PI37xx Series

Cool-Power® ZVS Buck-Boost Switching Regulators

High Performance Buck-Boost Regulators

For Communications and Industrial, 12, 24 and 48 $V_{\text{IN}}$ Bus, 24 $V_{\text{IN}}$ Line Stabilization and Automotive Accessories

**Description**

The PI37xx is a series of high-efficiency, wide-input range DC-DC ZVS Buck-Boost regulators integrating controller, power switches and support components, all within a high density System-in-Package (SiP). The integration of a high-performance Zero-Voltage Switching (ZVS) topology, within the PI37xx increases point-of-load performance providing best-in-class power efficiency. The PI37xx requires only an external inductor and minimal capacitors to form a complete DC-DC switching mode buck-boost regulator.

The ZVS architecture enables high-frequency operation while minimizing switching losses and maximizing efficiency. The high-switching frequency operation reduces the size of the external filtering components, improves power density and enables very-fast dynamic response to line and load transients. The PI37xx regulator sustains high-switching frequency up to the rated input voltage without sacrificing efficiency and supports large-conversion ratios.

**Features**

- Over 98% efficiency at >800 kHz FSW
- Fast transient response
- Parallel capable
- External frequency synchronization / interleaving
- High-Side current sense amplifier
- General-purpose amplifier
- Input over / under voltage lockout (OVLO/UVLO)
- Output overvoltage protection (OVP)
- Over temperature protection (OTP)
- Fast and slow current limits
- -40°C to 120°C operating range (TJ)

**PI37xx Typical Application**

![PI37xx Typical Application Diagram]

**Part Numbering**

<table>
<thead>
<tr>
<th>Cool-Power</th>
<th>Input (V)</th>
<th>Output (V)</th>
<th>Power (W)</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Performance Buck-Boost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI3749-00-LGIZ</td>
<td>16 – 34</td>
<td>12 – 34</td>
<td>200</td>
<td>LGA SIP: 10 x 14 x 2.5mm</td>
</tr>
<tr>
<td>PI3741-00-LGIZ</td>
<td>21 – 60</td>
<td>21 – 36</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>PI3741-01-LGIZ</td>
<td>21 – 60</td>
<td>36 – 54</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>PI3740-00-LGIZ</td>
<td>8 – 60</td>
<td>10 – 50</td>
<td>140</td>
<td></td>
</tr>
</tbody>
</table>
Example Powerchain

Efficiency PI3740, 12V\textsubscript{OUT}

Efficiency PI3749, 24V\textsubscript{OUT}

Efficiency PI3741-00, 24V\textsubscript{OUT}

Efficiency PI3741-01, 48V\textsubscript{OUT}