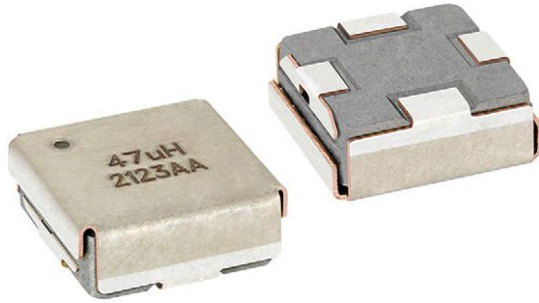


# IHLE<sup>®</sup> High Current Inductors With E-Field Shield



## FEATURES

- High temperature, continuous operation up to 155 °C
- Improved radiated E-Field reduction over standard IHLE
- Polarity marked for more consistent EMI performance
- Patented shielded construction
- Excellent DC/DC energy storage up to 2 MHz. Filter inductor applications up the SRF (see standard electrical specifications table)
- Integrated E-Field shield eliminates need for separate shielding
- Up to 20 dB radiated E-Field reduction at 1 cm - Measured vertically from top center of device
- B-Field is contained by powdered iron encapsulation
- AEC-Q200 qualified
- Shields inductors from external noise
- Handles high transient current spikes without saturation
- 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)

## APPLICATIONS

- High current storage inductor for synchronous buck converter (switch-node interference cancellation)
- High frequency SMPS inductor as storage and EMI filter to reduce the conducted emissions with grounding of E-Shield cover
- DC/DC converters for entertainment/navigation systems
- Noise suppression for motors: windshield wipers, power seats, power mirrors, heating and ventilation blower, connectivity, audio, and navigation power supply
- LED drivers

## STANDARD ELECTRICAL SPECIFICATIONS

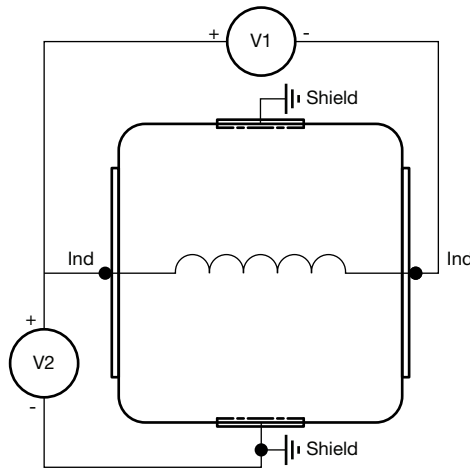
PART NUMBER	L <sub>0</sub> INDUCTANCE ± 20 % AT 100 kHz, 0.25 V, 0 A (µH)	DCR TYP. 25 °C (mΩ)	DCR MAX. 25 °C (mΩ)	HEAT RATING CURRENT DC TYP. (A) <sup>(1)</sup>	SATURATION CURRENT DC TYP. (A)		SRF TYP. (MHz)
					20 % DROP <sup>(2)</sup>	30 % DROP <sup>(3)</sup>	
IHLE4040DDEWR47M5A	0.47	1.55	1.66	32	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, 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 (V<sub>1</sub>) = 75 V
- Rated isolation voltage, inductor lead to shield (V<sub>2</sub>) = 100 V
- (1) DC current (A) that will cause an approximate ΔT of 40 °C
- (2) DC current (A) that will cause L<sub>0</sub> to drop approximately 20 %
- (3) DC current (A) that will cause L<sub>0</sub> to drop approximately 30 %

