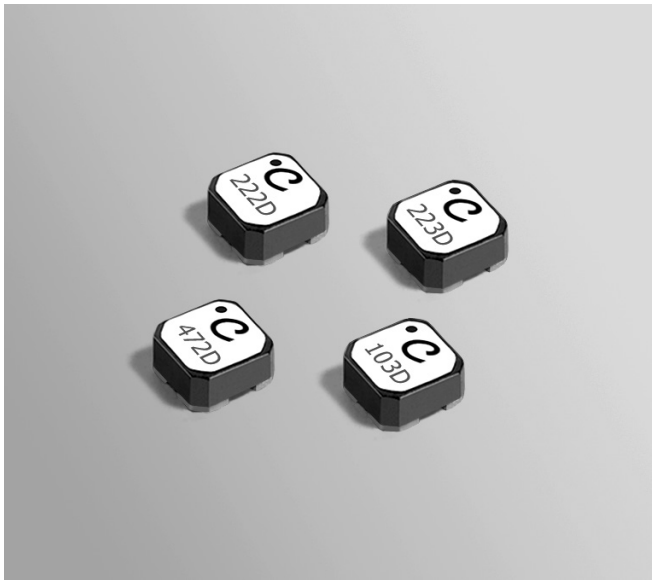
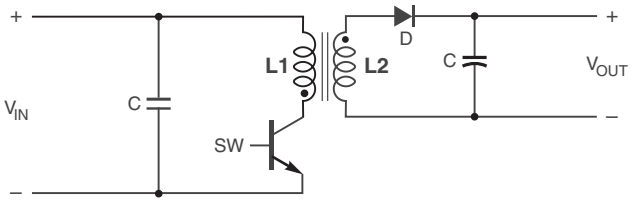
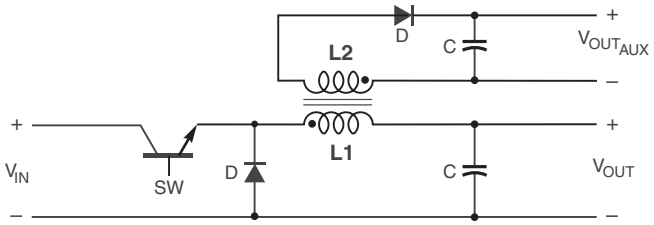
Shielded Coupled Inductors LPD3015



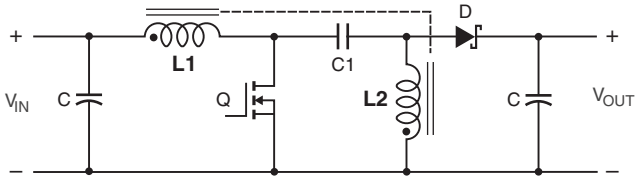
- Only 1.4 mm high and 3 mm square
- Ideal for use in flyback, multi-output buck, SEPIC and Zeta applications.
- High inductance, high efficiency and excellent current handling
- Can also be used as two single inductors connected in series or parallel or as a common mode choke.



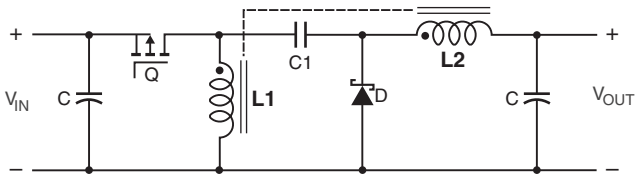
Typical Flyback Converter



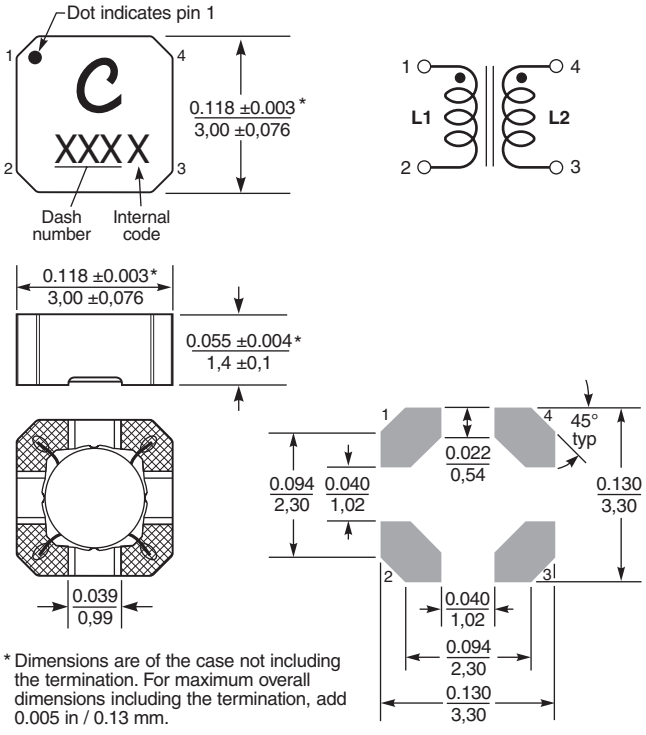
Typical Buck Converter with auxiliary output



Typical SEPIC schematic



Typical Zeta schematic



* 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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Document 661-1 Revised 07/13/16

