Coupled Inductors – LPR4012

For Step-Up, Resonant & Flyback Applications

The LPR4012 miniature shielded coupled inductors are only 1.1 mm high and 4 mm square. The excellent coupling coefficient (k = 0.95) makes them ideal for use as flyback transformers in DC-DC converters or as coupled inductors in buck regulators to provide multiple outputs. The wide selection of turns ratios makes them suitable for a variety of voltage step-up and step-down applications. They can also be used in autotransformer applications.

The high Isat and low DCR ratings of these low profile parts provide high efficiency and excellent current handling in a rugged, low cost design.

Custom inductance values and turn ratios are available upon request.

<table>
<thead>
<tr>
<th>Part number1</th>
<th>Primary (L1) inductance2 ± 20% (µH)</th>
<th>Turns ratio</th>
<th>DCR max (Ohms) L1</th>
<th>L2</th>
<th>SRF typ3 (MHz)</th>
<th>10% drop</th>
<th>20% drop</th>
<th>30% drop</th>
<th>20°C rise</th>
<th>40°C rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPR4012-202AML</td>
<td>2.0</td>
<td>1:1.5</td>
<td>0.240</td>
<td>0.325</td>
<td>61.5</td>
<td>1.70</td>
<td>1.73</td>
<td>1.74</td>
<td>1.10</td>
<td>1.45</td>
</tr>
<tr>
<td>LPR4012-202BML</td>
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<td>1:2</td>
<td>0.240</td>
<td>0.480</td>
<td>49.4</td>
<td>1.70</td>
<td>1.73</td>
<td>1.74</td>
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<td>1.45</td>
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<tr>
<td>LPR4012-202DML</td>
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<td>1:3</td>
<td>0.240</td>
<td>1.15</td>
<td>31.0</td>
<td>1.70</td>
<td>1.73</td>
<td>1.74</td>
<td>1.10</td>
<td>1.45</td>
</tr>
<tr>
<td>LPR4012-202LML</td>
<td>2.0</td>
<td>1:10</td>
<td>0.240</td>
<td>11.62</td>
<td>7.43</td>
<td>1.70</td>
<td>1.73</td>
<td>1.74</td>
<td>1.10</td>
<td>1.45</td>
</tr>
<tr>
<td>LPR4012-103AML</td>
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<td>1:2</td>
<td>0.600</td>
<td>1.55</td>
<td>19.5</td>
<td>0.62</td>
<td>0.64</td>
<td>0.65</td>
<td>0.52</td>
<td>0.70</td>
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<tr>
<td>LPR4012-103BML</td>
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<td>1:3</td>
<td>0.600</td>
<td>3.71</td>
<td>12.8</td>
<td>0.62</td>
<td>0.64</td>
<td>0.65</td>
<td>0.52</td>
<td>0.70</td>
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<tr>
<td>LPR4012-203BML</td>
<td>22.0</td>
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<td>1.16</td>
<td>3.65</td>
<td>11.2</td>
<td>0.43</td>
<td>0.45</td>
<td>0.46</td>
<td>0.43</td>
<td>0.57</td>
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<tr>
<td>LPR4012-223BML</td>
<td>22.0</td>
<td>1:3</td>
<td>1.16</td>
<td>7.08</td>
<td>8.00</td>
<td>0.43</td>
<td>0.45</td>
<td>0.46</td>
<td>0.43</td>
<td>0.57</td>
</tr>
</tbody>
</table>

1. When ordering, please specify termination and packaging codes:

   LPR4012-223BML
   
   Termination: L = 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 (1000 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 D instead.
   D = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (3500 parts per full reel).

2. Inductance is measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent.
3. SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
4. DC current applied to L1, at which the inductance drops the specified amount from its value without current.
5. Current applied to L1 that causes the specified temperature rise from 25°C ambient.

Refer to Doc 362 "Soldering Surface Mount Components” before soldering.
Coupled Inductors – LPR4012 Series

Core material  Ferite
Weight  54 – 64 mg
Terminations  RoHS compliant silver-palladium-platinum-glass frit. Other terminations available at additional cost.
Ambient temperature  –40°C to +85°C with Irms current, +85°C to +125°C with derated current
Storage temperature  Component: –40°C to +125°C. Tape and reel packaging: –40°C to +80°C
Winding to winding isolation  100 V
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)
Mean Time Between Failures (MTBF)  26,315,789 hours
Failures in Time (FIT)  38 per one billion hours
Packaging  1000/7” reel; 3500/13” reel  Plastic tape: 12 mm wide, 0.25 mm thick, 8 mm pocket spacing, 1.32 mm pocket depth
Recommended pick and place nozzle  OD: 4 mm; ID: ≤ 2 mm
PCB washing  Only pure water or alcohol recommended

Current Derating

Dimensions are in  inches  mm

Recommended Land Pattern
Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Coilcraft:
LPR4012-103BMRB  LPR4012-103DMRB  LPR4012-223BMRB  LPR4012-223DMRB