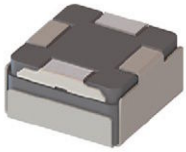
# IHLE® High Current Inductors With E-Field Shield



## LINKS TO ADDITIONAL RESOURCES

3D Models

Design Tools

## FEATURES

- High temperature, up to 155 °C
- Integrated E-Shield for maximum EMI reduction (1)
- Excellent DC/DC energy storage up to 1 MHz to 2 MHz. Filter inductor applications up the SRF (see standard electrical specifications table)
- Integrated E-Field shield eliminates need for separate shielding
- 20 dB E-Field reduction at 1 cm
  - Measured vertically from top center of device
- AEC-Q200 qualified
- Lowest DCR/µH, in this package size
- Handles high transient current spikes without saturation
- Coplanarity of the 4 terminals ≤ 100 µm
- IHLE design; PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

RoHS COMPLIANT

HALOGEN FREE

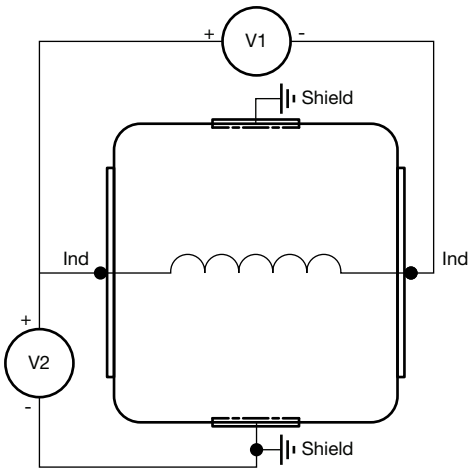
GREEN (5-2008)

**Note**

(1) Maximum E-Field reduction is realized when the IHLE shield is connected to ground

## 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




## STANDARD ELECTRICAL SPECIFICATIONS

| $L_0$ INDUCTANCE ± 20 % AT 100 kHz, 0.25 V, 0 A (µH) | DCR TYP. 25 °C (mΩ) | DCR MAX. 25 °C (mΩ) | HEAT RATING CURRENT DC TYP. (A) (1) | SATURATION CURRENT DC TYP. (A) (2) | SRF TYP. (MHz) |
|---|---|---|---|---|---|
| 0.33 | 0.83 | 0.92 | 62 | 44 | 79.9 |
| 0.47 | 1.05 | 1.16 | 54 | 42 | 65.6 |
| 0.56 | 1.24 | 1.33 | 50 | 32 | 63.1 |
| 0.68 | 1.33 | 1.42 | 40 | 29 | 48.1 |
| 1.0 | 1.65 | 1.77 | 40 | 26 | 33.4 |
| 1.2 | 1.98 | 2.12 | 29 | 24.5 | 32.0 |
| 1.5 | 2.4 | 2.57 | 27.5 | 23.5 | 29.2 |
| 2.2 | 3.43 | 3.67 | 25.5 | 21.5 | 23.3 |
| 3.3 | 5.08 | 5.44 | 20.2 | 16.7 | 17.8 |
| 4.7 | 7.41 | 7.93 | 19.7 | 18.5 | 15.8 |
| 5.6 | 8.51 | 9.11 | 16.8 | 14.2 | 12.3 |
| 6.8 | 11.3 | 12.09 | 14.9 | 14.1 | 13.4 |
| 8.2 | 13.2 | 14.12 | 13.2 | 7.6 | 10.3 |
| 10 | 16.60 | 17.76 | 12.1 | 7.8 | 10.7 |
| 12 | 19.00 | 20.33 | 11.4 | 7.9 | 9.5 |
| 15 | 24.00 | 25.68 | 10.1 | 7.7 | 8.8 |
| 22 | 31.30 | 33.49 | 9.0 | 6.3 | 6.6 |
| 33 | 46.03 | 49.25 | 6.9 | 6.2 | 5.5 |
| 47 | 77.00 | 79.60 | 5.6 | 5.7 | 4.1 |
| 82 | 141.10 | 150.98 | 3.7 | 3.7 | 3.0 |
| 100 | 175.00 | 205.00 | 3.1 | 4.3 | 2.8 |

**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 (V1) = 75 V
- Rated isolation voltage, inductor lead to shield (V2) = 100 V

(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 %

**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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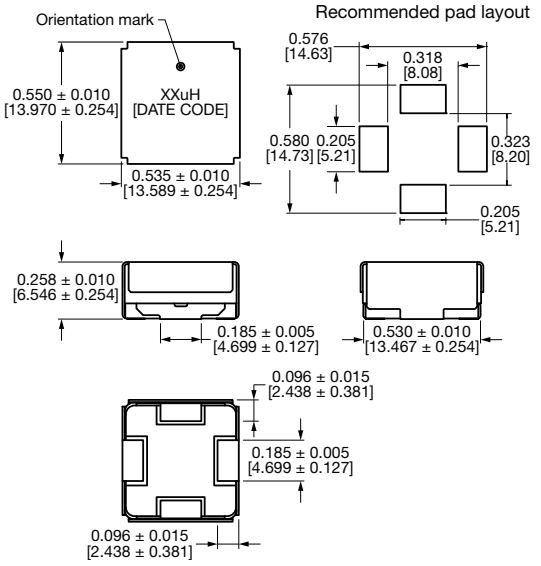
## DESCRIPTION

| IHLE-5050FH-5A | 1.0 µH | ± 20 % | ER | e3 |
|---|---|---|---|---|
| MODEL | INDUCTANCE VALUE | INDUCTANCE TOLERANCE | PACKAGE CODE | JEDEC® LEAD (Pb)-FREE STANDARD |

