

IMAPS Nordic Annual Conference 2006

**Gothenburg, Sweden
17-19 September 2006**

Editors:

Jarkko Kutilainen

ISBN: 978-1-62276-182-1

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2006) by International Microelectronics and Packaging Society, Europe
All rights reserved.

Printed by Curran Associates, Inc. (2012)

For permission requests, please contact International Microelectronics and Packaging Society, Nordic
at the address below.

International Microelectronics and Packaging Society, Nordic
PO Box 277
SE-431 24 Molndal, Sweden

info@imapsnordic.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

INDEX

MP-A1: 3D, STACKING, EMBEDDING, THINNING

- Stacked ‘Micro-Contact-Array’ Packaging A Higher Density
Solution for Mixed IC Technology Applications 1-6
Vern Solberg, Tessera, USA
- Ultra-thin chip package (UTCP) for flexible electronics applications.....7-11
W. Christiaens¹, B. Vandeveld², J. Vanfleteren¹
¹IMEC/TFCG Microsystems, Gent, Belgium,
²IMEC, Leuven, Belgium
- Lamination technology of Resin-Coated-Copper (RCC) films
for chip and component embedding in printed circuit boards 12-20
Dionysios Manassis², A. Ostmann¹, A. Neumann,
R. Aschenbrenner¹ and H. Reichl², ¹Fraunhofer Institute for Reliability
and Microintegration (IZM), ²Microperipheric Research Center,
Technical University of Berlin (TUB), Germany
- Chip-on-chip packaging technology using a photosensitive adhesive resin.....21-27
Takuo Funaya, Jisso and Production Technologies Research Lab.,
NEC Corporation, Japan

MPB-1: PCB, FLEX, RELIABILITY

- Review of the Impact of Intermetallic Layers on the Risk for Brittle Fractures in Solder Joints28-40
Per-Erik Tegehall, IVF, Sweden
- Why is the industry phasing out ENIG as final finishing of PCB’s and what are the alternatives?41-52
Karl Lundahl, Polymer Kompositer AB, Sweden
- The importance of the “right” PCB Surface Finish for
Lead-Free high soldering yield and high reliability.....53-69
Hans Danielsson, Mikroelektronik konsult AB, Sweden
- A Flexible Polyimide based Circuit for Rapid Heating of Small Objects70-74
Kristof Dhaenens, B. Vandecasteele, W. Christiaens, L. Degrendele, M. Steel,
A.P. Van Liere, J. Vanfleteren ¹IMEC/TFCG Microsystems, Gent, Belgium,
²Unitron Group, IJzendijke, The Netherlands

MP-A2: PRODUCTION, RoHS

- Jetting Flux Materials for Advanced Electronic Packages75-79
Horatio Quinones, Erik A. Fiske,
Asymtek Headquarters, USA
- Effectiveness of RoHS legislation and effective Lead Free tools.....80-90
Lars Wallin, IPC, Sweden
- Use of CCD for Reflow Process Design.....91-93
Juha Lempinen, Aulis Tuominen, Ossi Hämeenoja, Ilkka Tuokko, Timo Kerminen,
University of Turku, Department of Information Technology, Finland

Three-dimensional ceramic microwave components using rapid free form manufacturing94-96
Hans Grönqvist, IVF, Sweden

MP-B2: CAD, DESIGN, MODELLING

Temperature stabilization of electronics module97-103
Anders Gabert, Johan Borg, Jonny Johansson, Luleå University, Sweden

Design and Modelling Challenges for Heterogeneous Systems104-108
Chris Bailey, University of Greenwich, UK

Bond Wire Yield Optimization on SiP in a 3D Design Environment109-114
Gordon Jensen, CAD Design Software, USA

TA-A1: SIP

Worldwide Perspectives on SiP Markets115-119
E. Jan Vardaman, TechSearch International, Inc., USA

High-Q Embedded Inductors in Wafer-Level CSP Technology of SiP for RF Application120-127
Uei-Ming Jow, Cheng-Hua Tsai, Chang-Sheng Chen, Chang-Lin Wei, Chin-Sun Shyu, Hung-Yen Liu, ITRI, Taiwan

TA-B1: CERAMICS, LCTT, RF

Microwave Road – How to make business out of microwaves?128
Peter Wahlberg, Microwave Road, Sweden

Trends in Ceramic Modules Industry in Europe and Elsewhere in Last 6 Years.....129-134
Paul Collander, Poltronic, Finland

