

# IHLP® Automotive Inductors, High Saturation Series



## LINKS TO ADDITIONAL RESOURCES



| STANDARD ELECTRICAL SPECIFICATIONS                                                |                                       |                                       |                                                            |                                                        |
|-----------------------------------------------------------------------------------|---------------------------------------|---------------------------------------|------------------------------------------------------------|--------------------------------------------------------|
| $L_0$<br>INDUCTANCE<br>$\pm 20\%$ AT 100 kHz,<br>0.25 V, 0 A<br>( $\mu\text{H}$ ) | 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                                                                              | 0.875                                 | 0.95                                  | 40.0                                                       | 90.0                                                   |
| 0.36                                                                              | 1.30                                  | 1.40                                  | 31.5                                                       | 60.0                                                   |
| 0.56                                                                              | 1.80                                  | 1.95                                  | 27.5                                                       | 49.0                                                   |
| 1.0                                                                               | 3.70                                  | 4.10                                  | 17.5                                                       | 36.0                                                   |
| 1.5                                                                               | 5.30                                  | 5.80                                  | 15.0                                                       | 27.5                                                   |
| 2.2                                                                               | 8.20                                  | 9.00                                  | 12.0                                                       | 25.6                                                   |
| 3.3                                                                               | 13.70                                 | 14.40                                 | 10.0                                                       | 18.6                                                   |
| 4.7                                                                               | 15.00                                 | 16.50                                 | 9.5                                                        | 17.0                                                   |
| 5.6                                                                               | 17.60                                 | 19.30                                 | 8.5                                                        | 16.0                                                   |
| 6.8                                                                               | 21.20                                 | 23.30                                 | 8.0                                                        | 13.5                                                   |
| 10                                                                                | 33.20                                 | 36.50                                 | 6.8                                                        | 12.0                                                   |
| 22                                                                                | 74.3                                  | 79.90                                 | 4.6                                                        | 10.0                                                   |

### 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) = 75 V
- <sup>(1)</sup> DC current (A) that will cause an approximate  $\Delta T$  of 40 °C
- <sup>(2)</sup> DC current (A) that will cause  $L_0$  to drop approximately 20 %

## FEATURES

- Shielded construction
- Frequency range up to 5.0 MHz
- Lowest DCR/ $\mu\text{H}$ , in this package size
- Handles high transient current spikes without saturation
- Ultra low buzz noise, due to composite construction
- AEC-Q200 qualified
- Polarity marking available for EMI sensitive applications (see “EP” package code below for more information)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


RoHS  
COMPLIANT

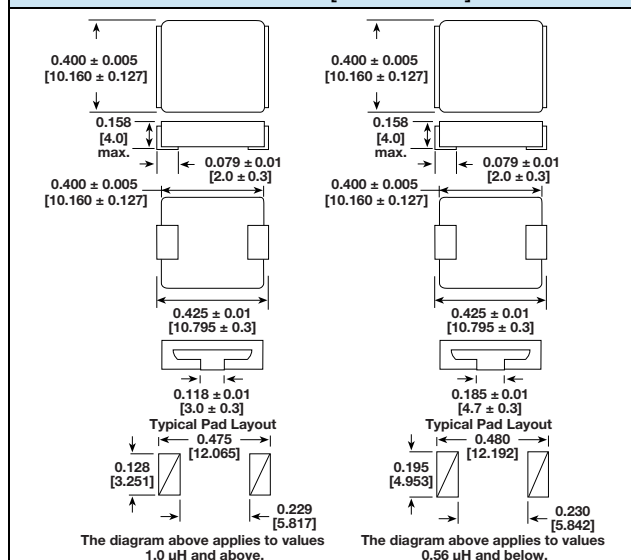
HALOGEN  
FREE

GREEN  
(5-2008)

## 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 blowers
  - HID lighting
- LED drivers

## DIMENSIONS in inches [millimeters]





## DESCRIPTION

|                       |                              |                              |              |                                |
|-----------------------|------------------------------|------------------------------|--------------|--------------------------------|
| <b>IHLP-4040DZ-A1</b> | <b>6.8 <math>\mu</math>H</b> | <b><math>\pm 20</math> %</b> | <b>EK</b>    | <b>e3</b>                      |
| MODEL                 | INDUCTANCE VALUE             | INDUCTANCE TOLERANCE         | PACKAGE CODE | JEDEC® LEAD (Pb)-FREE STANDARD |

