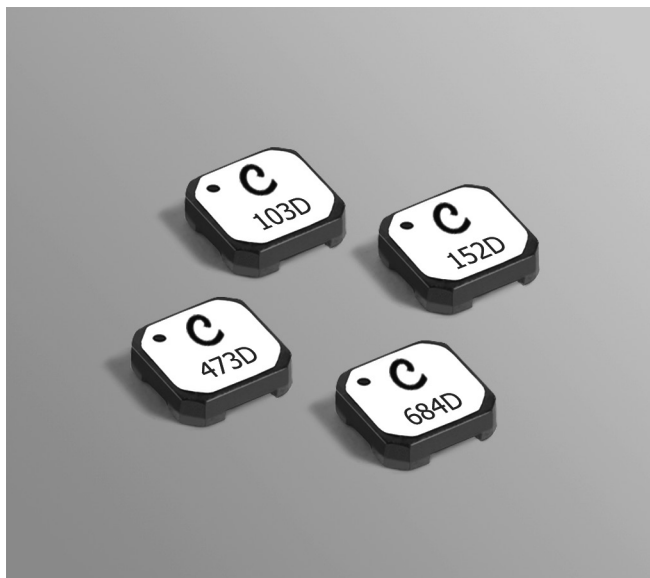




# Coupled Inductors LPD5010

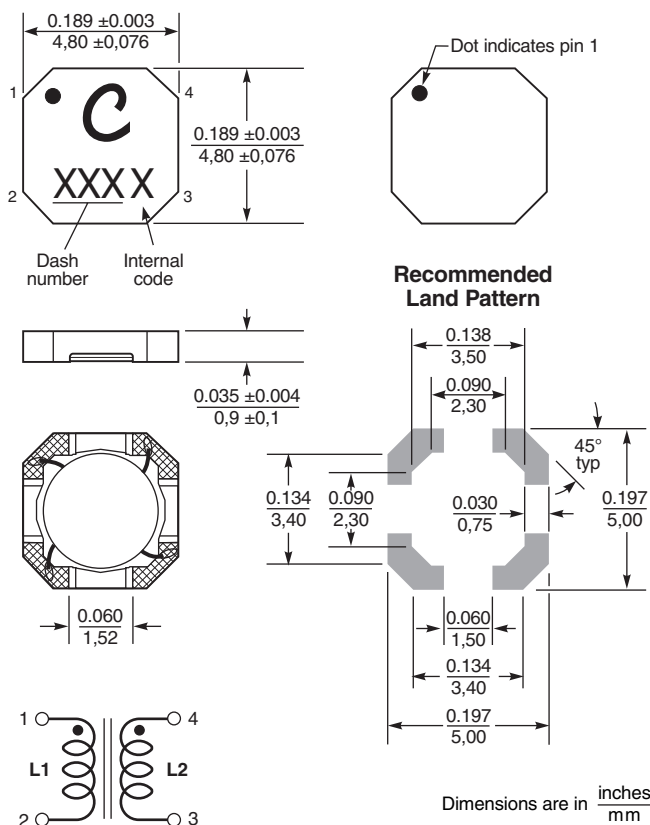
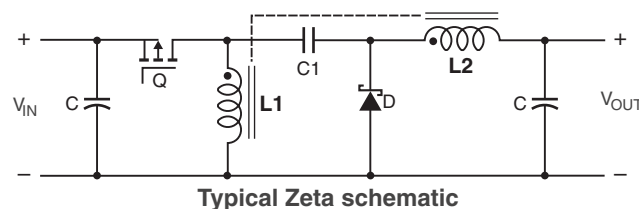
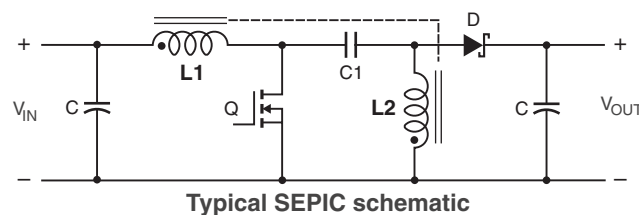
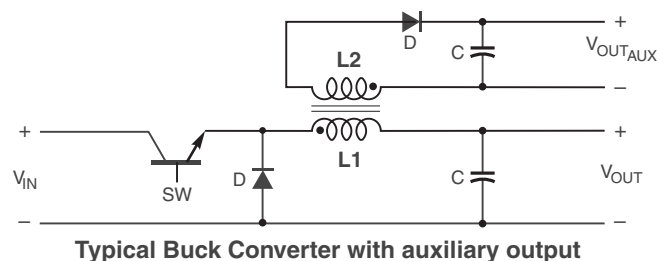
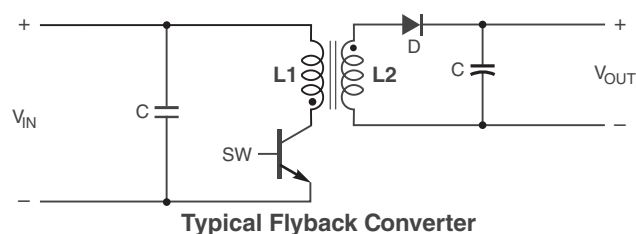
For Flyback, SEPIC, Zeta and other Applications



