

## Technical Programme

MONDAY 27-09-2004

### Plenary session I (8:30-10:45)

#### Conference opening

M. Pecht

Reliability of Lead-Free Electronics

Shen-Li Fu, T.C. Ho, R.-S. Lee, T. Chen

The Status of Packaging Industry in Taiwan

K.-J. Wolter, M. Speck, M. Danczak

Nondestructive Evaluation of Advanced Microsystems Packaging Using X-ray Computed Tomography

### Poster session I (10:45 - 12:45)

- P1-1 S. Achmatowicz, M. Jakubowska, J. Kalenik, R. Kisiel, A. Młozniak,  
E. Zwierkowska  
Lead-Free Silver Based Thick Film Pastes
- P1-2 R. Arsoba, Z. Suszyński  
Thermal Properties Depth Profiling of Multilayer Structure Using Evolutionary Algorithm
- P1-3 J. Barton, B. O'Flynn, F. Murphy, A. Lynch, C. Nester, M. Pepper, R. Fulford,  
D. Shklarski, P.J. Slycke  
Design and Fabrication of a Sensors Interface Unit for Real World Monitoring of Prostheses and Footwear
- P1-4 G. Beensh-Marchwicka, E. Prociów, M. Mazur  
Forming and Stability of Thin Film Ge-Sb-V/MeSi<sub>2</sub> Thermocouples
- P1-5 Belavič D., Hrovat M. Holc J, Cilenšek J., Golonka L., Dziedzic A., Kita J.  
Thick-film resistors with high positive TCR on alumina and LTCC substrates
- P1-6 Borecki J., Felba J., Posadowski W., Wojtalik K.  
Magnetron Sputtering Technology for Microvias Metallization
- P1-7 Borecki J., Kozioł G., Felba J., Kisiel R.  
Conductive Adhesives for Through Holes and Blind Vias Metallization
- P1-8 Bratek P., Brzozowski I., Gołda A., Kos A.  
Matrix of thermal characters for the blind
- P1-9 Brzozowski I., Kos A.  
Assessment and modeling of quasi-short power dissipation in CMOS gates
- P1-10 Buczek M., Belavic D., Hrovat M., Dziedzic A., Golonka L., Roguszcak H., Zawada T. (Wroclaw, Poland + Ljubljana, Slovenia)  
Electrical and microstructure properties of PZT thick films made on LTCC
- P1-11 Budniewski K., Golonka L., Zawada T., Roguszcak H., T. Dobosz, A. Jonkisz  
Design and FEM Analysis of a Novel Microchamber PCR Device Fabricated in LTCC Technology
- P1-12 Domaradzki J., Nitsch K., Prociów E.L., Kaczmarek D.  
Analysis of Electrical Characteristics of Metal - Semiconducting Oxide - Semiconductor Structures Over a Wide Range of Temperatures
- P1-13 Dziurdzia B., Cież M., Gregorczyk W.  
Measurement of RF Dielectric Properties of Thick-Film Materials with Resonant Microstrip Elements
- P1-14 Dziurdzia B., Krupka J., Gregorczyk W.

- Measurement of RF Dielectric Properties of Thick-Film Materials with a Split-Post Resonator
- P1-15 Dziurdzia P.  
Design for Improved Reliability of Systems on Chips
- P1-16 Dziurdzia P.  
Simulations of Heat Flow in Active Cooled Packaged Microstructures
- P1-17 Fałat T., Felba J., Wymysłowski A.  
Improved Method for Thermal Conductivity Measurement of Polymer Based Materials for Electronic Packaging
- P1-18 Filipczyk M., Kowalik P., Pruszowski Z.  
New Types of Enamels as a Protective Coating Used in Hermetisation for Metal Fixed Resistors
- P1-19 Filipowski W., Waczyński K., Drabczyk K., Wróbel E.  
Influence of Depletion Layer Width on Efficiency of Solar Cells
- P1-20 Gołda A., Kos A.  
Analysis of steady state temperature distribution in CMOS integrated circuits
- P1-21 Gołda A., Kos A.  
Impact of gate load on other gates in CMOS logic networks
- P1-22 Gröger B., Skwarek A., Szwagierczak D., Kulawik J.  
Properties of thick films based on  $\text{La}_{0.7}\text{Ln}_{0.3}(\text{Mn}_{1-x}\text{Al}_x)\text{O}_3$  as electrode materials
- P1-23 Grzesiak W., Cież M., Maj T., Wietrzny K.  
Advanced current sources based on one-chip microcomputers
- P1-24 Grzesiak W., Cież M., Maj T., Wietrzny K.  
Applications of one-chip microcomputers in solar charge controllers
- P1-25 Grzesiak W., Cież M., Poczatek J., Zaraska W.  
Current sources with improved reliability for hyperbright LEDs supply realized in thick-film technology
- P1-26 Grzesiak W., Cież M., Poczatek J., Zaraska W., Pabjańczyk W., Wietrzny K.  
Solar electric lighting systems utilizing LEDs of high brightness
- P1-27 Hajduk K., Maziarz W., Sutor A., Pisarkiewicz T.  
Semiconductor resistive gas sensor with different operation modes
- P1-28 Janke W., Krasniewski J., Oleksy M.  
A comparison of transient thermal characteristics of the low-frequency and high-frequency semiconductor devices
- P1-29 Jankowski-Miśkiewicz P., Kalita W.  
Calculating the maximum working distance of passive RFID systems in three-dimensional coordinate
- P1-30 Jasiński G., Jasiński P., Nowakowski A., Chachulski B.  
Thick film Lisicon sensor with gold electrodes
- P1-31 Jezior R., Sloma M.  
Conductive adhesives – can be alternative for lead-free solders in FC bonding?
- P1-32 Kalenik J., Kisiel R., Szczepański Z.  
Some properties of SnAgCu solder joints on printed circuit boards
- P1-33 Kamiński S., Dziedzic A.  
New trim configurations for laser trimmed thick-film resistors - experimental verifications
- P1-34 Kita J., Rettig F., Moos R., Drue K.-H., Thust H.  
Laser Forming of LTCC Ceramics for Hot-Plate Gas Sensor
- P1-35 Klesse T., Mach P.  
Fabrication of Thin  $\text{Al}_2\text{O}_3$  Films by Magnetron Sputtering