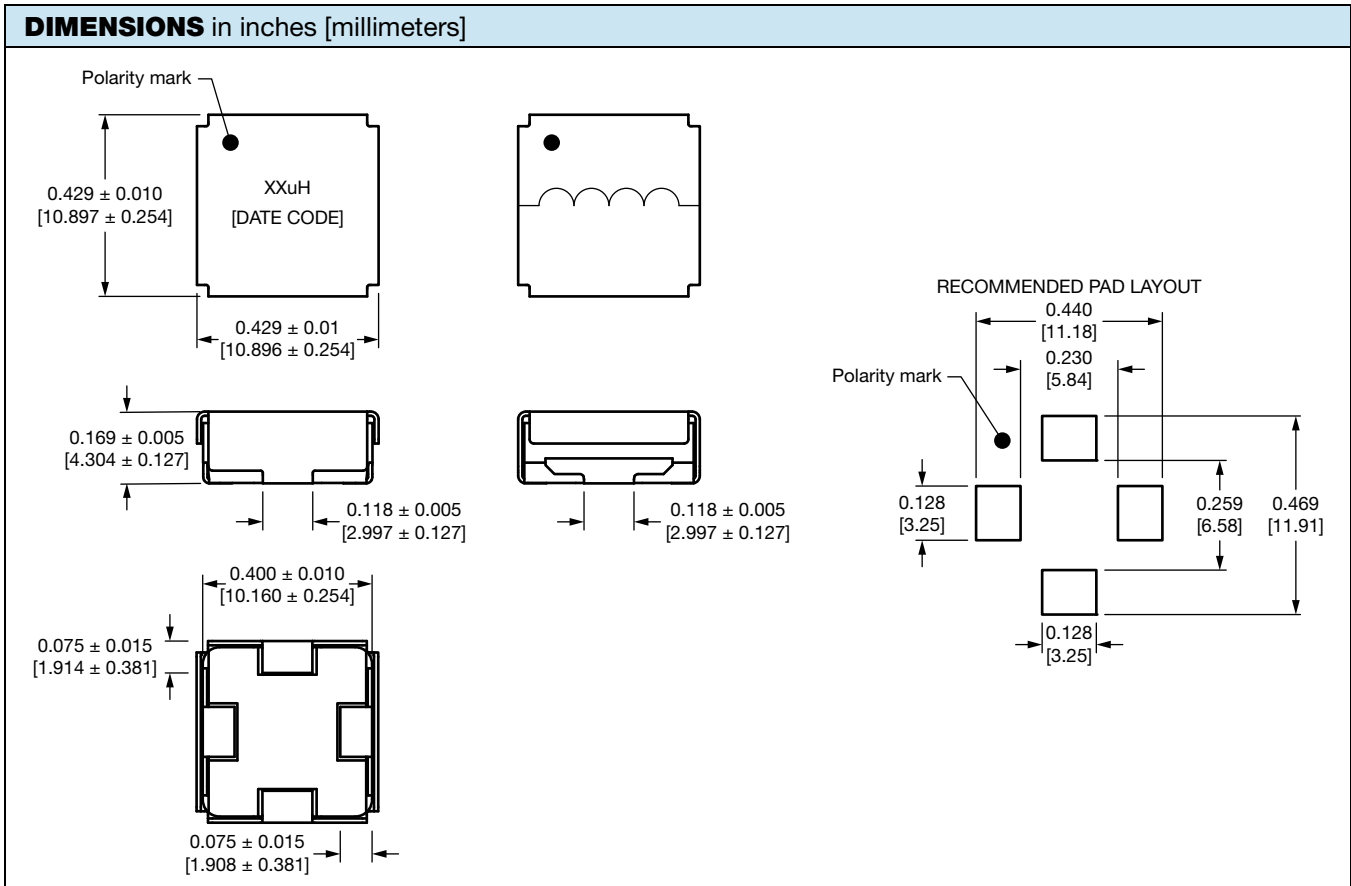
PATENT(S): [www.vishay.com/patents](http://www.vishay.com/patents)

