

## **Polarity Effects of Dielectric Anisotropy on Electro-Optical Characteristics of Fringe Field Twisted Nematic Mode**

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**Abstract :** We have studied polarity effects of dielectric anisotropy effects on electro-optical characteristics of a twisted nematic mode driven by fringe electric field, which has wide viewing angle characteristics. Our device is designed as normally black mode between parallel polarizers. The perfect polarization conversion of incident light, which passes through a polarizer, is achieved, when it passes through the twisted liquid crystal (LC) layer. If an electric field is applied, the LC molecules with a positive (or negative) dielectric anisotropy rotate parallel (or perpendicular) to the horizontal component of a fringe electric field as increasing transmittance. From the calculated results, enhanced transmittance of the fringe field-twisted nematic (FF-TN) mode with positive dielectric anisotropy of + 8.2 can be obtained.