**Plenary session II (14:00-16:00)**

- W. Mielcarek, K. Prociów, M. Nieniewski  
Influence of zinc oxide powders morphology on varistor properties
- J. Atkinson  
Packaging and development of commercial thick film screen printed chemical, biological and environmental sensors
- Z. Suszynski, R. Arsoba  
Thermal wave method of multilayer structures diagnostic

**TUESDAY 28-09-2004**

**Plenary session III (8:45-10:45)**

- M. Kosec, J. Holc, M. Hrovat, D. Belavic  
Piezoelectric PB(Zr,Ti)O<sub>3</sub> (PZT)-based thick films: from materials to devices
- G. Gerlach, G. Seck, T. Sandner  
Self-polarized PZT thin films: deposition, characterization, sensor application
- C. Grimaldi, S. Vionnet, T. Maeder, P. Ryser  
Effect of composition and microstructure on the transport and piezoresistive properties of thick-film resistors

**Poster session II (10:45 - 12:45)**

- P2-1 Klimiec E., Nowak S., Zaraska W.  
The application of fast Fourier transform for evaluation of suppression electromagnetic interferences in a high voltage ignition system
- P2-2 Kloeser J.  
Lead free wafer bumping by advanced stencil printing technology
- P2-3 G. Koziół, K. Bukat, J. Sitek, J. Borecki, J. Bieliński  
Dependence of Immersion Tin Finish Solderability upon its Thickness
- P2-4 Kulawik J., Szwagierczak D., Gröger B.  
Effect of additives on dielectric characteristics of iron based ferroelectrics
- P2-5 Lu A., Tsai H., Chou S., Kuo D., Lu T.B., Chung C.L., Fu S.L.  
Influence of flux on the lead-free solder ball placement during IR-reflow process
- P2-6 Łukasik A.M., Nowak S.  
Polymer-carbon thick film resistors as direct current regulator
- P2-7 Łukasik A.M., Nowak S., Skwarek A., Zaraska W.  
Electrical characteristics of carbon-polymer and aluminium heating layers
- P2-8 Łukasik A.M., Pruszowski Z.  
Influence of curing parameters on electrical properties of polymer layers with acrylic-melamine binder
- P2-9 Łukasik A.M., Witek K., Cież M., Siwulski S.  
Thermovision measurement of carbon-polymer and aluminium heating layers
- P2-10 Markowski P., Dziedzic A., Prociów E.  
Thick/thin film thermopiles as a power source for autonomous microsystems – preliminary results
- P2-11 Król M., Mis E., Dziedzic A., Mielcarek W.  
Microvolume LTCC and thick-film passives
- P2-12 O'Flynn B., Bellis S., Delaney K., O'Mathuna C.  
A 3-D miniaturized programmable transceiver
- P2-13 Porada Z., Schabowska-Osiowska E.