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



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

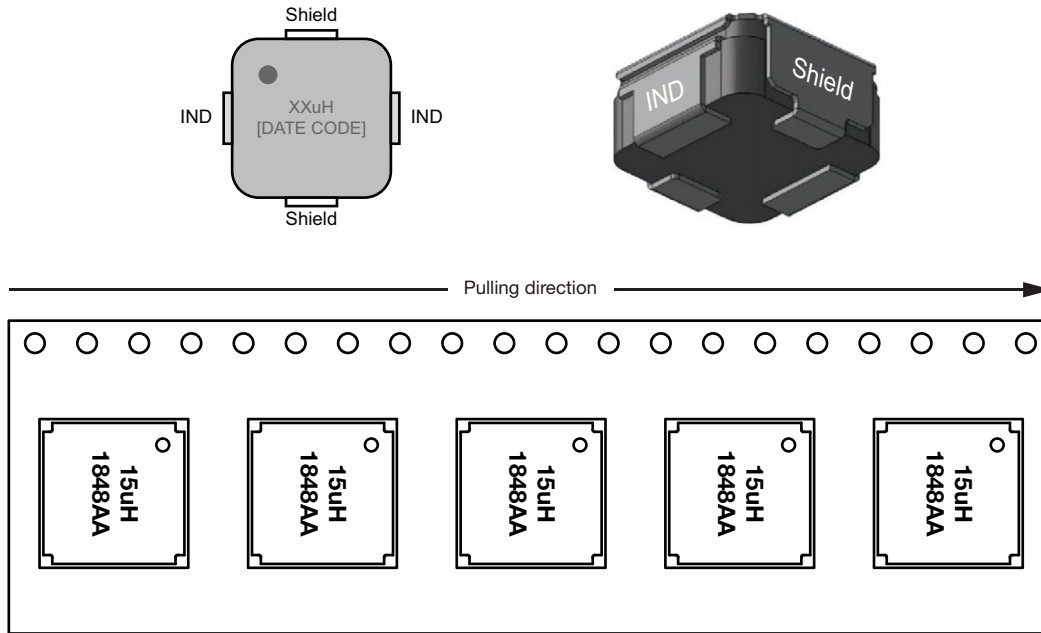
GLOBAL PART NUMBER																	
I	H	L	E	4	0	4	0	D	D	E	W	4	R	7	M	5	A
PRODUCT FAMILY				SIZE					PACKAGE CODE		INDUCTANCE VALUE			TOL.	SERIES		



**Note**

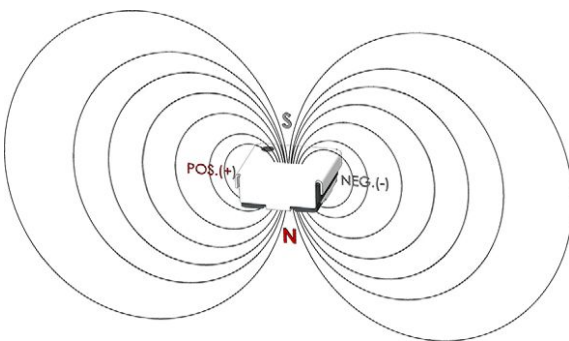
- Coplanarity of 4 terminals: 0.004" [0.10]

