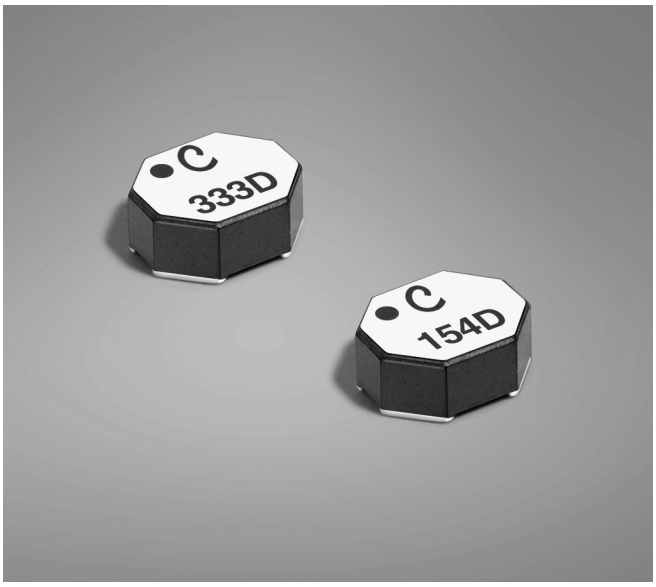
Miniature Transformers LPD8035V

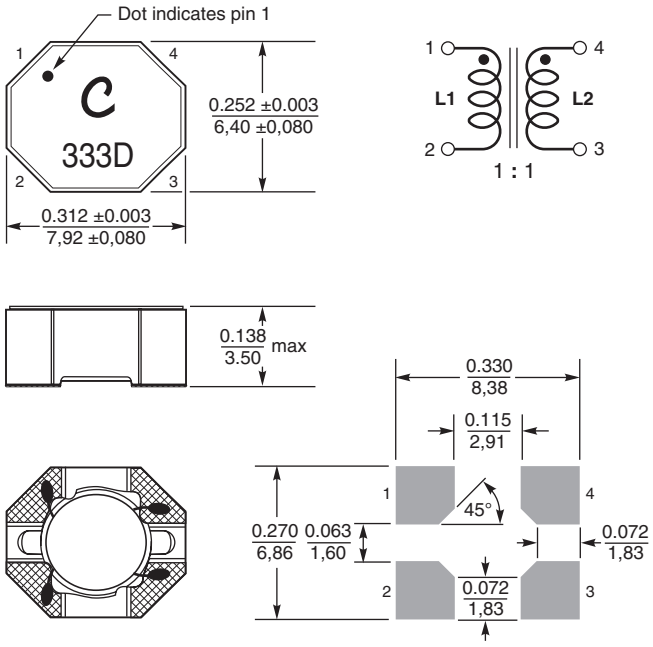


Key features

- AEC-Q200 Grade 3 (–40°C to +85°C) qualified
- Maximum part temperature 125°C
- Ultra-small package size 8.0 × 6.4 × 3.5 mm
- Tight coupling coefficient ≥0.97
- 1500 Vrms, one minute isolation (hipot) between windings
- Provides Functional Insulation

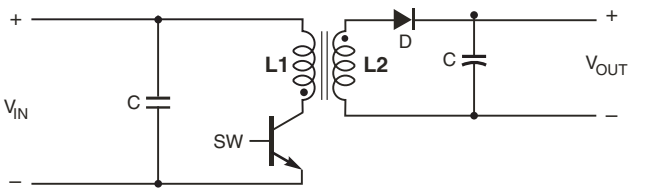
Applications

- Flyback transformer
- Coupled inductor in SEPIC applications
- Common mode filter choke

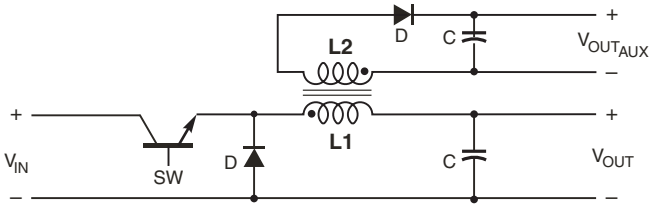


Recommended Land Pattern

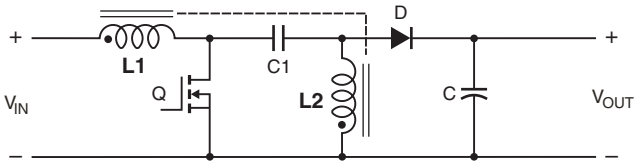
Dimensions are in inches / mm



Typical Flyback Converter



Typical Buck Converter with auxiliary output



Typical SEPIC schematic

Refer to Application Note, Document 639, "Selecting Coupled Inductors for SEPIC Applications"

