

HKIE Electronics Division Activity Report

Driving High Brightness LEDs



On 24 July 2007, the EN Division organized a seminar called "Driving High Brightness LEDs". The guest speaker Mr. Kelvin Tsiang, Marketing Manager, On Semiconductor gave an overview on the development and application of LED in lighting.

The speaker opened the talk by providing an overview of the LEDs and Solid State Lighting. Kelvin explained that the common 'white LED' is a blue emitting LED coated with a phosphor, emitting yellow light when excited. Based on the research report, in 2006, the solid state lighting market is over 7 billion USD worldwide with a yearly increase by 20 %, estimating total 50 ~ 100 billion USD for coming 5 ~ 10 year. Estimated by the International Energy Agency is that for 2005 there were 1900 Mt of CO₂ emitted globally for lighting which is equivalent to 70 % of light passenger car emissions.

Lighting technology based on LEDs will offer a great potential to create new and exciting products and reduce global energy impact of lighting. There are example such as exit signs, traffic control, signage, torch lights, notebook backlighting. As opposed to traditional lightning, LEDs are inherently low voltage devices and require current drive for optimum performance. Based on a study for the total expense for 50k hours of home lighting using Incandescent (25W), CFL (5W) and While LED (3W), the expense for the LED is only 30 % to that of the traditional Incandescent Lamp. To illustrate, the average life of Incandescent is 1,500 hours while the LED is 50,000 hours. Furthermore, energy consumed by the Incandescent is 1,250 kwh as opposed to the LED which is 250 kwh. Kelvin also pointed out that the solid state lighting requires a system solution, i.e., LED Source, Power Conversion, Control and Drive, Thermal Management, Optics.

The talk ended with an interactive Q&A and a souvenir is presented to Ir P F Tsui, Chairman of Electronic Division.