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.





# Coupled Inductors for SEPIC Applications – LPD5010 Series

Part number <sup>1</sup>	Inductance <sup>2</sup> ±20% (µH)	DCR max <sup>3</sup> (Ohms)	SRF typ <sup>4</sup> (MHz)	Coupling coefficient typ	Leakage L typ <sup>5</sup> (µH)	Isat (A) <sup>6</sup>			Irms (A)	
						10% drop	20% drop	30% drop	both windings <sup>7</sup>	one winding <sup>8</sup>
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 D 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

**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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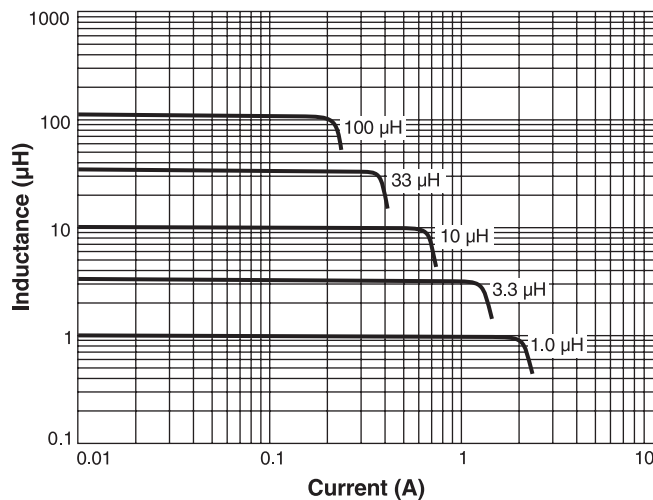
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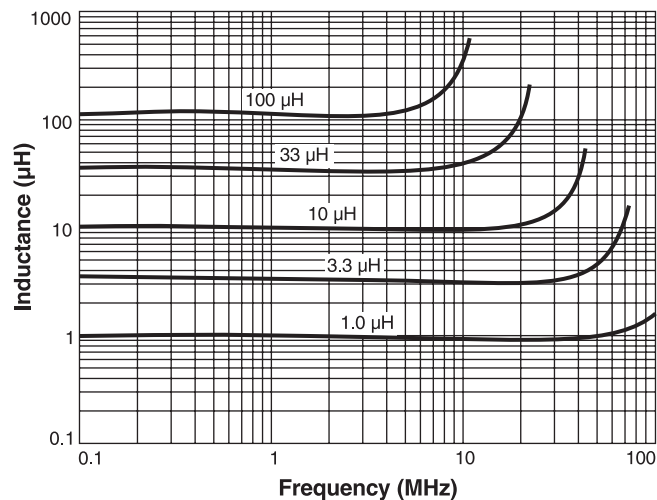


# Coupled Inductors for SEPIC Applications – LPD5010 Series

## Typical L vs Current



## Typical L vs Frequency



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