



November/December 2011 Newsletter

[DfR is Having an Open House!](#) | [Holiday Message from the CEO](#)

Counterfeits Get Higher Profile

A flurry of media reports on counterfeits have crystallized into a [first-of-its-kind pending US legislation](#) on counterfeit electronic parts. Will it solve the problem? First pass, doesn't look good. The legislation could lead to [randomly stopping electronic parts at the border and severe penalties for contractors](#). Where is the insight that counterfeiting is [simply a cost issue](#)? For more information on DfR's counterfeit avoidance, detection, and ROI activities, please contact [Ed Dodd](#).

Conformal Coating - Why, What, When and How

Conformal coating can be crucial in outdoor environments, but a number of our customers still struggle with when to coat, where to apply, how much, what material, and how to qualify. [This white paper](#) clearly provides a checklist to help identify the need and the right materials, processes, and equipment. For assistance with conformal coating, contact [Greg Caswell](#).

Obsolescence? What Obsolescence?

One of the more common challenges DfR helps resolve is dealing with obsolete parts (which, of course, drives counterfeits). However, this [insightful graph](#) from [EDN](#) turns common sense on its head. Three out of the top four integrated circuit (IC) technologies are 130nm, 180nm, and 500nm and volumes are expected to be relatively steady for most IC technologies. Can we finally expect our parts to be around for more than 3 years? For more information on obsolescence mitigation, please contact [Walt Tomczykowski](#).

Power Supply Design, Part 2

As part of an ongoing series, Dr. Ron Wunderlich continues to provide insight on successful power supply design. In [this white paper](#), he covers the appropriate selection and use of magnetics in power supply design. For more information designing, reviewing, or qualifying power supplies, please contact [Ron Wunderlich](#).

China RoHS Update

Sherlock

[Automated Design Analysis™](#)



In This Issue

[Counterfeits](#)
[Conformal Coating](#)
[Obsolescence](#)
[Power Supplies](#)
[China RoHS](#)
[Sample Size](#)
[A Little Holiday Cheer](#)
[Upcoming Events](#)
[Employment](#)



The Heat Is On 2012
March 19, 2012

Doubletree Hotel, San Jose, CA
MEPTEC is pleased to announce the continuation of their "[Heat is On](#)" symposiums, which for the second year will be co-located with the 28th Annual [SEMI-THERM](#) conference and exposition.

China is just the next entity to update their environmental legislation. [This article](#) provides you and your company insight into what is necessary to interact with China with respect to RoHS. DfR can work with you to help resolve RoHS and Pb-free manufacturing questions. For more information, contact [Craig Hillman](#).

Integrated Circuit (IC) Wearout

As transistors continue to shrink, the integrated circuit industry has highlighted some of the challenges in manufacturing this technology. More recently, [DfR has highlighted](#) some of the challenges in making this technology reliable. See [who else](#) agrees reliability of new IC's is an issue. For more information, contact [Ed Wyrwas](#).

Tool of the Month: Calculating Sample Size

One of the most common questions asked by customers is how to determine sample size for life testing. One of the most straight forward is Weibayes Theorem. To make your life easier, we have incorporated it into a [spreadsheet](#). For more information on DfR's statistical analysis capabilities, contact [Joelle Arnold](#).

Holiday Cheer

At this time of year, it's always good to have a laugh. We agreed so much, we gave you two!

Product Reliability - Duct Tape to the Rescue

We have often seen how duct tape can be used to patch, mend, bind, connect, or assemble almost anything. [This article](#) shows how absolutely reliable duct tape really is. DfR's expertise with duct tape is world renowned. For more information, contact our duct tape expert – [Craig Hillman](#).

How Do Engineers Really Think?

As part of DfR's ISO 9000 activity, procedures for all operations were generated. When it came to an overall engineering process, we truly followed the mantra of "[Say What You Do and Do what You Say](#)." We were amazed at how closely ISO and the product reliability story in this newsletter coincided. To learn more about our engineering flow contact [Nathan Blattau](#).

DfR News

DfR is Having an Open House

DfR Solutions would like to invite you to our [Holiday Open House](#) on Wednesday, December 14, 2011, from 9am to 3pm. Meet our technical staff, learn from our technical presentations, explore our state of the art

facility, and see a live demonstration of our award- winning new software tool, Sherlock Automated Design Analysis™. We'll even feed you!

[Registrations](#) must be received by December 9. And, you could win an iPad 2! [Register](#) by November 30, 2011, and you'll be entered to win. [Click here](#) for more details about the DfR Solutions Holiday Open House. We look forward to seeing you there!

Message from the CEO

As 2011 draws to a close, I want to thank all of our colleagues and customers for a very fruitful and dynamic year. DfR continues to grow rapidly and we believe our consistent success comes from a high number of returning customers, who recognize the quality and value of our services, and our continued expansion into new and exciting opportunities, including releasing our unrivaled Automated Design Analysis software and becoming a thought leader for the Department of Defense. We have been especially pleased at the recognition we are receiving in high growth markets such as solar power, LED lighting, and electric vehicles. Products can't be green unless they're safe and reliable!

