With over 8 billion of our monolithic integrated circuits designed into switching power supplies worldwide, Power Integrations is the clear leader in high-voltage ICs for power conversion. For more than two decades, we have focused on meeting power supply designers’ needs with innovative products and comprehensive design support. If a product requires an AC-DC power supply up to 1000 W, Power Integrations’ ICs can provide a cost-effective, energy-efficient solution with a fast time to market.

Power Integrations has been at the forefront of LED driver design for the past 7 years and is one of the world’s largest suppliers of AC-DC LED driver ICs. With a broad range of products suitable for LED lighting, including our new LYTSwitch™ LED driver-IC families, PI’s offering of LED lighting solutions is broader than anyone else’s. Our high-PF devices deliver the isolated topologies and low THD required by the India market today while safely meeting any challenging line-voltage conditions.

Great IC solutions on their own are not enough, so PI also works hard to ensure that our customers have the best possible support during the design phase. We offer more than 80 LED-driver reference designs with the number growing every day, as well as industry leading PI Expert™ design software. PI Expert allows customers to design a working circuit quickly and provides detailed build information including transformer construction and guidance on component selection to help translate a reference design into a production-ready device. On top of this we have an excellent network of highly trained field applications engineers at our India offices to offer direct local support for your designs.

Whenever you use Power Integrations ICs, you will benefit from our unsurpassed level of device integration to reduce cost and space in LED designs. In addition, PI brings the quality and reliability for which our products are justly famous.

Thank you for your interest in our power conversion ICs for LED. To make sure that you are always using our latest design-support materials, and up-to-date information of reference designs, please visit our website at https://led-driver.power.com. Here you will find extensive information on LED solutions for commercial, residential and industrial LED applications as well as videos describing our lighting products in more detail.

Comprehensive information on global energy-efficiency standards can be found in the Power Integrations Green Room at https://led-driver.power.com/green-room.

As always, we welcome your suggestions to further improve our technical support materials and to better serve your needs.

Balu Balakrishnan
President and CEO
May 2017
San Jose, California
About Power Integrations’ Solid-State Lighting Solutions

Power Integrations is the leading supplier of high-voltage analog integrated circuits used in energy-efficient power supplies. The company’s innovative technology enables compact, energy-efficient power converters for a wide range of electronic products, LED lighting, AC-DC and DC-DC applications. With industry-leading product quality and delivery, the company has shipped billions of devices to customers around the world.

Power Integrations offers a broad range of highly integrated, high-power, constant current LED driver ICs for use in solid-state lighting LED applications where offline power supplies are required. Topologies include buck, buck-boost, resonant, and flyback.

- High efficiency single-stage conversion
- Long life time – no electrolytic bulk capacitors in the power train
- Phase-controlled TRIAC dimmability
- PWM dimming in some products
- Single-stage power factor correction (PFC) plus accurate constant current (CC) output
- Small size
- Resistance to shock and vibration
- Highly integrated
- Design-in made easy with PI Expert design tools

For more detailed information about Power Integrations’ LED driver ICs, please visit our Solid-State Lighting microsite at https://led-driver.power.com.

### Product Overview

<table>
<thead>
<tr>
<th>TRIAC Dimming, PFC, Isolated and Non-Isolated Flyback, Buck, and Buck-Boost</th>
<th>LYTSwitch™-4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LYTSwitch-3</td>
</tr>
<tr>
<td></td>
<td>LYTSwitch-7</td>
</tr>
<tr>
<td>PFC, Non-Dimming Non-Isolated Buck</td>
<td>LYTSwitch-1</td>
</tr>
<tr>
<td>PFC, Isolated and Non-Isolated Flyback, Buck, and Buck-Boost</td>
<td>LYTSwitch-5</td>
</tr>
<tr>
<td>Non-Isolated Buck or Buck-Boost (Non-PFC)</td>
<td>LYTSwitch-0</td>
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<table>
<thead>
<tr>
<th>0 W</th>
<th>2.5 W</th>
<th>3 W</th>
<th>5 W</th>
<th>10 W</th>
<th>20 W</th>
<th>50 W</th>
<th>90 W</th>
</tr>
</thead>
</table>
**Enabling Predictable Success**

Power Integrations’ highly integrated ICs enable the design and production of switch-mode power supplies that use up to 70% fewer components compared to discrete solutions. Switchers that incorporate our ICs are smaller, lighter, and more portable than comparable power supplies.

