**Miniature Transformers LPD5030V**

With 1500 Vdc (1000 Vrms) isolation and a small package size, the LPD5030V series is ideal for use in high density isolated circuit applications.

Functional Safety Listed by UL. Functional insulation class for TNV-1 to SELV applications. Functional insulation with a maximum 60 Vdc, 42.4 V peak input/output voltages with working voltages up to 210 Vdc. (Report #E219588-A6)

These miniature transformers provide tight coupling, high inductance and excellent current handling.

They can be used as
- Flyback transformers
- Coupled inductors in SEPIC applications
- Common mode filter chokes

**Design’s Kit C481** contains 3 parts of each value in the LPD5030V and LPD8035V series.

- **Core material**: Ferrite
- **Core and winding loss**: Go to online calculator
- **Environmental**: RoHS compliant, halogen free
- **Terminations**: RoHS compliant matte tin over nickel over silver

**Weight** 210 – 225 mg

**Ambient temperature** -40°C to +85°C with (40°C rise) Irms current.

**Maximum part temperature** +125°C (ambient + temp rise).

**Storage temperature** Component: -40°C to +125°C.

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL) 1** (unlimited floor life at <30°C / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

**Packaging** 750/7” reel; 2500/13” reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.1 mm pocket depth

**Recommended pick and place nozzle OD**: 5 mm; **ID**: ≤2.5 mm

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.
# LPD5030V Coupled Inductors for SEPIC Applications

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance at 0 A²</th>
<th>DCR max</th>
<th>SRF typ</th>
<th>Coupling coefficient typ</th>
<th>Leakage inductance typ</th>
<th>Isolation (Vrms)</th>
<th>10% drop</th>
<th>20% drop</th>
<th>30% drop</th>
<th>both windings</th>
<th>one winding</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPD5030V-472MR</td>
<td>4.7</td>
<td>0.322</td>
<td>55.0</td>
<td>0.97</td>
<td>0.109</td>
<td>1000</td>
<td>1.45</td>
<td>1.70</td>
<td>1.90</td>
<td>0.65</td>
<td>0.92</td>
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<tr>
<td>LPD5030V-682MR</td>
<td>6.8</td>
<td>0.395</td>
<td>49.9</td>
<td>0.97</td>
<td>0.109</td>
<td>1000</td>
<td>1.30</td>
<td>1.50</td>
<td>1.55</td>
<td>0.59</td>
<td>0.83</td>
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<tr>
<td>LPD5030V-103MR</td>
<td>10</td>
<td>0.490</td>
<td>37.1</td>
<td>0.97</td>
<td>0.130</td>
<td>1000</td>
<td>1.10</td>
<td>1.20</td>
<td>1.30</td>
<td>0.54</td>
<td>0.76</td>
</tr>
<tr>
<td>LPD5030V-333MR</td>
<td>33</td>
<td>0.695</td>
<td>19.2</td>
<td>0.98</td>
<td>0.195</td>
<td>1000</td>
<td>0.49</td>
<td>0.59</td>
<td>0.67</td>
<td>0.43</td>
<td>0.61</td>
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<tr>
<td>LPD5030V-473MR</td>
<td>47</td>
<td>1.40</td>
<td>16.0</td>
<td>0.98</td>
<td>0.300</td>
<td>1000</td>
<td>0.46</td>
<td>0.48</td>
<td>0.50</td>
<td>0.35</td>
<td>0.50</td>
</tr>
<tr>
<td>LPD5030V-154MR</td>
<td>150</td>
<td>3.82</td>
<td>8.1</td>
<td>0.98</td>
<td>0.456</td>
<td>1000</td>
<td>0.25</td>
<td>0.29</td>
<td>0.31</td>
<td>0.18</td>
<td>0.25</td>
</tr>
<tr>
<td>LPD5030V-224MR</td>
<td>220</td>
<td>5.26</td>
<td>6.5</td>
<td>&gt;0.99</td>
<td>0.541</td>
<td>1000</td>
<td>0.16</td>
<td>0.21</td>
<td>0.24</td>
<td>0.16</td>
<td>0.22</td>
</tr>
</tbody>
</table>

1. When ordering, please specify **packaging** code:

**LPD5030V-224MR**
- **Packaging:** C = 7" machine-ready reel. EIA-481 embossed plastic tape (750 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 (2500 parts per full reel).

2. Inductance is for the primary, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent.

3. Peak current drawn at minimum input voltage.

4. DCR is for each winding.

5. Leakage inductance is for the primary winding with the secondary windings shorted.

6. 1000 Vrms, one minute isolation (hipot) between windings. Designed to provide Functional Insulation only; does not protect against electrical shock; nor intended for the isolation of SELV circuits from Hazardous Voltage circuits.

7. Electrical specifications at 25°C.

8. Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

**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.](#)
LPD5030V Miniature Transformers

Typical L vs Current

![Typical L vs Current graph]

Typical L vs Frequency

![Typical L vs Frequency graph]

Recommended Land Pattern

* Dimensions are of the case not including the termination. For maximum overall dimensions including the termination, add 0.005 in / 0.13 mm.

For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.005 inch / 0.13 mm.

Dot indicates pin 1

Dash number Internal code

0.189 ±0.003
4,80 ±0,076

0.114 ±0.004
2,90 ±0,10

0.060
1,50

0.030
0,75

0.090
2,30

Dimensions are in inches

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