Coupled Inductors for SEPIC - LPD3015 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] 10% drop	Isat (A)[6] 20% drop	Isat (A)[6] 30% drop	Irms (A) both windings[7]	Irms (A) one winding[8]
LPD3015-391MR_	0.39	0.071	289	0.89	0.08	3.2	3.3	3.4	1.45	2.05
LPD3015-561MR_	0.56	0.079	235	0.93	0.08	2.7	2.8	2.8	1.37	1.94
LPD3015-102MR_	1.0	0.129	160	0.95	0.09	2.0	2.1	2.2	1.08	1.52
LPD3015-152MR_	1.5	0.204	140	0.96	0.11	1.6	1.7	1.8	0.86	1.20
LPD3015-182MR_	1.8	0.273	135	0.96	0.13	1.5	1.6	1.6	0.78	1.10
LPD3015-222MR_	2.2	0.300	110	0.97	0.14	1.5	1.6	1.6	0.75	1.05
LPD3015-332MR_	3.3	0.337	90	0.98	0.16	1.0	1.1	1.2	0.67	0.94
LPD3015-472MR_	4.7	0.503	79	0.98	0.18	0.86	0.87	0.88	0.54	0.76
LPD3015-682MR_	6.8	0.622	58	0.98	0.22	0.77	0.78	0.79	0.49	0.69
LPD3015-103MR_	10	1.040	48	0.99	0.28	0.58	0.59	0.60	0.38	0.53
LPD3015-153MR_	15	1.420	35	0.99	0.37	0.49	0.50	0.51	0.32	0.46
LPD3015-183MR_	18	1.550	33	0.99	0.42	0.46	0.47	0.48	0.31	0.44
LPD3015-223MR_	22	1.89	30	0.99	0.48	0.42	0.43	0.44	0.28	0.40
LPD3015-333MR_	33	2.84	23	0.99	0.63	0.34	0.35	0.36	0.23	0.32
LPD3015-473MR_	47	4.03	17	0.99	0.81	0.28	0.29	0.30	0.19	0.27
LPD3015-683MR_	68	6.11	14	0.99	1.13	0.24	0.25	0.26	0.16	0.22
LPD3015-104MR_	100	8.54	11	0.99	1.50	0.20	0.21	0.22	0.13	0.19
LPD3015-124MR_	120	9.23	9.0	0.99	1.76	0.19	0.20	0.20	0.13	0.18
LPD3015-154MR_	150	12.40	8.0	0.99	2.22	0.16	0.17	0.18	0.11	0.16
LPD3015-184MR_	180	15.32	7.5	0.99	2.79	0.15	0.16	0.17	0.10	0.14
LPD3015-224MR_	220	18.56	6.0	0.99	3.56	0.13	0.14	0.15	0.09	0.13
LPD3015-334MR_	330	27.70	5.0	0.99	5.18	0.11	0.12	0.12	0.07	0.10

1. When ordering, please specify **termination** and **packaging** codes:

LPD3015-334MRC

Termination: **R** = Matte tin over nickel over silver
Special order, added cost: **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).

2. 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.
3. 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.
4. SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
5. Leakage Inductance is for L1 and is measured with L2 shorted
6. 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.
7. 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.
8. 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.
9. 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 45 – 52 mg

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)

Failures in Time (FIT) / Mean Time Between Failures (MTBF) 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

Packaging 1000/7″ reel; 3500/13″ reel Plastic tape: 12 mm wide, 0.26 mm thick, 8 mm pocket spacing, 1.65 mm pocket depth

Recommended pick and place nozzle OD: 3 mm; ID: ≤1.5 mm

PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

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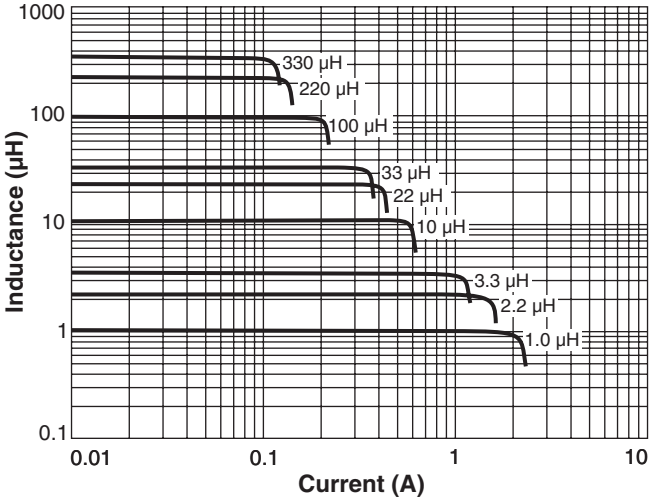
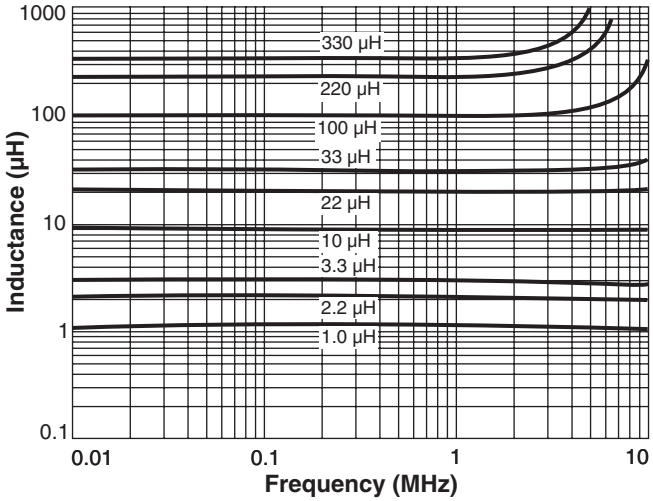
Coupled Inductors for SEPIC - LPD3015 Series

Typical L vs Current



Typical L vs Frequency



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