

2018 IEEE 38th International Electronics Manufacturing Technology Conference (IEMT 2018)

**Melaka, Malaysia
4 – 6 September 2018**



**IEEE Catalog Number: CFP18IEU-POD
ISBN: 978-1-5386-6212-0**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18IEU-POD
ISBN (Print-On-Demand):	978-1-5386-6212-0
ISBN (Online):	978-1-5386-6211-3
ISSN:	1089-8190

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) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

MODELING OF MOLDED ELECTRONIC PACKAGE WARPAGE CHARACTERISTIC WITH CURE INDUCED SHRINKAGE AND VISCOELASTICITY PROPERTIES.....	1
<i>Wei Keat Loh ; Ron W. Kulterman ; Chih Chung Hsu ; Haley Fu</i>	
QUALIFICATION OF MICROCHIP AL BOND PAD AND ELIMINATION OF NSOP	10
<i>Younan Hua ; Yue Shen ; Junxian Goh ; Yeh Yee Kee ; Xiaomin Li</i>	
MOLD COMPOUND AND COPPER WIRE SELECTION FOR QUAD-FLAT PACKAGES WITH HIGH DENSITY LEADFRAME IN AUTOMOTIVE APPLICATIONS	13
<i>Vanessa Wyn Jean Tan ; Yin Kheng Au ; Boon Yew Low ; Poh Leng Eu ; Lan Chu Tan</i>	
A NOVEL ELECTROMAGNETIC FIELD GUIDED INTERCONNECT FOR HIGH-PERFORMANCE APPLICATIONS	18
<i>Jackson Kong ; Bok Eng Cheah ; Khang Choong Yong</i>	
EFFECT OF LEADFRAME TAPE MATERIAL ON THIN SMALL NON-LEADED PACKAGES (TSNP) MANUFACTURING LINE	22
<i>Cheng-Guan Ong ; Wei-Keong Ng ; Kian-Pin Queck</i>	
THIN SMALL LEADLESS PACKAGE'S (TSLP): ADHESION FAILURE ANALYSIS AFTER ELECTROLESS NICKEL IMMERSION GOLD (ENIG) PROCESS.....	27
<i>Cheng-Guan Ong</i>	
BATCH MICROWAVE PLASMA CLEANING FOR ROBUSTIFICATION OF AUTOMOTIVE DEVICES: AN ALTERNATIVE TO STRIP-TYPE RADIOFREQUENCY PLASMA	31
<i>Glizelle Jane E. Abarro ; Rod J. Delos Santos ; Darwin J. De Lazo ; Alvin B. Denoyo ; Manny S. Ramos</i>	
INVESTIGATION ON SOLDER VOID FORMATION MECHANISM AFTER HIGH TEMPERATURES STRESS BY 3D CT SCAN AND EDX ANALYSIS	38
<i>Lai Chin Yung ; Ho Ing Hong ; Eric Wong Soon Kiong ; Cheong Choke Fei</i>	
IMPLEMENTATION OF PHOTOMOS RELAY FOR ATE APPLICATION.....	42
<i>Cheok Yong Seng ; Baptist Bernhard ; Tan Wei Chi</i>	
ASSESSMENT METHODOLOGY ON MOLD VOID DEFECT BY SCANNING ACOUSTIC MICROSCOPY (SAM) NON-DESTRUCTIVE TECHNIQUE	47
<i>Eric Wong Soon Kiong ; Chin Yung Lai</i>	
"COLLET AUTO CLEAN SYSTEM", A SMART AUTOMATIC SOLUTION FOR DIE BONDING PICK UP TOOL LIFESPAN & THROUGHPUT ENHANCEMENT	51
<i>Wai Shan Liau ; Tek Keong Gan</i>	
CHALLENGES TO IMPROVE PACKAGES ROBUSTNESS AND ELIMINATION OF MOLD COMPOUND STICKING ON POWER LEADED PACKAGE	57
<i>Mei Qi Tay ; Yun Zhao ; Ming Siong Lim ; Raymond Kim Swee Goh</i>	
DESIGN OF A COMPACT PIFA TAG ANTENNA FOR WEARABLE ELECTRONICS.....	61
<i>Wai-Hau Ng ; Yang-Hong Lee ; Eng-Hock Lim ; Boon-Kuan Chung</i>	
IMPROVING NON-STICK ON BOND PAD USING HIGH PRE-US (ULTRASONIC) POWER IN HYDROXYL COATED MATERIAL	65
<i>Eddie Boy Habab Corpuz</i>	
A PORTABLE WIFI ECG	70
<i>N. A. Abdul-Kadir ; N.S. Sahar ; W. H. Chan ; F. K. C. Harun</i>	
AN ALTERNATIVE PACKAGING SOLUTION IN ACHIEVING MOISTURE SENSITIVITY LEVEL ONE (1) FOR SMALL OUTLINE INTEGRATED CIRCUIT (SOIC) AUTOMOTIVE PACKAGES	74
<i>Alvin B. Denoyo ; Rod J. Delos Santos ; Ton C. Pinili ; Darwin J. De Lazo ; Ivan T. Gil Costa ; Allen M. Menor</i>	
VACUUM REFLOW PROCESS CHARACTERIZATION FOR VOID-LESS SOLDERING PROCESS IN SEMICONDUCTOR PACKAGE.....	78
<i>Siang Miang Yeo ; Azman Mahmood ; Shahrul Haizal Ishak</i>	
DIE POP CHALLENGE AND COMPREHENSIVE SOLUTIONS IN VACUUM REFLOW TECHNOLOGY FOR SEMICONDUCTOR PACKAGING	85
<i>Siang Miang Yeo ; Azman Mahmood ; Nur Afifah Md Yazid</i>	
WIRE SWEEP IMPROVEMENT FOR TUNING WIRES IN RF POWER TO288 PACKAGES.....	90
<i>Navaretnasingam Arivindran ; Derus Rozazmi ; Tan Wei Ming</i>	
DEVELOPMENT OF PET-SPS IN OSV	93
<i>J. Chong ; Ernest Estiller ; Mark Rosel ; Ronald Malapitan ; Silnore Sabando ; Lan Vu ; Hanh Phan</i>	

