

## Low-Profile, High-Current Coupled Inductor



Manufactured under one or more of the following:  
**US Patents; 6,198,375/6,204,744/6,449,829/6,460,244.**  
 Several foreign patents, and other patents pending.

| STANDARD ELECTRICAL SPECIFICATIONS                         |   |                              |                                       |  |  |
|--|---|------------------------------|---------------------------------------|--|--|
|  | $L_0$<br>INDUCTANCE<br>$\pm 20\%$ AT<br>100 kHz,<br>0.25 V, 0 A<br>( $\mu$ H) | DCR<br>NOM.<br>(m $\Omega$ ) | DCR<br>MAX.<br>25 °C<br>(m $\Omega$ ) | HEAT<br>RATING<br>CURRENT<br>DC TYP.<br>(A) <sup>(3)</sup> | SATURATION<br>CURRENT<br>DC TYP.<br>(A) <sup>(4)</sup> |
| L <sub>1-2</sub>   | 22  | 177.0                        | 189.6                                 | 2.5  | 4.75   |
| L <sub>3-4</sub>   | 22  | 176.0                        | 190.0                                 | 2.6  | 4.75   |
| L <sub>1-4</sub><br>(L <sub>2-3</sub> shorted)             | 88  | 353.0                        | 380.0                                 | 1.7  | 2.25   |
| L <sub>1-3</sub><br>(L <sub>2-4</sub> shorted)             | 1.5   | 353.0                        | 380.0                                 | 1.7  | See note <sup>(6)</sup>                                |
| L <sub>Common Mode</sub><br>(1-3 and<br>2-4 shorted)       | 22  | 80.0                         | 86.0                                  | 4.3  | 5.3  |
| L <sub>Differential Mode</sub><br>(1-4 and<br>2-3 shorted) | 0.5   | 80.0                         | 86.0                                  | 4.3  | See note <sup>(6)</sup>                                |

**Notes**

- (1) All test data is referenced to 25 °C ambient.
- (2) Operating temperature range -55 °C to +155 °C.
- (3) DC current (A) that will cause an approximate  $\Delta T$  of 40 °C.
- (4) DC current (A) that will cause  $L_0$  to drop approximately 20 %.
- (5) 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.
- (6) In this configuration, current flowing opposite directions through coils cancels and the 1.5  $\mu$ H inductance is very stable with varying current. Observe the heat rating current to avoid excessive temperature rise in this configuration.
- (7) Maximum recommended operating voltage = 50 V.

**FEATURES**

- High temperature, up to 155 °C
- Shielded construction
- Frequency range up to 5.0 MHz
- Lowest DCR/ $\mu$ H 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
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

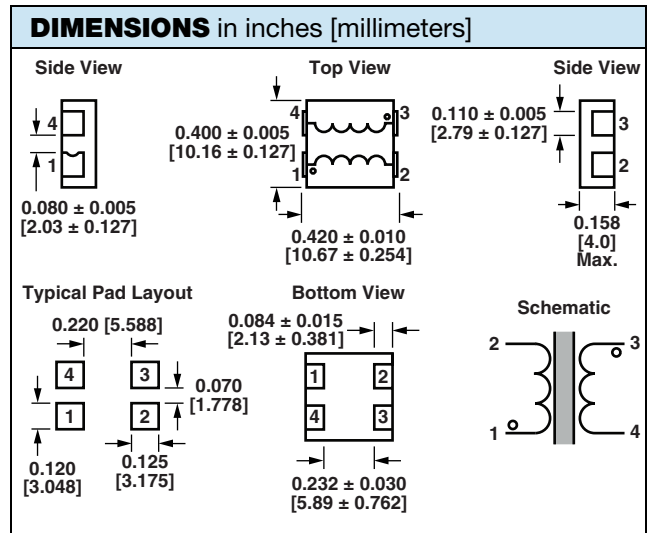
AUTOMOTIVE GRADE



**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**  
**GREEN**  
 (5-2008)

**APPLICATIONS**

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

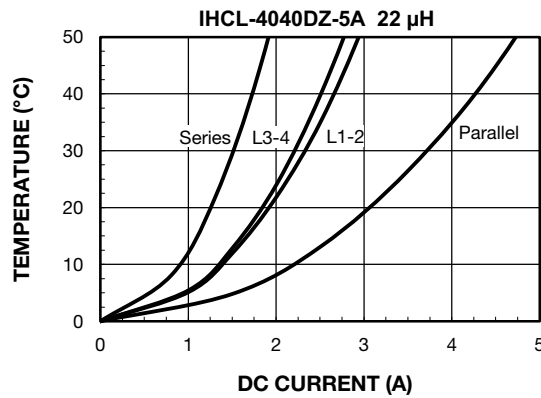
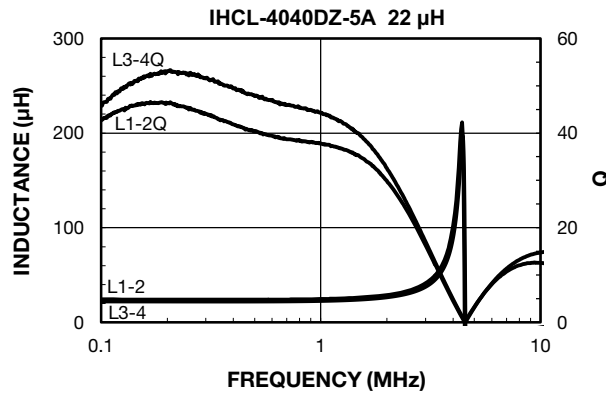
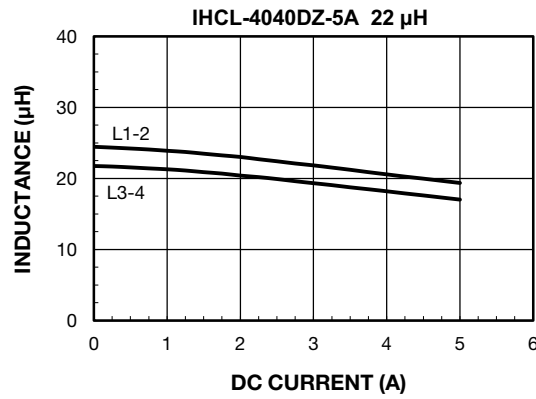


| DESCRIPTION    |                  |                      |              |                                |
|----------------|------------------|----------------------|--------------|--------------------------------|
| IHCL-4040DZ-5A | 22 $\mu$ H       | $\pm 20\%$           | ER           | e3                             |
| 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 | 2 | 2    | 0      | M | 5 | A |
| PRODUCT FAMILY     |   |   |   | SIZE |   |   |   | PACKAGE CODE |   | INDUCTANCE VALUE |   |   | TOL. | SERIES |   |   |   |



## PERFORMANCE GRAPHS





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