Triac Dimmable Offline LED Driver for Cost Effective Triac Dimmable Lamps

The AP1694 is a high performance AC-DC power factor corrected mains dimmable LED driver. It is compatible with both leading-edge and trailing-edge triac dimmers.

It uses Pulse Frequency Modulation (PFM) technology to regulate the LED current while achieving high power factor and low THD.

The AP1694 operates as a BCM controller which improves efficiency and EMI.

The AP1694 provides accurate constant current (CC) regulation while removing the opto-coupler and secondary control circuitry. It also eliminates the need of loop compensation circuitry while maintaining stability. It meets the requirement of IEC61000-3-2 harmonic standard.

The Diodes advantage

- Good triac dimming performance and Deep dimming down to 1%
- Wide Range of Dimmer Compatibility
- Single stage triac dimming solution with few external components
  - Low BOM solution cost enabling lower cost LED lamps
- Primary Side Control for Output Current Regulation without Opto-coupler
  - Flexible solution: isolated solution (Flyback) and Non-isolated solution (Buck-boost & Buck)
- Boundary Conduction Mode (BCM) Operation
  - Delivers high efficiency solutions with small EMI components.
- Single stage High power factor and low THD
  - Low BOM solution cost meeting future PF needs.

Applications

- Mains Dimmable LED Lamps: GU10, A19/E27, B11/SES14
Simple Cost-Effective Solution for Triac Dimmable Lamps

Typical Application: LED retrofit lamp

Diodes Dimmable Off-line LED Drivers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Min. Input Voltage</th>
<th>Max. Input Voltage</th>
<th>Min. Output Voltage</th>
<th>Max. Output Voltage</th>
<th>Max. LED Current</th>
<th>LED Current accuracy</th>
<th>Switching Frequency (Max)</th>
<th>Efficiency</th>
<th>Operating temp range</th>
<th>High Power Factor</th>
<th>Triac Dimmable Topology</th>
<th>Package Outline</th>
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</thead>
<tbody>
<tr>
<td>AP1694</td>
<td>6.5</td>
<td>30</td>
<td>Not limited</td>
<td>Not limited</td>
<td>5</td>
<td>200</td>
<td>85</td>
<td>-40 ~ 125</td>
<td>Y</td>
<td>Y</td>
<td>Buck, Buck-Boost Flyback</td>
<td>SO-8</td>
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<td>AP1690</td>
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<td>30</td>
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<td>200</td>
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<td>-40 ~ 125</td>
<td>Y</td>
<td>Y</td>
<td>Buck-Boost Flyback</td>
<td>SO-8</td>
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To find out more information:
LED Driver Web page: [http://www.diodes.com/catalog/off_line_led_drivers_183/](http://www.diodes.com/catalog/off_line_led_drivers_183/)

Ordering information

<table>
<thead>
<tr>
<th>Device</th>
<th>Packaging</th>
<th>Marking ID</th>
<th>Reel Size</th>
<th>Tape width</th>
<th>Quantity</th>
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<tbody>
<tr>
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<td>SO-8</td>
<td>1694M-G1</td>
<td>13”</td>
<td>12mm</td>
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"G1" suffix in the part number, are RoHS compliant and green.