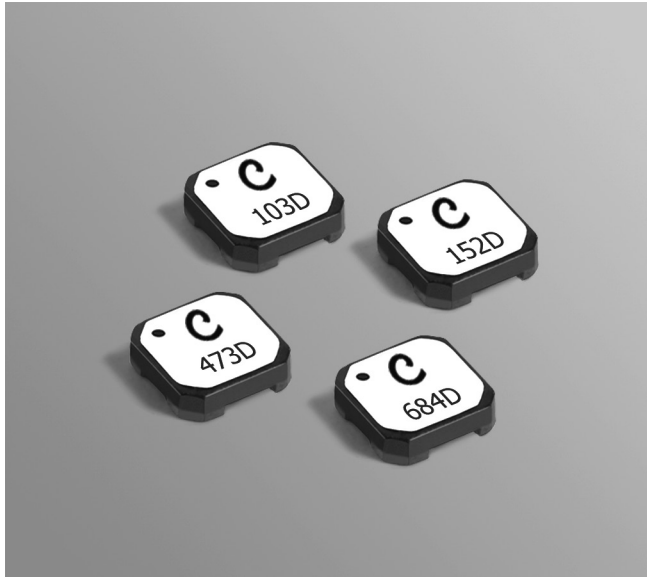


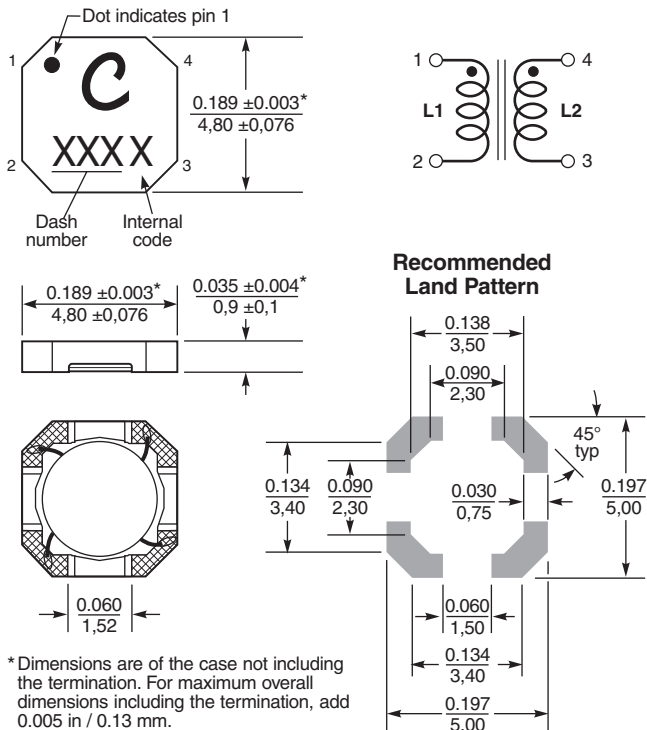
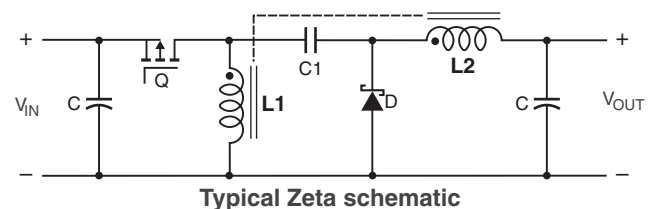
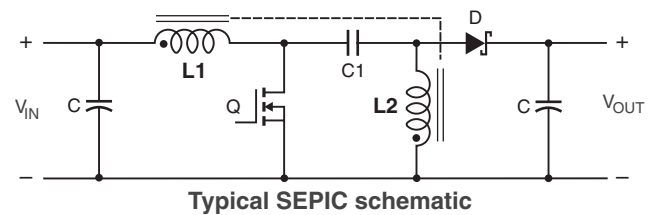
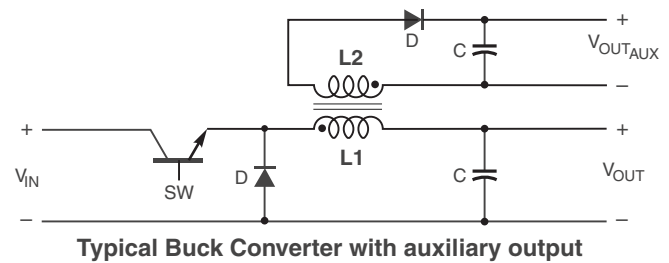
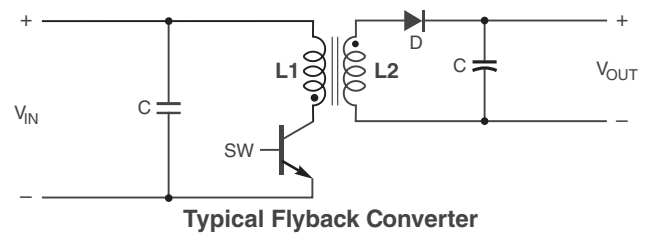
Shielded Coupled Inductors LPD5010



