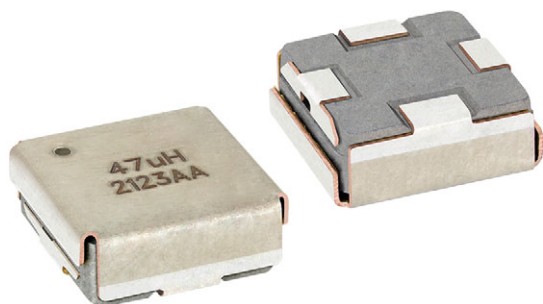


## IHLE® High Current Inductors With E-Field Shield



### LINKS TO ADDITIONAL RESOURCES



### APPLICATIONS

- Automotive domain control units (DCU) and transmission / engine control
- DC/DC converters for infotainment, navigation systems, braking systems
- Noise suppression for motors, windshield wipers, audio, and power supplies
- LED lighting drivers

### FEATURES

- High temperature up to 155 °C
- Improved shield design over standard IHLE
- Higher operating voltage (75 V) and isolation voltage (100 V) ratings than previous generation
- Polarity marked for more consistent EMI performance (see page 4 for more information)
- Reduces radiated E-field up to 20 dB <sup>(1)</sup>
- Reduces crosstalk and magnetic B-field leakage by 6 dB to nearby components
- Shields inductor from external noise
- Four terminals provide improved mounting stability in 50G applications
- Integrated E-Field shield eliminates need for separate shielding
- AEC-Q200 qualified
- Patented shield construction
- IHLE 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)

#### Note

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



### STANDARD ELECTRICAL SPECIFICATIONS

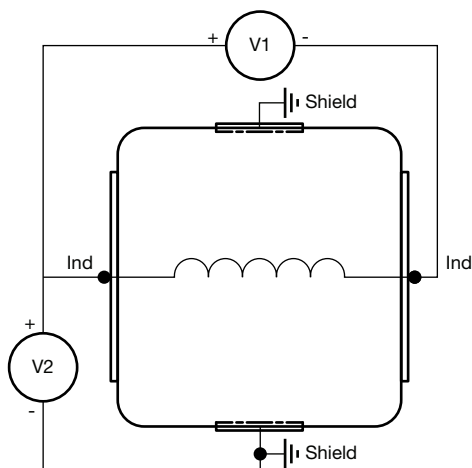
PART NUMBER	L <sub>0</sub> INDUCTANCE ± 20 % AT 100 kHz, 0.25 V, 0 A (μH)	DCR TYP. 25 °C (mΩ)	DCR MAX. 25 °C (mΩ)	HEAT RATING CURRENT DC TYP. (A) <sup>(1)</sup>	SATURATION CURRENT DC TYP. (A)		SRF TYP. (MHz)
					20 % DROP <sup>(2)</sup>	30 % DROP <sup>(3)</sup>	
IHLE4040DDEWR47M5A	0.47	1.55	1.66	32	28	40.1	32.0
IHLE4040DDEW1R0M5A	1.0	2.87	3.07	23	23	33.3	23.0
IHLE4040DDEW1R5M5A	1.5	4.2	4.5	20	18	26.3	20.0
IHLE4040DDEW2R2M5A	2.2	8.15	8.76	13.7	8.5	12.3	13.7
IHLE4040DDEW3R3M5A	3.3	11	11.81	13.4	9.2	13.3	13.4
IHLE4040DDEW4R7M5A	4.7	14.3	15.32	10	8.1	11.7	10.0
IHLE4040DDEW6R8M5A	6.8	20.9	22.36	8.4	8	11.6	8.4
IHLE4040DDEW100M5A	10	30.9	33.06	7	7.3	10.6	7.3
IHLE4040DDEW150M5A	15	47	50.29	5.6	6.1	8.9	6.1
IHLE4040DDEW220M5A	22	70.5	75.44	5.1	5.4	7.8	5.4
IHLE4040DDEW330M5A	33	110	117.7	4	4.5	6.5	4.5
IHLE4040DDEW470M5A	47	167	178	3.2	4	5.6	4.0
IHLE4040DDEW680M5A	68	240	252	2.6	3.5	4.9	3.5