CO-RELATIONSHIP OF THE DIE ATTACH MACHINE DYNAMIC IMPACT FORCE TREND WITH CRACKED DIE OCCURRENCES FOR SHRINK CHIP PACKAGE.....	100
<i>Yue Hang Tan ; Wai Shan Liao</i>	
INTERFACIAL TEM ANALYSIS OF SINTERED SILVER IN AIR AND N₂-5%H₂ GASES ENVIRONMENT	107
<i>Kim S. Siow ; Siang T. Chua ; Zuruzi A. Samah</i>	
PACKAGE DEFECT TEST SYSTEM AND ITS APPLICATION IN ASSEMBLY IMPROVEMENT	111
<i>Shaari Ripin ; M. Mamunur Rashid Mohd Firdaus ; Gopi Nathan Sathia ; Xue Ming</i>	
THICK PALLADIUM COATED COPPER (PCC) WIRE BSOB BONDING ON A PRE-PLATED FRAME CHIP ON LEAD PACKAGE	117
<i>Jose Palagud ; S. Wang</i>	
MECHANICAL DICING CHALLENGES AND DEVELOPMENT ON 50UM SAW STREET WITH WAFER BACKSIDE COATING (WBC).....	123
<i>Y. Chiew ; J. Liong ; F. Tan</i>	
CHARACTERIZATION OF SILICON DIE STRENGTH WITH DIFFERENT DIE BACKSIDE UNEVENNESS LOCATION.....	131
<i>Lee Cher Chia ; Lim Boon Huat ; Chong May Wan ; Mohamad Som Siti Robiatun ; Jessie Liong Shih Man</i>	
EFFECT OF LEAD FRAME AND MOLD TOOL DIMENSION AND TOLERANCE ON LEAD BURR IN CAVITY ENCAPSULATION	134
<i>Clemen Jose Abrena Regua ; Lee Chai Chee ; Chong Chee Chiew ; Tay Wee Boon</i>	
A STUDY ON A STRETCHABLE CONDUCTIVE POLYMER OF THERMOPLASTIC AUTOMOTIVE DEVICE.....	138
<i>M.F.M. Sharif ; A.A. Saad ; M.K. Abdullah ; N.A. Aziz ; N.A. Ismail ; F.C. Ani ; M.Y.T. Ali ; Z. Samsudin</i>	
DIE PAD DELAMINATION ON QFN PACKAGE.....	142
<i>Chong Chee Chiew ; Paing Samsun ; Letcheemana Vigneswaran ; Amy Ang</i>	
NEW BENCHMARKED STANDARD IN YIELD AND OEE IMPROVEMENT - SENS PSSO STS GEN2 TAPER PERFORMANCE IMPROVEMENT WITH BREAKTHROUGH INNOVATIVE SOLUTIONS.....	146
<i>Lim Khai Herng ; Queck Cham Hee</i>	
AN INTRODUCTION OF STRIP CHOPPING CUT METHOD TO ESTABLISH A ROBUST STRIP BASED DICING PROCESS ON TAPE DICING CONCEPT	151
<i>Ibn'Asyura Zainuddin</i>	
NOVEL MATERIALS FOR MEMS PACKAGING: MEMS DIE ATTACH AND ASIC DIE COATING AND ENCAPSULATION	158
<i>Markus Schindler</i>	
WARPAGE STUDIES OF PRINTED CIRCUIT BOARDS WITH SHADOW MOIRÉ AND SIMULATIONS.....	164
<i>Sim Jui Oon ; Khai Shiang Tan ; Teck Yong Tou ; Seong Shan Yap ; Chun Sean Lau ; Yoong Tatt Chin</i>	
PACKAGE SHRINKAGE ON THIN PACKAGE	169
<i>Liew Soon Lee ; Ruel Aranda ; Rasydan Tahir</i>	
SINGLE STITCH LOW LOOP CAPABILITY AND OPTIMIZATION ON AL 500UM WIRE FOR TOP SIDE COOLING PACKAGE.....	174
<i>Zakaria Abdullah ; VillamorRamos Macaric</i>	
FEASIBILITY OF PB FLAKES REDUCTION POST REFLOW CLEANING PROCESS.....	178
<i>Pedro Almazan ; Chellamuthu Naveendran ; Chai Ying Lee</i>	
TOP GATE MOLDING AND WIRE SWEEP IMPROVEMENT IN FULL PLASTIC QFP PACKAGES.....	181
<i>Chua Boo Wei</i>	
LASER PRE-CUT AND ITS EFFECT ON THE LEADFRAME WARPAGE	185
<i>C.H. Wang ; P.L. Pok ; Y. S. Ng ; K.F. Chung</i>	
WIRE BOND QUALIFICATION CHALLENGES AND DEVELOPMENT OF FIRST STACKED DIE ON COPPER CLIP FOR MULTI-DIE CONTROLLER MOSFET PACKAGE.....	189
<i>Jeriel Figueroa ; Jeramie Pendor ; EE Ong ; Swee Har Khor</i>	
CHALLENGES IN SINGULATION PROCESS OF CORNER LEAD WITH WET-ABLE POCKET ON THIN QFN PACKAGES.....	194
<i>Noorazam Bin Azman ; Mohd Akif Emir A. Aziz</i>	
VERIFICATION OF DELAMINATION OBSERVED IN SAM TRANSMISSION MODE (THRU-SCAN) USING REFLECTION MODE (C-SAM BOTTOM SCAN).....	199
<i>Kunjapat Mugunan ; Lee Chai Ying ; Cheong Choke Fei</i>	
MANUFACTURABILITY OF AG WIRE FOR MASS PRODUCTION - CHALLENGES AND ROBUSTNESS.....	205
<i>Quek Kiang Wei ; Loo Shei Meng</i>	