TA-A2: SIP

Silicon Based SiP with crude through wafer vias135-141
E.C. Rodenburg¹, E.C.E. van Grunsven², K. Aumaille¹, S. Ledain¹, C. Bunel¹, P. van der Wel³, A. Den Dekker³, ¹Philips Semiconductors, Caen, France, ²Philips Applied Technologies, Eindhoven, The Netherlands, ³Philips Semiconductors, Nijmegen, The Netherlands

Thin film embedded passive technology for system integration142-147
Hiroshi Mawatari, Satoru Kuramochi, Toshiaki Mori, Kosuke Suzuki, Yoshitaka Fukuoka, Dai Nippon Printing co.,Ltd, Weisti (Worldwide Electronic Integrated Substrate Technology Inc), Japan

Simplified SiP for Low Cost Modularization148-153
Chuck Bauer, TechLead Corp, USA

TA-B2: CERAMICS, LCTT, RF

Environmentally friendly thick film material system154-160
Michel Bilinski, ESL Europe, UK

Design and characterization of reliable composite solder joint in LTCC/PWB assembly161-165
Jouko Vähäkangas^b, O. Nousiainen^a, J. Putaala^b, T. Kangasvieri^b, and L. Lehtiniemi^b, ^aMaterials Engineering Laboratory and EMPART Research Group of Infotech Oulu, ^bMicroelectronics and Material Physics Laboratories and EMPART Research Group of Infotech Oulu, University of Oulu, Finland

Surface planarisation of LTCC for high performance thin-film applications	166-170
<i>Jarkko Tuominen, Tuomo Jaakola, Kari Kautio, Manu Lahdes, Kari Rönkä and Jaakko Lenkkeri,</i> <i>VTT Technical Research Centre of Finland, Oulu, Finland</i>	

TP-A1: IC PACKAGING, FLIP CHIPS

Wafer Bumping and Wafer Level Packaging for the European Market	171
<i>Dr. E Zakel, T. Oppert, PacTech, Germany</i>	
QFN Package Innovation - Putting more in and getting more out	172-178
<i>Andrew Holland, RF Module & Optical Design Ltd., UK</i>	
LTCC Reliability assessment of flip chip attachments on substrate using ACF and NCF adhesives.....	179-183
<i>Janne Kiilunen, Tampere University of Technology/Institute of Electronics, Finland</i>	

TP-B1: MEDICAL

SIP in Vivo. "System in a Package" enters the human body	184-188
<i>Piers Tremlett, Zarlink Semiconductors, UK</i>	
A New Technology for Elastic Electronic Circuits and Assemblies for Biomedical Applications.....	189-198
<i>F. Axisa¹, I. Backers², D. Brosteaux¹, M. Gonzalez³, M. Vanden Bulcke³, K. Baert³, D. Gevaert², J. Vanfleteren¹ ¹IMEC/TFCG Microsystems, Gent, Belgium, ²IMEC/KHBO, Oostende, Belgium, ³IMEC/MCP, Leuven, Belgium</i>	
FOBIS – Nordic foresight on biomedical sensors	199-202
<i>Dag Ausen¹, Rita Westvik¹, Ingrid Svagård¹, Lars Öserlund², Inga Gustafson², Fredrik Winquist³, Inger Vikholm-Lundin⁴, Janusz.Sadowski⁴, Jens Gran⁵, Lars Lading⁶, ¹SINTEF, ²FOI, ³S-SENCE, ⁴VTT, ⁵MecCoast, ⁶STC. Norway</i>	
Evolution of Neurostimulator Implants	203-207
<i>Krzysztof Zaraska, Institute of Electron Technology, Poland</i>	

TP-A2: ADHESIVE TECHNOLOGIES

Enhanced Performance of Back Plane Assemblies Utilizing Advanced Film Adhesive Technology	208-211
<i>Mark Wilson, James Hurley, Mike Previti, Avin Dhoble,</i> <i>Cookson Electronics Semiconductor Products, USA</i>	

TP-B2: EMERGING TECHNOLOGIES

Development of nanosolders and nanothermal interface materials and cooling devices based on nanocarbon tubes	212-219
<i>Johan Liu, SMIT Center & Department of Microtechnology and Nanosciences (MC2), Chalmers University of Technology, Sweden</i>	
Evaluation of conductive textile for wearable computer applications.....	220-227
<i>Michel Chedid, Saab Training Systems, Husqvarna, Sweden; Daniel Tomicic, Acreo, Jönköping, Sweden; Peter Leisner, Jönköping University and Acreo, Jönköping, Sweden</i>	