#### 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, PCB 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 (V<sub>1</sub>) = 75 V
- Rated isolation voltage, inductor lead to shield (V<sub>2</sub>) = 100 V
- <sup>(2)</sup> DC current (A) that will cause an approximate ΔT of 40 °C
- <sup>(3)</sup> DC current (A) that will cause L<sub>0</sub> to drop approximately 20 %
- <sup>(4)</sup> DC current (A) that will cause L<sub>0</sub> to drop approximately 30 %

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

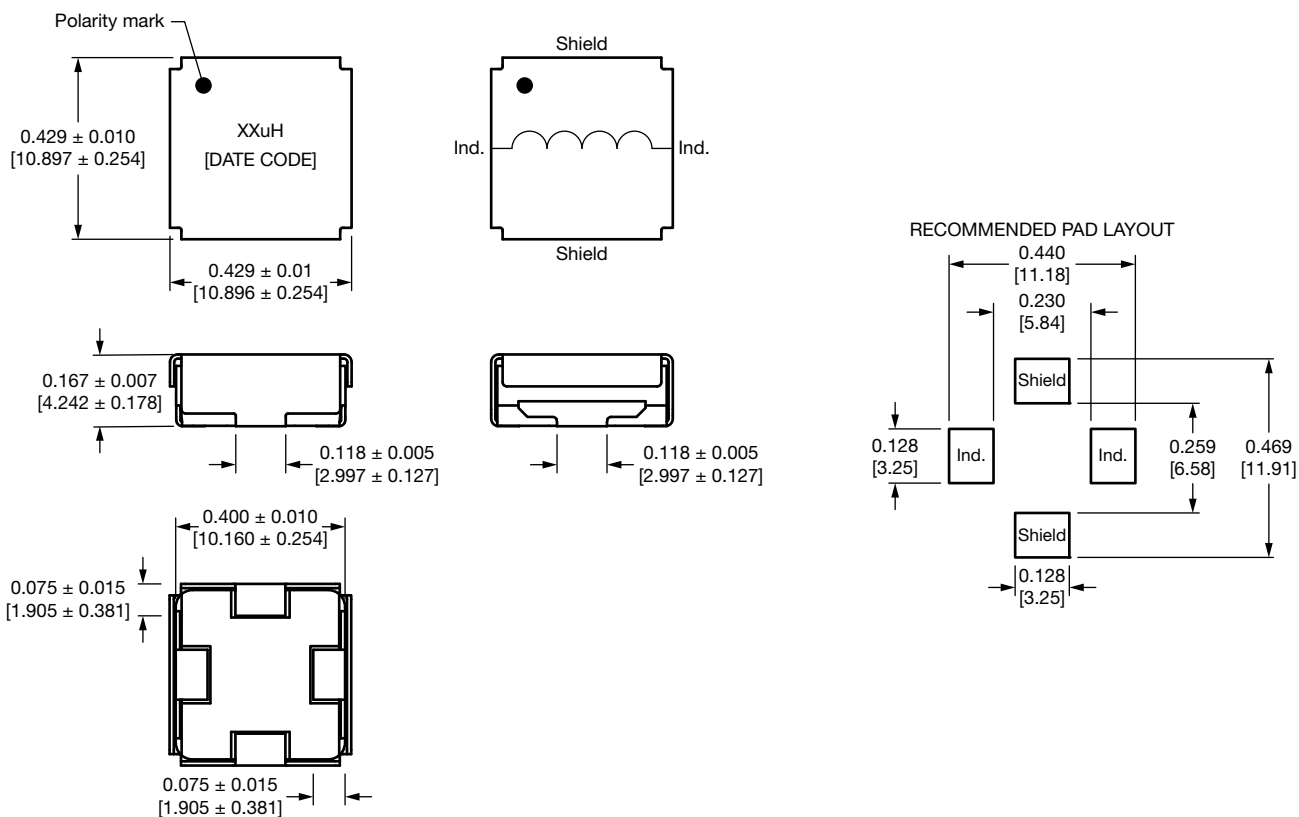
This Vishay product is protected by one or more United States and international patents.


