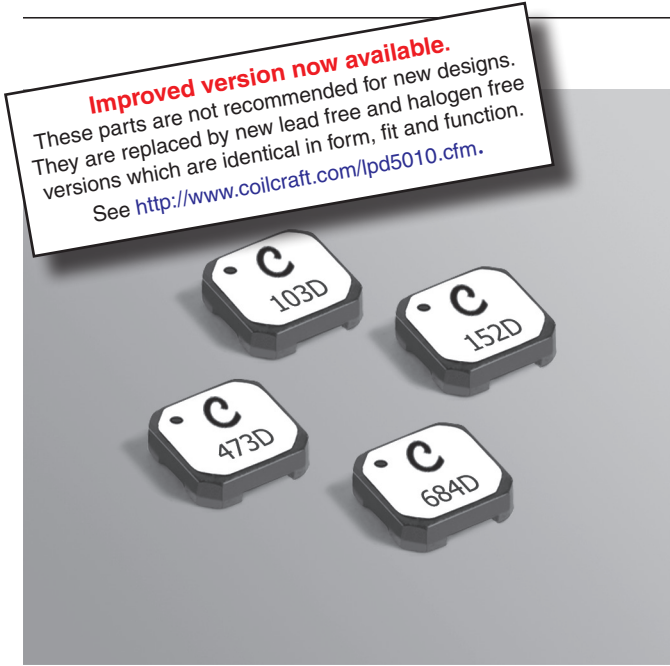
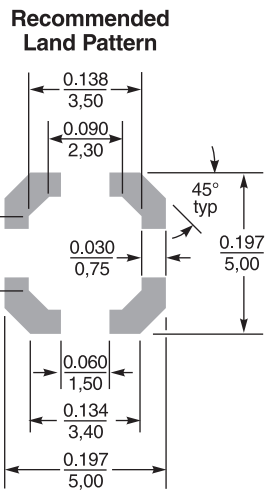
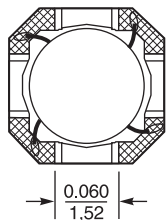
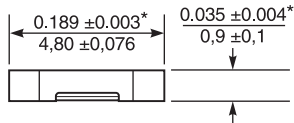
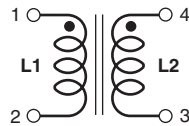
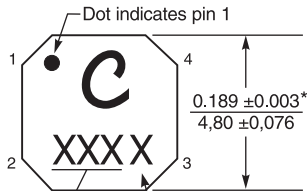
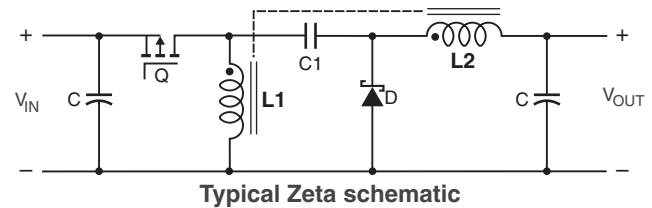
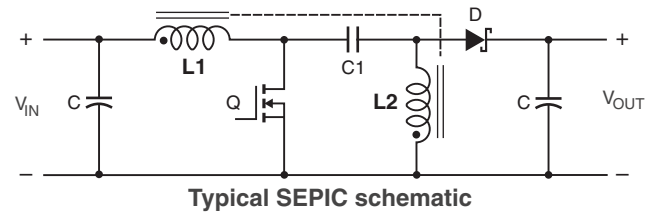
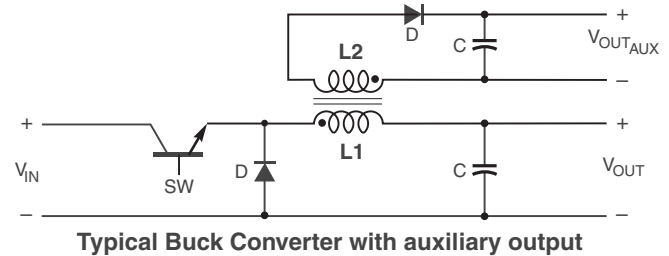
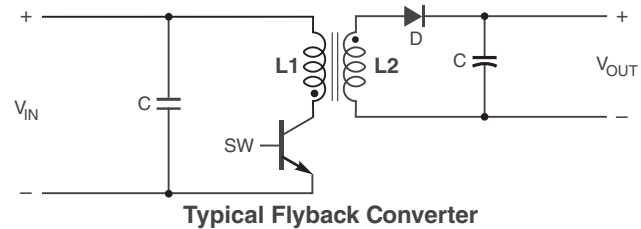


# Coupled Inductors LPD5010 For Flyback, SEPIC, Zeta and other Applications



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  $\frac{\text{inches}}{\text{mm}}$



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# Coupled Inductors for SEPIC Applications – LPD5010 Series

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

**LPD5010-224MEC**

**Tolerance:** N = 30%, M = 20%

**Termination:** E = RoHS compliant, halogen free 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). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

B = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to C.