The LPD5010 coupled miniature shielded inductors are mere 1 mm high and 5 mm square. They are ideal for use in a variety of circuits including flyback, multi-output buck, SEPIC and Zeta.

These inductors provide high inductance, high efficiency and excellent current handling in a rugged, low cost part.

They can also be used as two single inductors connected in series or parallel or as a common mode choke.



* 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 in / 0.13 mm.

Dimensions are in inches / mm



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Coupled Inductors for SEPIC Applications – LPD5010 Series

| Part number ¹ | Inductance ² ±20% (µH) | DCR max ³ (Ohms) | SRF typ ⁴ (MHz) | Coupling coefficient typ | Leakage L typ ⁵ (µH) | Isat (A) ⁶ | | | Irms (A) | |
|--------------------------|--------------------------------------|--------------------------------|-------------------------------|--------------------------------|---------------------------------------|-----------------------|-------------|-------------|-------------------------------|-----------------------------|
| | | | | | | 10% drop | 20% drop | 30% drop | both windings ⁷ | one winding ⁸ |
| LPD5010-681MR_ | 0.68 | 0.07 | 191 | 0.95 | 0.07 | 2.6 | 2.7 | 2.8 | 1.95 | 2.76 |
| LPD5010-102MR_ | 1.0 | 0.10 | 150 | 0.95 | 0.09 | 2.1 | 2.1 | 2.2 | 1.50 | 2.12 |
| LPD5010-152MR_ | 1.5 | 0.15 | 134 | 0.97 | 0.09 | 1.7 | 1.8 | 1.8 | 1.20 | 1.70 |
| LPD5010-222MR_ | 2.2 | 0.20 | 108 | 0.97 | 0.11 | 1.5 | 1.6 | 1.6 | 1.10 | 1.56 |
| LPD5010-332MR_ | 3.3 | 0.27 | 83 | 0.98 | 0.13 | 1.2 | 1.3 | 1.3 | 0.95 | 1.34 |
| LPD5010-472MR_ | 4.7 | 0.40 | 68 | 0.98 | 0.15 | 0.98 | 1.0 | 1.1 | 0.75 | 1.06 |
| LPD5010-562MR_ | 5.6 | 0.45 | 60 | 0.99 | 0.16 | 0.90 | 0.93 | 0.94 | 0.70 | 0.99 |
| LPD5010-682MR_ | 6.8 | 0.53 | 55 | 0.99 | 0.19 | 0.83 | 0.86 | 0.87 | 0.60 | 0.85 |
| LPD5010-822MR_ | 8.2 | 0.70 | 50 | 0.99 | 0.22 | 0.74 | 0.77 | 0.78 | 0.50 | 0.71 |
| LPD5010-103MR_ | 10 | 0.78 | 46 | 0.99 | 0.27 | 0.67 | 0.69 | 0.70 | 0.50 | 0.71 |
| LPD5010-153MR_ | 15 | 1.19 | 33 | 0.99 | 0.34 | 0.53 | 0.55 | 0.56 | 0.42 | 0.59 |
| LPD5010-223MR_ | 22 | 1.58 | 26 | 0.99 | 0.40 | 0.45 | 0.47 | 0.48 | 0.35 | 0.49 |
| LPD5010-333MR_ | 33 | 2.50 | 23 | 0.99 | 0.48 | 0.37 | 0.38 | 0.39 | 0.30 | 0.42 |
| LPD5010-473MR_ | 47 | 3.48 | 17.0 | 0.99 | 0.63 | 0.31 | 0.32 | 0.33 | 0.25 | 0.35 |
| LPD5010-683MR_ | 68 | 5.10 | 14.9 | 0.99 | 0.90 | 0.25 | 0.26 | 0.27 | 0.19 | 0.26 |
| LPD5010-104MR_ | 100 | 8.0 | 11.2 | 0.99 | 1.39 | 0.21 | 0.22 | 0.22 | 0.15 | 0.21 |
| LPD5010-154MR_ | 150 | 11.7 | 9.90 | 0.99 | 2.10 | 0.17 | 0.17 | 0.18 | 0.12 | 0.16 |
| LPD5010-224MR_ | 220 | 15.2 | 8.05 | 0.99 | 3.02 | 0.14 | 0.15 | 0.15 | 0.11 | 0.15 |