**PART MARKING / POCKET TAPE ORIENTATION**



**MAGNETIC FIELD AND POLARITY MARKING**

**CONFIGURATION OF THE "B" (FLUX) FIELD FOR THE IHLE**

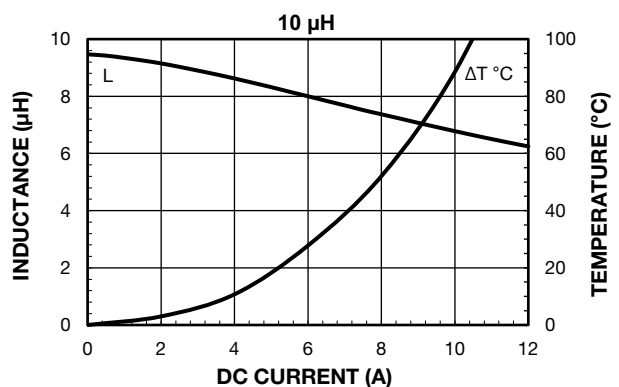
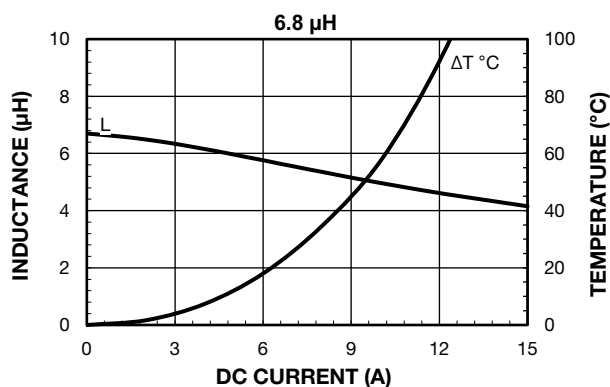
