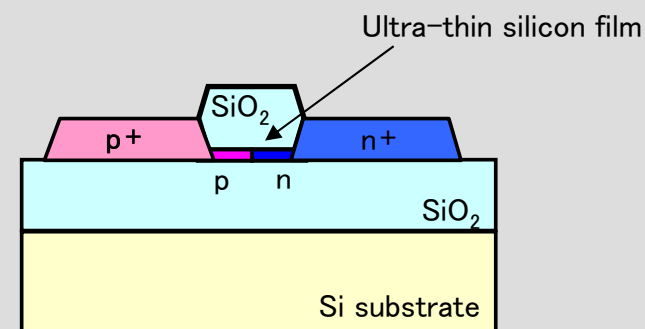


2006/7/24 Release

Electro-luminescence phenomena of ultra-thin silicon film - Opening the way to silicon LEDs -



Luminescence measurement (red section indicates strong luminescence)



Cross-section of ultra-thin silicon device

The Central Research Laboratory of Hitachi, Ltd. has fabricated a light-emitting device of an ultra-thin silicon film (a few nanometers thick) using silicon semiconductor manufacturing technology, and confirmed electro-luminescence properties by electrical current injections. Conventionally, light-emitting diodes (LED), which emit light by current injections are fabricated using compound semiconductors. The results of this research suggest that future LEDs may be fabricated using silicon which is a more suitable material for mass production. The next step will be to demonstrate optical interconnections within and between silicon-based semiconductor chips by employing silicon LEDs.

Details of this research were published on the 7th July 2006, in the on-line *Express Letter* of the *Japanese Journal of Applied Physics*.

<http://jjap.ipap.jp/journal/JJAP-45-JulL.html>