Infineon’s System Solution for Light Electric Vehicles

Infineon’s solutions for Light Electric Vehicles provide leading-edge innovation, outstanding reliability and excellent quality. We offer the full range of power semiconductors – from Low Voltage Power MOSFETs to Microcontrollers.

Key requirements for those applications are increasing battery operating range, lifetime and reduced charging time. Infineon offers the right set of devices for battery management and voltage regulation with highest possible efficiency. Besides power management, power consumption is driven highly efficiently by XMC Microcontrollers, EiceDRIVER™ Gate Drivers, OptiMOS™ Low Voltage MOSFETs.

Key enabling products for Light Electric Vehicles are:
- Low Voltage Power MOSFETs – OptiMOS™
- High Voltage Power MOSFETs – CoolMOS™
- Gate Drivers – EiceDRIVER™ Compact
- Microcontrollers – XMC
- Silicon Power Diodes – Rapid 1 and Rapid 2 Diode
- Magnetic Sensors

Application Requirements

- Efficiency: Reduction of overall system energy consumption, increasing battery operation range and lifetime
- Reliability: Reliable operation and avoiding system down time
- Maintenance: Low maintenance and long lifetime of components
- Size & Cost: Reduction of overall system size and cost
- Time to market: Reduction of development time and cost

Benefits of Infineon Components

- Complete portfolio from one source
- Increased lifetime due to IFX reliability and quality
- Smallest area for highest power density
- BOM cost reduction due to lowest \( R_{\text{D(on)}} \)
- Complete support infrastructure: Simulations, documentation and demoboards

www.infineon.com/motorcontrol
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Application Diagram of Infineon Solution for Inverter and Charger

Charger
- CoolMOS™
- OptiMOS™
- Control ICs for PWM & PFC
- DC/DC Converters
- Linear Voltage Regulators
- Microcontroller - XMC
  - XMC4000 Family
  - XMC1000 Family
- Current & Position Sensing
  - Hall Switches
  - Linear Hall Sensors

Inverter
- OptiMOS™
- NovalithIC™ / Trilith IC
- EiceDRIVER™ (Gate Driver ICs)

Recommended Infineon Products for Inverter

<table>
<thead>
<tr>
<th>Battery Voltage</th>
<th>Standard Solution</th>
<th>Optimized Solution</th>
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</thead>
<tbody>
<tr>
<td>24V</td>
<td>IPD034N06N3 G</td>
<td>BSC028N06NS</td>
</tr>
<tr>
<td>36V</td>
<td>IPD053N08N3 G</td>
<td>BSC047N08NS3 G</td>
</tr>
<tr>
<td>48V</td>
<td>IPP045N10N3 G</td>
<td>IPT020N10N3 G</td>
</tr>
<tr>
<td>110V/230V</td>
<td></td>
<td></td>
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<tr>
<td>24V/36V/48V/72V</td>
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</table>

Recommended Infineon Products for LEV Charger

<table>
<thead>
<tr>
<th>Battery Voltage</th>
<th>AC/DC (PFC)</th>
<th>DC/DC (PWM)</th>
<th>Synchronous Rectification</th>
</tr>
</thead>
<tbody>
<tr>
<td>600V</td>
<td>IPP60R125P6</td>
<td>IPP60R099C6</td>
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<tr>
<td>650V</td>
<td>IPP60R160P6</td>
<td>IPP60R125C6</td>
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<tr>
<td></td>
<td>IPP60R190P6</td>
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<tr>
<td></td>
<td>IPL60R180P6</td>
<td>IPP60R190C6</td>
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<tr>
<td>600V</td>
<td>IPP95R120C6</td>
<td>IPP95R159C6</td>
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<tr>
<td></td>
<td>IPP95R150C6</td>
<td>IPL65R165C6</td>
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<tr>
<td></td>
<td>IPP95R165C6</td>
<td>IPL65R210C6</td>
<td></td>
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<tr>
<td>40V - 100V</td>
<td>Rapid Diodes in TO-220</td>
<td>OptMOS™ in TO-220, SuperS08 or D²PAK</td>
<td></td>
</tr>
<tr>
<td>650V</td>
<td>Rapid Diodes in TO-220</td>
<td>OptMOS™ in TO-220, SuperS08 or D²PAK</td>
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</tr>
</tbody>
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Additional Information and Warnings

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