We combine a high-voltage power MOSFET switch with a controller on a single chip to provide key power supply functions, such as:

- High-voltage start-up
- Short-circuit and open-loop protection
- Programmable current limit
- Line undervoltage and overvoltage protection
- Output overvoltage protection
- Accurate over-temperature and over-power protection
- Soft-start
- Feedback compensation
- Remote ON/OFF

**Reducing Component Count**

LYTSwitch dramatically simplifies isolated flyback LED driver designs by eliminating an optocoupler and secondary control circuitry. The devices introduce a revolutionary control technique to provide very tight output regulation, compensating for transformer and internal parameter tolerances, along with input voltage variations. In addition the switching stage combines PFC + CC control functions, greatly reducing component count and increasing efficiency.
Achieves Less Than 10% THD with LYTSwitch Designs

Low THD design (<10% THD) can easily be achieved with the LYTSwitch product families.

In order to achieve very low THD a simple line feed-forward circuit (shown below as $R_f$ and $C_f$) can be added to bias the feed-forward circuit on the control stage. Contact your local PI representative for more information.
Product Features & Benefits

Comprehensive Fault Protection – Simplifies Design and Improves Reliability

- On-chip hysteretic thermal shutdown with auto-recovery
- Control loop fault protection is independent of bias voltage
- Protects entire system: device, PC board, magnetics and output rectifiers

---

**Line Overvoltage Protection**

Power Integration's protection features include line overvoltage protection. Input voltage is monitored continuously by the IC. In the event that line voltage exceeds a safe operating point, switching is disabled. When line voltage returns to a safe level, switching restarts.

By interrupting switching, output reflected voltage ($V_{OR}$) is removed as a cause of stress on the switching stage. This together with the 700 V power MOSFET in the PI IC ensures a high level of protection against input surges and line swells.

A small amount of hysteresis is built into the OVP function to prevent misfiring. This is important in environments where high-line impedance is encountered.
Product Features & Benefits

Tight Device Tolerances – Reduce System Cost
- Power Integrations’ ICs have tight tolerances for current limit and switching frequency. This reduces the output overload power and therefore the power rating, size and cost for the output rectifiers, transformer and clamp components.

<table>
<thead>
<tr>
<th>System with Competitor Device C</th>
<th>System with Competitor Device B</th>
<th>System with Competitor Device A</th>
<th>System with PI Device (no PF parameter)</th>
<th>System with PI Device (with PF parameter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_{\text{limit}} \pm 20%$, $f_{\text{osc}} \pm 10%$</td>
<td>$I_{\text{limit}} \pm 12%$, $f_{\text{osc}} \pm 10%$</td>
<td>$I_{\text{limit}} \pm 10%$, $f_{\text{osc}} \pm 10%$</td>
<td>$I_{\text{limit}} \pm 7%$, $f_{\text{osc}} \pm 6%$</td>
<td>$P_{E} \pm 11%$</td>
</tr>
</tbody>
</table>

Variation in Flyback Converter Output Power Capability Over Device Tolerance Range (Normalized to Rated Output Power)

Requires over-rated power components for reliable design

Frequency Jittering – Reduces EMI and EMI Filtering Costs
- Enables smaller, lower cost filter components

Conducted EMI without Jitter

Conducted EMI with Jitter
Source Heat Sinking – For Low Radiated EMI
- Heat sink connected to SOURCE for low radiated EMI

Typical Power Device
- Heat sink connected to SOURCE for low radiated EMI

Power Integrations Device
- Heat sink connected to SOURCE for low radiated EMI

Package Design/Pin Layout – Improves Reliability
- Wide package DRAIN – SOURCE creepage reduces probability of arcing
- Important for high pollution degree environments and forced air cooling
- Optimal pin arrangement allows compliance with safety agency adjacent pin short-circuit test
- Packages below are RoHS compliant