## GLOBAL PART NUMBER

|                |                    |                           |                          |                       |            |
|----------------|--------------------|---------------------------|--------------------------|-----------------------|------------|
| <b>I H L P</b> | <b>4 0 4 0 D Z</b> | <b>E K</b>                | <b>6 R 8</b>             | <b>M</b>              | <b>A 1</b> |
| PRODUCT FAMILY | SIZE               | PACKAGE CODE              | INDUCTANCE VALUE         | INDUCTANCE TOLERANCE  | SERIES     |
|                |                    | <b>EK</b> = tape and reel | <b>2R0</b> = 2.0 $\mu$ H | <b>M</b> = $\pm 20$ % |            |

## PACKAGE CODE OPTIONS

**EK** = tape and reel packaging (1000 pieces on 13-inch reel)

**EE** = tape and reel packaging (900 pieces on 13-inch reel)

**ER** = tape and reel packaging (500 pieces on 13-inch reel)

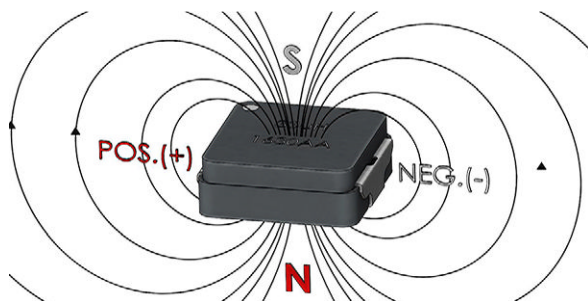
**EP** = tape and reel packaging (1000 pieces on 13-inch reel), includes polarity part marking

### Notes

- 1000 piece reels for IHLP4040DZ models contains tape pitch change
- For additional packaging details see [“Packaging Methods”](#)

## MAGNETIC FIELD

### CONFIGURATION OF THE "B" (FLUX) FIELD FOR THE IHLP WITH POLARITY MARKING



When a positive (+) voltage is placed on the terminal marked with the polarity dot and the opposite terminal is negative (-), the resulting current flow will create a magnetic south pole on the top side of the IHLP.

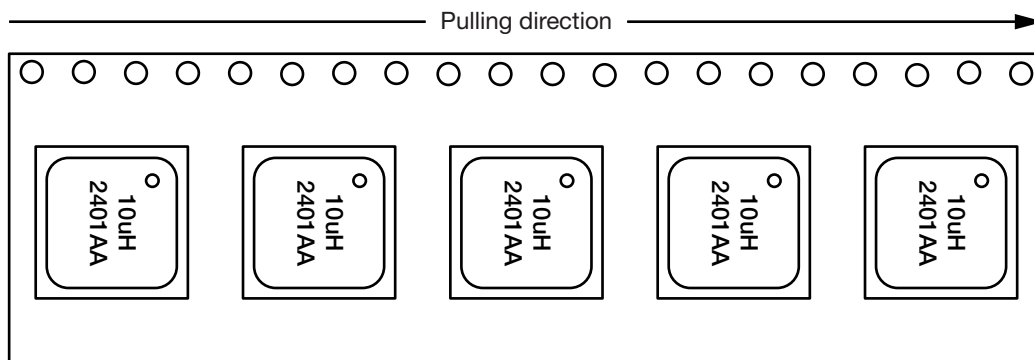
For the IHLP-4040DZ-A1 series, the polarity mark also indicates the "start" or "inside" lead of the winding.

Observing the polarity orientation when mounting the inductor will ensure the most consistent EMI reduction performance.

Drawing is for illustrative purposes only. The flux leakage from the inductor is minimal.

