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Abstract
In this paper, a high-frequency switching with three-phase full-bridge six-step inverters for Cold-Cathode Fluorescent Lamp (CCFL) drivers circuit applied in liquid crystal display (LCD) back-light is proposed. The Cathode-ray tube (CRT) gradually has been replaced by the traditional liquid crystal display (LCD) at present. The light will decide the quality of the LCD, it is important to have a good performance of the back-light drivers. In a large size LCD panel, multiple lamps are required to provide sufficient back lighting. Therefore, the quantity of the back light drivers will be increased for the necessary of multiple lamps. Since the load, CCFL have high optical efficiency and low power demanded, CCFL are widely used in illumination. A set of six CCFL connected by Y to reduce the neutral line of the multi-lamps circuit is proposed in this paper. When the three-phase drivers of the CCFL is in balance situation, the natural current is near zero, and the wire area will be decreased in a large panel. A dimming process is employed by frequency-modulation and control duty-cycle.
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