Design of Transflective Low-twist VA mode for High Transmittance

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Huge voltage is applied to the transflective LCD, which is not used for backlighting. This voltage induces a high operational voltage for the VA mode, and the device is not stable. In addition, the VA mode requires a high-brightness backlight to achieve high transmittance. Therefore, a low-brightness backlight is used for the transflective VA mode to achieve high transmittance.

The low-twist VA mode is a low-voltage LCD mode that is suitable for low-brightness backlights. It is characterized by a low-voltage drive and a high brightness. The low-twist VA mode is a high transmittance mode, and it is suitable for use in transflective LCDs.

The low-twist VA mode is also suitable for use in small displays, such as mobile phones and digital cameras. It is a cost-effective and energy-efficient solution for these applications.

In conclusion, the low-twist VA mode is a promising technology for transflective LCDs. It offers high transmittance, low-voltage operation, and high brightness, making it suitable for use in a variety of applications.
또한 적절한 설계조건으로 45°twist angle, \( \Delta n = 529.76 \)nm, chiral pitch 60um을 얻었다.

그림 1. 반투과형 TVA cell의 기본구조

그림 2. 기본구조에 대한 PSD 계산 결과

그림 3. 전기광학특성에 대한 시뮬레이션 결과

(a) 투과모드의 \( V-T \) 곡선
(b) 반사모드의 \( V-R \) 곡선

그림 4. 전기광학특성에 대한 실험측정 결과

(a) 투과모드의 \( V-T \) 곡선
(b) 반사모드의 \( V-R \) 곡선

참고문헌

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