## GLOBAL PART NUMBER

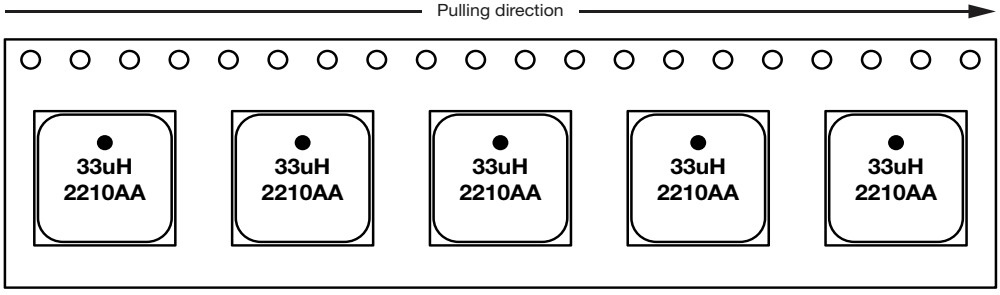
| I | H | L | E | 5 | 0 | 5 | 0 | F | H | E | R | 1 | R | 0 | M | 5 | A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCT FAMILY | | | | SIZE | | | | | | PACKAGE CODE | | INDUCTANCE VALUE | | | TOL. | SERIES | |

## DIMENSIONS in inches [millimeters]




## PART MARKING / POCKET TAPE ORIENTATION



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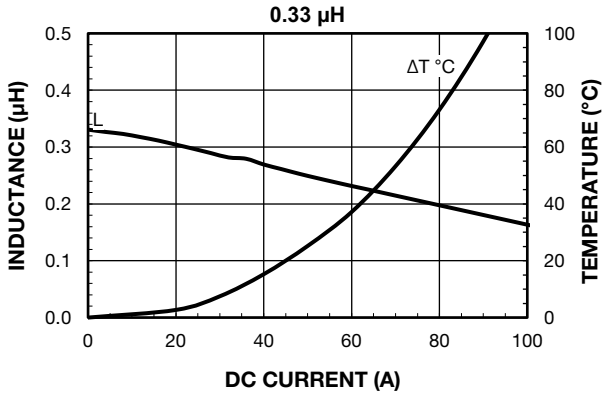