<table>
<thead>
<tr>
<th>Package</th>
<th>Package</th>
<th>Package</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>P</td>
<td>E</td>
<td>K</td>
</tr>
<tr>
<td>SO-8</td>
<td>PDIP-8B</td>
<td>eSIP-7C</td>
<td>eSOP™-12</td>
</tr>
<tr>
<td>SO-8C</td>
<td>SO-8C</td>
<td>SO-8C</td>
<td>SO-8C</td>
</tr>
</tbody>
</table>

Note: Dimensions are in millimeters. Inch dimensions are shown in parenthesis.
**The Green Room**

Power Integrations’ Green Room web site (led-driver.power.com/green-room) offers the latest information in energy-efficient design, including:

- Energy-efficiency regulations: Search by application, regulatory agency or geographic location
- Mr. Green’s blog: An informative blog about energy-efficiency standards and other green matters
- Energy FAQs: Answers to frequently asked questions about energy efficiency
- Energy-efficiency resources: Links to other helpful web sites addressing energy issues
- Introduction to green power: Tips for minimizing standby waste

**Total Product Support**

- Application notes
- Data sheets
- Design example reports
- Engineering prototype reports
- PI Expert design software
- Reference design kits

Learn more at led-driver.power.com/design-support

**Reference Designs**

Reference Design Kits (RDKs) provide all of the essential materials needed to demonstrate the advanced features of Power Integrations’ ICs. Kits include a fully assembled and tested reference design power supply board, product samples, and an unpopulated PCB.

**Design Example Report (DER)**

Design Example Reports contain a power supply design specification, schematic, bill of materials, transformer documentation, and PCB layout. This design has been built and bench-tested to provide performance data and typical operation characteristics.

**PI Expert™ Design Software**

This powerful, interactive software takes a designer’s power supply specifications and automatically determines the critical components (including transformer specifications) needed to generate a working switch-mode power supply. Designs can be optimized for efficiency or cost using auto-design or manual control options. PI Expert simplifies the design of LED drivers, offline power supplies, and DC-DC converters, reducing design time from days to minutes.

Learn more at led-driver.power.com/design-support/pi-expert-suite

**PI Forums**

Power Integrations provides several forums where designers can discuss technical questions with PI engineers and the extensive Power Integrations’ design community:

- Power Supply Design Forum: For general technical questions
- PI Expert Support Forum: For discussing PI Expert Design Software
- Green Energy Forum: For discussing energy efficiency regulations, EcoSmart technology and improving the energy efficiency of electronic products

To participate in PI Forums, go to led-driver.power.com/forum
## IC Product Tables

### LYTSwitch-0 – Lowest Component Count, Off-Line Switcher IC for Non-Isolated LED Lighting Applications

- **Product**: LYT0002D/P, LYT0004D/P, LYT0005D/P, LYT0006D/P
- **PF**: High, Low
- **Output Power**: 230 VAC ±15% 85-308 VAC
- **Features**:
  - MDCM – mostly discontinuous mode.
  - CCM – continuous conduction mode.
  - PF high: >0.7 @ 120 VAC and >0.5 @ 230 VAC.
  - PF low: for non-PF application where $C_{IN}$ >5 μF minimum.
- **Notes**:
  1. Typical output current in a non-isolated buck converter (see Key Applications Considerations section in data sheet for more information).
  2. MDCM – mostly discontinuous mode.
  3. CCM – continuous conduction mode.
  4. PF high: >0.7 @ 120 VAC and >0.5 @ 230 VAC.
  5. PF low: for non-PF application where $C_{IN}$ >5 μF minimum.

<table>
<thead>
<tr>
<th>Product</th>
<th>PF</th>
<th>MDCM1 (mA)</th>
<th>CCM1 (mA)</th>
<th>MDCM2 (mA)</th>
<th>CCM2 (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LYT0002D/P</td>
<td>High</td>
<td>45</td>
<td>65</td>
<td>30</td>
<td>40</td>
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<td></td>
<td>Low</td>
<td>63</td>
<td>80</td>
<td>63</td>
<td>80</td>
</tr>
<tr>
<td>LYT0004D/P</td>
<td>High</td>
<td>85</td>
<td>110</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>98</td>
<td>139</td>
<td>98</td>
<td>139</td>
</tr>
<tr>
<td>LYT0005D/P</td>
<td>High</td>
<td>100</td>
<td>140</td>
<td>60</td>
<td>90</td>
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<td>Low</td>
<td>120</td>
<td>170</td>
<td>120</td>
<td>170</td>
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<tr>
<td>LYT0006D/P</td>
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<td>165</td>
<td>220</td>
<td>100</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>200</td>
<td>280</td>
<td>200</td>
<td>280</td>
</tr>
</tbody>
</table>