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 which the inductance drops the specified amount 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. See temperature rise calculation.
- Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- 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 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 Vrms

**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)

**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:  $\leq$  2.5 mm

**PCB washing** Tested with pure water or alcohol only. For other solvents, see [Doc787\\_PCB\\_Washing.pdf](#).



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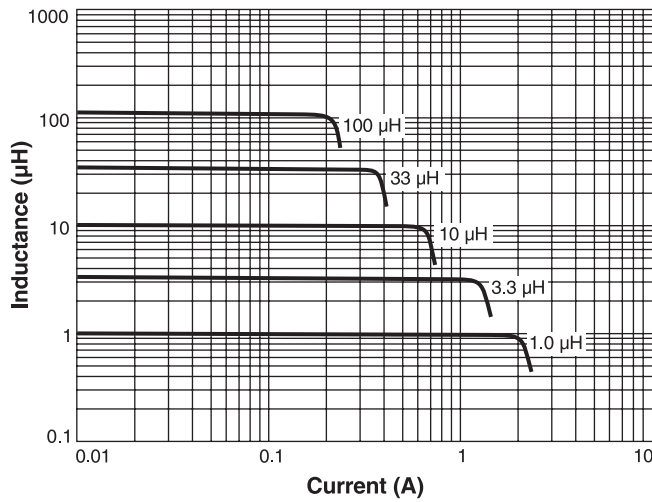
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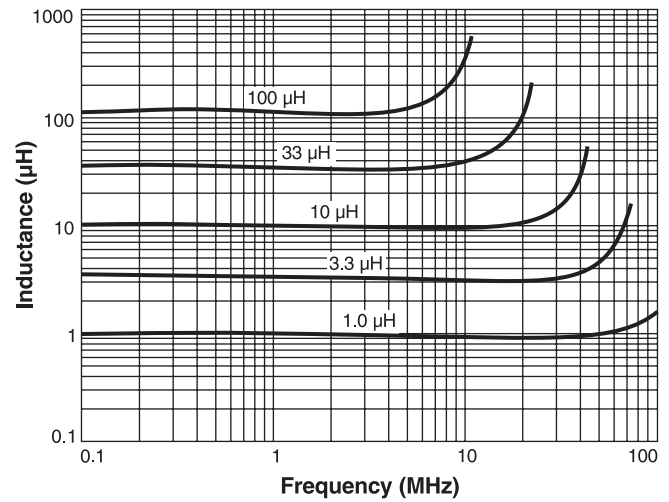


# Coupled Inductors for SEPIC Applications – LPD5010 Series

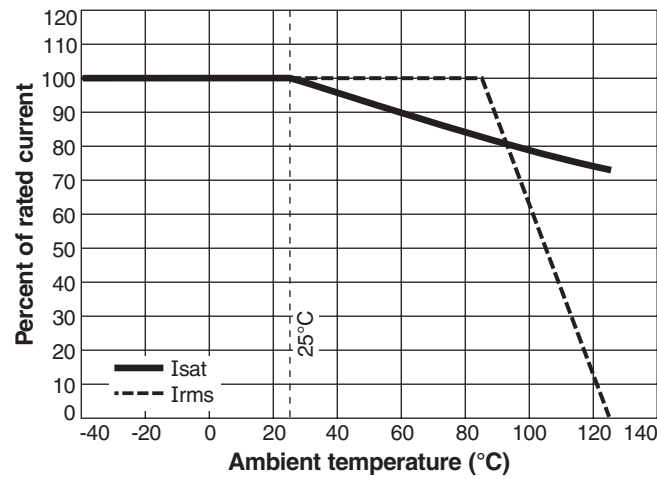
## Typical L vs Current



## Typical L vs Frequency



## Typical Current Derating



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