Off-line LED driving solutions
Top performances and extended lifetime in your LED based designs

Six different HVLED815PF – based demoboards have been designed in order to meet the specific needs of the off-line LED driving with the best optimized solutions. Isolated and not isolated topologies, constant voltage and constant current output, triac dimmable compatibility have been combined in these six different applications.

HVLED815PF based demoboards - High power factor off-line LED driver with constant output current and primary-sensing regulation (PSR)

**KEY FEATURES**
- CC/CV PSR applications
- High power factor (>0.9) in all the topologies and in all the input voltage range
- Efficiency >80% in all the topologies and in all the power ranges
- Optocoupler not needed
- Quasi-resonant operation mode
- 800 V avalanche-rugged power MOSFET integrated in the HVLED815PF
- High-voltage start-up integrated in the HVLED815PF
- Safe against open or shorted LED string
- Output current accuracy +/-3%

**KEY BENEFITS**
- Reduced external part count to allow very small form factors and simplified design
- Highly efficient solution thanks to the high power factor
- Robustness and compactness is guaranteed thanks to the internal power MOSFET and HV start up
- Accurate primary-current control avoids the use of secondary sensing, reducing costs and complexity
HVLED815PF

ST’s HVLED815 is a high-voltage primary switcher designed to operate directly from the rectified mains with minimum external parts and with a high power factor to provide an efficient, compact and cost-effective solution to drive LEDs. This IC combines a high-performance PWM controller chip and an 800 V, avalanche-rugged power MOSFET, in the same package. The PWM is a peak current-mode controller IC specifically designed for quasi resonant (QR) flyback LED drivers, with constant output current (CC) regulation using primary sensing feedback.

NOT ISOLATED TOPOLOGY (BUCK-BOOST)

**ISOLATED TOPOLOGY (FLYBACK)**

**DIMMABLE ISOLATED TOPOLOGY (FLYBACK)**

**SUMMARY TABLE**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Core product</th>
<th>Main application power range</th>
<th>Nominal Output Current/Voltage</th>
<th>Power Factor</th>
<th>Dimmer</th>
<th>Topology</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVLHVLED815W10A</td>
<td>HVLED815PF</td>
<td>10 W at Wide range⁽¹⁾</td>
<td>140 mA - Constant current regulation</td>
<td>&gt;0.9</td>
<td>-</td>
<td>Buck-Boost</td>
</tr>
<tr>
<td>EVLHVLED815W10F</td>
<td>HVLED815PF</td>
<td>10 W at Wide range⁽¹⁾</td>
<td>455 mA - Constant current regulation</td>
<td>&gt;0.95</td>
<td>-</td>
<td>Flyback</td>
</tr>
<tr>
<td>EVLHVLED815W8CV</td>
<td>HVLED815PF</td>
<td>8 W in Eu range⁽²⁾</td>
<td>25 V - Constant voltage regulation</td>
<td>&gt;0.98</td>
<td>-</td>
<td>Flyback</td>
</tr>
<tr>
<td>EVALHVLED815W15</td>
<td>HVLED815PF</td>
<td>15 W in Eu range⁽²⁾</td>
<td>485 mA - Constant current regulation</td>
<td>&gt;0.95</td>
<td>-</td>
<td>Flyback</td>
</tr>
<tr>
<td>STEVAL-ILL044V1</td>
<td>HVLED815PF</td>
<td>9 W in US range⁽³⁾</td>
<td>175 mA - Constant current regulation</td>
<td>&gt;0.98</td>
<td>Triac compatible</td>
<td>Flyback</td>
</tr>
<tr>
<td>STEVAL-ILL045V1</td>
<td>HVLED815PF</td>
<td>9 W in US range⁽³⁾</td>
<td>175 mA - Constant current regulation</td>
<td>&gt;0.98</td>
<td>Triac compatible</td>
<td>Buck-Boost</td>
</tr>
</tbody>
</table>

Notes: 1: 85 to 265 VAC; 2: 200 to 265 VAC; 3: 90 V to 132 VAC