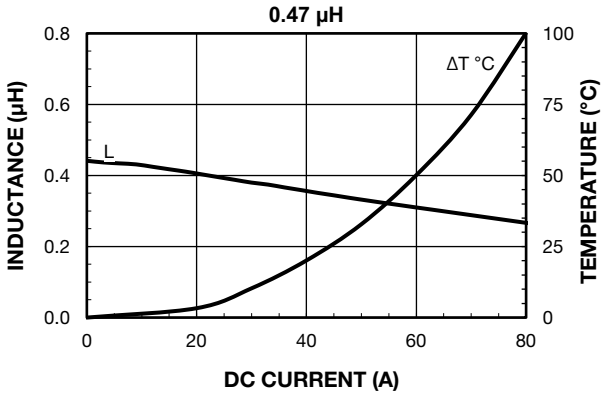


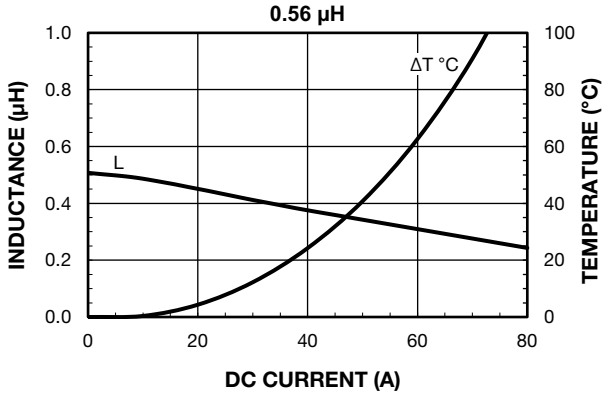


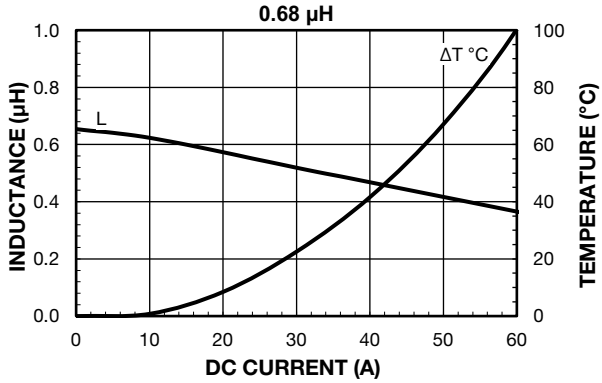


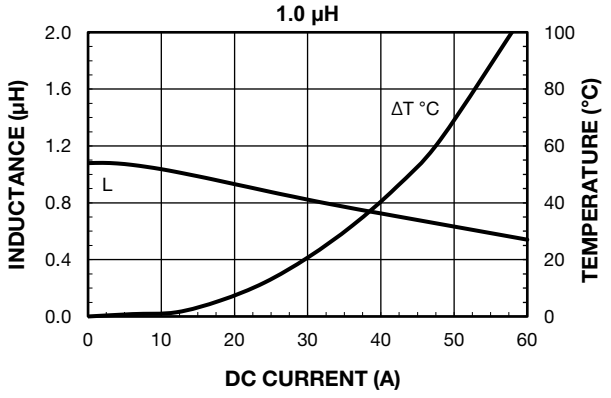


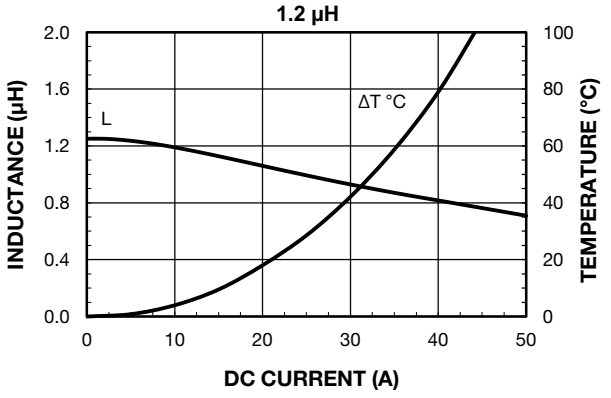


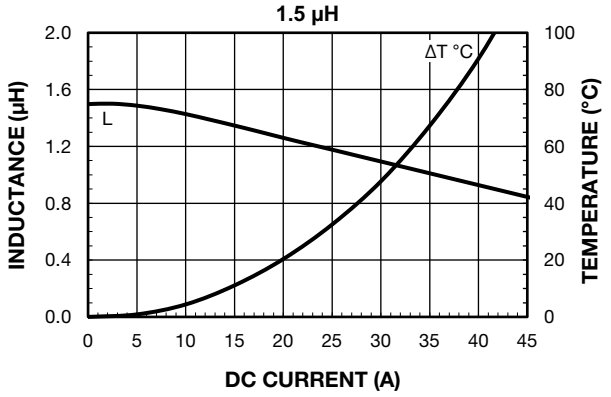


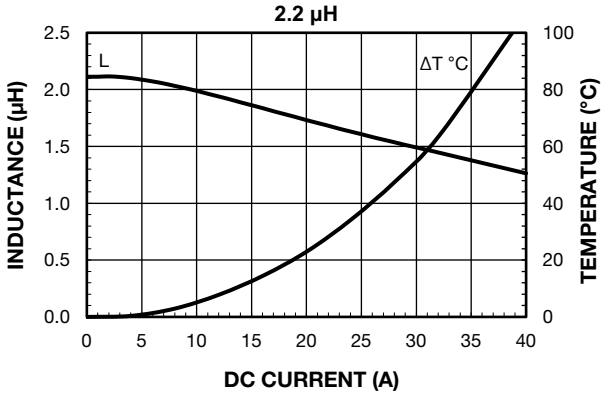




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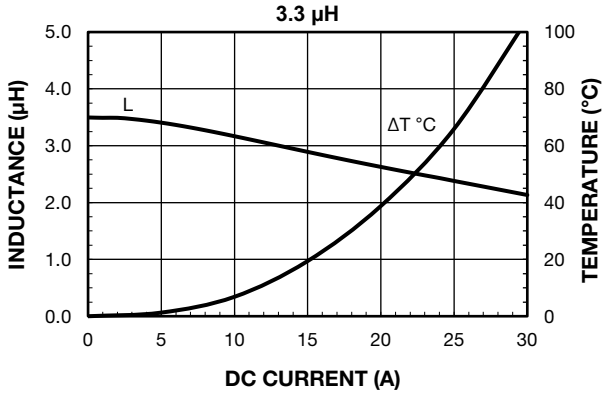