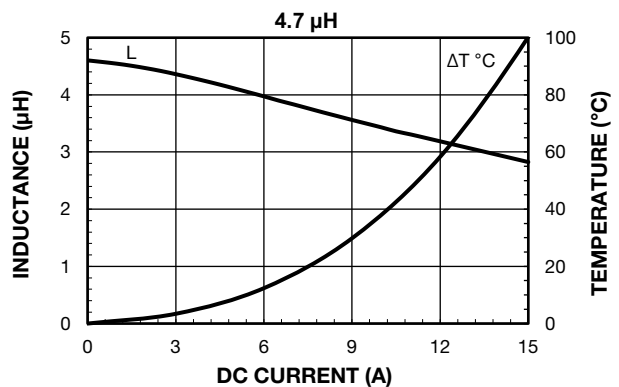
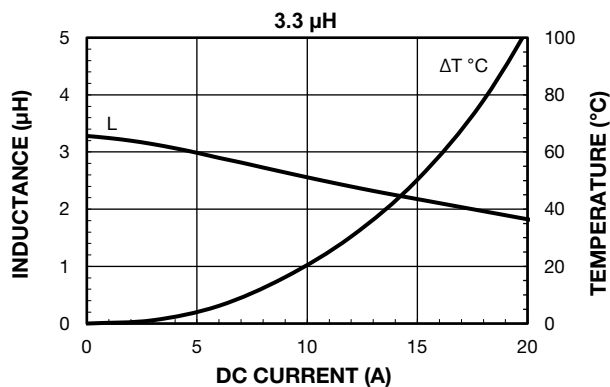
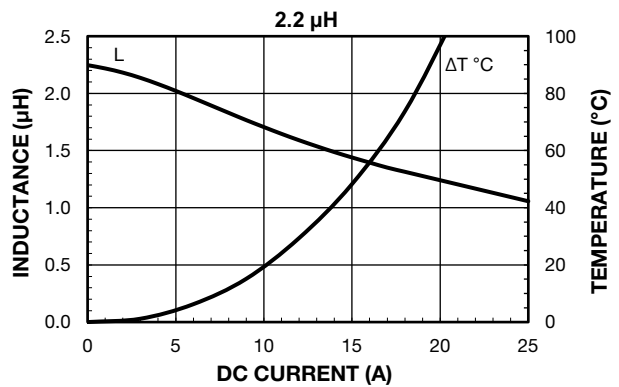
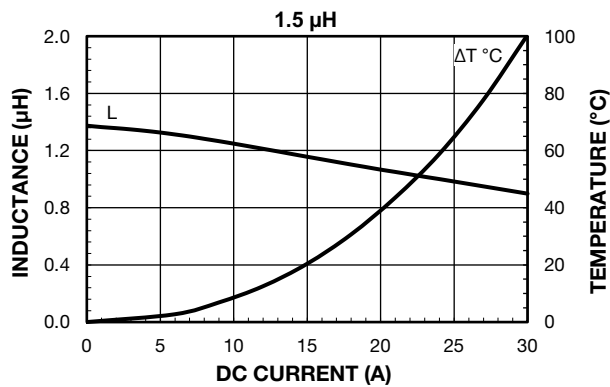
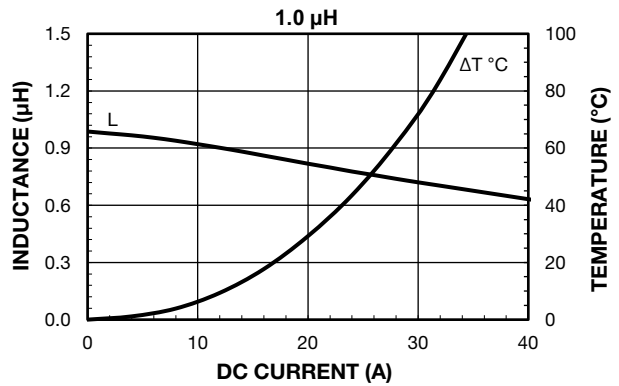
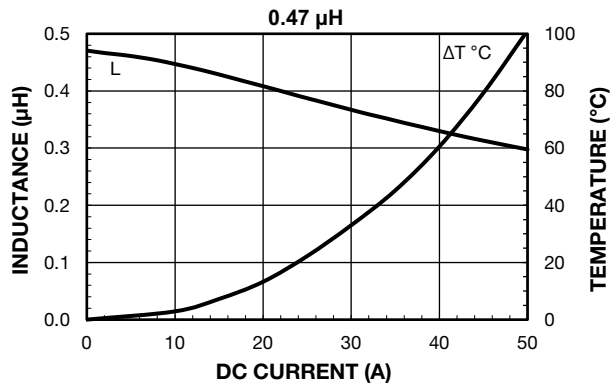


