

# DfR Solutions

reliability designed, reliability delivered

## DfR Solutions Newsletter July/August 2009

Design for Excellence (DfX) is Getting Closer! **Oct. 19-22**

As designers, reliability personnel, and engineering management are expected to do more with less, a formal and comprehensive Design for Excellence (DfX) strategy has become a requirement. And DfR Solutions, in collaboration with A.T.E. Solutions, IPC, TMAG, and ASTE, is the only place to learn all the DfX tools (DfR, DfM, DfT, DfE, DfU) at the same time, same place. To register, please [click here](#). For more information, please contact [Carrie Sharik-Ernest](#).

DfR Continues Expansion

Strong interest in our services continues to drive our expansion. Our Bay Area Office has tripled in size and we are proud to announce our newest office in Seattle, WA. For more details, please see [DfR News](#).

Package-on-Package

Challenges in [shrinking feature sizes](#) on-die have driven part manufacturers to increasingly use packaging solutions to maintain transistor densities. One of the most popular is package-on-package (PoP) due to its flexibility for OEMs, lower cost, and clear lines of ownership. This [insightful presentation](#) provides an introduction to this technology and the potential risks in regards to quality and reliability. For more information, please contact [Randy Kong](#) or [Randy Schueller](#).

DoD Moves on Pb-Free

The DoD is starting to respond to the risk of Pb-free to the warfighter. While the [Soldering Technologies Working Group](#) has better marketing, the most interesting activity is the recent introduction of a [Data Item Description \(DID\)](#). Although it may sound benign enough, this [DID](#) will require all military contractors to provide a leadfree control plan (LFCP) in compliance with GEIA standards. For more information on developing LFCPs, please contact [Craig Hillman](#).

Understanding Mizenboushi: Implementing Lean (QRD)

First developed by Toyota, the [Mizenboushi Method](#) is a problem prevention philosophy based on good design, good discussion, and good design review (GD3 or GD cubed). The method is implemented through DfR best practices, including design review based on failure mode ([DRBFM](#)) and design review based on test results (DRBTR). If you are interested in having your organization produce more reliable product while cutting costs, please contact our expert in Mizenboushi, [Jim McLeish](#).

Service of the Month: ISO+

OEMs increasingly rely on ISO9001 to ensure the quality of their suppliers without realizing the honest truth: nobody ever loses their ISO9001 certification! And yet, defective product continues to enter the supply chain. Why? Because ISO9001 does not consider the [physics of](#)

### In This Issue:

[DfR Expands Package-on-Package DoD Moves on Pb-Free Mizenboushi Method ISO+ E-Learning Spreads Magnetic Components Incredible Journey DfR News Upcoming Events Employment](#)



Innovate to Increase Profit Margin. Build SMD mounted Piezo motors directly on PCB itself. The result: smaller, cheaper, and more accurate movement in applications. You can introduce a world of new design opportunities using standard components and assembly techniques. Read our Whitepaper at [www.pcbmotor.com](http://www.pcbmotor.com) or contact us at [info@pcbmotor.com](mailto:info@pcbmotor.com).

[quality \(PoQ\)](#). What is the PoQ? It is the knowledge and science of understanding how materials and process can introduce manufacturing defects and it is the foundation of DfR's ISO+ service. For more information, please contact [Ed Dodd](#).



DfR Educates the World

Our E-learning is spreading across the Internet. In this [insightful article](#), [Dr. Randy Schueller](#) educates the ATCA community on best practices in product development. On the other side of the world, [Craig Hillman](#) and [Cheryl Tulkoff](#) are demonstrating the risk when you combine printed boards with [moisture and Pb-free](#).

Component Upgrading: Magnetic Components

As part of our ongoing series on best practices in reliable and cost-effective design, we are pleased to continue our discussions on upgrading, which involves performing a risk assessment of parts used outside their manufacturer's specifications (typically temperature). This month's component is [magnetic components](#) (inductors, ferrite beads, and transformers). For more information on our upgrading and derating services, please contact [Nathan Blatta](#) or [Tom Johnston](#).