### LYTSwitch-1 – Single-Stage LED Driver IC with Combined PFC and Constant Current Output for Buck Topology

- **Product**: LYT1402D, LYT1403D, LYT1404D
- **Optimized for Smallest Components**
  - $V_{OUT} \leq 30$ V
  - $45 \leq V_{OUT} \leq 55$ V
- **Features**:
  - CC regulation better than ±5%
  - Power factor >0.9
  - High efficiency >93%
  - Critical Conduction Mode (CrM) buck, low EMI
  - Excellent line noise and transient rejection
- **Notes**:
  1. Maximum practical continuous power in an open frame design with adequate heat sinking, measured at 50°C ambient.
  2. Output power scales linearly if $V_{OUT}$ falls in between the specified voltages.

<table>
<thead>
<tr>
<th>Product</th>
<th>Optimized for Smallest Components</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$V_{OUT} \leq 30$ V</td>
</tr>
<tr>
<td>LYT1402D</td>
<td>4.0 W</td>
</tr>
<tr>
<td>LYT1403D</td>
<td>7.5 W</td>
</tr>
<tr>
<td>LYT1404D</td>
<td>11 W</td>
</tr>
</tbody>
</table>

### LYTSwitch-2 – Single-Stage LED Driver IC with Combined PFC and Constant Current Output for Outstanding TRIAC Dimming in Isolated and Non-Isolated Topologies

- **Product**: LYT33x4D, LYT33x5D, LYT33x6D, LYT33x8D
- **Output Power**: 85-132 VAC or 185-265 VAC
- **Features**:
  - CC regulation better than ±5%
  - Power factor >0.9
  - High efficiency >93%
  - Critical Conduction Mode (CrM) buck, low EMI
  - Excellent line noise and transient rejection
- **Notes**:
  1. Maximum practical continuous power in an open frame design with adequate heat sinking, measured at 50°C ambient.
  2. Output power scales linearly if $V_{OUT}$ falls in between the specified voltages.
### LYTSwitch-4 – Single-Stage Accurate Primary-Side Constant Current (CC) Controller with PFC for Applications with TRIAC Dimming and Non-Dimming Options\(^1\,\,^2\)

<table>
<thead>
<tr>
<th>Product (^7)</th>
<th>Minimum Output Power (^2) (W)</th>
<th>Maximum Output Power (^4) (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LYT4x11E(^5)</td>
<td>2.5</td>
<td>12</td>
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<tr>
<td>LYT4x12E</td>
<td>2.5</td>
<td>15</td>
</tr>
<tr>
<td>LYT4x13E</td>
<td>3.8</td>
<td>18</td>
</tr>
<tr>
<td>LYT4x14E</td>
<td>4.5</td>
<td>22</td>
</tr>
<tr>
<td>LYT4x15E</td>
<td>5.5</td>
<td>25</td>
</tr>
<tr>
<td>LYT4x16E</td>
<td>6.8</td>
<td>35</td>
</tr>
<tr>
<td>LYT4x17E</td>
<td>8.0</td>
<td>50</td>
</tr>
<tr>
<td>LYT4x18E</td>
<td>18</td>
<td>78</td>
</tr>
</tbody>
</table>

**Additional Features:**
- Better than ±5% CC regulation
- TRIAC dimmable to less than 5% output
- Fast start-up
  - <250 ms at full brightness
  - <1 s at 10% brightness
- High power factor >0.9
- Easily meets EN61000-3-2
  - Less than 10% THD in optimized designs
  - Up to 92% efficient
  - 132 kHz switching frequency for small magnetics

**Notes:**
1. Performance for typical design. See Applications Note.
2. Continuous power in open-frame design with adequate heat sinking; device local ambient of 70 °C. Power level calculated assuming a typical LED string voltage and efficiency >80%.
3. Minimum output power requires \(C_{BP} = 47 \, \mu F\).
4. Maximum output power requires \(C_{BP} = 4.7 \, \mu F\).
5. LYT4311 \(C_{BP} = 47 \, \mu F\), LYT4211 \(C_{BP} = 4.7 \, \mu F\).
6. LYT4321 \(C_{BP} = 47 \, \mu F\), LYT4221 \(C_{BP} = 4.7 \, \mu F\).
7. Package: eSIP-7C.

