abe, Tadatomo Suga, Univ. Tokyo / Japan	**619**
P13	The Advantages of Slow Cure NCP in Flip Chip Package	Yoshihide Fukuhara, Masaaki Hoshiyama, Toshikazu Hocchi, Yuusuke Kamata, Hisotatsu Ikarasi, Ruka Iwaya, NAMICS / Japan	**623**
P14	Effects of Additive Formula and Plating Current Density on the Interfacial Reactions between Sn and Cu Electroplated Layer	Hsuan Lee, Wei-Ping Dow, Chih-Ming Chen, National Chung Hsing Univ. / Taiwan	**627**