

# IHLP® Automotive Inductors, Low DCR Series



## LINKS TO ADDITIONAL RESOURCES



## FEATURES

- Shielded construction
- Frequency range up to 1.0 MHz
- Lowest DCR/ $\mu$ H, in this package size
- Handles high transient current spikes without saturation
- Ultra low buzz noise, due to composite construction
- AEC-Q200 qualified
- IHLP design; PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

## APPLICATIONS

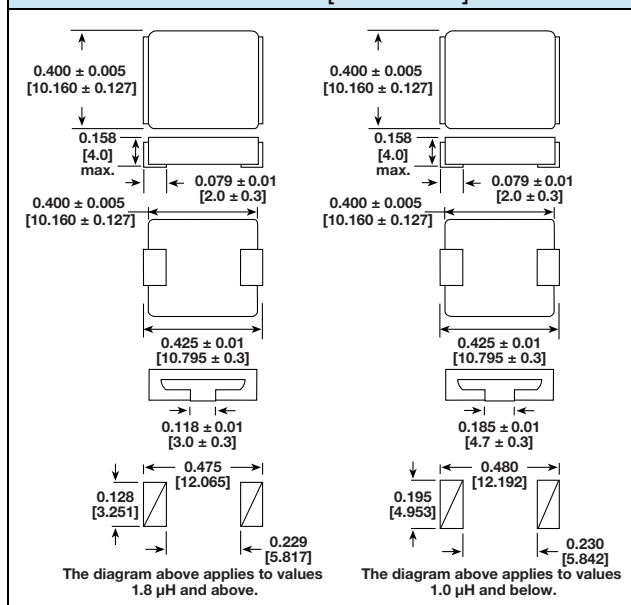
- Engine and transmission control units
- Diesel injection drivers
- DC/DC converters for entertainment/navigation systems
- Noise suppression for motors: windshield wipers / power seats / power mirrors / heating and ventilation blower / HID lighting
- LED drivers

| STANDARD ELECTRICAL SPECIFICATIONS                                         |                                       |                                       |                                                            |                                                        |
|----------------------------------------------------------------------------|---------------------------------------|---------------------------------------|------------------------------------------------------------|--------------------------------------------------------|
| $L_0$<br>INDUCTANCE<br>$\pm 20\%$ AT 100 kHz,<br>0.25 V, 0 A<br>( $\mu$ H) | DCR<br>TYP.<br>25 °C<br>(m $\Omega$ ) | DCR<br>MAX.<br>25 °C<br>(m $\Omega$ ) | HEAT<br>RATING<br>CURRENT<br>DC TYP.<br>(A) <sup>(1)</sup> | SATURATION<br>CURRENT<br>DC TYP.<br>(A) <sup>(2)</sup> |
| 0.19                                                                       | 0.70                                  | 0.80                                  | 40                                                         | 46                                                     |
| 0.24                                                                       | 0.85                                  | 0.95                                  | 33                                                         | 44                                                     |
| 0.36                                                                       | 1.05                                  | 1.15                                  | 32                                                         | 30                                                     |
| 0.47                                                                       | 1.53                                  | 1.68                                  | 30                                                         | 30                                                     |
| 0.56                                                                       | 1.60                                  | 1.80                                  | 32                                                         | 22                                                     |
| 0.78                                                                       | 1.90                                  | 2.10                                  | 27                                                         | 22                                                     |
| 1.0                                                                        | 2.30                                  | 2.50                                  | 25                                                         | 20                                                     |
| 1.8                                                                        | 4.50                                  | 5.00                                  | 17                                                         | 16                                                     |
| 2.0                                                                        | 5.20                                  | 5.80                                  | 16                                                         | 14                                                     |
| 4.7                                                                        | 12.90                                 | 14.20                                 | 9.5                                                        | 7.6                                                    |
| 6.8                                                                        | 17.50                                 | 19.30                                 | 9.0                                                        | 7.5                                                    |
| 10                                                                         | 27.80                                 | 30.50                                 | 7.5                                                        | 7.1                                                    |
| 15                                                                         | 40.90                                 | 45.00                                 | 6.25                                                       | 6.0                                                    |
| 18                                                                         | 46.40                                 | 51.90                                 | 5.6                                                        | 4.6                                                    |
| 22                                                                         | 60.40                                 | 66.00                                 | 5.0                                                        | 4.5                                                    |
| 33                                                                         | 87.5                                  | 94.5                                  | 4.4                                                        | 4.0                                                    |
| 47                                                                         | 132.0                                 | 145.0                                 | 3.3                                                        | 3.0                                                    |