### LYTSwitch-5 – Single-Stage LED Driver IC with Combined PFC and Constant Current Output in Isolated and Non-Isolated Topologies

<table>
<thead>
<tr>
<th>Product (^2)</th>
<th>Output Power (^1) (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LYT5225D</td>
<td>9</td>
</tr>
<tr>
<td>LYT5216D, LYT5226D</td>
<td>16</td>
</tr>
<tr>
<td>LYT5218D, LYT5228D</td>
<td>25</td>
</tr>
</tbody>
</table>

**Notes:**
1. Maximum practical continuous power in an open frame design with adequate heat sinking, measured at 50°C ambient (see Key Applications Considerations section in data sheet for more information).
2. Package: D: SO-16B.

**Additional Features:**
- Accurate CC, better than ±3%
- Power Factor >0.9
- Low THD, <10% with typical input and output conditions
- >90% efficient in optimized designs
- High switching frequency and DCM allow compact magnetics
- Supports buck, buck-boost, tapped-buck, boost, isolated and non-isolated flyback topologies
- 2 MOSFET voltage options and 3 power levels for optimum device selection
- No electrolytic bulk capacitors or optoisolators for increased lifetime
- Comprehensive protection features
  - Input and output overvoltage
  - Open-loop protection
- Advanced thermal control
  - Thermal foldback allows output light delivery at abnormally high ambient temperatures
  - Hysteretic shutdown provides protection during fault conditions
LYTSwitch-7 – Single-Stage LED Driver IC with Combined PFC and Constant Current Output for Non-Isolated Buck Topologies

Additional Features:
- ±3% CC regulation in single line input voltage applications
- Power factor >0.9
- High efficiency >85%
- Robust 725 V MOSFET for increased line voltage surge resistance
- Critical Conduction Mode (CrM) buck
- Low EMI
- Excellent line noise and transient rejection
- Comprehensive protection features with auto-restart
  - Input and output overvoltage protection (OVP)
  - Output short-circuit protection
  - Open-loop protection
- Advanced thermal control
  - Thermal foldback ensures that light continues to be delivered at elevated temperatures
  - Over-temperature shutdown provides protection during fault conditions

Notes:
1. Maximum practical continuous power in an open frame design with adequate heat sinking, measured at 50°C ambient.
2. Output power graph based on typical values for inductance, L\textsubscript{INJECT} and package thermal limits.
# Isolated Reference Designs

<table>
<thead>
<tr>
<th>Product Family</th>
<th>AC Input Voltage (V)</th>
<th>Output Power (W)</th>
<th>Output Current (A)</th>
<th>Application</th>
<th>Power Factor</th>
<th>Efficiency (%)</th>
<th>Topology</th>
<th>Document</th>
<th>RDK</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRIAC Dimmable, Bulb Replacement Designs</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>LYTSwitch-3</td>
<td>90-132</td>
<td>9.5</td>
<td>0.35</td>
<td>Downlight</td>
<td>&gt;0.90</td>
<td>84</td>
<td>Flyback</td>
<td>DER-502</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>LYTSwitch-4</td>
<td>85-265</td>
<td>18</td>
<td>1.5</td>
<td>Downlight</td>
<td>&gt;0.90</td>
<td>85</td>
<td>Flyback</td>
<td>DER-554</td>
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<td>LYTSwitch-4</td>
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<td>20</td>
<td>0.55</td>
<td>PAR38</td>
<td>&gt;0.98</td>
<td>85</td>
<td>Flyback</td>
<td>DER-350</td>
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<tr>
<td>LYTSwitch-4</td>
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<td>20</td>
<td>0.55</td>
<td>PAR38</td>
<td>&gt;0.90</td>
<td>86</td>
<td>Flyback</td>
<td>DER-396</td>
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<tr>
<td>LYTSwitch-4</td>
<td>170-300</td>
<td>33*; 0-10 V</td>
<td>0.35</td>
<td>Ballast</td>
<td>&gt;0.90</td>
<td>85</td>
<td>Flyback</td>
<td>DER-427</td>
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<td><strong>Non-Dimmable Bulb Replacement Designs</strong></td>
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<td>LYTSwitch-5</td>
<td>90-265</td>
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<td>Downlight</td>
<td>&gt;0.90</td>
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<td>Flyback</td>
<td>DER-528</td>
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<td><strong>Tube Replacement Designs</strong></td>
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<td>LYTSwitch-4</td>
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<td>1.04</td>
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<td>&gt;0.90</td>
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<td>Flyback</td>
<td>DER-429</td>
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<tr>
<td>LYTSwitch-4</td>
<td>90-132</td>
<td>30*</td>
<td>0.50</td>
<td>Ballast</td>
<td>&gt;0.95</td>
<td>85</td>
<td>Flyback</td>
<td>DER-442</td>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>

