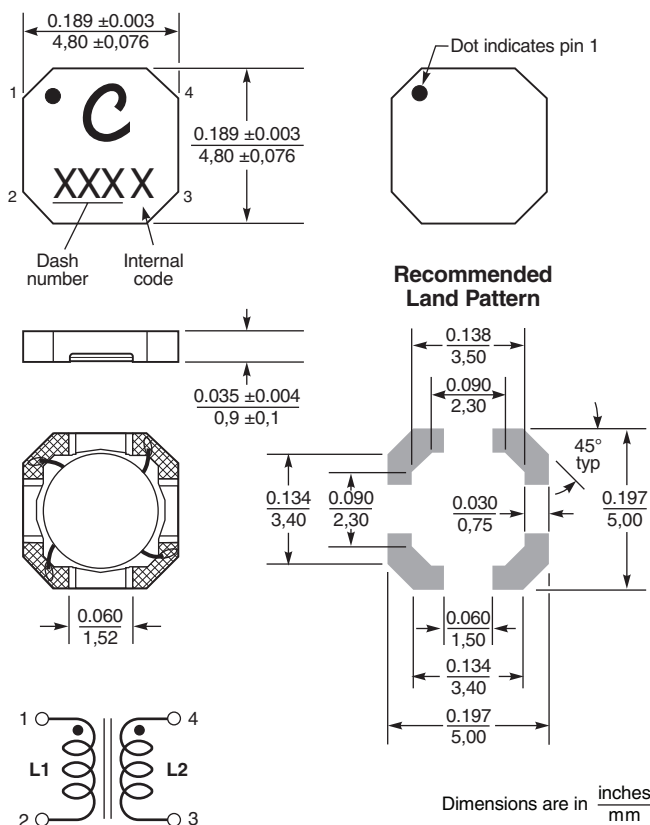
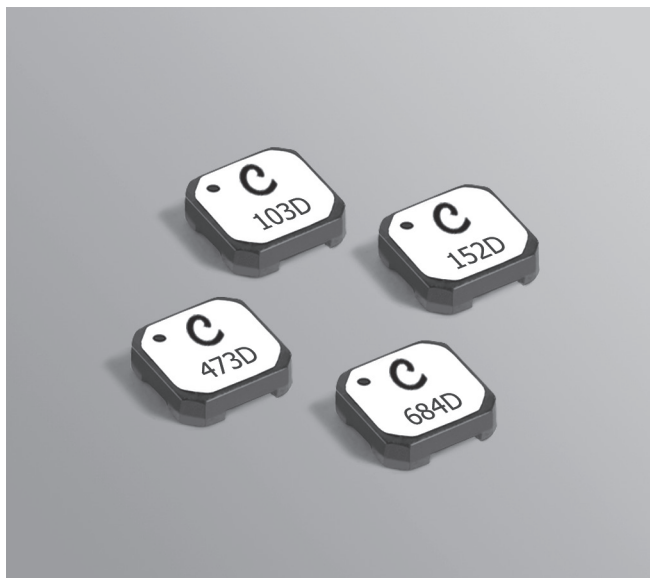



NEW!

Coupled Inductors – LPD5010

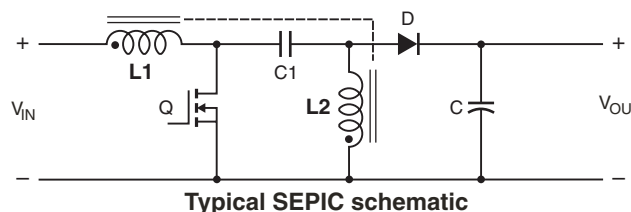
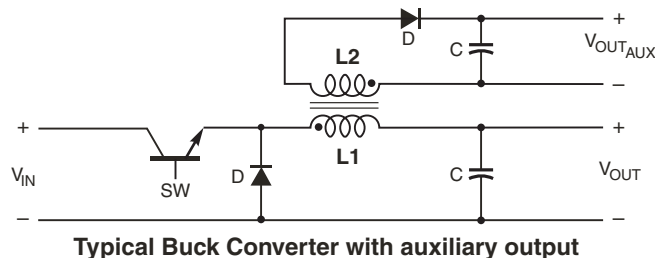
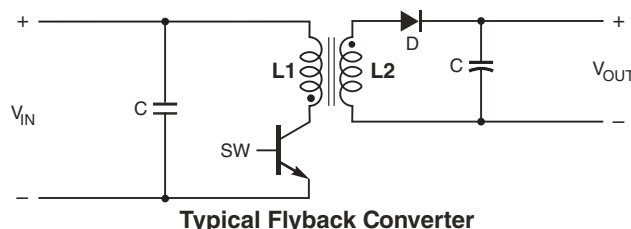
For Flyback, SEPIC and other Applications



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.



www.coilcraft.com

US +1-847-639-6400 sales@coilcraft.com
UK +44-1236-730595 sales@coilcraft-europe.com
Taiwan +886-2-2264 3646 sales@coilcraft.com.tw
China +86-21-6218 8074 sales@coilcraft.com.cn
Singapore +65-6484 8412 sales@coilcraft.com.sg

Document 820-2 Revised 01/13/12

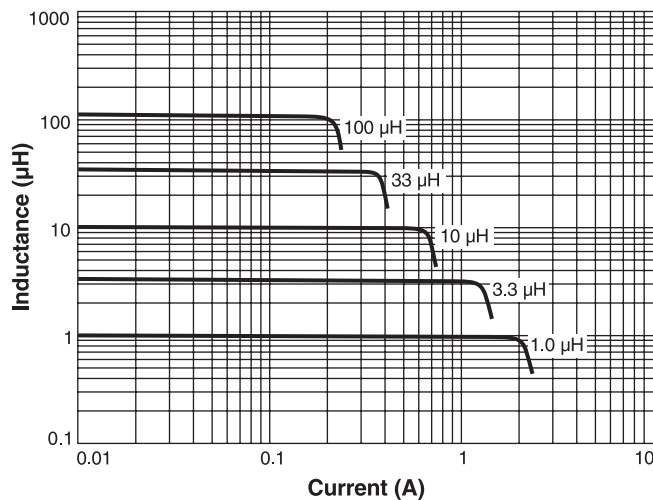
© Coilcraft Inc. 2012

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check out web site for latest information.

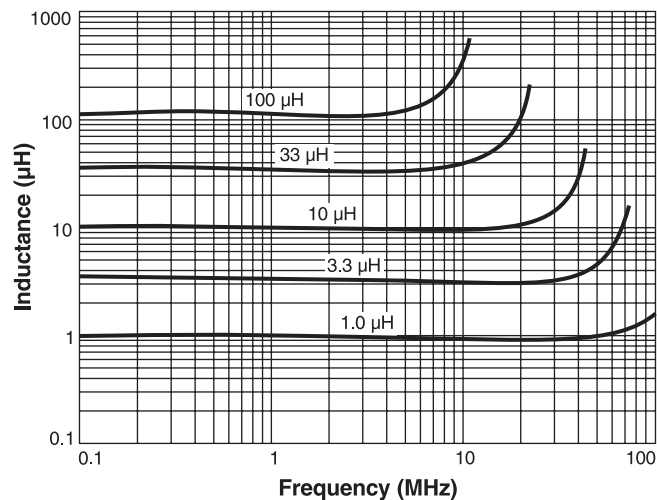
**NEW!**

Coupled Inductors for SEPIC Applications – LPD5010 Series

Typical L vs Current



Typical L vs Frequency



Typical Current Derating

