

LED Compatible Circuit Interfacing Ballast

■ Description

- ▶ Efficient and low maintenance LED lamps are replacing older generation lamps, however market LED drivers are not compatible with gas-discharge ballast lamps
- ▶ A compatibility buffer circuit may be used for detecting an existing ballast circuit and bypassing the LED driver
- ▶ The compatibility buffer circuit detects high-frequency signals from the ballast and generates a control signal to activate a switch which bypasses the high-frequency signal
- ▶ Energy transfer to the LED load is through the buffer circuit and LED drive regulator
- ▶ Input signal may be received either directly from ac line, from a magnetic ballast or from an electronic ballast circuit

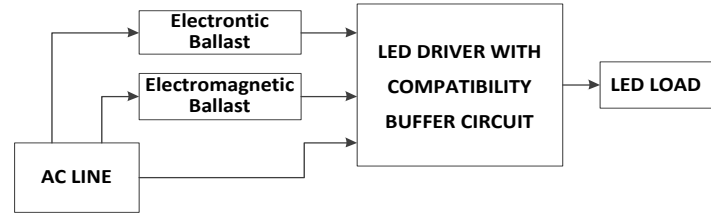


Figure 1. Input interface of LED Driver with compatibility buffer circuit

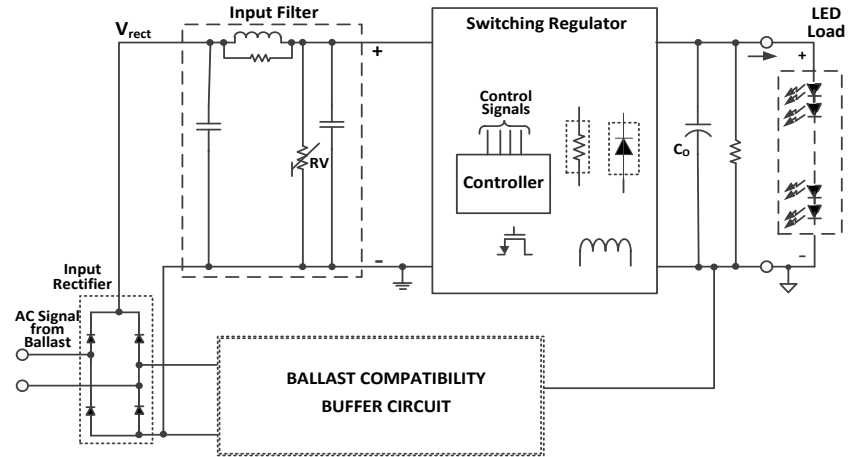


Figure 2. Compatibility buffer circuit in LED Driver with switching regulator

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■ Benefits

- ▶ Provides safe and efficient replacement of ballast operated discharge lamps with LED lamps without rewiring
- ▶ Replacing with LED lamps can improve the lighting efficiency and color characteristic along with reducing maintenance and electric utility consumption for the end user
- ▶ Can be designed as integrated circuit (IC) with the LED driver (Figure 3), or combined with the input rectifier bridge (Figure 4) to be included in the LED tube

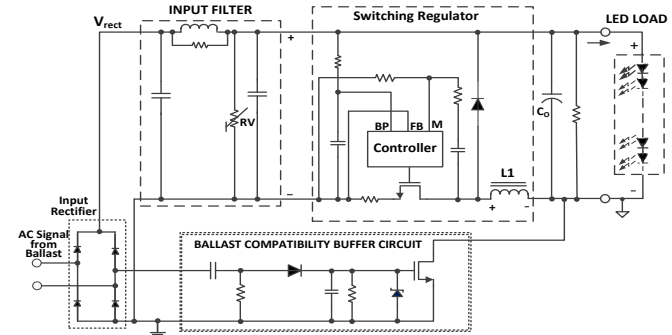


Figure 3. Example compatibility buffer circuit with an LED Driver

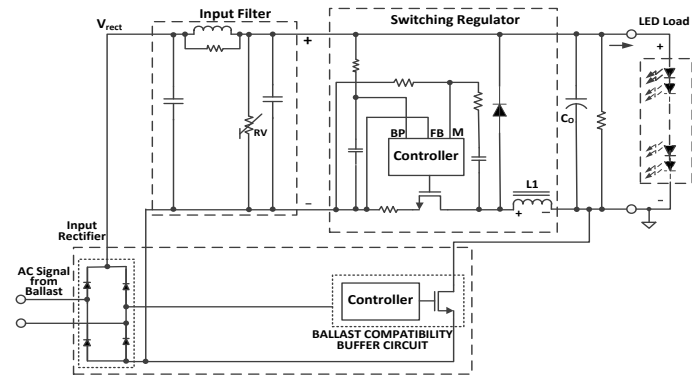


Figure 4. Example compatibility buffer circuit combined with the input rectifier