When a positive (+) voltage is placed on the terminal marked with the polarity dot and the opposite terminal is negative (-), the resulting current flow will create a magnetic south pole on the top side of the IHLP. Observing the polarity orientation when mounting the IHLP will insure the most consistent EMI reduction performance.

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

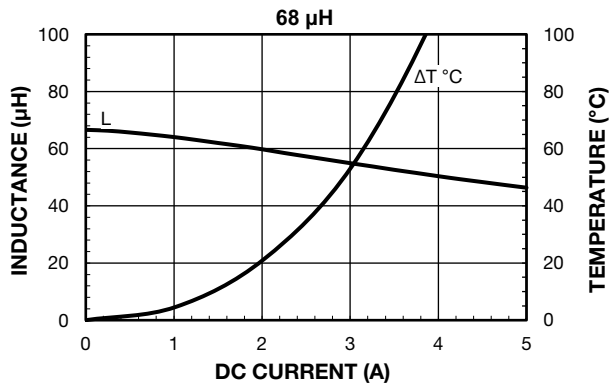
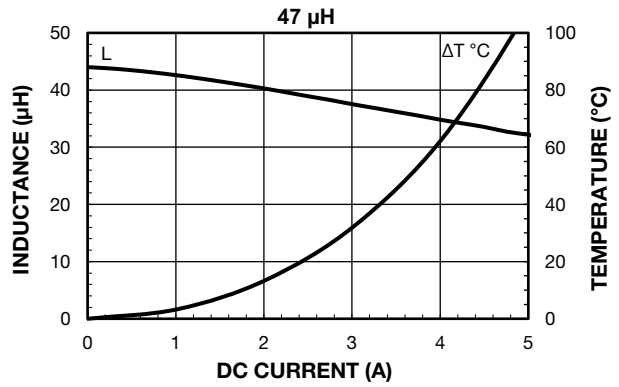
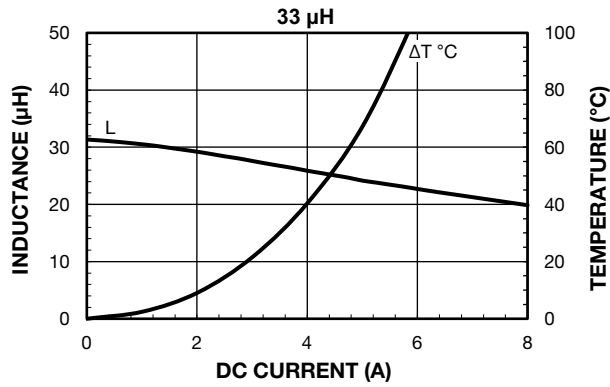
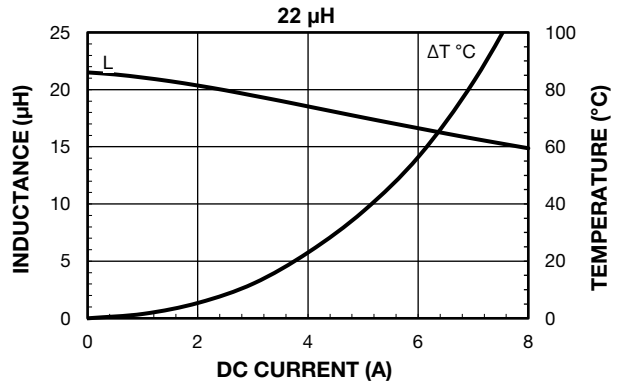
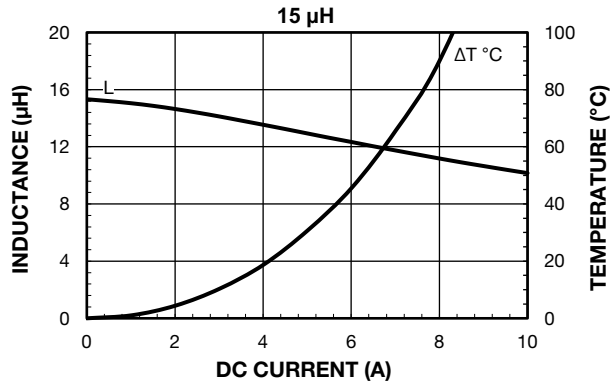