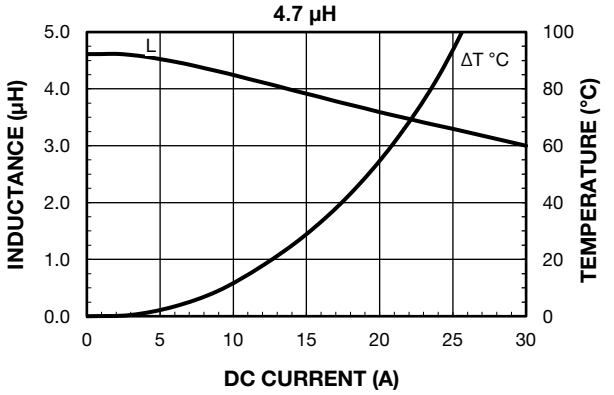


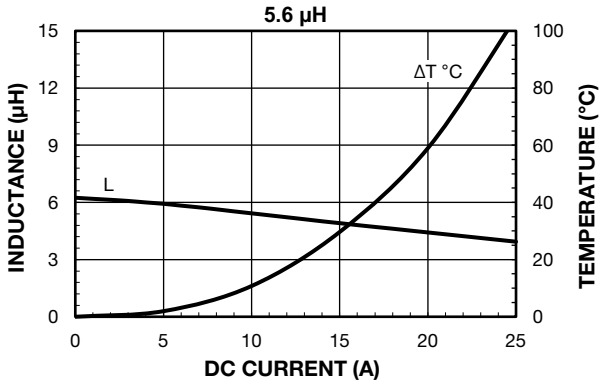


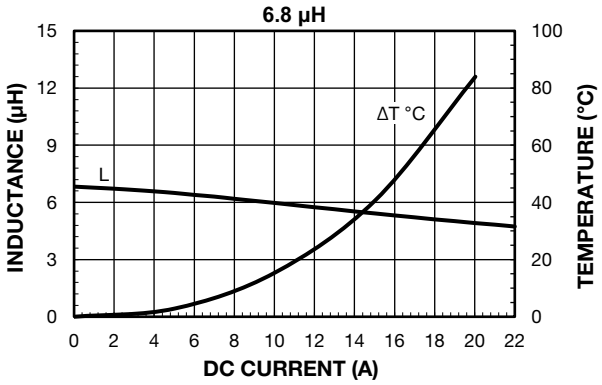


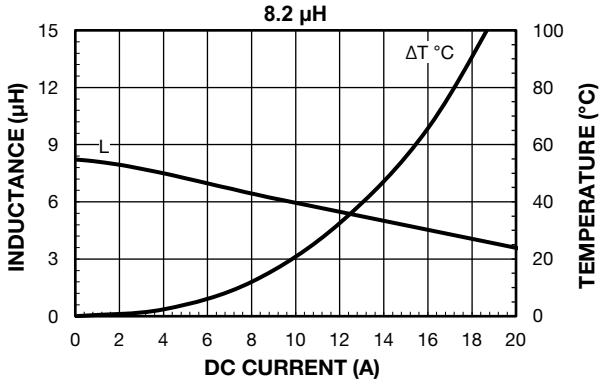


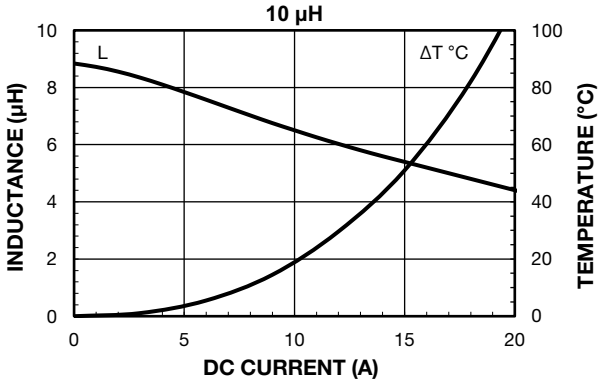


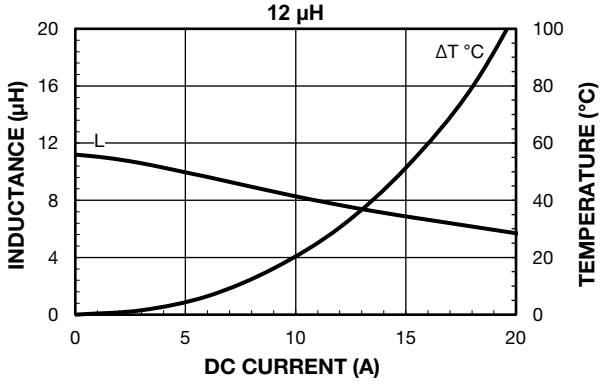


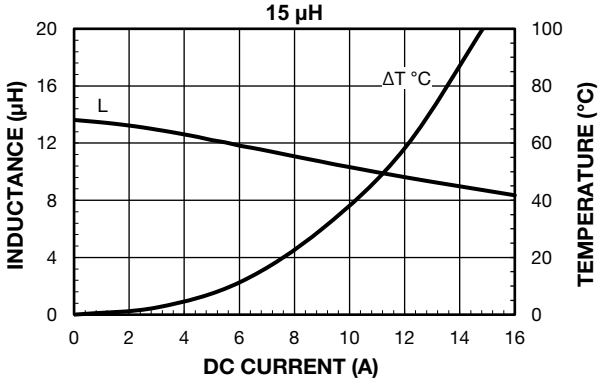



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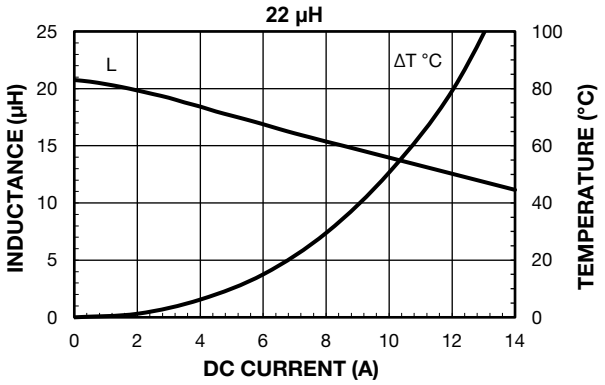


