## Low Profile, High Current Coupled Inductor



### LINKS TO ADDITIONAL RESOURCES

3D Models  Calculators

### FEATURES

- High temperature, up to 155 °C
- Shielded construction
- Frequency range up to 5.0 MHz
- Lowest DCR/µH in this package size
- Handles high transient current spikes without saturation
- Ultra low buzz noise, due to composite construction
- Coupling is > 90 % - optimized for SEPIC converters
- Tested to AEC-Q200 specifications (1)
- IHCL design; PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free
RoHS COMPLIANT
HALOGEN FREE GREEN (5-2008)

**Note**

(1) For automotive applications, use IHCL4040DZERXRXM5A.

### APPLICATIONS

- SEPIC converters
- DC/DC converters
- Common mode applications
- LED lighting

### STANDARD ELECTRICAL SPECIFICATIONS

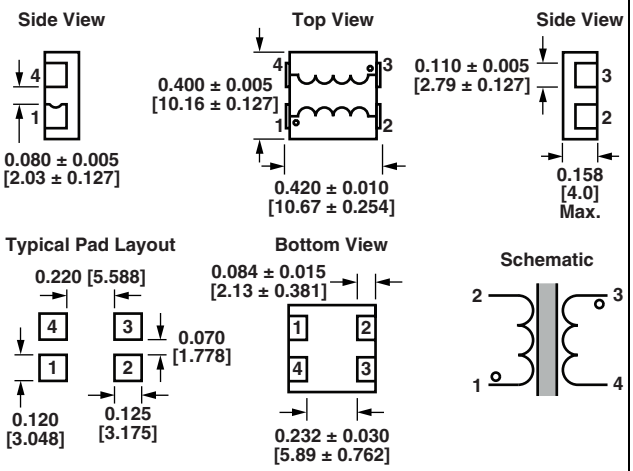
| | $L_0$ INDUCTANCE ± 20 % AT 100 kHz, 0.25 V, 0 A (µH) | DCR NOM. 25 °C (mΩ) | DCR MAX. 25 °C (mΩ) | HEAT RATING CURRENT DC TYP. (A) (1) | SATURATION CURRENT DC TYP. (A) (2) |
|---|---|---|---|---|---|
| $L_{1-2}$ | 15 | 109.0 | 116.6 | 3.3 | 6.0 |
| $L_{3-4}$ | 15 | 111.0 | 118.6 | 3.5 | 6.0 |
| $L_{1-4}$ ($L_{2-3}$ shorted) | 61 | 220.0 | 235.0 | 2.3 | 2.7 |
| $L_{1-3}$ ($L_{2-4}$ shorted) | 1.0 | 220.0 | 235.0 | 2.3 | See note (3) |
| $L_{Common\ Mode}$ (1-3 and 2-4 shorted) | 15 | 51.0 | 53.0 | 5.5 | 6.3 |
| $L_{Differential\ Mode}$ (1-4 and 2-3 shorted) | 0.0 | 51.0 | 53.0 | 5.5 | See note (3) |

**Notes**

- All test data is referenced to 25 °C ambient
- Operating temperature range -55 °C to +155 °C
- The part temperature (ambient + temp. rise) should not exceed 155 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application
- Rated operating voltage (across inductor) = 50 V
- SEPIC operation can generate up to 2x the input or output voltage across the inductor. Please limit $V_{IN}$ and $V_{OUT}$ to 25 V max. for SEPIC operation

(1) DC current (A) that will cause an approximate ΔT of 40 °C
(2) DC current (A) that will cause $L_0$ to drop approximately 20 %
(3) In this configuration, current flowing opposite directions through coils cancels and the 1.0 µH inductance is very stable with varying current. Observe the heat rating current to avoid excessive temperature rise in this configuration

### DIMENSIONS in inches [millimeters]




**PATENT(S): www.vishay.com/patents**
**This Vishay product is protected by one or more United States and international patents.**



For technical questions, contact: magnetics@vishay.com

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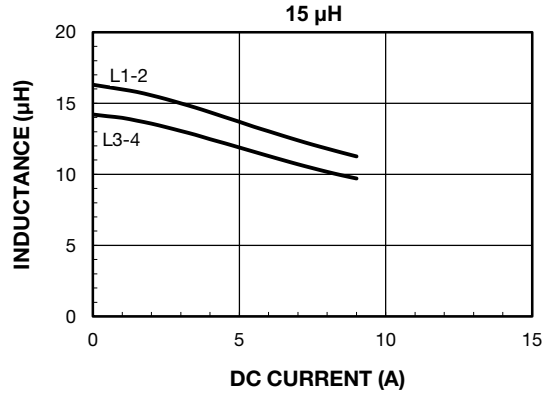
## DESCRIPTION

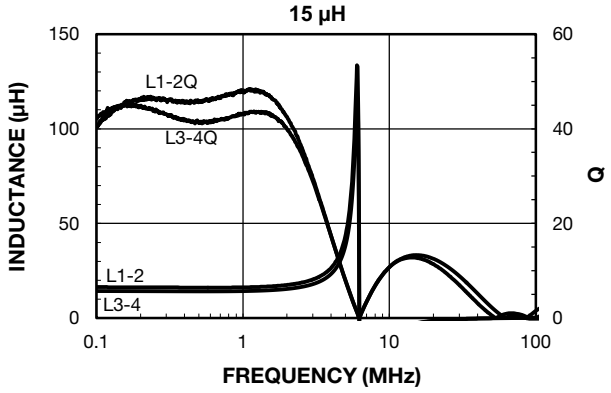
| IHCL-4040DZ-51 | 15 µH | ± 20 % | ER | e3 |
|---|---|---|---|---|
| MODEL | INDUCTANCE VALUE | INDUCTANCE TOLERANCE | PACKAGE CODE | JEDEC® LEAD (Pb)-FREE STANDARD |

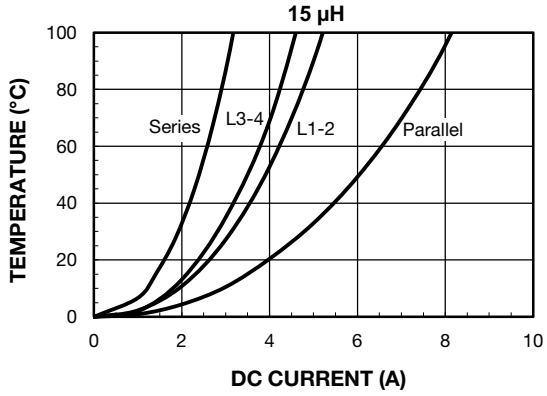
## GLOBAL PART NUMBER

| I | H | C | L | 4 | 0 | 4 | 0 | D | Z | E | R | 1 | 5 | 0 | M | 5 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCT FAMILY | | | | SIZE | | | | | | PACKAGE CODE | | INDUCTANCE VALUE | | | TOL. | SERIES | |

## PERFORMANCE GRAPHS






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