**DESCRIPTION**

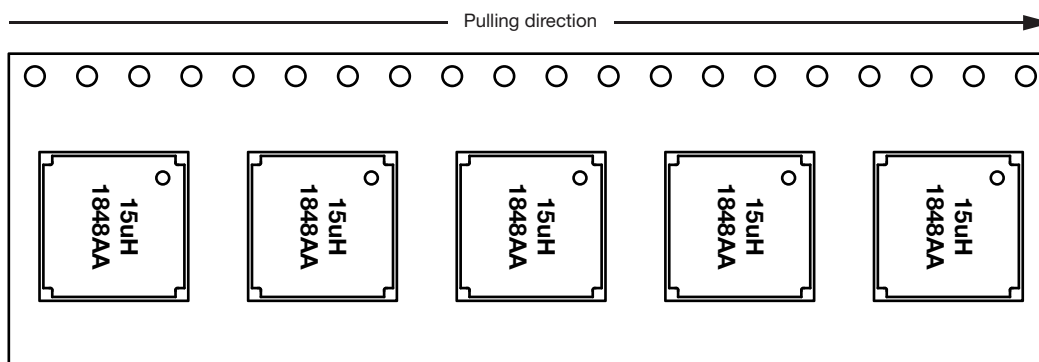
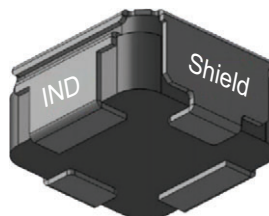
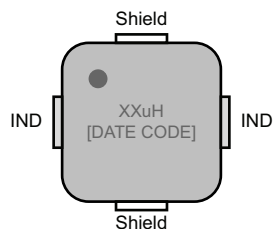
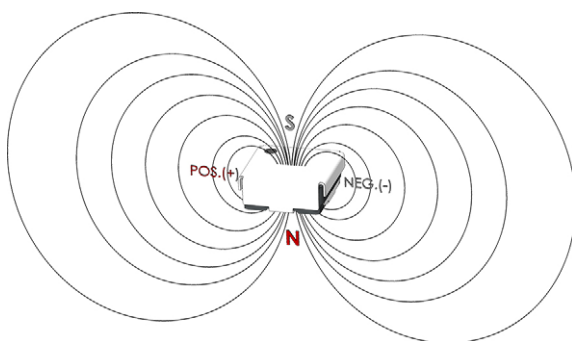
<b>IHLE-4040DD-5A</b>	<b>4.7 <math>\mu</math>H</b>	<b><math>\pm 20\%</math></b>	<b>EW</b>	<b>e3</b>
MODEL	INDUCTANCE VALUE	INDUCTANCE TOLERANCE	PACKAGE CODE	JEDEC® LEAD (Pb)-FREE STANDARD

**GLOBAL PART NUMBER**

<b>I H L E</b>	<b>4 0 4 0 D D</b>	<b>E W</b>	<b>4 R 7</b>	<b>M</b>	<b>5 A</b>
PRODUCT FAMILY	SIZE	PACKAGE CODE	INDUCTANCE VALUE	INDUCTANCE TOLERANCE	SERIES
			<b>4R7 = 4.7 <math>\mu</math>H</b>	<b>M = <math>\pm 20\%</math></b>	

**DIMENSIONS** in inches [millimeters]

**Note**

- Coplanarity of 4 terminals: 0.004" [0.10]

