In This Issue... Embedded Development Tools | Circuit Protection Devices | Teardown: Apple iPod Shuffle

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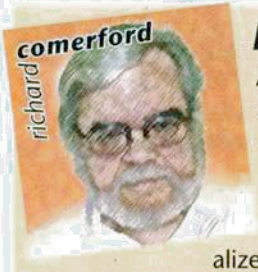

Long life to you — till then

At the New York City Lightfair show last month, one of the songs from my favorite Gilbert & Sullivan operetta, *The Mikado*, kept running through my mind. It's sung after one of the characters, Nanki-Poo,a wandering minstrel, agrees to be beheaded if he can first marry a young maid, Yum-Yum. Pooh-Bah, a pompous official, goes to offer a toast, but realizes that it would be silly to wish the prospective groom a long life if he is to die in a month, so he offers the toast, "Long life to you — till then." Why would Lightfair remind me of this, you ask? Let me explain.

With LEDs brightly shinning in almost every booth, the show made it apparent that LED-based solid-state lighting is on the ascendency. Two of the things that make SSL attractive are its low power requirement and the long life of LEDs; for practical, everyday lighting, LEDs can run on as little as 4 W and last as long as 100,000 hours. So LED-based SSL promises users an efficient light source that doesn't get dumped in a landfill every few years.

Unfortunately, that's still a promise. For LEDs to be used in general illumination applications, most require electronics to provide a constant dc current and convert household ac to dc. Those components aren't usually designed to last 100,000 hours; typically, if you get 20,000 hours of operation under the high temperatures to which an LED exposes them, it's a lot. So while the LED may have a long life, the electronics limit an SSL fixture's life "till then," when the light goes out.

Getting the driver and converter electronics right is the next big challenge for SLL.

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