



Greetings Colleague!

Selecting a Contract Manufacturer to Optimize Quality & Reliability

In our March newsletter, we discussed the importance of best practices in design for reliability (DfR) when enlisting the services of a contract manufacturer (CM) to design your product. We are delighted to present a response to that article from [David Cavanaugh](#), the Director of Corporate Component Engineering at Benchmark Electronics. Mr. Cavanaugh's [article](#) provides a useful insight into the critical requirements within a CM's reliability program and engineering services that will ensure a design / product will perform its required mission free of infant / adolescent mortality and premature wear out.

Service of the Month: Mechanical Shock Testing

Will your product survive handling, shipping, and everyday use? DfR can help you find out. Our integrated use of Physics of Failure (PoF) and Best Practices along with our state-of-the-art test facilities will give you the information you need to determine your product's reliability, performance and compliance.

DfR uses the Lansmont Model 23 Shock Test System to perform a variety of industry-specified or company-specific drop / mechanical shock tests on specimens weighing up to 80 lbs. For a pdf outlining DfR's mechanical shock testing capabilities, click [here](#). To ask about your product shock concerns and how we may be able to help you, contact [Nathan Blattau](#).

China, China, Everywhere

Interested in the latest on the China RoHS? Well, wait in line like everybody else. However, if you are still getting up to speed, here are some helpful translations regarding the actual [law](#), [frequently asked questions](#), and a [catalog](#) of electronic products to be covered by the China RoHS legislation. Why would China RoHS be confusing? Could it be because their catalog lists general products (radar anyone?), as to imply something similar to Europe, but also lists specific components (doesn't every design have a printed circuit board?). Stay tuned.

Uprating / Derating

While DfR Solutions provides extensive guidance and expertise in component uprating, we may have failed our readers by not providing a background on this difficult and complex activity. In this introductory [article](#), DfR provides a concise explanation of uprating, including the risks, the costs, and the process. For more information on our uprating and derating services, please contact [Norm Anderson](#) or [Craig Hillman](#).

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Higher Tg? We don't Need no Stinkin' Higher Tg!

During the 'early' days of Pb-free, the higher process temperatures prompted an outcry of concern over potential damage to printed circuit boards. In response, most electronic manufacturers increased the specified Tg by at least one 'level' (130C to 150C, 150C to 170C, or 170C to 190C) and begin specifying thermal stability (Td and T288) as well. This approach worked well until two problems cropped up: One, higher Tg materials are harder to process (known by PCB industry veterans for years). Two, COST! Hello, this is the electronics industry. Whether it's SnPb or Pb-free, there is still the need to maintain, if not reduce costs year over year. So, what's the latest trend? Companies are going back to the lower Tg. For more information on how to qualify your PCB, click [here](#) or contact [Joelle Arnold](#).

Design Mistakes: Are you aware?

Design for reliability (DfR) plays a critical role in the ultimate success of your product and your company's bottomline. Yet, it is surprising how often the most common design mistakes are repeated, even within the same company, same division, and even the same product group. To get everyone up to speed, DfR is proud to present three of the [Most Common Mistakes in Electronic Design](#). For more information, contact [Craig Hillman](#).

A Primer on Immersion Plating

In the move to Pb-free printed circuit boards, three of the five solderability platings that are available are formed by way of an immersion plating process (immersion gold, immersion silver, and immersion tin). Do you know what the immersion process is? How it is different from other plating processes? Surprisingly few OEMs can answer these questions. However, knowledge of materials and process is at the heart of a successful physics-of-failure (PoF) strategy. To provide some degree of guidance, DfR has provided a brief [presentation](#). If you have more questions, please contact [Seth Binfield](#).

In the News

DfR Solutions & Gold Circuits Electronics Announce Alliance

DfR and Gold Circuits Electronics have formed a partnership that will place the companies on the leading edge of printed board design and fabrication knowledge. The goal of the alliance is to develop analytical research into the advantages and limitations of current and future technology in printed board design and fabrication. The agreement calls for a joint research project every six months. The shortened time frame, compared to the one year standard in most research consortiums, will allow for more defined deliverables, quicker insertion of results into the marketplace, and flexibility to better respond to customer needs. For more information click [here](#).

DfR Solutions to Present at Washington Labs' Workshop

DfR Solutions will be an invited speaker at Washington Labs' Workshop: Energy and the Environment: Regulations and Remedy to be held May 25 at Washington Laboratories' facility in Gaithersburg, MD. DfR will present the latest information on worldwide RoHS legislation and how American companies are responding in regard to design, manufacturing, and reliability assurance. For more information contact [Michael Violette](#) at Washington Laboratories, Ltd.

DfR Adds a New Regional Sales Manager

Clayton Bonn has joined DfR Solutions in the new position of Regional Sales Manager. His primary focus will be the Southwestern Region of the U.S. emphasizing on the military and aerospace industry. Clayton will be responsible for DfR's failure analysis, physics-of-failure reliability prediction, and component level testing services, along with the BQR software. Clayton has almost 30 years experience as a sales engineer. He previously held the position of Partner Program Manager and National Sales Manager of QualMark's lab division. Clayton owns and operates Reliability Resources, a manufacturer's representation firm. He can be reached at cbonn@dfrsolutions.com.

