

DfR Solutions

reliability designed, reliability delivered

DfR Solutions March/April Newsletter

[Greg Caswell Joins DfR Solutions!](#) | [IMAPS Call for Papers](#)

Design for Excellence (DfX) Bay Area is Coming! April 19-23 (San Jose, CA)

The electronics industry is demanding Excellence! Can you deliver? Learn how at DfR Solutions' [upcoming DfX training](#) in San Jose, CA. In collaboration with IPC, Ops Ala Carte, and Value Engrafting, DfR is providing training on all the DfX tools (DfR, DfM, DfT, DfE, DfW) as well as Accelerated Life Testing and Root-Cause Analysis. To register, please click [here](#) or contact [Tammy Smittenaar](#).

Sulfur and Silver - a Match made in H...

The issue of silver corrosion on printed circuit boards continues to rear its ugly head. In responding to the need for quick and relatively inexpensive [testing approaches](#), Randy Schueller at DfR developed a [unique, low cost methodology](#) for creating a realistic, high sulfur environment. DfR has performed this test for numerous customers and has trained other organizations. For more information on how this test is important for your application, please contact [Randy Schueller](#).

Medical RoHS: TIME'S UP!

Most medical electronics manufacturers are now under the gun to transition to Pb-free before their RoHS exemptions start to expire in 2014. How will the medical industry manage this extremely concerning transition? A good first step is using DfR Solutions. As this first-in-a-series white paper demonstrates, DfR's unrivaled expertise and experience allows us to identify risks and recommend realistic and definitive solutions. For more information, please contact [Cheryl Tulkoff](#).

Power Supply Design: The Influence of Slow Body Diode Behavior

Performing forensic engineering on power supply failures is one of the most challenging tasks in the failure analysis community. In this [case study](#), DfR explains how focusing on voltage derating can mask critical FET parameters, such as slow body diode behavior. For more information, please contact [Nathan Blattau](#).

MIL-HDBK-217 now moving in the direction of Physics of Failure (PoF)

The Defense Standardization Program Office (DSPO) of the U.S. Department of Defense (DoD) has initiated a multi-phase effort to update MIL-HDBK-217, the military's often imitated and frequently criticized reliability prediction bible for electronics equipment. In [this paper](#), DfR reviews the reason for the revival and update of MIL-HDBK-217 along with the concerns over its shortcomings. For more information on how DfR is the industry leader in PoF, contact [Jim McLeish](#).

Think You Don't Need to Worry About Cleanliness? We Do!

Testing for circuit board cleanliness using ion chromatography (IC) was once the domain of high reliability applications. The continued miniaturization of today's electronic products; including the fine pitch and low standoff (and QFN is the worst of both), has made this type of testing [increasingly mainstream](#). This [white paper](#) details the process of IC and provides the reader a clear understanding of best-in-class pass/fail criteria for ionic contaminants. For more information, contact [Seth Binfield](#).

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Is the Solar Industry Reinventing the Wheel? Or Completely Missing It?

For the solar industry to become a critical element of renewable power generation, it will need to solve the current reliability versus cost conundrum. Solar must meet the [high reliability expectations](#) of the utility industry and yet continue to reduce [cost per kilowatt hour](#). With these tight margins, there is very little room for error, especially in capturing wearout mechanisms that could initiate failure within 25 years. As an invited participant at the recent PV Reliability Workshop, DfR presented a [unique approach](#) for predicting and ensuring the reliability of photovoltaic and concentrated photovoltaic systems. For more information, contact [Greg Caswell](#).

Is it a REACH or a STRETCH?

The European Chemicals Agency ([ECHA](#)), the source for information on [REACH](#) chemicals, has expanded the original list of 14 Substances of Very High Concern (SVHC) to 29 (click [here](#) for an updated list of substances). Companies wishing to be REACH compliant must react quickly to meet 2011 deadlines for reporting. As expected, some [issues and concerns](#) make the challenge ahead difficult for those involved. For more information, please contact [Craig Hillman](#).