MODIFIED M-LOOP WIRE FORMATION: AN INNOVATIVE SOLUTION IN WIRE BOND PROCESS TO RELIEVE STRESS ON BALL NECK CAUSING BROKEN WIRE	209
<i>Aldin-John Andam Tuazon ; Leow Chin Kee</i>	
IMPACT OF YOUNG MODULUS OF EPOXY GLUE TO COPPER WIRE BONDING	214
<i>K. Tan ; E. Chung ; C. Wai ; Dandong Ge</i>	
INFLUENCE OF COPPER PLATING CURRENT DENSITY TOWARD VOIDS FORMATION AT HIGH TEMPERATURE STORAGE (HTS) TEST.....	219
<i>Ronizan bin Mohd Salleh</i>	
PROCESS IMPROVEMENT FOR CF4/O2 MICROWAVE PLASMA DECAPSULATION ON CU- AG BONDING METALLURGY SYSTEM	221
<i>K. Julianous ; P.Y. Chan ; M.W. Chong</i>	
CU-AL INTERMETALLIC GROWTH BEHAVIOUR STUDY UNDER HIGH TEMPERATURE THERMAL AGING	226
<i>C. L. Cha ; H. J. Chong ; H. Yaw ; M. Chong ; C. Teo</i>	
MASS MIGRATION DAMAGED BASED MODEL AND THE BEHAVIOUR OF ELECTROMIGRATION AND THERMOMIGRATION IN INTERCONNECT	231
<i>Sharifah Nur'ai Shikin Bt Syed Noh ; Mohd Foad Abdul Hamid ; Mohd Nasir Tamin</i>	
UNDERSTANDING DIE BREAKAGE DURING HEAVY AL WEDGE BONDING FOR LARGE/THIN CHIP (39MM²/75µM) IN J-ALLOY-CU SYSTEM	236
<i>Senivasan Subaramaniym ; Guirit Lynn Simporios ; Kuek Hsieh Ting ; Mohammed Abdul Rahman ; Wong Jia Yi ; Chiang Shu Fang</i>	
75UM AL THIN WIRE LIFTED WEDGE SOLUTIONS ON HANGING CENTRE LEAD IN DPAK.....	241
<i>Jocson Emil Lamco ; Bajuri Mohd Kahar ; Wai Chee Mun</i>	
ELECTRONIC PACKAGING MOISTURE INTERACTION STUDY.....	245
<i>Yung Hsiang Lee ; Ian Chin ; Wei Keat Loh</i>	
Author Index	