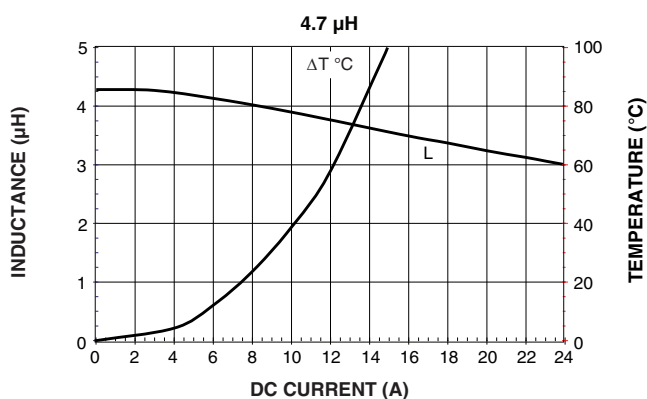
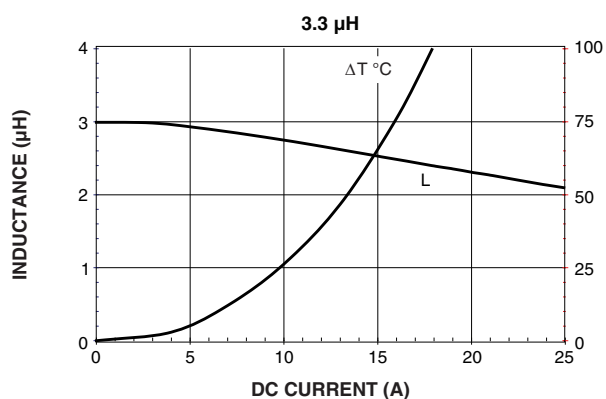
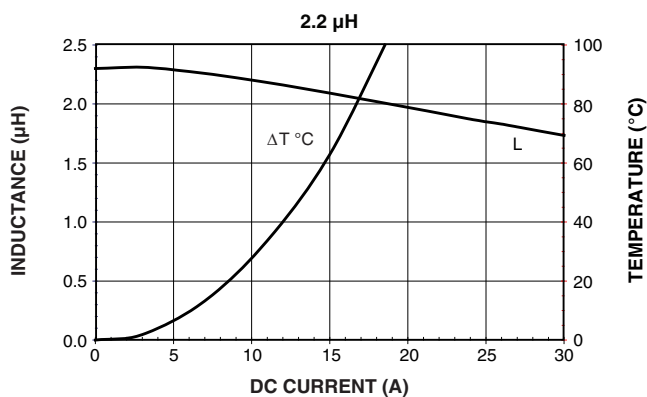
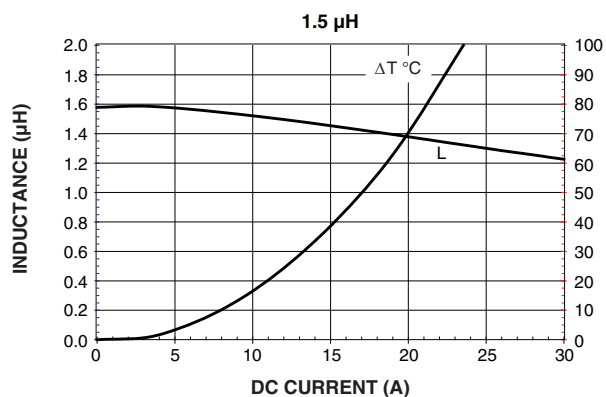
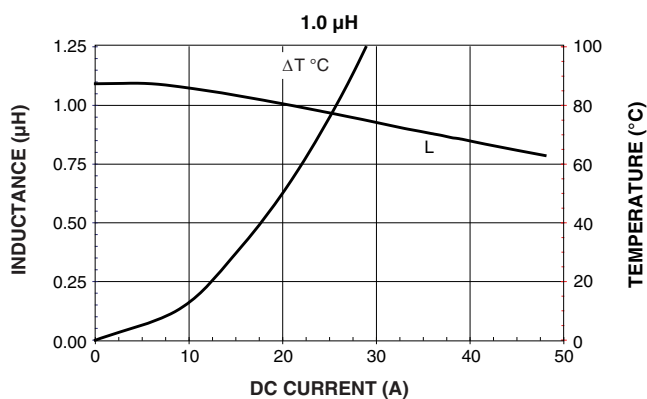
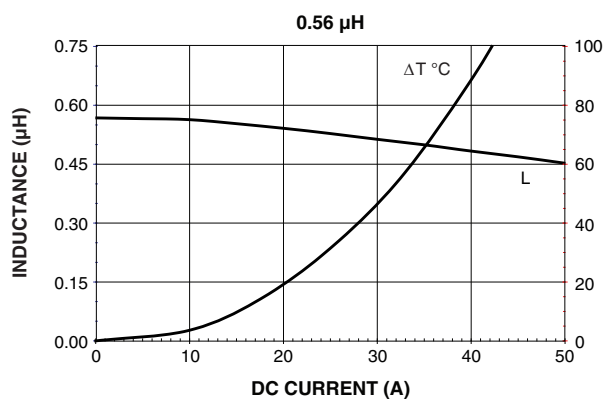
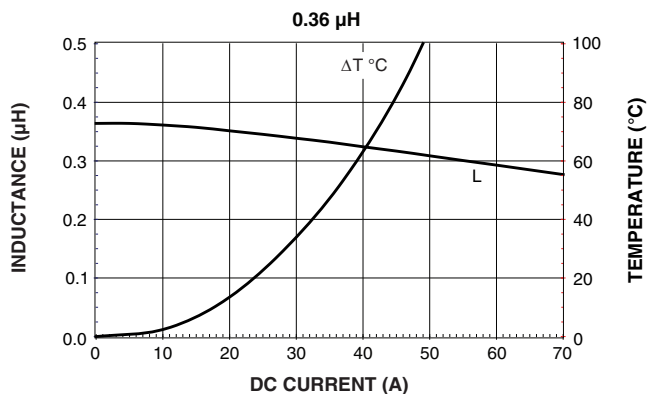
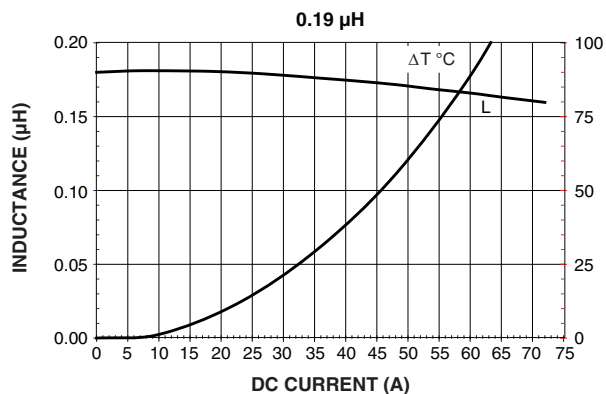
## PART MARKING / POCKET TAPE ORIENTATION