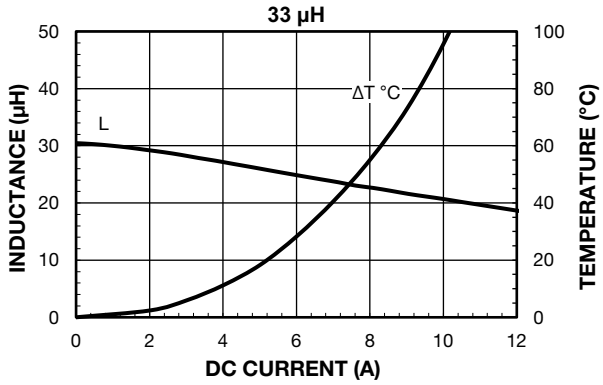


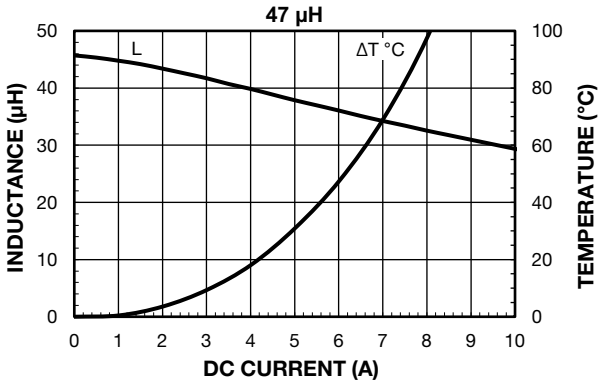


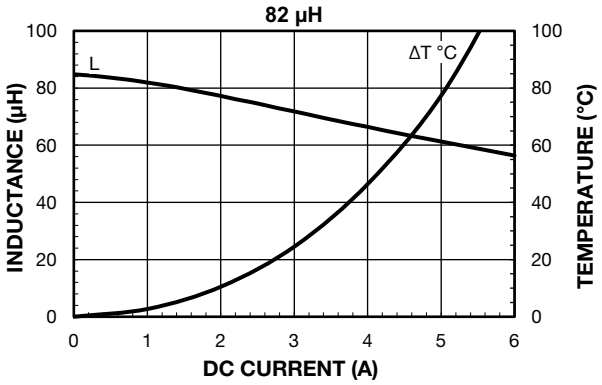


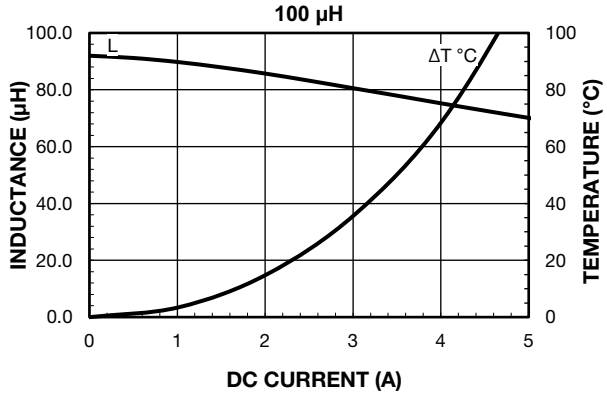




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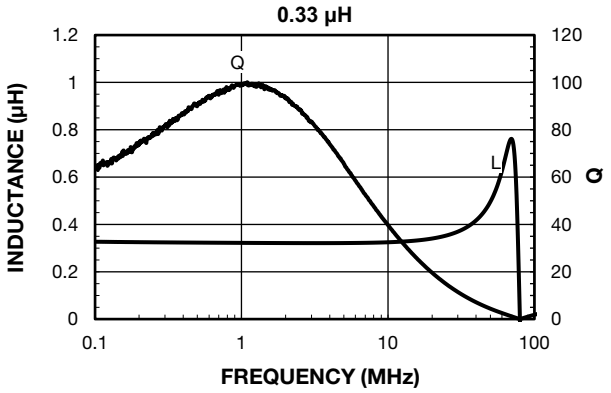