Please enjoy this holiday season with your friends and family. Wish for a lot of snow (especially if you have three children under nine) and please be safe and healthy.

Ed Wyrwas in EE Times

For an interesting read on the reliability behavior of ICs in large computer systems check on Ed Wyrwas' [recently published article](#) in EE Times. The quick brown fox jumped over the lazy dog. For more information, please contact [Ed Wrywas](#).

Minnetronix Sherlock

Minnetronix, a medical electronics and lifesciences design, development and manufacturing company has selected DfR's Sherlock ADA software to enhance the reliability of their Class III cardiovascular and monitoring systems. Rarely can medical electronics manufacturers afford to build the number of modules required for full reliability testing and Sherlock provides a means to analyze the thermal and mechanical stresses on an assembly and improve the design without repeated reliability testing. For more information on Sherlock, please contact [Ed Dodd](#).

Navy SBIR for Shock and Vibration

DfR is proud to announce it has been awarded a Phase II SBIR grant by the US Navy to assess the impact of Shock and Vibration on advanced packaging technologies (BGAs, flip chip BGAs, CSPs, etc) coupled with Pb-

free solders. AS Pb-free electronics are known to have issues with Shock and Vibration, DfR has been selected to examine this concern. This is the largest study ever funded in this critical area for high rel applications. For more information, please contact [Joelle Arnold](#).

Google Calendar

Look for DfR at upcoming events, conferences, webinars, and sales visits that may be in your area on our new [link to Google Calendar](#). For more information on a specific activity, please contact [June Caswell](#).

Upcoming Events

IPC Conference on Reliability: Assembly Process for a Reliable Product (Irvine, CA: November 1-2)

Cheryl Tulkoff taught two courses at the conference. One on "Design for Reliability" and the other on "Design for Reliability/Manufacturability in the Lead Free Era". She also presented on, "Coating and Potting of QFNs." Cheryl visited companies in the Irvine area. . If you missed connecting with Cheryl but would like to schedule a visit to your company the next time a DfR staff member is in your area, please contact [June Caswell](#).

DfR and MET Labs Seminar (Dallas, TX: November 1)

Greg Caswell presented on "Design for ESD" at the seminar in Austin. For more information please contact [Greg Caswell](#).

DfR in Germany (Germany: November 13-17)

Craig Hillman visited customers in various parts of Germany, including Munich, Frankfurt, and Hanover. If you would like to schedule a visit to your company while he is in your area, please contact [June Caswell](#).

TechSearch International –Fraunhofer Institute-Advanced Packaging Trends for Medical Electronics Workshop (Munich, Germany: November 14)

Craig Hillman presented "Dealing with New RoHS Regulations in Medical Devices: An Update" at this workshop preceding Productronica. For more information, please contact [Craig Hillman](#).

SMTA Nutmeg Expo and Technical Forum (Southbury, CT: November 16)

Walt Tomczykowski presented on "How to Design for Reliability and The Importance and Cost Benefits of Designing in Reliability Early in the Life Cycle" at this event. For more information contact [Walt Tomczykowski](#).

Webtorial in Conjunction with Qualmark (Virtual: November 17)

Dr. Nathan Blattau, DfR's Chief Technologist, was the featured presenter for a special 2-part edition of Qualmark's popular Ask the Experts webinar series this fall: October 20th session on Vibration and November 17th session on Shock. In both sessions, Dr. Blattau discussed the effects of these stresses and how they can be effectively mitigated during product development and process verification to deliver a more reliable product. For more information, contact [Nathan Blattau](#).

DfR in Israel (Israel: December 4)

Cheryl Tulkoff will be presenting a two day course addressing topics such as Advanced packaging Technologies, Supplier Qualification, Developing a Test Plan, Pb-free, and Design for Manufacturability. She will also be visiting customers in Israel. If you would like to arrange a visit please contact [June Caswell](#).

Manufacturability and Reliability of BTC's (QFN's) and 0.3 mm Pitch Chip Scale Packages (Webinar: December 6)

Bottom Terminated Components (BTC's aka QFN's) continue to create issues for successful high yield and high reliability assembly. Likewise to successfully move to 0.3mm requires buy-in from the entire manufacturing industry, from the printed board manufacturer, to the solder paste supplier, to the stencil manufacturer, and a comprehensive understanding of the potential reliability risks the change in interconnect design may entail. This joint webinar from ITM Consulting (Phil Zarrow) and DfR Solutions (Greg Caswell) will address this issue from the perspective of the manufacturing and reliability. [Registration](#) is now open.

DfR in Malaysia and Singapore (December 6-10)

DfR Solutions will be visiting customers in Singapore and Malaysia. If you would like to arrange a visit please contact [June Caswell](#).

