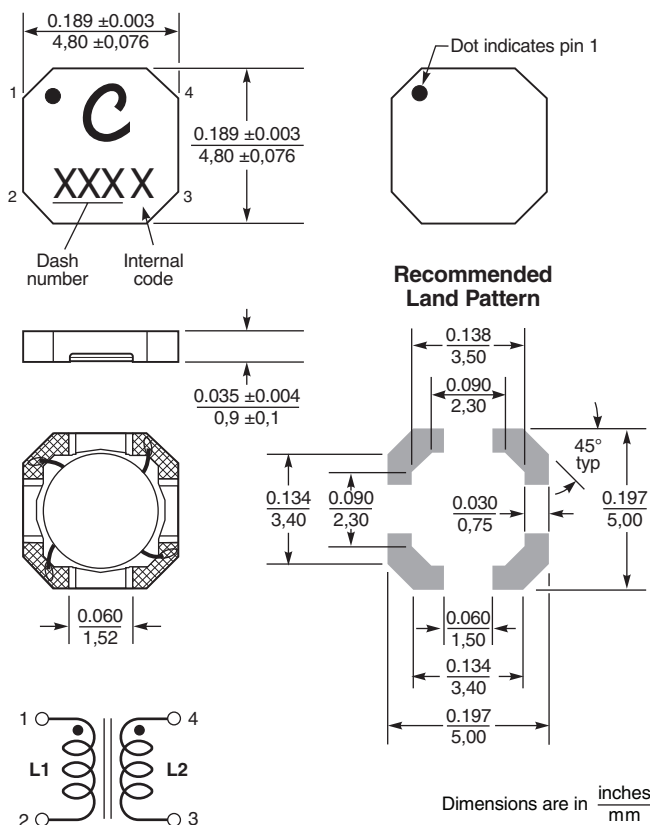
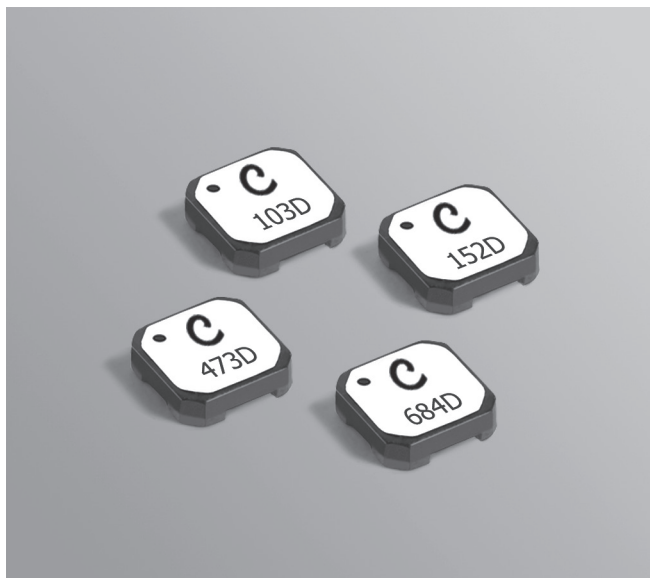



NEW!

Coupled Inductors – LPD5010

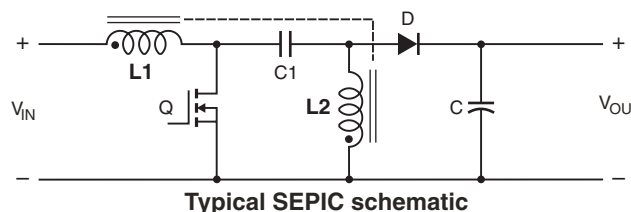
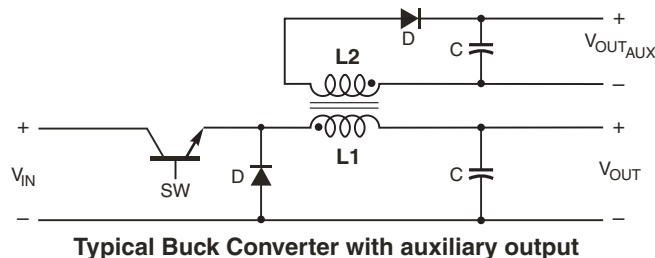
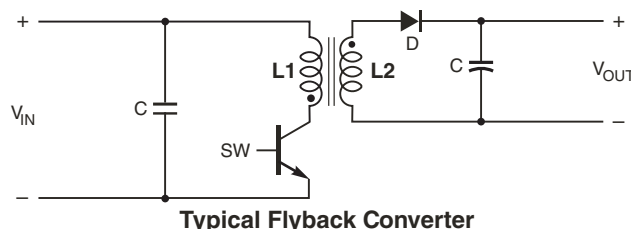
For Flyback, SEPIC and other Applications



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 and SEPIC.

