Tristate Electrochromic Device - Modulation between Transparent, Color and Mirror

LUX PHOTONICS CONSORTIUM SINGAPORE

Technology Overview

- A three state optical modulation between transparent, color and mirror appearance of a given surface, primarily on glass substrates
- The switching between the three states can be triggered by a small voltage application
- It can offer additional light management capability compared to the solid state electrochromics

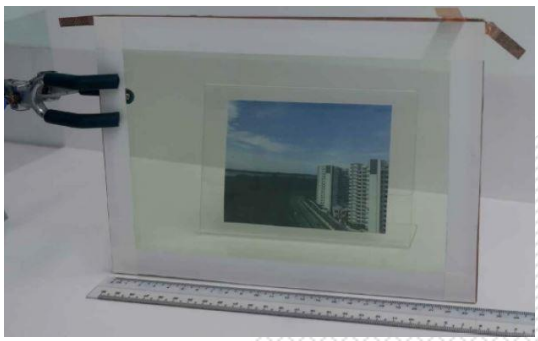

Fig. 1 Clear State

Fig. 2 Mirror State

Technology Features

- The maximum operational voltage required is -1.8V
- This device has transmittance modulation of 80% and reflectance modulation of 60%
- The device can switch within 60s to reach both the colored and mirror states
- It has prolonged power-free colored and mirror states

Fig. 3 Color State

Benefits

- Allows user to have active control of the device
- Reduce the air-conditioning usage and conserve the energy consumption of the buildings
- The mirror state can function as privacy glass

Potential Applications

- Energy saving smart windows for building facades
- As the auto-dimming, rearview mirror display for the automobile industry
- Function as electronic display

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