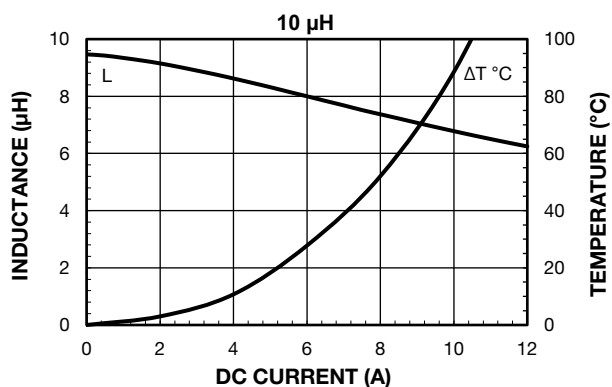
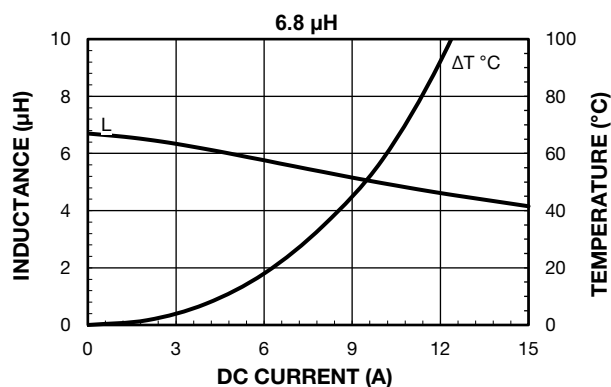
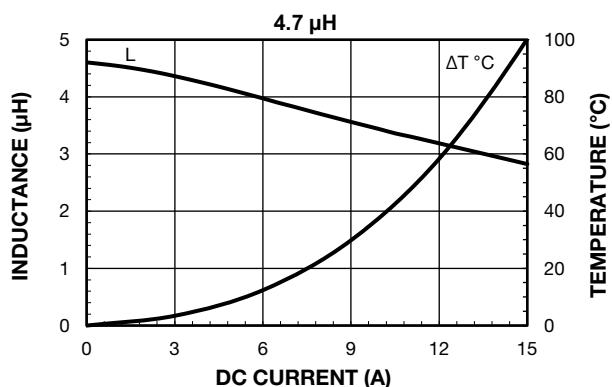
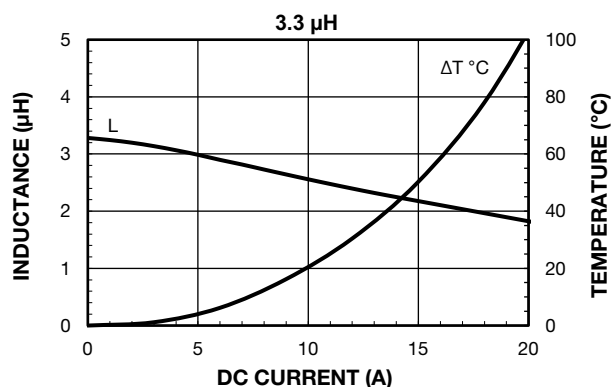
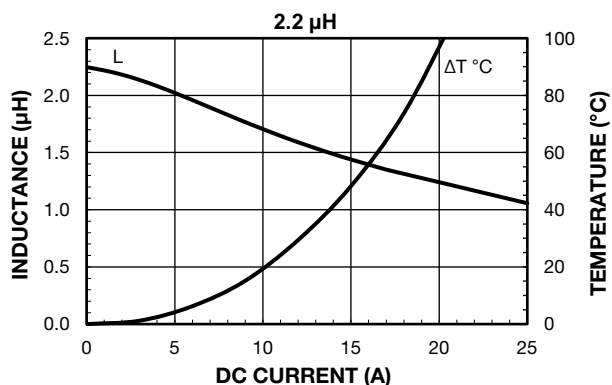