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Document 1173 Revised 01/14/19

LPD8035V Transformers for Flyback Applications

Part number[1]	Inductance at 0 A[2] ±20% (µH)	Inductance at Ipk[3] ±20% (µH)	DCR (Ohms)[4] typ	DCR (Ohms)[4] max	Leakage inductance[5] max (µH)	Isolation[6] (Vrms)	Turns ratio	Ipk[3] (A)
LPD8035V-472MR_	4.7	3.3	0.120	0.140	0.150	1500	1 : 1	2.7
LPD8035V-562MR_	5.6	3.9	0.130	0.150	0.180	1500	1 : 1	2.5
LPD8035V-822MR_	8.2	5.7	0.162	0.190	0.210	1500	1 : 1	2.0
LPD8035V-103MR_	10	7.0	0.171	0.185	0.250	1500	1 : 1	2.0
LPD8035V-223MR_	22	15.4	0.326	0.359	0.305	1500	1 : 1	1.3
LPD8035V-333MR_	33	23.1	0.617	0.660	0.350	1500	1 : 1	1.0
LPD8035V-473MR_	47	32.9	0.668	0.696	0.410	1500	1 : 1	0.54
LPD8035V-563MR_	56	39.2	0.754	0.784	0.440	1500	1 : 1	0.49
LPD8035V-683MR_	68	47.6	0.846	0.890	0.475	1500	1 : 1	0.45
LPD8035V-823MR_	82	57.4	0.946	0.98	0.510	1500	1 : 1	0.42
LPD8035V-104MR_	100	70.0	1.34	1.45	0.565	1500	1 : 1	0.39
LPD8035V-124MR_	120	84.0	1.57	1.68	0.775	1500	1 : 1	0.35
LPD8035V-154MR_	150	105	1.79	1.90	0.820	1500	1 : 1	0.31

1. When ordering, please specify **packaging** code:

LPD8035V-474MRC

Packaging: **C** = 7″ machine-ready reel. EIA-481 embossed plastic tape (350 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 C instead.
D = 13″ machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (1500 parts per full reel).

2. . Inductance is for the primary, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent.
3. Peak primary current drawn at minimum input voltage.
4. DCR is for each winding.
5. Leakage inductance is for the primary winding with the secondary windings shorted.
6. Designed to provide Functional Insulation only; does not protect against electrical shock; nor intended for the isolation of SELV circuits from Hazardous Voltage circuits.
7. Electrical specifications at 25°C.

Refer to Doc 362 “Soldering Surface Mount Components” before solderin

Core material Ferrite
Environment RoHS compliant, halogen free
Terminations RoHS compliant matte tin over nickel over silver.
Weight 0.53 – 0.58 g
Ambient temperature –40°C to +85°C with (40°C rise) Irms current.
Maximum part temperature +125°C (ambient + temp rise). Derating.
Storage temperature Component: –40°C to +125°C.
Tape and reel packaging: –40°C to +80°C
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 350/7″ reel; 1500/13″ reel Plastic tape: 16 mm wide, 0.35 mm thick, 12 mm pocket spacing, 3.68 mm pocket depth
Recommended pick and place nozzle OD: 5 mm; ID: ≤ 2.5 mm
PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

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LPD8035V Coupled Inductors for SEPIC Applications

