Simple Cost Effective Solutions for High Efficiency Triac Dimmable Retrofit Lamps

The AP1694A 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 AP1694A operates as a BCM controller which improves efficiency and EMI. It meets the requirement of IEC61000-3-2 harmonic standard.

The AP1694A is a single stage converter delivering accurate constant current (CC) regulation while removing the need for an opto-coupler and secondary control circuitry. It also eliminates the need of loop compensation circuitry while maintaining stability reducing the overall BOM cost.

The Diodes Advantage

The AP1694A provides a simple cost effective solution for general illumination LED lamps.

- **Unique Constant On Time (COT) Control**
  - Wide dimmer compatibility range with deep dimming down to 1%

- **Single stage high power factor triac dimming solution with few external components**
  - Low BOM solution cost

- **Versatile design supporting multiple topologies**
  - Flyback for isolated lamps and both Buck-boost & Buck for Non-isolated lamps

- **Boundary Conduction Mode (BCM) Operation**
  - Delivers high efficiency solutions with small EMI components

- **12V MOSFET Gate driver Output**
  - Supports higher power LED lamps

Applications

Mains Dimmable LED Lamps:

- GU10
- PAR lamps
- A lamps
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Typical Application: LED Retrofit Lamp (Buck)

Diodes Dimmable Off-line LED Drivers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Max. Output</th>
<th>Max. LED Current</th>
<th>Switch type</th>
<th>LED Lamp</th>
<th>Max. Operating temp</th>
<th>Triac Dimmable</th>
<th>Topology</th>
<th>Package</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Voltage</td>
<td>Current</td>
<td>Current</td>
<td>Efficiency</td>
<td>range</td>
<td>Factor</td>
<td>Buck-Boost</td>
<td>Flyback</td>
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<td>&lt;50</td>
<td>Ext MOS</td>
<td>±2.5</td>
<td>83 -40 ~ 105</td>
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<td>Int. MOS</td>
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<td>&gt;0.9</td>
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<td>Y</td>
<td>SO-8</td>
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To find out more information:
Datasheet: http://www.diodes.com/datasheets/AP1694A.pdf

Ordering Information

<table>
<thead>
<tr>
<th>Device</th>
<th>Packaging</th>
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<th>Tape width</th>
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<td>1694AM-G1</td>
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G1” suffix in the part number, are RoHS compliant and green