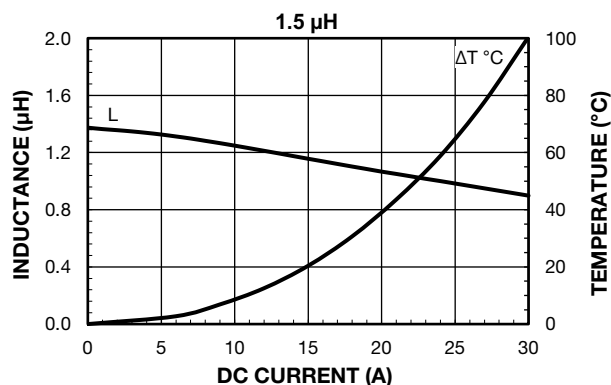
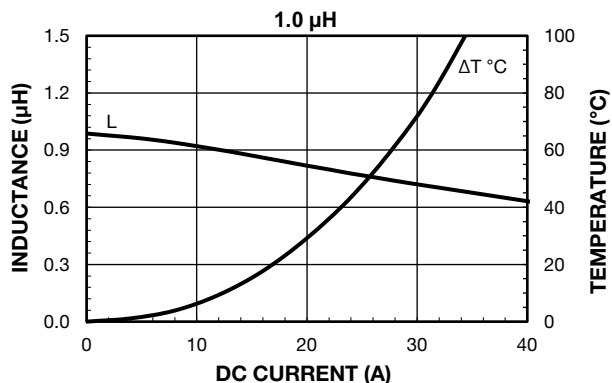
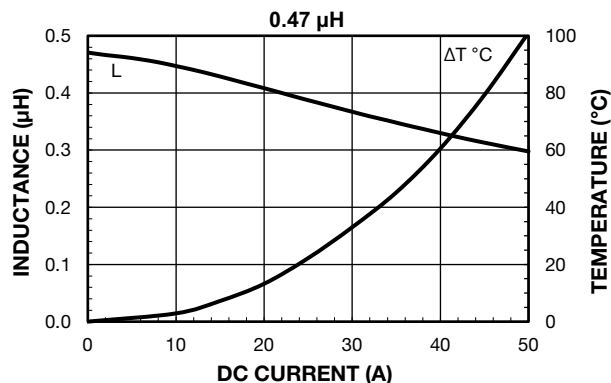
**PART MARKING / POCKET TAPE ORIENTATION**