Part number[1]	Inductance[2] ±20% (µH)	DCR (Ohms)[3] typ	DCR (Ohms)[3] max	SRF typ[4] (MHz)	Coupling coefficient typ	Leakage inductance[5] max (µH)	Isolation[6] (Vrms)	Isat[7] (A)	Irms (A) both windings[8]	Irms (A) one winding[9]
LPD8035V-472MR_	4.7	0.120	0.140	45.6	0.97	0.150	1500	2.7	1.15	1.62
LPD8035V-562MR_	5.6	0.130	0.150	41.4	0.97	0.180	1500	2.5	1.03	1.45
LPD8035V-822MR_	8.2	0.162	0.190	31.1	0.97	0.210	1500	2.0	0.95	1.35
LPD8035V-103MR_	10	0.171	0.185	28.8	0.98	0.250	1500	2.0	0.92	1.30
LPD8035V-223MR_	22	0.326	0.359	18.0	0.98	0.305	1500	1.3	0.63	0.89
LPD8035V-333MR_	33	0.617	0.660	13.2	0.99	0.350	1500	1.0	0.52	0.73
LPD8035V-473MR_	47	0.668	0.696	12.4	0.99	0.410	1500	0.54	0.47	0.67
LPD8035V-563MR_	56	0.754	0.784	11.5	0.99	0.440	1500	0.49	0.42	0.60
LPD8035V-683MR_	68	0.846	0.890	10.9	0.99	0.475	1500	0.45	0.40	0.57
LPD8035V-823MR_	82	0.946	0.98	10.0	0.99	0.510	1500	0.42	0.38	0.54
LPD8035V-104MR_	100	1.34	1.45	9.55	0.99	0.565	1500	0.39	0.31	0.44
LPD8035V-124MR_	120	1.57	1.68	8.67	0.99	0.775	1500	0.35	0.30	0.42
LPD8035V-154MR_	150	1.79	1.90	7.60	0.99	0.820	1500	0.31	0.28	0.39

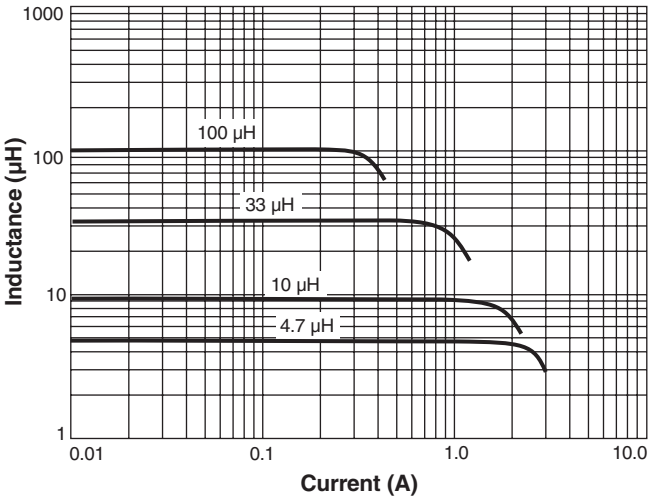
1. When ordering, please specify **packaging** code:

   LPD8035V-154MRC

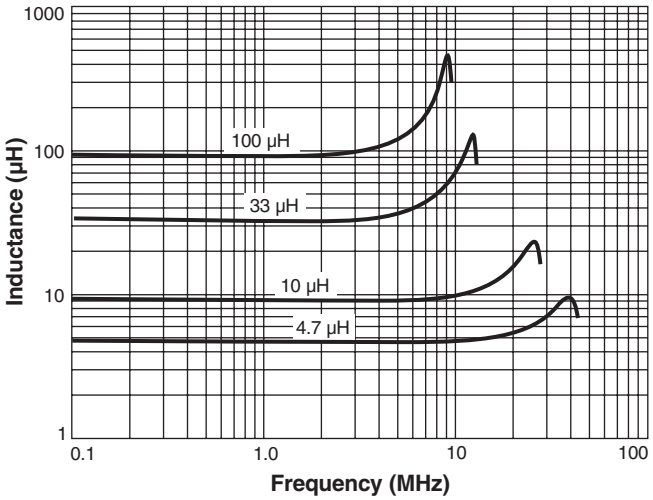
   Packaging: **C** = 7″ machine-ready reel. EIA-481 embossed plastic tape 350 parts per full reel).
   B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added ($25 charge), use code letter C instead.
   D = 13″ machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (1500 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. Designed to provide Functional Insulation only; does not protect against electrical shock; nor intended for the isolation of SELV circuits from Hazardous Voltage circuits.
7. DC current, at which the inductance drops 30% (typ) from its value without current. It is the sum of the current flowing in both windings.
8. Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. .
9. Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.

Refer to Doc 639 “Selecting Coupled Inductors for SEPIC Applications.”
Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

Typical L vs Current



Typical L vs Frequency



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