Electronics Packaging Technology Conference (Singapore: December 7)

DfR Solutions will be teaching a NEW full-day course titled "Reliability Predictions for Packaging and Tools for Analyzing Risks and Grading Packages at Board Level" at the [Electronics Packaging Technology Conference](#). The course will be in two parts with the first addressing semiconductor packaging and the second board level reliability. For more information please contact [Craig Hillman](#).

Microelectronics Reliability and Qualification Workshop (El Segundo, CA: December 13)

Ed Wyrwas will be making a presentation entitled "Silicon to Systems: Integrating Physics of Failure Assessments Into All Levels of Electronics Packaging" at this workshop. For more information, contact [Ed Wyrwas](#).

DfR Solutions Open House (College Park, MD: December 14)

Don't miss the [DfR Solutions Open House](#). Space is limited, [register today!](#)

ASQ Reliability Division Webinar (Virtual: February 9, Noon EST)

Jim McLeish will be presenting "Introduction to Physics of Failure Reliability Methods" during this webinar. For more information, please contact [Jim McLeish](#).

IPC APEX Conference (San Diego, CA: February 26-March 1)

Cheryl Tulkoff will be teaching her highly regarded course on Design for Manufacturability on Sunday, Feb 26th, in addition Cheryl will be moderating these 2 sessions at [APEX 2012](#).

- S19 - Wednesday, February 29, 10:15am-11:45am - PCB Hole Fill
- S31 - Thursday, March 1, 10:15am-11:45am - Pad Cratering

For more information contact [Cheryl Tulkoff](#).

Employment

CAD/CAE Engineer

DfR is looking for mechanical engineer with experience with Abaqus finite element method (FEM) software.

The position has two primary responsibilities. The first responsibility is performing FEM simulations for Fortune 500 companies. The focus of the FEM simulations will primarily be on electronics and microelectronics packaging. Examples include vibration of circuit cards, temperature cycling of chip scale packages, and bending of fiber optic channels. These consultations may also periodically involve testing to validate FEM predictions.

The second responsibility is to provide support to customers of Sherlock Automated Design Analysis™ software. The tool performs physics-based reliability predictions and design rule checks for the electronics industry. Some of the analysis involves an embedded FEM engine. A successful applicant will be thoroughly trained on the architecture and capabilities with the software and will be expected to train customers, answer questions, and perform analyses using the software. A minor amount of travel (once or twice a quarter) may eventually be required as part of this position.

The ideal candidate will thoroughly enjoy problem-solving and have the ability to communicate findings, both verbally and in writing, to customers. A Masters' Degree in Mechanical Engineering is highly preferred, but work experience may be an acceptable substitute. Applicants must also be comfortable working as part of a team with people from a variety of technical backgrounds. An availability to start immediately is preferred.

Qualified individuals should [e-mail](#) their resume along with a cover letter.

Reliability Manager

Full-time onsite at customer location in Washington, DC, metro area.

Individual will utilize a thorough knowledge of the DoD 5000 acquisition process to draft policy and guidance documents and to review DoD major weapons systems reliability and maintainability documentation. Individual will supervise a team of reliability engineers and analysts. This is a fast-paced, high-visibility position that requires the applicant to be highly engaged, capable of managing multiple tasks, writing comprehensive reports and meeting critical deadlines. Position includes travel up to 25% of the time.

Required:

- Highly skilled in presenting to senior leadership in both industry and government
- Thorough knowledge of reliability improvement, growth theory and practice, and the DoD 5000 acquisition process to include the Defense Acquisition Guide
- 20 years experience working in the DoD system program office
- Minimum M.S. degree in engineering
- Secret clearance and US citizenship

Preferred:

- Cross-domain experience (air, land, sea, space) is a plus

Qualified individuals should [e-mail](#) their resume along with a cover letter.

Reliability Analyst / Engineer

Full-time onsite at customer location in Washington, DC, metro area.

Required:

- DoD 5000 acquisition directives and regulations

DoD major weapons systems development timeline with an emphasis on reliability and maintainability activities

- Reliability design principles and practices including part selection, physics of failure, R&M math models, etc.
- Best practices in test development and execution including HALT/HASS, reliability growth tests, accelerated life testing, etc.

Required Experience/Education:

- Minimum 10 years of experience including direct experience with system-level technical reviews
- Minimum B.S. degree in engineering
- Secret clearance and US citizenship

Preferred:

- Cross-domain experience (air, land, sea, space) a plus
- Certified Reliability Engineer (CRE)
- Green Belt Six Sigma

Qualified individuals should [e-mail](#) their resume along with a cover letter.

Advertisement

Advertise here and reach more than 11,000 electronics professionals. DfR Solutions is now accepting advertisements in the DfR newsletter. For more information, contact [Tammy Smittenaar](#).