DfR News

DfR Solutions Welcomes Greg Caswell

DfR Solutions is proud to announce the hiring of Greg Caswell, a former president of IMAPS and industry renowned expert in the fields of SMT, advanced packaging, printed board fabrication, circuit card assembly, and bonding solutions using nanotechnology. Mr. Caswell has been well-regarded as a leader in the electronics contract manufacturing and component packaging industries for the past 30 years. His previous appointments include Vice President of Business Development for Newport Enterprises, Director of Engineering for VirTex Assembly Services, and Technical Director at Silicon Hills Design. Most recently, Greg was the Vice President of Engineering at Reactive Nanotechnology (RNT), where he led application development for the RNT Nanofoil[®] and ensured a successful transition of product technology to Indium Corporation. Greg continues to be the leading expert in NanoBonding[®] implementation for component mounting applications. Greg holds a BS in Electrical Engineering from Rutgers University and a BA in Management from St. Edwards University in Austin, TX.

DfR Solutions Invited to Present at Photovoltaic (PV) Module Reliability Workshop

Craig Hillman and Greg Caswell, in collaboration with Jordan Ross of Indium Corporation, were invited to present at this industry-leading event sponsored by the US Department of Energy. DfR / Indium paper, titled [Insuring and Predicting the Reliability of Concentrated Photovoltaics: Interconnect Structure](#), provided PV module designers and end-users with materials and design-based methodologies for ensuring long-term reliability. These solutions will become especially critical as solar applications are expected to become more demanding over the coming years. For more information, please contact [Greg Caswell](#).

IMAPS "High Reliability Microelectronics for Military Applications" Now Accepting Abstracts!

Greg Caswell is the General Chair for this event that will take place at the end of August in the Washington, DC, area. He is looking for abstracts in the following areas:

- Embedded Actives and Associated Technologies
- Advanced Organic Substrate Development
- Lead-Free Soldering and Associated Reliability Issues and Concerns
- MCM Packaging for Military Applications
- Outsourcing of Military Packaging
- Unique Testing Approaches to Enhance Reliability
- Obsolescence and Counterfeit Part Challenges
- Reliability Analysis of Applications and Packaging Issues
- Sensor Technology
- COTS, Near Hermetic Packaging Solutions for Military

Interested authors should submit a one to one and a half page extended abstract for consideration. Please contact [Greg Caswell](#) for more information or to submit an abstract.

Upcoming Events

IMAPS Device Packaging Conference (**Phoenix, AZ: March 7-10**)

Dr. Nathan Blattau gave a presentation entitled "[The Introduction of Tensile Ratcheting in Solder Bumps Encapsulated in Low Tg Underfill](#)" at the recent IMAPS conference. For more information on this topic, please contact [Craig Hillman](#).

Wayne Tustin at DfR Solutions (**College Park, MD: April 5-7**)

Wayne Tustin will teach his popular short course "Random Vibration and Shock Testing, ESS, HALT & HASS" at DfR Solutions, College Park, MD. For more details and reservations, please click [here](#).

DfR in Los Angeles, CA (**April 5-6**)

Tom O'Connor will be visiting companies in Los Angeles, CA, in the beginning of April. If you and your associates are interested in an onsite visit, Please contact [Tom O'Connor](#).

IPC Apex EXPO (**Las Vegas, NV: April 6-9**)

Dr. Randy Schueller will present a technical paper entitled "Corrosion Impacts from Free Air Cooling" at the upcoming [IPC Apex](#) conference. Please e-mail [Randy](#) if you are interested in meeting with him during the conference.

SMTA China East (**Shanghai, China: April 20**)

[Dr. Randy Kong](#) of DfR Solutions will be presenting "Manufacturing and Reliability Challenges with QFN Packaging," at the upcoming [SMTA](#) event in China.