*Analog dimming, **See www.power.com
TRIAC Dimmable, Bulb Replacement Designs

LYTSwitch-3 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-502)

9.5 W, 27 V, 350 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, TRACK LIGHT POWER SUPPLY
TRIAC Dimmable, Bulb Replacement Designs

LinkSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-554)
18 W, 12 V, 1.5 A OUTPUT, 85 – 265 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, ADAPTER POWER SUPPLY
TRIAC Dimmable, Bulb Replacement Designs

LYTSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-350)
20 W, 36 V, 550 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, PAR38 POWER SUPPLY

[Diagram of LYTSwitch-4 circuit design]

www.power.com
LYTSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-396)
20 W, 36 V, 550 mA OUTPUT, 185 – 265 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, PAR38 POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor, Analog Dimmable LED Driver (DER-427)

33 W, 45 V – 95 V, 350 mA OUTPUT, 170 – 300 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, DC T8 TUBE POWER SUPPLY
Non-Dimmable Bulb Replacement Designs

LYTSwitch-5 — Isolated, High-Efficiency, High Power Factor, LED Driver (DER-528)

14 W, 20 V – 40 V, 350 mA, 90 – 265 VAC INPUT, ISOLATED FLYBACK, DOWN LIGHT POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor, Isolated LED Driver (DER-338)

23 W, 50 V, 430 mA OUTPUT, 90 – 135 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, 78 POWER SUPPLY

*R1 is needed for >500 V surge
LYTSwitch-4 – High-Efficiency, High Power Factor, CV/CC LED Driver (DER-429)

25 W, 24 V, 1.04 A OUTPUT, 195 – 265 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, BALLAST POWER SUPPLY
LYTSwitch-4 – Wide Output Voltage Range, Single-Stage Power Factor, LED Driver (DER-442)

30 W, 30 V – 60 V, 0.50 A OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, ISOLATED FLYBACK, BALLAST POWER SUPPLY
### Non-Isolated Reference Designs

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*Analog dimming, **See www.power.com
TRIAC Dimmable, Bulb Replacement Designs

LYTSwitch-7 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-539)

6.5 W, 52 V, 125 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK CONVERTER, A19 POWER SUPPLY
LYTSwitch-7 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-558)

7.5 W, 50 V, 150 mA OUTPUT, 180 – 265 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK CONVERTER, A19 POWER SUPPLY
TRIAC Dimmable, Bulb Replacement Designs

LYTSwitch-7 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-586)

10 W, 60 V, 170 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, BR30 POWER SUPPLY
LYTSwitch-1 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-607)

10 W, 50 V, 205 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK CONVERTER, DOWNLIGHT POWER SUPPLY

*Optional components for LYTSwitch-7

**Diagram of LYTSwitch-1 circuit**

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**LYTSwitch LED Driver ICs**

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*Figure PI-8332-050417*
TRIAC Dimmable, Bulb Replacement Designs

LYTSwitch-3 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-500)
10 W, 36 V – 40 V, 260 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, DOWN LIGHT POWER SUPPLY
LYTSwitch-3 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-510)

