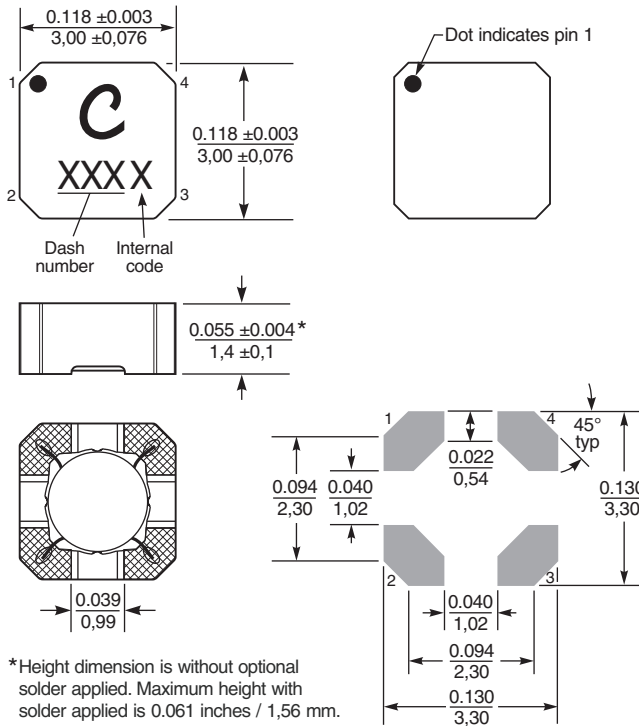
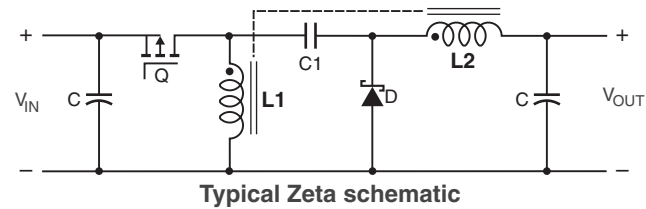
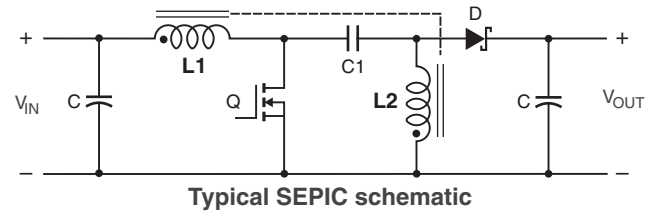
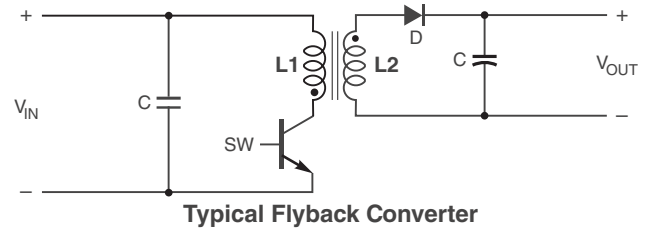




# Coupled Inductors – LPD3015 For SEPIC and other Applications

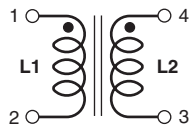


- Only 1.4 mm high and 3 mm square
- Ideal for use in flyback, multi-output buck, SEPIC and Zeta applications.
- High inductance, high efficiency and excellent current handling
- Can also be used as two single inductors connected in series or parallel or as a common mode choke.



\*Height dimension is without optional solder applied. Maximum height with solder applied is 0.061 inches / 1,56 mm.

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



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# Coupled Inductors for SEPIC - LPD3015 Series

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>±20% (µH) | DCR max <sup>3</sup><br>(Ohms) | SRF typ <sup>4</sup><br>(MHz) | Coupling<br>coefficient<br>typ | Leakage<br>L typ <sup>5</sup><br>(µH) | Isat (A) <sup>6</sup> |             |             | Irms (A)                      |                             |
|--------------------------|--------------------------------------|--------------------------------|-------------------------------|--------------------------------|---------------------------------------|-----------------------|-------------|-------------|-------------------------------|-----------------------------|
|                          |                                      |                                |                               |                                |                                       | 10%<br>drop           | 20%<br>drop | 30%<br>drop | both<br>windings <sup>7</sup> | one<br>winding <sup>8</sup> |
| 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).

- 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 25°C that causes the specified inductance drop 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. This information is for reference only and does not represent absolute maximum ratings.
- 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.
- 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