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.



Core material Ferrite

Core and winding loss See www.coilcraft.com/coupledloss

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 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

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 Only pure water or alcohol recommended


NEW!

Coupled Inductors for SEPIC Applications – LPD5010 Series

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

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).

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 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.

Temperature rise calculation based on specified Irms

Winding power loss = $(I_{L1}^2 + I_{L2}^2) \times \text{DCR}$ in Watts (W)

Temperature rise = Winding power loss $\times \frac{99^\circ\text{C}}{\text{W}}$

Examples for LPD5010-152ME:

Equal current in each winding (1.1 A):

Winding power loss = $(1.1^2 + 1.1^2) \times 0.15 = 0.363 \text{ W}$

Temperature rise = $0.363 \text{ W} \times \frac{99^\circ\text{C}}{\text{W}} = 35.9^\circ\text{C}$

Unequal current ($I_{L1} = 1.4 \text{ A}$, $I_{L2} = 0.7 \text{ A}$):

Winding power loss = $(1.4^2 + 0.7^2) \times 0.15 = 0.368 \text{ W}$

Temperature rise = $0.368 \text{ W} \times \frac{99^\circ\text{C}}{\text{W}} = 36.4^\circ\text{C}$

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. Visit www.coilcraft.com/coupledloss.



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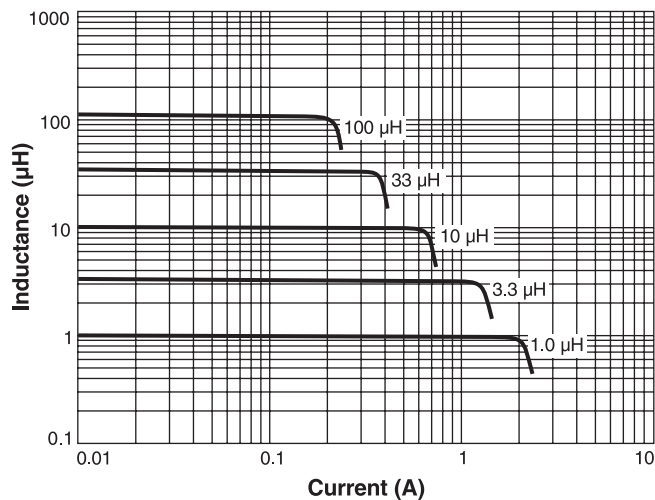
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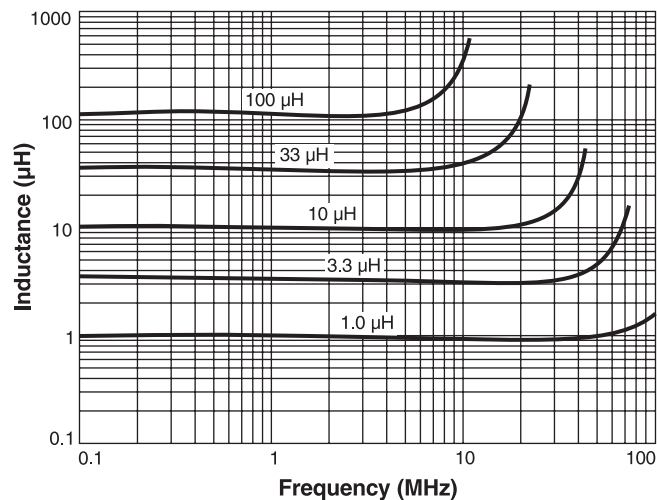

NEW!

Coupled Inductors for SEPIC Applications – LPD5010 Series

Typical L vs Current



Typical L vs Frequency



Typical Current Derating