**MAGNETIC FIELD AND POLARITY MARKING**
**CONFIGURATION OF THE "B" (FLUX) FIELD FOR THE IHLE**


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 IHLE-4040DDEW-5A series, the polarity mark also indicates the "start" or "inside" lead of the winding. Observing the polarity orientation when mounting the IHLP will insure the most consistent EMI reduction performance.

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

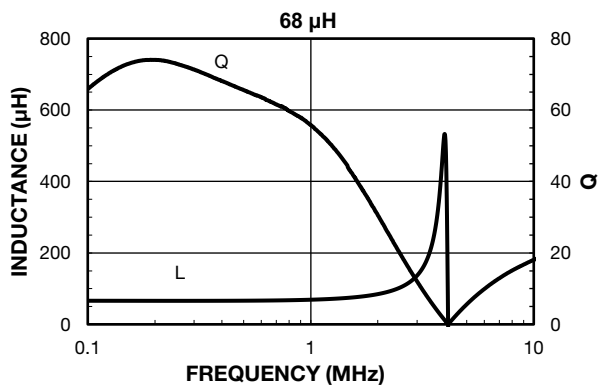
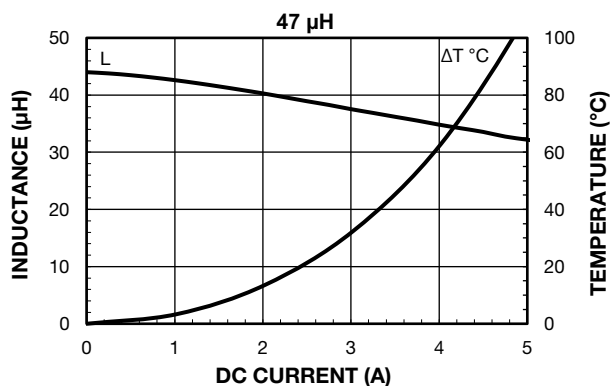
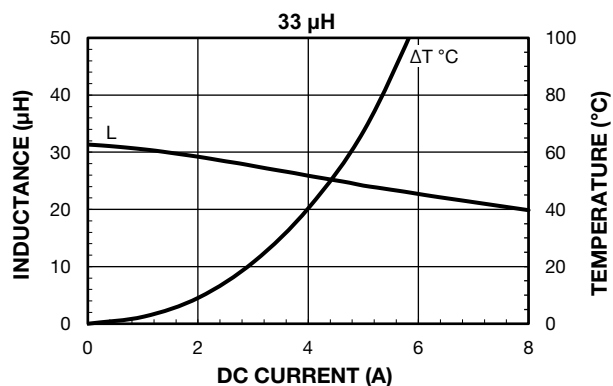
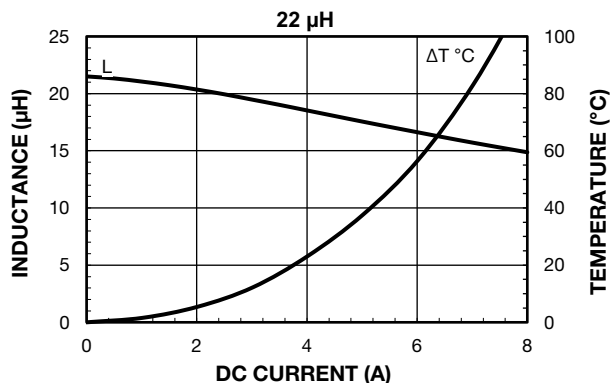
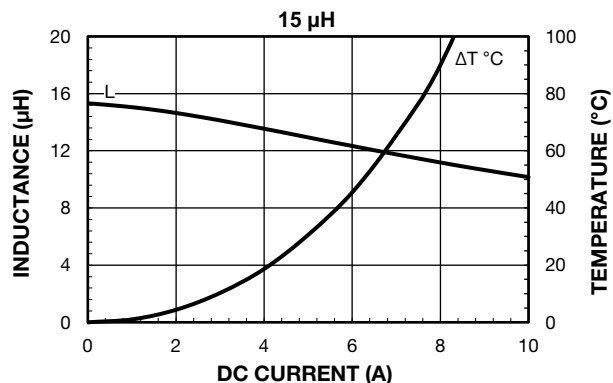