The Incredible Journey is Here!

In an amazing example of life imitating art, Israeli scientists have announced the invention of a [robot that can crawl](#) through the human body. We just hope it is reliable (no one wants a stuck robot where the sun don't shine!). For more information on our special services for implantable medical devices, please contact [Randy Schueller](#).

ESPEC North America, Inc. has the widest selection of environmental test chambers, which includes: bench tops, over 70 different reach-ins for temperature/humidity cycling, and compact thermal shock chambers with low utilities. We also have specialty chambers including HAST, precision industrial ovens for high-temperature testing, and measurement systems for ion-migration and solder-cracking. Click [here](#) to see all of our models or call us at 877-GO-ESPEC.

## DfR News

DfR Opens Seattle Office

In response to increasing demand for our services in Washington and among consumer electronic OEMs, aerospace manufacturers, and system integrators, DfR has opened a Washington office. Located in Seattle, this office will allow for closer interaction with our customers. The office will be headed by [Dr. Randy Kong](#), who has extensive experience in process reliability qualification, component engineering, and meeting OEM reliability requirements. For more information or to schedule an onsite visit to your facility, please contact Dr. Kong by [email](#) or phone.

Dr. Craig Hillman Interviewed by National Defense Magazine

A recent [article](#) in the National Defense Magazine highlighted the increasing concern of the defense and aerospace industries with the proliferation of Pb-free electronics. To capture the risks and the necessary steps to move forward, this publication of America's leading Defense Industry association, interviewed one of DfR's Pb-free experts, Craig Hillman. Through his comments, Dr. Hillman provided insight into the issues at hand and how the DoD should respond to this threat to the warfighter.

DfR Highlights

Dr. Craig Hillman will give the keynote address at the upcoming [Symposium on Defense and Aerospace Electronics](#) which will be held in Huntsville, Alabama, on September 16th. The conference, which is sponsored by University of Alabama Huntsville and [Benchmark Electronics](#), is an important one-day workshop covering the impact [lead-free](#) has had, and will continue to have, on the manufacturing and reliability of military and aerospace electronics. For more information on this topic, please contact [Craig Hillman](#). If you are interested in attending the conference, please [click here](#).

## Upcoming Events

DfR in Austin, Texas **(July 17)**

Dr. Randy Schueller of DfR Solutions visited companies in Austin, Texas, in mid July to discuss a variety of topics, including: Pb-free transition, electronic packaging, and component engineering.

DfR in Boston Area **(July 27-28)**

Cheryl Tulkoff visited companies in the Boston, Massachusetts, area in late July to give presentations on a variety of topics, including: semiconductor fabrication, electronics assembly, RoHS conversion, and reliability engineering.

**DfR Solutions in Shenzhen, China (August 3-7)**

Dr. Randy Schueller visited companies and organizations in Shenzhen, China, to make presentations on a variety of topics including reliability requirements of PC manufacturers, electronic packaging, and component engineering.

**DfR in Taipei, Taiwan (August 3-7)**

While he was in the Taipei area, Dr. Randy Kong of DfR Solutions visited companies and organizations to make presentations on a variety of topics including design for reliability, process reliability qualification, component engineering, and meeting OEM reliability requirements.

**DfR Solutions in Orange County, CA (August 5)**

Jim McLeish of DfR Solutions visited companies in the Orange County, California, area to make presentations on a variety of topics including Pb-Free Electronics, Physics of Failure, and Root Cause Analysis.

**DfR in Los Angeles, CA (August 11-12)**

Dr. Craig Hillman and Edward Wyrwas will be visiting companies in the Los Angeles, California, area in mid-August and they will be available to make presentations on a variety of topics, including Pb-free transition, design-for-reliability assessments, and supplier assurance.

**DfR in Southern Wisconsin and Illinois (August 28)**

Dr. Randy Schueller visited companies in Southern Wisconsin and Illinois in late August to discuss a variety of topics, including Pb-free transition, electronic packaging, and component engineering.