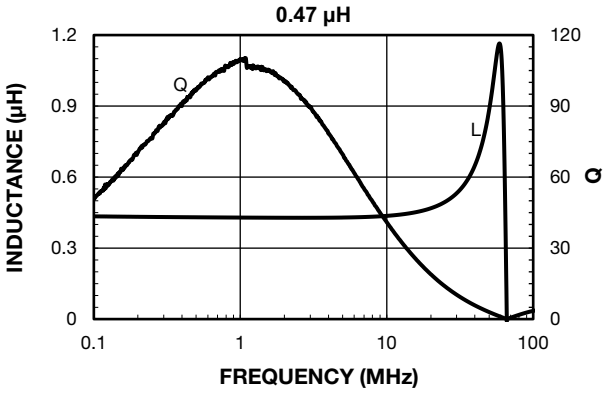


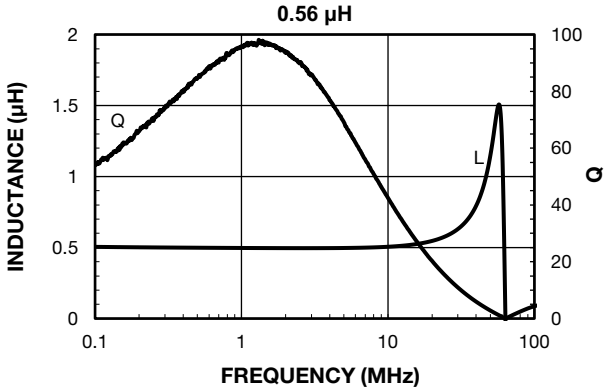


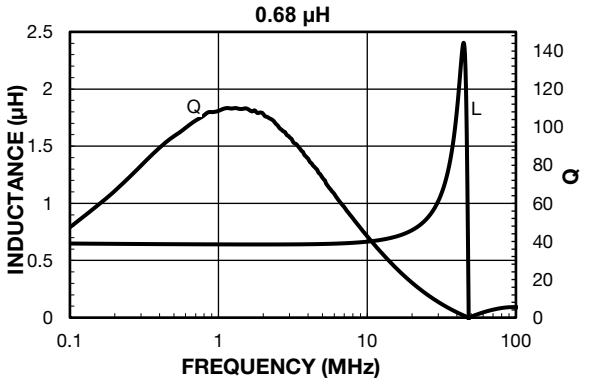


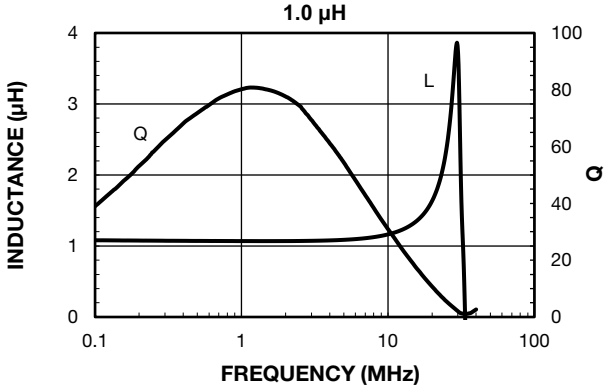


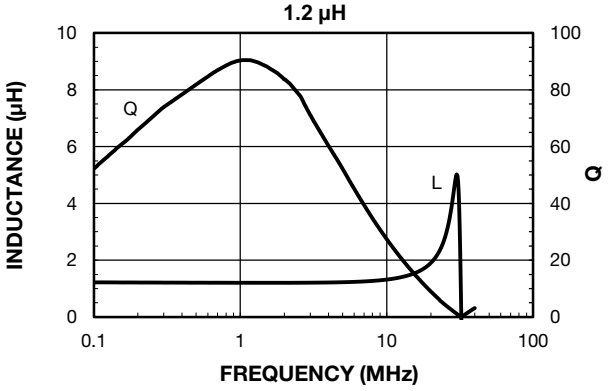


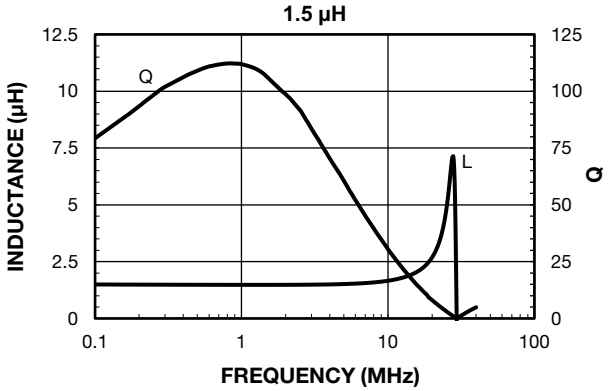


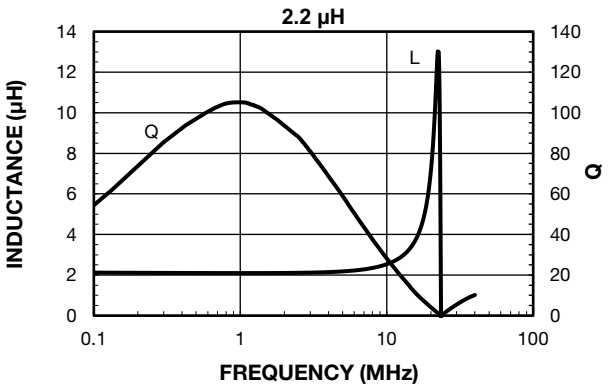




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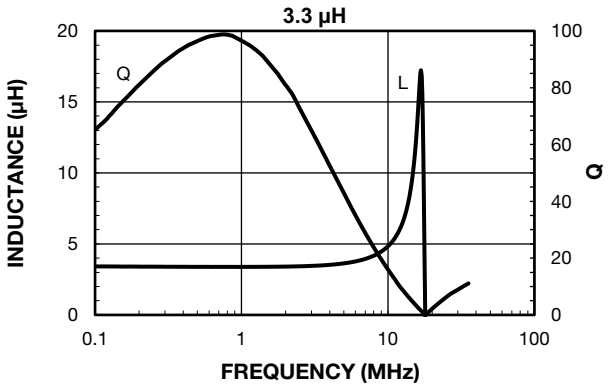