### Notes

- All test data is referenced to 25 °C ambient
- Operating temperature range -55 °C to +125 °C
- The part temperature (ambient + temp. rise) should not exceed 125 °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
- (1) DC current (A) that will cause an approximate  $\Delta T$  of 40 °C
- (2) DC current (A) that will cause  $L_0$  to drop approximately 20 %

## DIMENSIONS in inches [millimeters]



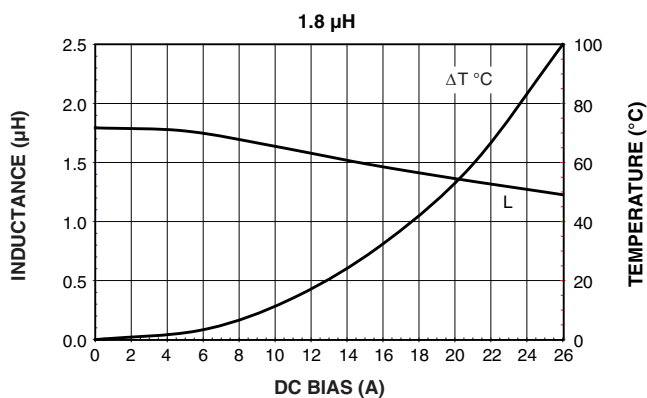
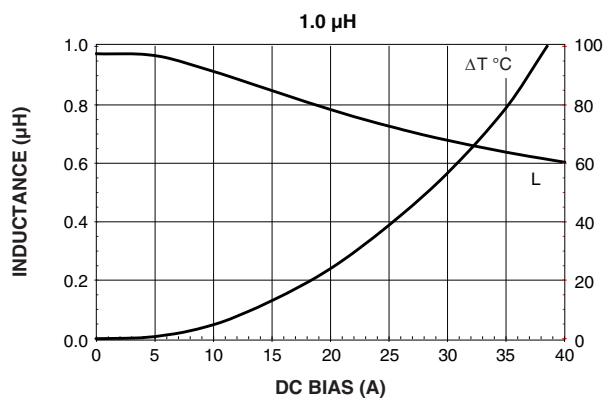
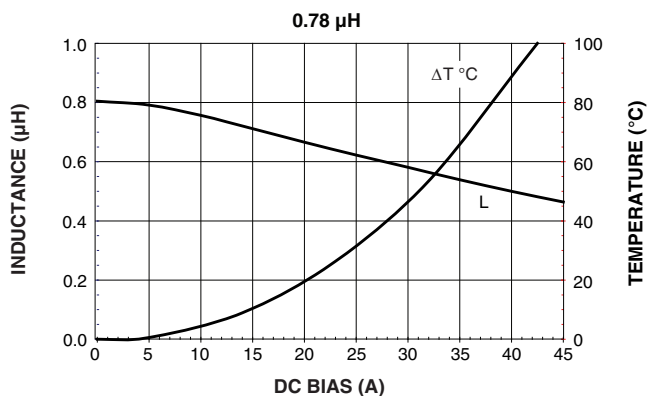
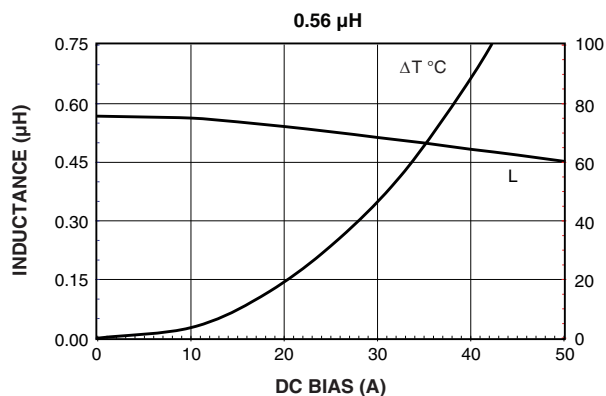
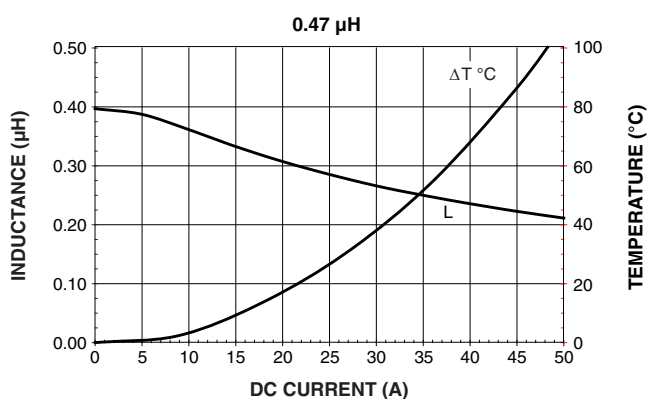
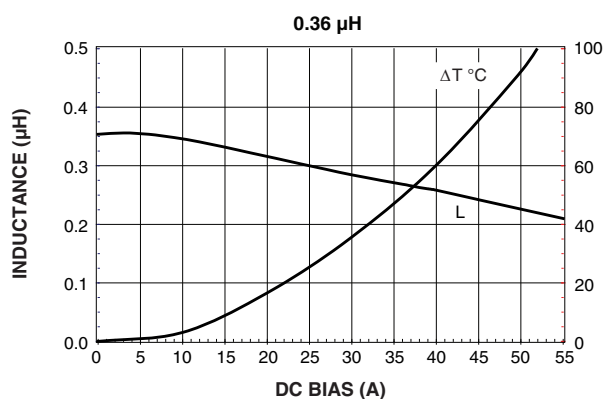
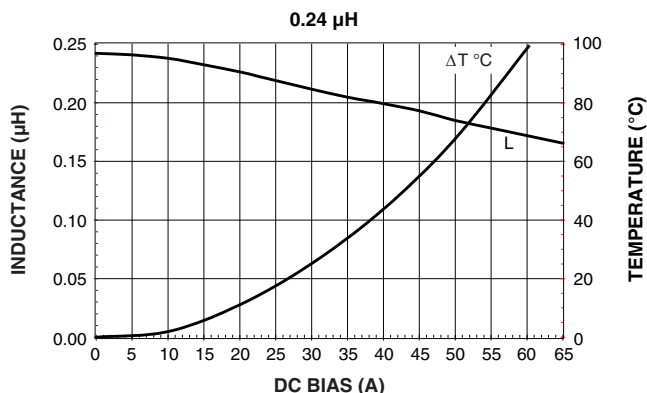
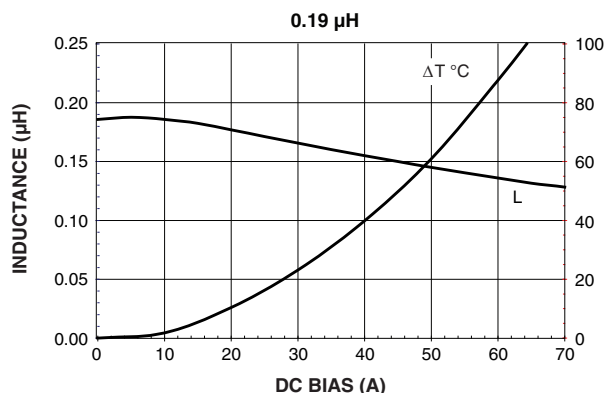
| DESCRIPTION        |   |                  |                      |      |              |                                |   |   |   |              |   |                  |   |   |      |        |   |
|--------------------|---|------------------|----------------------|------|--------------|--------------------------------|---|---|---|--------------|---|------------------|---|---|------|--------|---|
| IHLP-4040DZ-1A     |   | 2.0 $\mu$ H      | $\pm 20\%$           |      | ER           | e3                             |   |   |   |              |   |                  |   |   |      |        |   |
| MODEL              |   | INDUCTANCE VALUE | INDUCTANCE TOLERANCE |      | PACKAGE CODE | JEDEC® LEAD (Pb)-FREE STANDARD |   |   |   |              |   |                  |   |   |      |        |   |
| GLOBAL PART NUMBER |   |                  |                      |      |              |                                |   |   |   |              |   |                  |   |   |      |        |   |
| I                  | H | L                | P                    | 4    | 0            | 4                              | 0 | D | Z | E            | R | 2                | R | 0 | M    | 1      | A |
| PRODUCT FAMILY     |   |                  |                      | SIZE |              |                                |   |   |   | PACKAGE CODE |   | INDUCTANCE VALUE |   |   | TOL. | SERIES |   |

PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)