PERFORMANCE GRAPHS



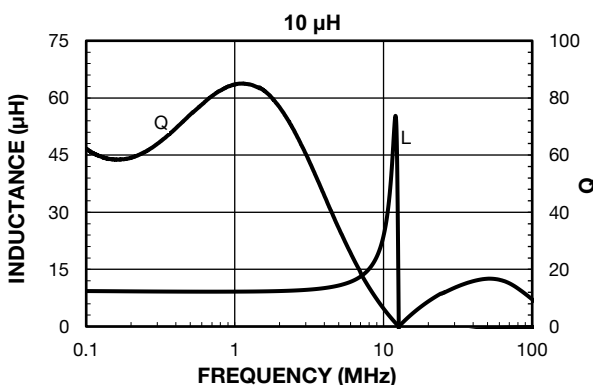
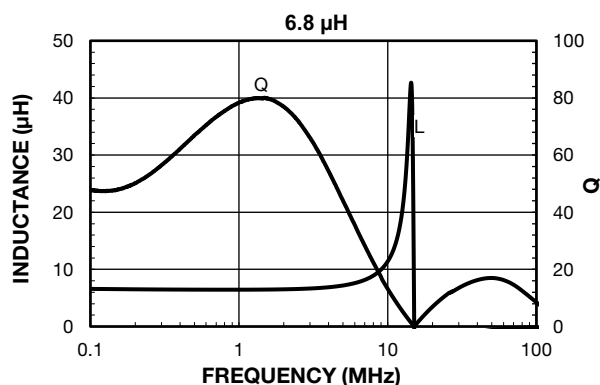
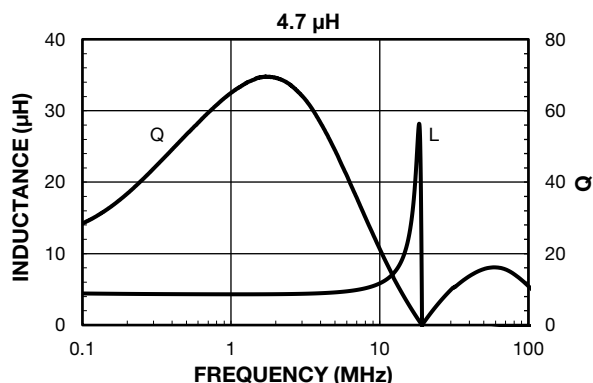
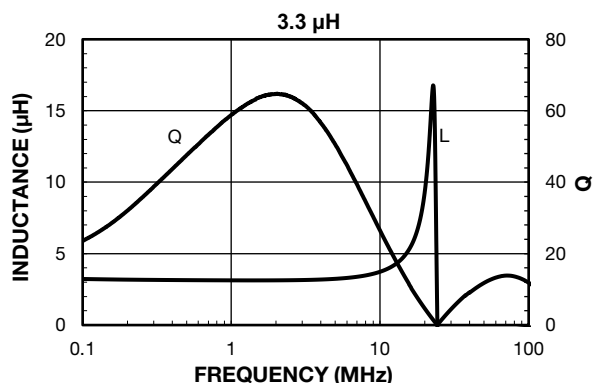
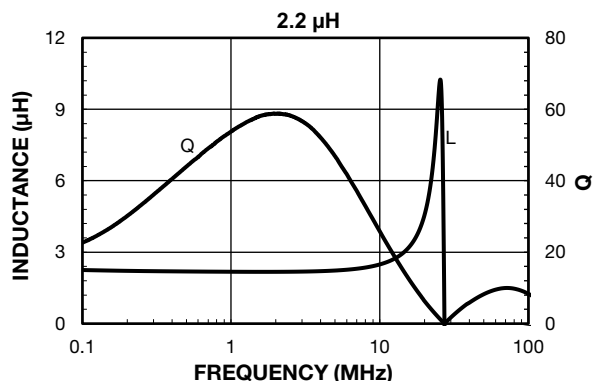
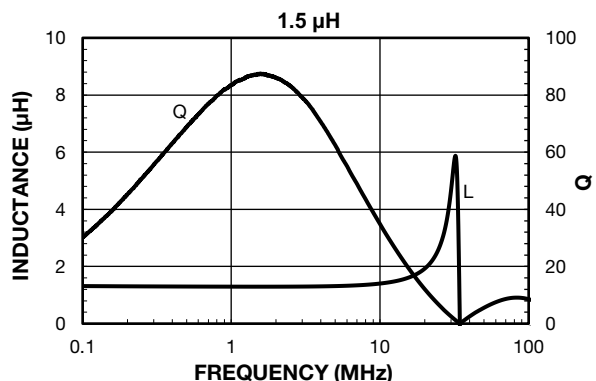
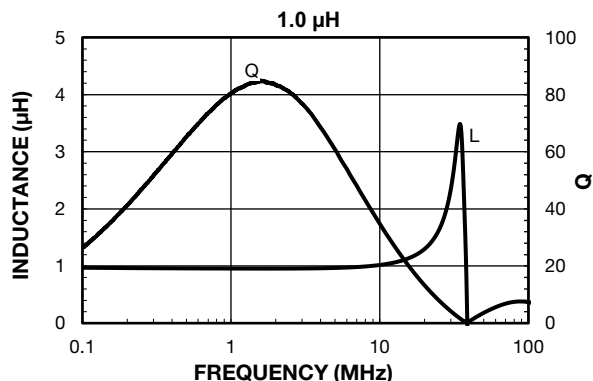
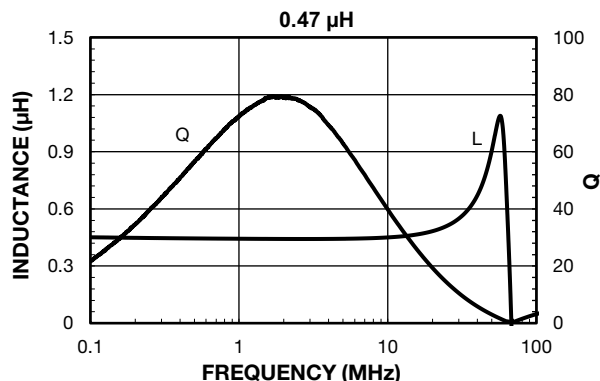