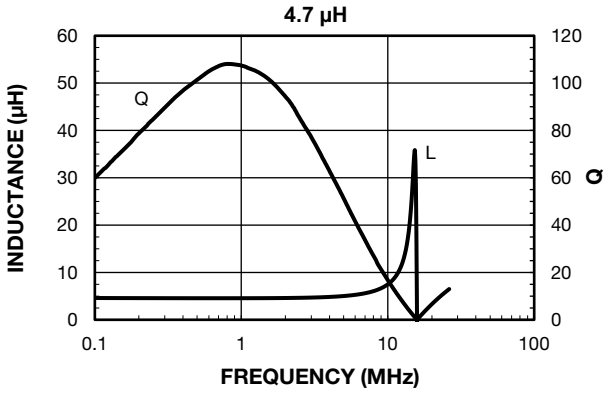


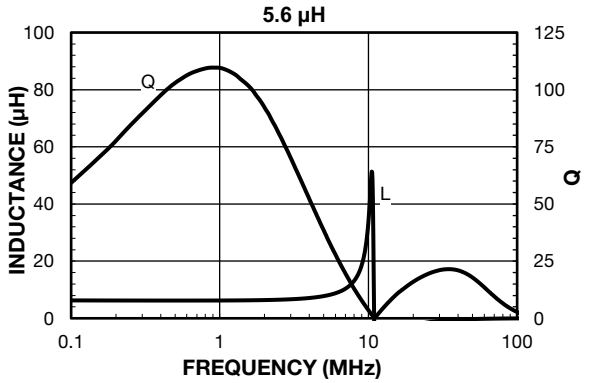


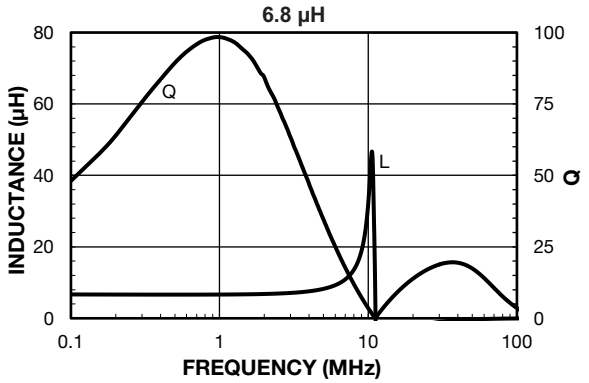


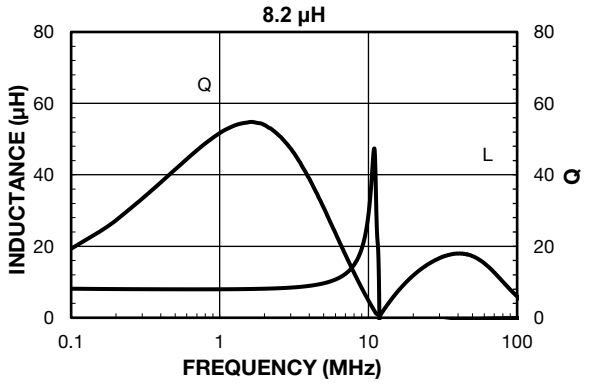


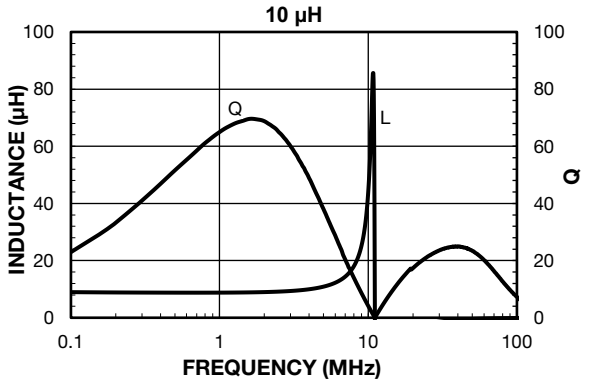


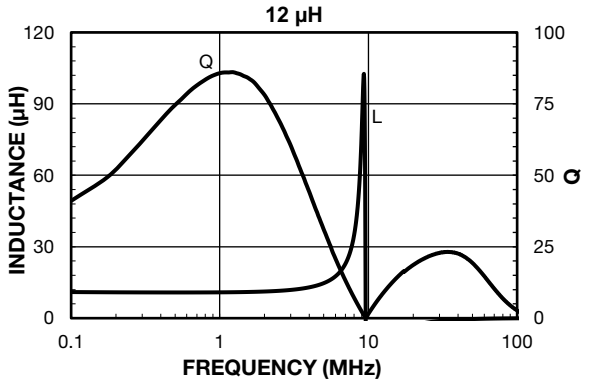


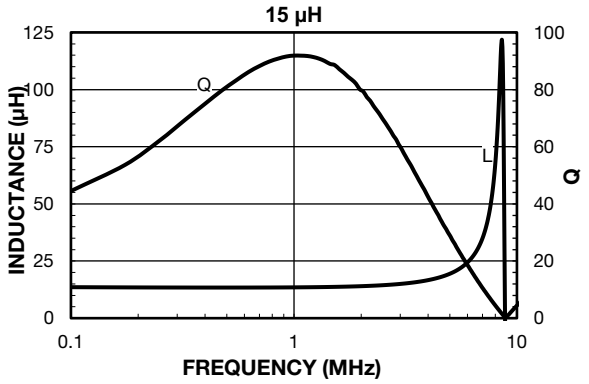