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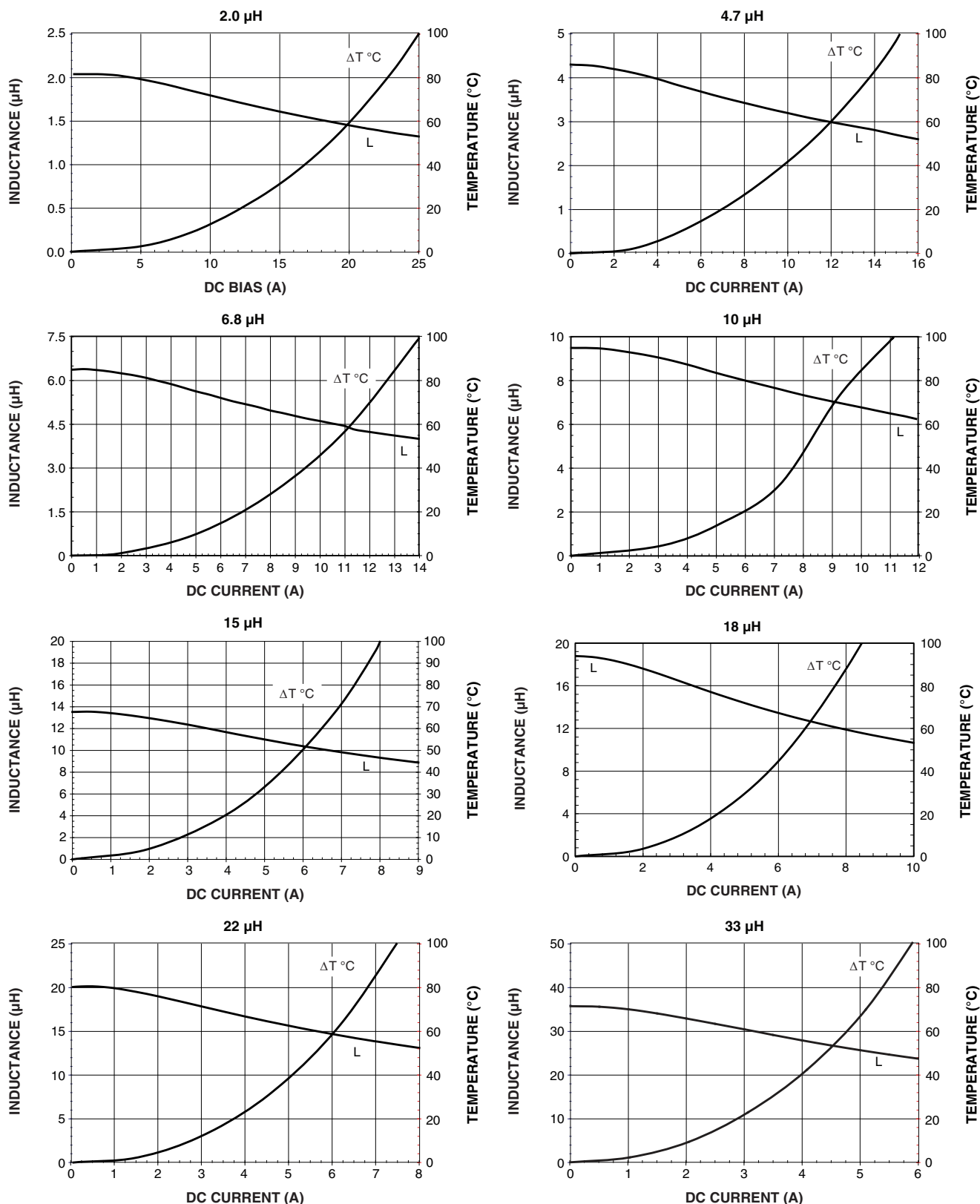


PERFORMANCE GRAPHS



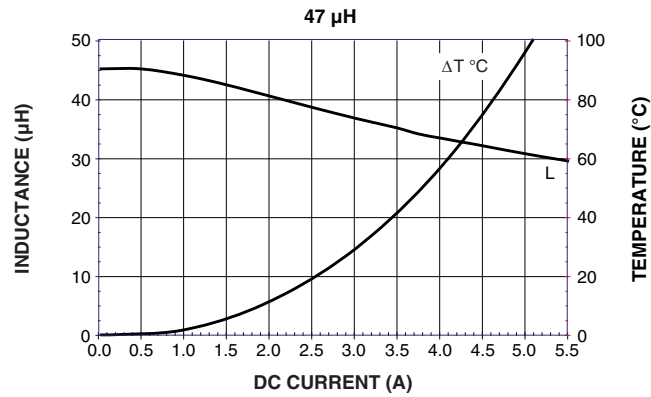


PERFORMANCE GRAPHS





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