Part marking and tape orientation for IHLP with polarity marking



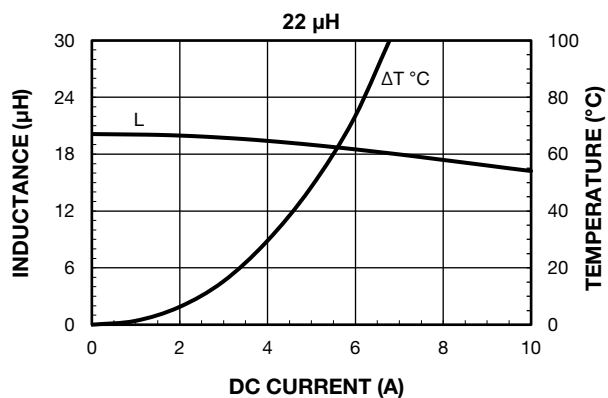
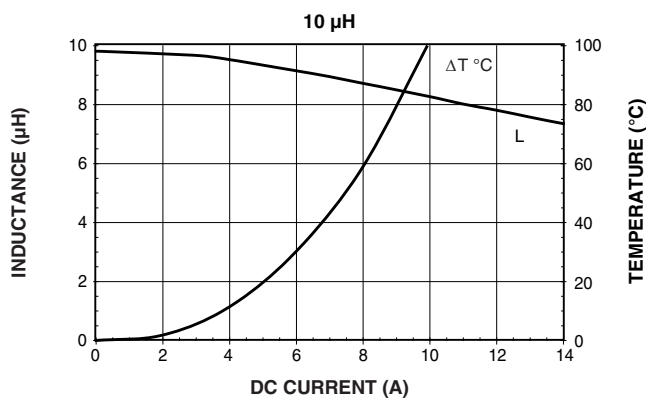
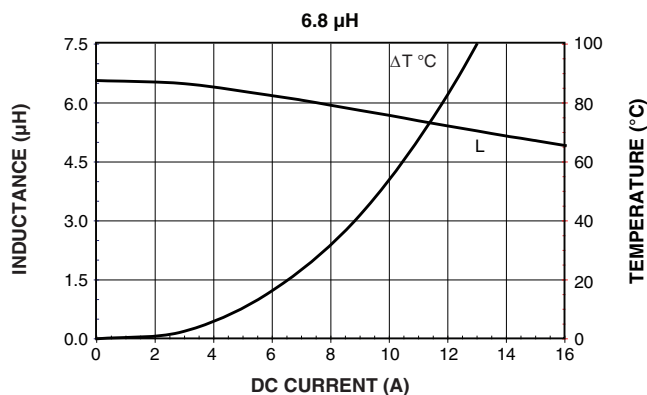
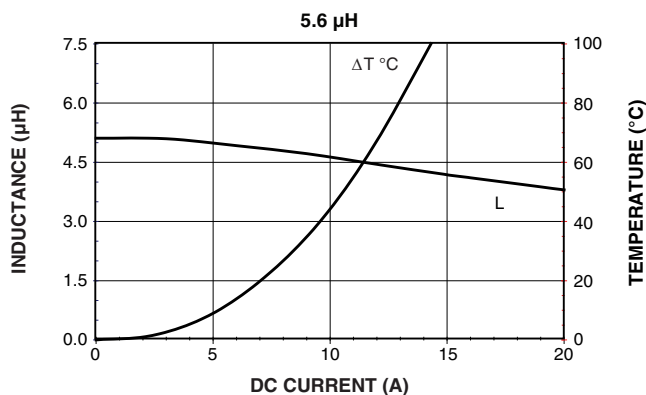


PERFORMANCE GRAPHS





PERFORMANCE GRAPHS





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