DfR in China and Taiwan (**April 18 - 24**)

DfR's Dr. Randy Kong will be in China (Shanghai and Shenzhen) and Taiwan visiting companies in mid-April. If you are interested in meeting with Randy and possibly arranging a presentation on Process Reliability Qualification, Component Engineering, or Meeting OEM Reliability Requirements, please contact [Jerry Lee](#) or [Major Chen](#).

Design for Excellence (DfX) (**San Jose, April 19-23**)

DfR Solutions, in collaboration Ops a La Carte, is proud to announce that the DfX training session is back! There was such a high demand for the course on the East Coast that we have decided to add a West Coast location. This one-of-a-kind collaborative effort will provide designers, reliability personnel, and engineering management with tools on how to meet time-to-market deadlines and reduce warranty issues. Areas to be covered include Design for Reliability, Design for Manufacturability, and Design for Testability, just to name a few. For a full schedule of courses and information on registration, please click [here](#) or contact [Tammy Smittenaar](#).

Embedded Systems Conference - Silicon Valley (**San Jose, CA: April 26-29**)

DfR will present "Common Hardware Mistakes by Embedded System Designers," at the upcoming [Embedded Systems Conference](#) in April. For more information, or to schedule an onsite visit and/or presentation, please contact [Tammy Smittenaar](#) or [Craig Hillman](#).

DfR in Bay Area (**April 19-28**)

Numerous DfR Staff (Randy Schueller, Cheryl Tulkoff, Jim McLeish, Craig Hillman) will be visiting companies in the San Francisco Bay Area in mid-April. If you and your associates are interested in an onsite visit, please contact [Tammy Smittenaar](#).

IMAPS New England (**Boxborough, MA: May 4**)

Greg Caswell will be making a presentation at the IMAPS New England Symposium and Expo on Tuesday, May 4, 2010, at the Holiday Inn Boxborough Woods, Boxborough, MA. His presentation will be entitled "Manufacturing and Reliability Challenges With QFN." For more information, please contact [Greg](#) and to register please click [here](#).

Design for Excellence (DfX) (**Huntsville, AL: May 17-21**)

DfR Solutions, in collaboration with Ops Ala Carte, Value Engrafting and IPC is proud to announce that the DfX training session is back! There was such a high demand for the course on the East Coast that we have decided to add a Southern location. This one-of-a-kind collaborative effort will provide designers, reliability personnel, and engineering management with tools on how to meet time-to-market deadlines and reduce warranty issues. Areas to be covered include Design for Reliability, Design for Manufacturability, and Design for Testability, just to name a few. For a full schedule of courses and information on registration, please click [here](#) or contact [Tammy Smittenaar](#).

SMTA Lead-Free Academy (**Toronto, Canada: May 17-18**)

Craig Hillman will be teaching two tutorials at the upcoming International Conference on Soldering & Reliability: "True Design for Reliability - Understanding What Is and What Is Not DfR" and "The Reality of Pb-Free Reliability." For more information or to register for the courses, please contact [Melissa Serres Marx](#).

IMAPS Nordic Conference and Exhibition (**Gothenburg, Sweden: June 6 - 9**)

Craig Hillman and Greg Caswell will be presenting a course and a technical paper at the IMAPS Nordic Conference in early June. The course topic will be "Contamination and Cleanliness: Developing Practical Responses to a Challenging Problem" which will take place on the 9th of June. The technical paper to be presented will be entitled "Manufacturing and Reliability Challenges With QFN." For more information please contact [Greg Caswell](#). To register for the course, please click [here](#).

Embedded Systems Conference - Midwest (**Chicago, IL: June 8**)

DfR will present "Common Hardware Mistakes by Embedded System Designers," at the upcoming [Embedded Systems Conference](#) in April. For more information, or to schedule an onsite visit and/or presentation, please contact [Tammy Smittenaar](#) or [Craig Hillman](#).

Employment

Looking to hire? [Click here](#) to visit the "seeking employment" section of our website where we highlight engineering professionals who are currently looking for job placement.

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