**DfR Solutions in Austin, Texas (September 9-11)**

Dr. Craig Hillman of DfR Solutions will be visiting companies in Austin, Texas, in September. If you and your associates are interested in an onsite visit and/or presentation, please contact [Carrie Sharik-Ernest](#).

**DfR in Huntsville, AL, and Atlanta, GA (September 15-16)**

Dr. Craig Hillman will be visiting companies in Huntsville, AL, and Atlanta, GA, in mid-September. If you and your associates are interested in an onsite visit and/or presentation, please contact [Tammy Smittenaar](#).

**Symposium on Defense and Aerospace Electronics (Huntsville, AL: September 16)**

Dr. Craig Hillman will be giving the keynote address at this important one day workshop co-sponsored by University of Alabama Huntsville and [Benchmark Electronics](#). For more details, please contact [Carrie Sharik-Ernest](#) or [David Cavanaugh](#).

**MEPTEC and SMTA Medical Electronics Symposium (Phoenix, AZ: September 16-17)**

Dr. Randy Schueller will present " [Second Generation Pb-free Alloys](#) " at the upcoming MEPTEC and SMTA Symposium in mid-September. If you would like more information on this topic, please contact [Randy Schueller](#). To register for the conference, please contact [Carrie Sharik-Ernest](#) or [Melissa Serres Marx](#).

**Embedded Systems Conference (Boston, Massachusetts: September 24)**

DfR Solutions will present "Common Hardware Mistakes by Embedded System Designers," at the Embedded Systems Conference. For more information, please contact [Tammy Smittenaar](#) or [Craig Hillman](#).

**DfR in Boston Area (September 21-24)**

Dr. Craig Hillman of DfR Solutions will be visiting companies in the Boston area in September. If you and your associates are interested in an onsite visit and/or presentation, please contact [Carrie Sharik-Ernest](#) or [Bob Wons](#).

**IPC Midwest (Schaumburg, IL: September 23-24)**

Cheryl Tulkoff of DfR Solutions will present "Pb-Free Reflow, PCB Degradation, and the Influence of Moisture Absorption," at the IPC Midwest conference. If you are interested in attending this presentation, please visit the [IPC Website](#). For more information on this topic, please contact [Cheryl Tulkoff](#).

**SMTA International (San Diego, CA: October 4-8)**

Dr. Randy Schueller of DfR Solutions will present " [Second Generation Pb-Free Alloys](#)," at the upcoming [SMTA](#)

[International Conference](#). If you are interested in more information on this topic, please contact [Randy Schueller](#). Randy will also be teaching a technical seminar on "[The Reliability of Green](#)." For more information, please contact [Carrie Sharik-Ernest](#) or [Melissa Serres Marx](#).

IEEE ASTR Conference (**Jersey City, NJ: October 7-9**)

DfR Solutions will give two presentations at the upcoming IEEE ASTR conference. Craig Hillman, in association with Neill Doertenbach from the [Qualmark Corporation](#), will present "Is Your Reliability Testing Program Keeping Pace with Manufacturing and Design Advancements?" and Nathan Blattau will present "Thermo-Mechanical Fatigue Testing of Printed Circuit Card Assemblies Using Power Cycling." If you are interested in attending the conference and hearing these presentations, please contact [Cheryl Tulkoff](#).

Design for Excellence Course (DfX) (**College Park, MD: October 19-22**)

This course will include all the elements for a successful design, including design for manufacturability, design for testability, design for reliability, and design for environment. The event will be presented in collaboration with Louis Ungar of A.T.E. Solutions, Inc, with contributions from IPC. For a full schedule of courses and for registration information, please [click here](#) or contact [Carrie Sharik-Ernest](#).

## Employment

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

**Advertise Here & Reach Over 7,000 Electronics Professionals Each Month!**

DfR is now accepting advertisements in the DfR Solutions Newsletter. For more information, [click here](#).

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