Coupled Inductors  
LPD6235

For Flyback, SEPIC, Zeta and other Applications

Tight coupling ($k \geq 0.97$) makes the LPD6235 series of coupled inductors ideal for use in a variety of circuits including flyback, multi-output buck, SEPIC and Zeta.

These coupled miniature shielded inductors are 3.5 mm high and 6.0 mm square. They provide high inductance, high efficiency and excellent current handling in low cost part.

They can be used as two single inductors connected in series or parallel, as a common mode choke or as a 1:1 transformer.

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**Recommended Land Pattern**

![Recommended Land Pattern Diagram]

Dimensions are in inches/mm

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**Typical Flyback Converter**

![Typical Flyback Converter Diagram]

**Typical Buck Converter with auxiliary output**

![Typical Buck Converter with auxiliary output Diagram]

**Typical SEPIC schematic**

![Typical SEPIC schematic Diagram]

**Typical Zeta schematic**

![Typical Zeta schematic Diagram]
## Coupled Inductors – LPD6235 Series

### Specifications

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance (µH)</th>
<th>DCR max (Ohms)</th>
<th>SRF typ (MHz)</th>
<th>Coupling coefficient</th>
<th>Leakage L typ (µH)</th>
<th>Isat (A)</th>
<th>Irms (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPD6235-682ME</td>
<td>6.8</td>
<td>0.120</td>
<td>31</td>
<td>0.99</td>
<td>0.10</td>
<td>2.80</td>
<td>3.00</td>
</tr>
<tr>
<td>LPD6235-103ME</td>
<td>10</td>
<td>0.157</td>
<td>26</td>
<td>0.99</td>
<td>0.12</td>
<td>2.50</td>
<td>2.70</td>
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<tr>
<td>LPD6235-223ME</td>
<td>22</td>
<td>0.300</td>
<td>15</td>
<td>&gt;0.99</td>
<td>0.15</td>
<td>1.50</td>
<td>1.67</td>
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<tr>
<td>LPD6235-473ME</td>
<td>47</td>
<td>0.620</td>
<td>9.7</td>
<td>&gt;0.99</td>
<td>0.21</td>
<td>0.90</td>
<td>0.98</td>
</tr>
<tr>
<td>LPD6235-104ME</td>
<td>100</td>
<td>1.20</td>
<td>7.0</td>
<td>&gt;0.99</td>
<td>0.45</td>
<td>0.62</td>
<td>0.72</td>
</tr>
<tr>
<td>LPD6235-205ME</td>
<td>2000</td>
<td>16.0</td>
<td>1.3</td>
<td>&gt;0.99</td>
<td>2.10</td>
<td>0.08</td>
<td>0.11</td>
</tr>
</tbody>
</table>

1. Please specify termination and packaging codes:

   **LPD6235-205ME**

   **Termination:** E = RoHS compliant Silver-palladium-platinum-glass frit.
   **Special order:** T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

   **Packaging:** C = 7” machine-ready reel. EIA-481 embossed plastic tape (350 parts per full reel).
   **B** = Less than full reel. In tape, but not machine ready. To have a leader and trailer added ($25 charge), use code letter C instead.
   **D** = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (1500 parts per full reel).

2. Inductance shown for each winding, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent. When leads are connected in parallel, inductance is the same value. When leads are connected in series, inductance is four times the value.

3. DCR is for each winding. When leads are connected in parallel, DCR is half the value. When leads are connected in series, DCR is twice the value.

4. SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value. When leads are connected in series, SRF is half the value.

5. Leakage inductance is for L1 and is measured with L2 shorted.

6. DC current, at which the inductance drops the specified amount from its value without current. It is the sum of the current flowing in both windings.

7. Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.

8. Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.

9. Electrical specifications at 25°C.

### Additional Information

- **Core material:** Ferrite
- **Core and winding loss** Go to online calculator
- **Weight** 420 – 480 mg
- **Environmental** RoHS compliant, halogen free
- **Terminals** RoHS compliant silver-palladium-platinum-glass frit.
- **Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)
- **Storage temperature** Component: –40°C to +125°C.
- **Winding to winding isolation** 100 Vrms, one minute
- **Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles
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**Coupled Inductor Core and Winding Loss Calculator**

This web-based utility allows you to enter frequency, peak-to-peak (ripple) current, and Irms current to predict temperature rise and overall losses, including core loss. Go to online calculator.
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L vs Current

L vs Frequency

Typical Current Derating