

Miniature Coupled Inductor LPD8035V-333











Typical Buck Converter with auxiliary output





Key features

- Designed in TI's LM5160 and LM5017 Fly-Buck[™] reference designs (PMP15005 and PMP15006)
- Ultra-small package size $8.0 \times 6.4 \times 3.5$ mm
- Suitable to operate in ambient temperatures as high as 125°C
- Tight coupling coefficient
- 1500 Vrms, one minute isolation (hipot) between windings

Applications

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

Core material Ferrite

Environment RoHS compliant, halogen free **Terminations** RoHS compliant matte tin over nickel over silver **Weight** 0.58 g

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

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: \leq 2.5 mm PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.



Parts shown are preproduction products available for evaluation only.

 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

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LPD8035V-333 Transformer for Flyback Applications

| Part number ¹ | Inductance at 0 A ² ±20% (µH) | Inductance at Ipk ³ ±20% (µH) | DCR (Ohms) ⁴ typ max | | Leakage inductance⁵ max (µH) | Isolation ⁶ (Vrms) | Turns ratio | Ipk ³ (A) | |
|--------------------------|--|--|---------------------------------------|------|------------------------------------|----------------------------------|----------------|-------------------------|--|
| LPD8035V-333MR_ | 33 | 24.8 | 0.62 | 0.66 | 0.35 | 1500 | 1:1 | 1.0 | |

1. When ordering, please specify packaging code:

LPD8035V-333MRC

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 D 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.
- Designed to provide Functional Insulation only; does not protect against electrical shock; nor intended for the isolation of SELV circuits from Hazardous Voltage circuits measured from primary to secondary for one minute.
- 7. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering

LPD8035V-333 Coupled Inductor for SEPIC Applications

| | | DCR ³ | | SRF | Coupling | Leakage | | | Irms | Irms (A) | |
|--------------------------|--------------------------------------|------------------|-------------|---------------------------|--------------------|-------------------------|----------------------------------|--------------------------|-------------------------------|----------------|--|
| Part number ¹ | Inductance ² ±20% (µH) | (Oł typ | ims) max | typ ⁴ (MHz) | coefficient typ | inductance⁵ max (μH) | Isolation ⁶ (Vrms) | Isat (A) ⁷ | both windings ⁸ | one winding | |
| LPD8035V-333MR | _ 33 | 0.62 | 0.66 | 12.6 | 0.98 | 0.35 | 1500 | 0.6 | 0.64 | 0.90 | |

1. When ordering, please specify packaging code:

LPD8035V-333MRC

- **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 D instead.
 - D = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (1500 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.
- 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.
- Designed to provide Basic Insulation; does not protect against electrical shock; nor intended for the isolation of SELV circuits from Hazardous Voltage circuits measured from primary to secondary for one minute.
- 7. DC current that causes an inductance drop of 10% 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.
- 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 "Selecting Coupled Inductors for SEPIC Applications." Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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 China
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 sales@coilcraft.com.sg

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100



LPD8035V-133 Miniature Transformers

Typical L vs Current





Recommended Land Pattern **Typical L vs Frequency**

Dimensions are in $\frac{\text{inches}}{\text{mm}}$



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 China
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 8074
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