1. Please specify **termination** and **packaging** codes:

LPD5010-224MRC

Termination: R = RoHS compliant matte tin over nickel over silver.

Special order:

Q = RoHS tin-silver-copper (95.5/4/0.5) or

P = 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 C instead.

D = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (3500 parts per full reel).

- 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.
- 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.
- SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
- Leakage Inductance is for L1 and is measured with L2 shorted.
- DC current at 25°C that causes the specified inductance drop from its value without current. It is the sum of the current flowing in both windings.
- Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
- Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
- Electrical specifications at 25°C.

Refer to Doc 639 "Selecting Coupled Inductors for SEPIC Applications."

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.](#)

Core material Ferrite

Core and winding loss [Go to online calculator](#)

Weight 60 – 70 mg

Environmental RoHS compliant, halogen free

Terminations RoHS compliant matte tin over nickel over silver.

Other terminations available at additional cost.

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.

Tape and reel packaging: –40°C to +80°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

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

Mean Time Between Failures (MTBF) 26,315,789 hours

Packaging 1000/7" reel; 3500/13" reel Plastic tape: 12 mm wide, 0.3 mm thick, 8 mm pocket spacing, 1.02 mm pocket depth

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

PCB washing Tested with pure water or alcohol only. For other solvents, see [Doc787_PCB_Washing.pdf](#).



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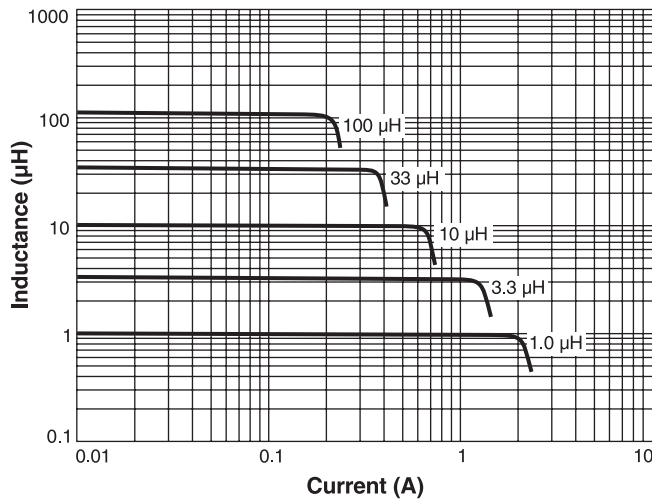
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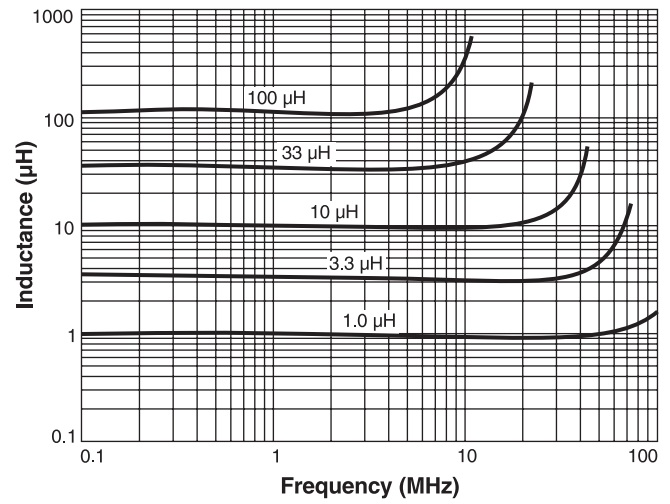


Coupled Inductors for SEPIC Applications – LPD5010 Series

Typical L vs Current



Typical L vs Frequency



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