Good things in smaller — and safer packages

Aimee Kalnoskas, Editor-in-chief

Believe it or not, I empathize with an inanimate device, and that device is the Lithium-ion (Li-ion) battery. It recently received some bad press because of a relatively small number of instances of exploding laptops using Li-ion batteries manufactured by Sony and shipped between April, 2004 and July 18, 2006. A lot of energy is packed into the average mobile device via the battery because users demand more features and functions in smaller packages. How often do you feel that more is being required of you when there is a limited volume of 'you'? Frankly, I've felt a bit overheated and ready to burst into flames myself lately.

Sony's recall of about 2.7 million battery packs in the U.S. arose because, according to Sony, "…on rare occasions, microscopic metal particles in the recalled battery cells can come into contact with other parts of the battery cell, leading to a short circuit within the cell. Typically, a battery pack will simply power off when a cell short circuit occurs. However, under certain rare conditions, an internal short circuit may lead to cell overheating and potentially flames." It is important to note that the problem is not with the Li-ion battery itself, but problems within the manufacturing process of the cell itself that according to Sony, are now corrected.

In this month's cover story, "Lithium-ion Batteries: Good Things in Small Packages" (page 33), Senior Technical Editor Jon Titus gathers the facts about the many safety procedures in place for Li-ion cell assembly and tells you what to look for when specifying a battery technology. Being well-informed about everything from safety and regulatory requirements to electronic safety circuits of battery packs, can make a big difference when you look to differentiate your product. Jon's sidebar, "Charge Batteries with Care" offers information on the internal circuitry battery-pack suppliers use to control how batteries charge and discharge. An additional sidebar, "Primary Lithium Cells Run Hot, Go Deep" is available at www.ecnmag.com [1].

To keep you further well-informed, ECN, in conjunction with Micro Power Electronics (Hillsboro, OR) is offering a webcast entitled "Preventing Battery System Failure in Portable Devices." Three industry experts — Marcus Megerle, Senior Engineer, Exponent Failure Analysis, Robin Sarah Tichy, Ph.D., Micro Power Electronics, and Laurie Florence, Primary Designated Engineer, Underwriters Laboratories, Inc. — provide design guidelines and techniques for power system designers to eliminate failure in their own portable devices. These guidelines include: cell selection & qualification; protection circuit design & placement; battery authentication; charging regimens; mechanical considerations; and battery integration with portable devices. Registration for the on-demand webcast is free and available at www.ecndesignnetwork.com/micropower/ [2]. Dr. Tichy provides additional information on preventing battery system failure in a tutorial on the recently launched Wireless Design Network at www.wirelessdesignnetwork.com [3].
ECN recognizes that as the number of applications requiring sophisticated and safe battery technology grows, the need for education about the technology grows, too.

We encourage you to let us know what more you need to know.

Cheers,

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