11 W, 72 V, 155 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, A19 POWER SUPPLY

![Circuit Diagram of LYTSwitch-3 LED Driver IC](image-url)

**LYTSwitch LED Driver ICs**
LYTSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-412)

12 W, 120 V, 100 mA OUTPUT, 190 – 265 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, A19 POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-357)

12 W, 72 V, 170 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, BR40 POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-364)

14 W, 41 V, 350 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK CONVERTER, PAR30 POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-395)

14.35 W, 41 V, 350 mA OUTPUT, 195 – 265 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED TAPPED-BUCK CONVERTER, PAR30 POWER SUPPLY
LYTSwitch-3 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-512)
18 W, 72 V, 260 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, A19 POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-445)
20 W, 96 V, 210 mA OUTPUT, 195 – 265 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, G28 POWER SUPPLY
TRIAC Dimmable, Bulb Replacement Designs

LYTSwitch-7 – High-Efficiency, High Power Factor, TRIAC Dimmable LED Driver (DER-570)

40 W, 52 V, 380 mA OUTPUT, 100 – 300 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, BALLAST POWER SUPPLY
Non-Dimmable Bulb Replacement Designs

**LYTSwitch-1 – High-Efficiency, High Power Factor, Accurate Constant Current LED Driver (RDK-465)**

4.5 W, 47 V, 96 mA OUTPUT, 90 – 300 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK CONVERTER, Candelabra Power Supply

![Diagram of LYTSwitch-1](image1)

**LYTSwitch-1 – High-Efficiency, High Power Factor, LED Driver (RDK-464)**

8.1 W, 60 V, 135 mA OUTPUT, 90 – 132 VAC INPUT, NON-ISOLATED BUCK CONVERTER, A19 Power Supply

![Diagram of LYTSwitch-1](image2)

LYTSwitch LED Driver ICs
Non-Dimmable Bulb Replacement Designs

LYTSwitch-5 – High-Efficiency, High Power Factor, Accurate Constant Current LED Driver (DER-543)

18 W, 385 V, 48 mA OUTPUT, 195 – 265 VAC INPUT, NON-ISOLATED BOOST CONVERTER, FLOOD LAMP POWER SUPPLY
Non-Dimmable Bulb Replacement Designs

LYTSwitch-1 – High-Efficiency, High Power Factor LED Driver (DER-556)
32 W, 60 V, 260 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK, CEILING LAMP POWER SUPPLY
LYTSwitch-5 – High-Efficiency, High Power Factor, LED Driver (DER-515)

12 W, 69 V – 82 V, 160 mA OUTPUT, 90 – 308 VAC INPUT, NON-ISOLATED BUCK-BOOST CONVERTER, TUBE REPLACEMENT POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor LED Driver (DER-425)

15 W, 200 V, 75 mA, 95 – 265 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, T8 TUBE POWER SUPPLY
LYTSwitch-5 – High-Efficiency, High Power Factor LED Driver (DER-596)

15 W, 80 V, 188 mA, 100 – 277 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, T8 TUBE POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor LED Driver (DER-431)
16.2 W, 36 V, 450 mA or 40 V, 350 mA OUTPUT, 95 – 265 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED TAPPED-BUCK CONVERTER, T8 TUBE POWER SUPPLY
LYTSwitch-1 – High-Efficiency, High Power Factor LED Driver (DER-541)
16.75 W, 67 V, 250 mA OUTPUT, 90 – 132 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK CONVERTER, TUBE END POWER SUPPLY
LYTSwitch-5 – High-Efficiency, High Power Factor LED Driver (DER-526)
18 W, 75 V, 240 mA OUTPUT, 90 – 308 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, T8 TUBE POWER SUPPLY
LYTSwitch-1 – High-Efficiency, High Power Factor LED Driver (DER-548)

20 W, 120 V, 170 mA OUTPUT, 190 – 300 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK, TUBE END POWER SUPPLY
LYTSwitch-4 – High-Efficiency, High Power Factor, Low THD LED Driver (DER-405)
25 W, 144 V, 175 mA OUTPUT, 195 – 300 VAC INPUT, SINGLE-STAGE PFC, NON-ISOLATED BUCK-BOOST CONVERTER, T10 POWER SUPPLY
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