Upcoming Events

SMTA Medical Electronics Symposium (Bloomington, MN: May 1-3)

[Craig Hillman](#) will present an all-day seminar entitled "Failure & Root Cause Analysis in Medical Electronics." Attendees will learn about failure mechanisms unique to medical electronics, and the tools and techniques used to identify these mechanisms. For more information, contact [Sheena Mitchell](#) or [Melissa Serres](#). Click [here](#) for a conference brochure.

Military, Aerospace, Space & Homeland Security (MASH): Packaging Issues and Applications (Baltimore, MD: May 7-10)

On Monday, May 7 at 1:00pm, [Gerd Fischer](#) will present a [tutorial](#) on lead free reliability issues and solutions. On Tuesday, May 8 at 4:30pm, [Craig Hillman](#) will be on an [expert panel](#) that will address the global transition to lead-free solders and finishes in electronic assemblies. DfR will have a booth at the event's trade show. For more information regarding the presentations, contact [Sheena Mitchell](#). For information on the event, contact [Tom Green](#).

Automotive Electronics Reliability Workshop (Nashville, TN: May 22-24)

[Jim McLeish](#) will be attending the AEC Workshop in late May. If you are interested in meeting with Mr. McLeish at the workshop to discuss your specific reliability needs or if you are a local company that is interested in an onsite visit, contact [Sheena Mitchell](#) to make arrangements

Lead-free Electronics in Aerospace Project (Crane, ID: June 4-6)

[Nathan Blattau](#) will be attending the LEAP meeting in early June will be available for site visits to companies in the Indianapolis – Cincinnati – Louisville area. If you are interested in having Dr. Blattau speak to your company on a variety of topics (reliability prediction, thermal and mechanical modeling, component qualification and failure analysis), contact [Sheena Mitchell](#) to make arrangements.

AIMS Harsh Environment Electronics Workshop (Indianapolis, IN: June 13-14)

[Jim McLeish](#) will be teaching a half-day workshop on "Selecting a Lead-Free Solution for Military, Avionic and Space Applications." Mr. McLeish will also be presenting a seminar regarding the importance of utilizing a Physics of Failure (PoF)/Reliability Physics strategy in designs for harsh environments. For more information, contact [Jim McLeish](#) or [Melissa Serres](#).

SMTA Successful Lead-Free RoHS Strategies Conference (Boxborough, MA: June 20-21)

[Craig Hillman](#) will present a paper entitled "A Case Study in Tin Whisker Risk Assessment" at the SMTA Lead-Free focused event in June. For more information

regarding the event, please contact [Melissa Serres](#). He will also be available for site visits to companies in the Boston area. If you are interested in having Dr. Hillman speak to your company, contact [Sheena Mitchell](#) to make arrangements.

Asian Convergence for Electronics (ACE) (Kuala Lumpur, Malaysia: June 20-22)

[Jim McLeish](#) will present two workshops at the ACE conference: "Lead-Free Interconnection: Technology & Connection" will be presented on June 20, and "Design for Manufacturability/Assembly" will be presented June 21 – 22. The conference will take place at the Crowne Plaza Mutiara in Kuala Lumpur. For more information contact [Jim McLeish](#).

SEMICON West (San Francisco, CA: July 18-19)

[DfR Solutions](#), in conjunction with [PTI](#), is proud to announce two workshops at the upcoming SEMICON West:

[Craig Hillman](#) will present a two-day workshop, "[Understanding Failure & Root Cause Analysis in Electronics](#)," that will provide an in-depth understanding of the common mechanisms that initiate failure in electronics, and provide a comprehensive review of the tools and techniques used to identify those mechanisms. For more information contact [Sheena Mitchell](#) or click [here](#) to register.

[Jim McLeish](#) will present a two-day workshop, "[Best Practices in Failure Avoidance](#)," that will provide reliability engineers and management a foundation by providing a comprehensive review of the best practices in engineering and reliability assurance with case studies that will provide guidance on the practices most appropriate for a given design, use environment, desired lifetime, and available resources. For more information contact [Sheena Mitchell](#) or click [here](#) to register.

DfR Solutions and Northrup Grumman to Co-Host Leadfree Electronics in Aerospace Project (LEAP) (Baltimore, MD: September 5- 6)

DfR and Northrup Grumman will co-host the LEAP meeting at the Historical Electronics Museum in Linthicum, MD (near BWI Airport). For more information on the meeting, contact [Andy Kostic](#) at Northrup Grumman or [Sheena Mitchell](#) at DfR.

SMTA International Conference (Orlando, FL: October 7-11)

[Craig Hillman](#) will present a seminar on "Selecting a Lead-Free Solution for Military, Avionic and Space Applications," and a DfR staff member will present a talk on Silver and Sulfur in electronics. For more information on the conference, visit www.SMTA.org.

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