- Optoelectronic full adder with thin film photoconducting and electroluminescent elements
- P2-14 Prociow L.J., Domaradzki J. Kaczmarek D.  
Studies of the D.C. conductivity and thermoelectrical properties of nanocrystalline (Ti,V)O<sub>2</sub>:Pd thin films
- P2-15 Proszak W.  
Pyroelectric detector based on TGS single Crystals doped with D- -Alanine
- P2-16 Ptak P., Kolek A.  
Nonlinear microscopic noise sources in RuO<sub>2</sub>+glass thick film resistors
- P2-17 Rane S., Prudenziati M., Morten B., Golonka L., Dziedzic A.  
Microstructure and electrical properties of perovskite ruthenate-based lead free thick film resistors on alumina and LTCC
- P2-18 Santo Zarnik M., Belavič D.  
Construction of PZT actuator in an LTCC structure – a preliminary finite–element analysis
- P2-19 Sitek J., Rocak D., Bukat K. Macek S., Hrovat M. Belavic D., Drozd D.  
The Quality of a no-lead solder connection of chip components on PCB and hybrid circuit
- P2-20 Suszyński Z., Arsoba R.  
Investigation of thyristor structures using ion beam displacement modulation
- P2-21 Suszyński Z., Duer R.  
Photoacoustic Inspection of Layered Structure with Pulse Excitations
- P2-22 Swatowska B., Czternastek H. Lipiński M., Stapiński T., Zakrzewska K.  
Antireflective coatings of a Si:C:H on silicon
- P2-23 Szczepański Z., Kalenik J.  
Advanced assembly techniques for silicon sensors
- P2-24 Szwagierczak D., Kulawik J., Gröger B, Nowak S., Skwarek A. (Cracow, Poland)  
Dielectric behaviour of high permittivity Ca(Fe<sub>1/2</sub>Nb<sub>1/2</sub>)O<sub>3</sub> and Ca(Fe<sub>1/2</sub>Ta<sub>1/2</sub>)O<sub>3</sub> ceramics
- P2-25 M. Trybus, W. Proszak  
Relation Between Domain Structure Distortion and Electric Properties in I-Lysine Doped Single Crystals - Possible Application in Material Preselection
- P2-26 G.G. Umarji, S.A. Ketkar, G.J. Phatak, V.D. Giramkar, U.P. Mulik, D.P. Amalnerkar  
Aqueous Developable Photoimageable Silver Conductor Composition for High Density Electronic Packaging
- P2-27 Winkler G., Bischoff G., Sutor A., Griehl S., Müller T.  
Polymeta – a novel technology for printed circuit boards on basis of physical vapor deposition
- P2-28 Witek K., Skwarek A., Cież M., Grzesiak W., Prochowicz W.  
Choice of conformal coating lacquers for electronic devices operating in environment with increased humidity
- P2-29 Witek K., Skwarek A., Cież M., Prochowicz W., Zaraska W.  
Influence of conformal coating process parameters on the electronic assembly quality
- P2-30 Wróbel E., Waczyński K., Filipowski W.  
Investigation on the Application of Boron-, Phosphorus- and Arsenic-Doped Glasses in the Technology of Photovoltaic Structures
- P2-31 A. Wymysłowski, W.D. van Driel, G.Q. Zhang, J. van de Peer, N. Tzannetakis  
Smart and Sequential Approach to Numerical Prototyping in Micro-Electronic Applications
- P2-32 Wyżkiewicz I, Chudy M., Brzózka Z., Jakubowska M., Dybko A.  
Contactless conductivity detector for the applications in miniaturised analytical devices

- P2-33 Zaraska W., Thor P., Lipiński M., Cież M., Grzesiak W., Poczutek J.  
Design and fabrication of neurostimulator implants – selected problems
- P2-34 Z. Znamirowski, A. Dziedzic, J. Wilk, Z. Kowalski, M. Kosiński  
Field Electron Emission from Thick-Film SiC Emitters
- P2-35 Zubel I., Kramkowska M., Łasisz S.  
Simulation of cross-sections of the structures fabricated on Si substrates by anisotropic etching

**Plenary session IV (14:00-16:00)**

P.J. Zulueta, C. Barnes, M. Sampson, K. LaBel  
The NASA Electronics Parts and Packaging (NEPP) Program

S. Nakamura, Y. Aoki, T. Shindou, T. Okamoto  
Composite Materials and Their Applications

J. Nicolics, M. Mündlein, A. Jaturapiree  
Electrically Conductive Adhesives - Recent Research Results and Specific Applications

**WEDNESDAY 29-09-2004**

**Plenary session V (8:45-10:45)**

A. Elshabini, G. Wang, F. Barlow, E. Elvey, M. Folk  
Fundamental Issues in Processing and Applications of Low Temperature Cofired Ceramic Tape

M. Cież, W. Grzesiak, K. Witek, J. Koprowski, J. Potencki  
Application of AlN Substrates in Thick-Film Power Circuits

H. Thust, R. Perrone, K.-H. Drüe, M. Hintz  
ELTCC Technologies for Advanced RF/Microwave Applications

**Plenary session VI (11:45-13:15)**

T. Zawada, L.J. Golonka  
Shaping of Spatial Temperature Distribution in Thick-Film and LTCC Microsystems

E. Beyne  
Multilayer thin film, enabling technology for WLP and SiP

R. Kisiel, Z. Szczepański  
Progress in Assembly Technologies for PCBs, Hybrids and Sensors