High-Performance Single Stage Dimmable LED Controller

The AL1663 is a high-performance single stage Flyback and Buck-Boost controller ideally suited for dimmable LED lighting. It uses primary side regulation (PSR) which provides an accurate constant LED current (CC) without opto-coupler from secondary control circuitry. It operates in BCM mode which provides good EMI, high conversion efficiency, high PF and low total harmonic distortion (THD) over the universal input voltage.

The AL1663 supports multiple dimming modes both for PWM to DC and analog dimming modes.

The AL1663 features low start-up current with low operating and standby power. It integrates multiple protection functions including overvoltage, short-circuit, overcurrent and overtemperature protection.

The AL1663S and AL1663RS are available in SO-8 package.

The Diodes Advantage

- **High PF Dimmable Solutions Providing Accurate Output Current and Wide Protection Features**
  - **High Power Factor**
    - Power factor above 0.9 for universal mains input
  - **Boundary Mode Control (Valley Switching)**
    - Low switching losses providing high efficiency
  - **Closed-Loop Compensation with External Comp Pin**
    - Achieves accurate constant output current across a wide range of load and line voltages
  - **Supports Multiple Dimming Modes**
    - PWM to DC, Analog and Digital PWM dimming
  - **Primary Side Regulation (PSR)**
    - Reduced number of external components without Opto-coupler

Applications

- General LED Lighting Driver with Dimming Function
- General Purpose Constant Current Source
- LED Backlighting Driver
- Smart LED Lighting

www.diodes.com
Diodes High PF, Dimmable LED Controller

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Min. Input Voltage</th>
<th>Max. Input Voltage</th>
<th>Max Gate Output Current</th>
<th>MAX OUTPUT LED Current</th>
<th>Reference Voltage Accuracy</th>
<th>Switching frequency</th>
<th>Efficiency</th>
<th>Dimming</th>
<th>Dimming Current</th>
<th>Ambient Temperature Range</th>
<th>Package Outlines</th>
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<tr>
<td>AL1663</td>
<td>7.8</td>
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<td>-</td>
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<td>Up to 150kHz</td>
<td>85</td>
<td>PWM / Analog / PWM to DC</td>
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<td>-40~ +105</td>
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Family page: [http://www.diodes.com/catalog/Off-Line_LED_Drivers_121](http://www.diodes.com/catalog/Off-Line_LED_Drivers_121)

**Ordering Information**

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<thead>
<tr>
<th>Part Number</th>
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