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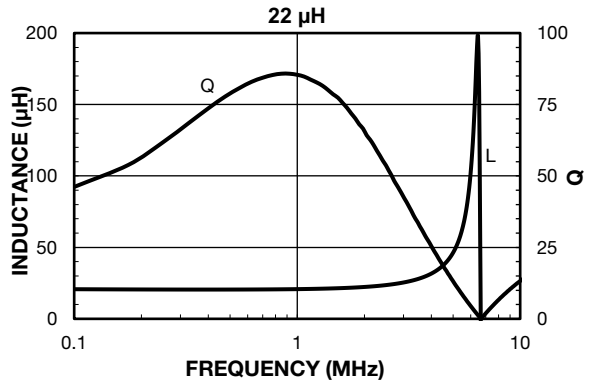


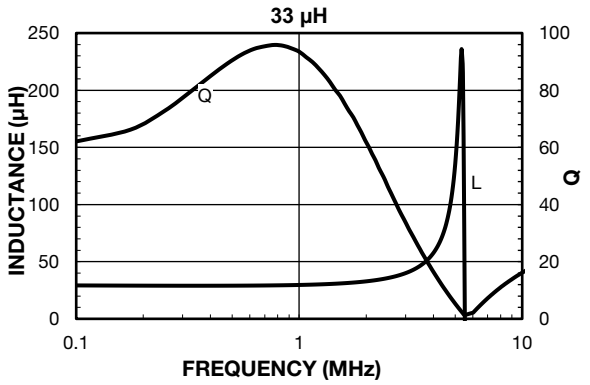


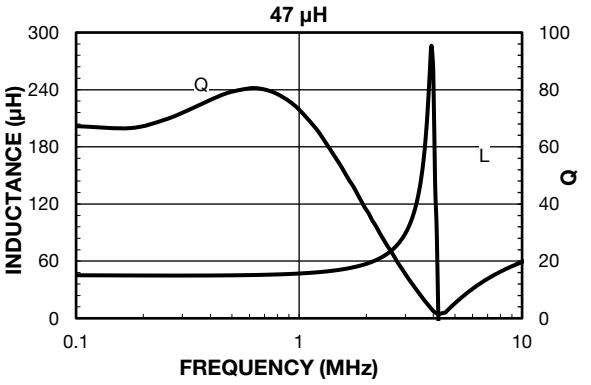


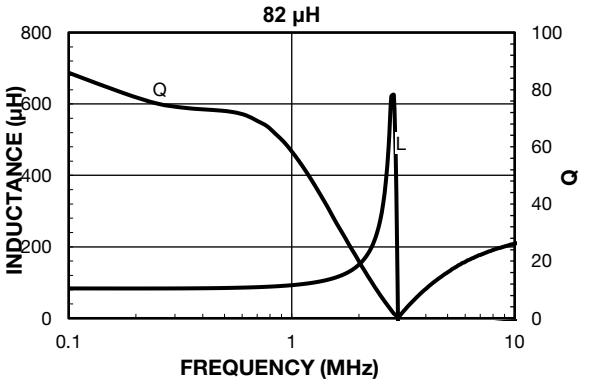


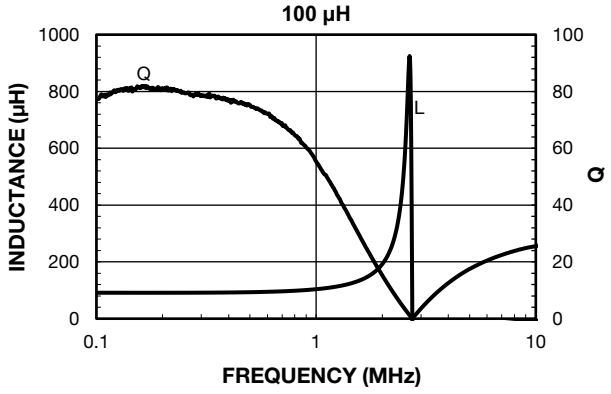




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