PERFORMANCE GRAPHS



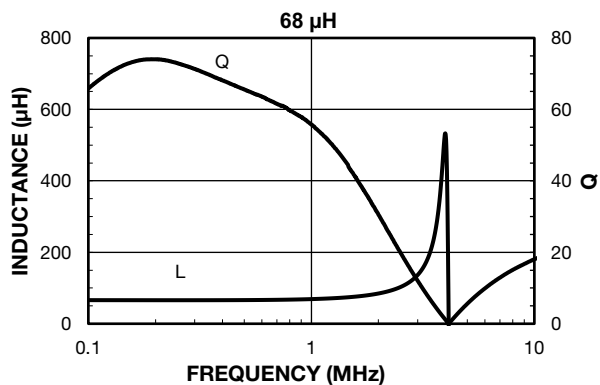
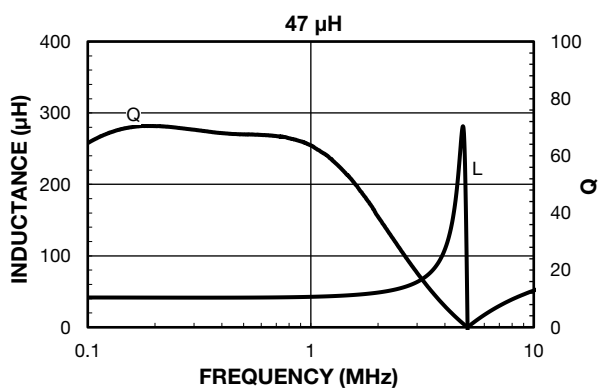
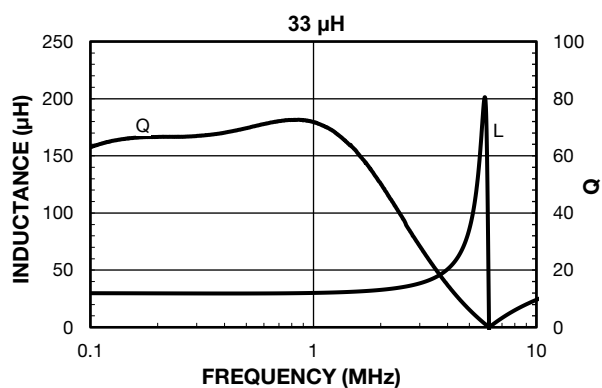
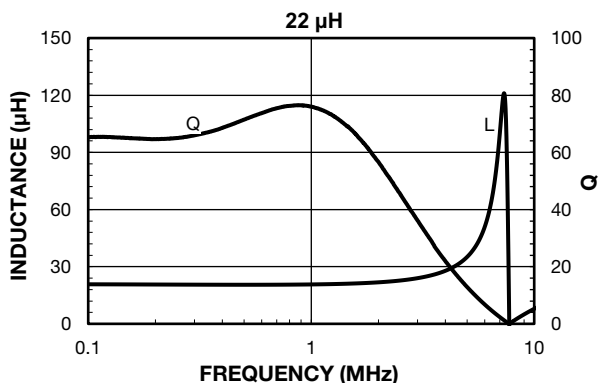
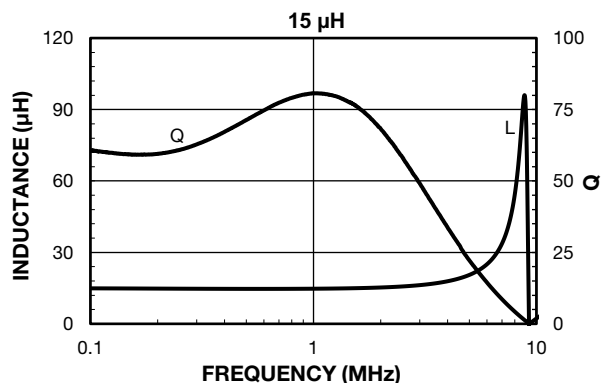


PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY





PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY







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