PERFORMANCE GRAPHS

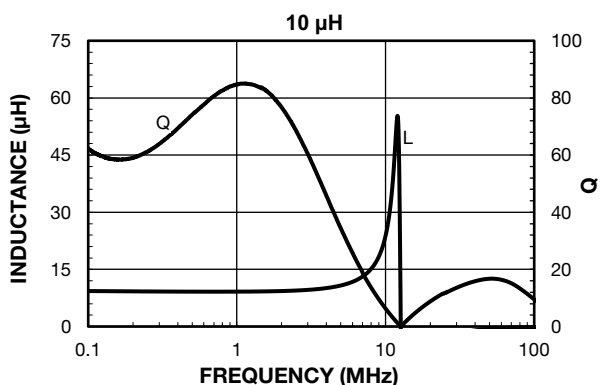
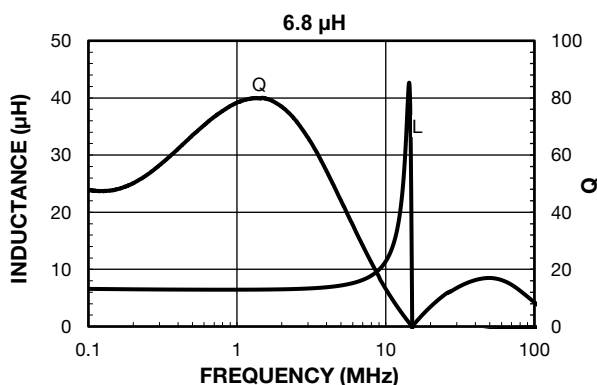
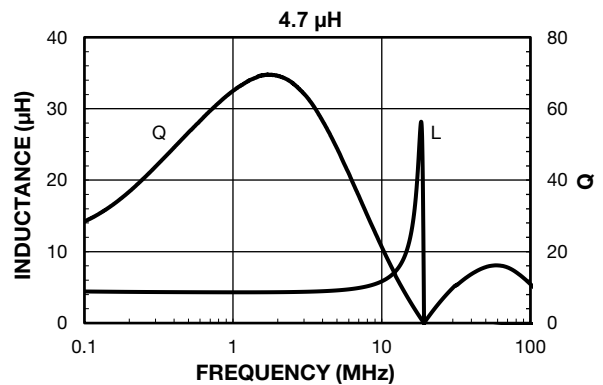
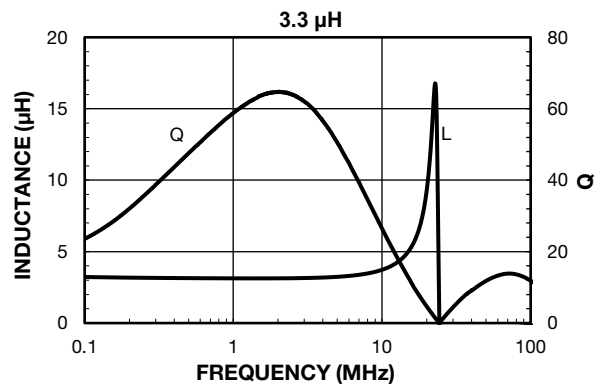
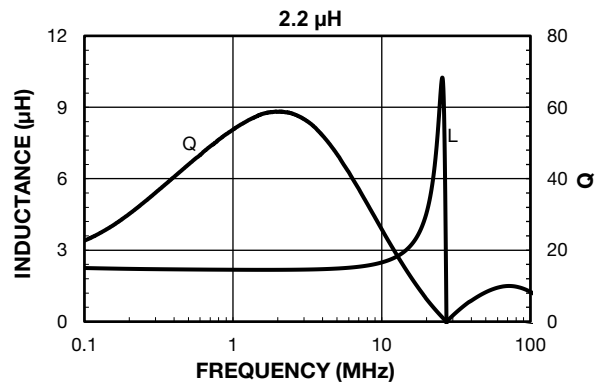
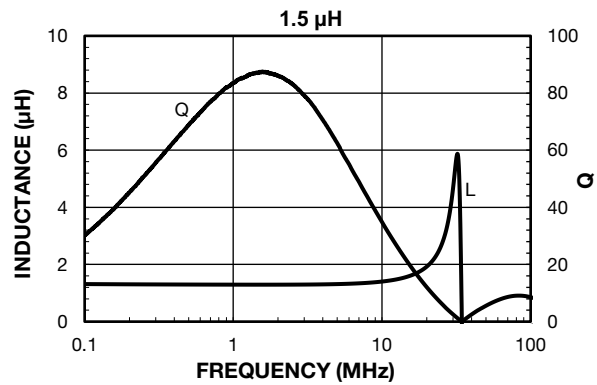
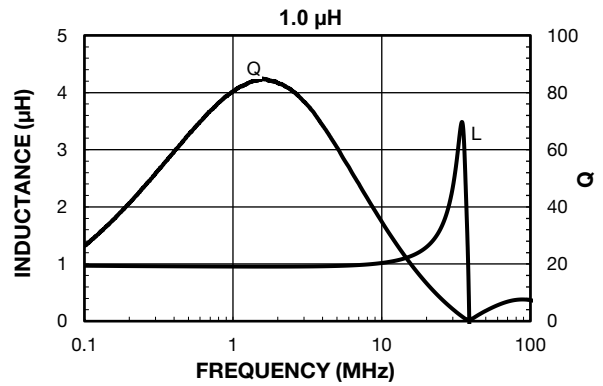
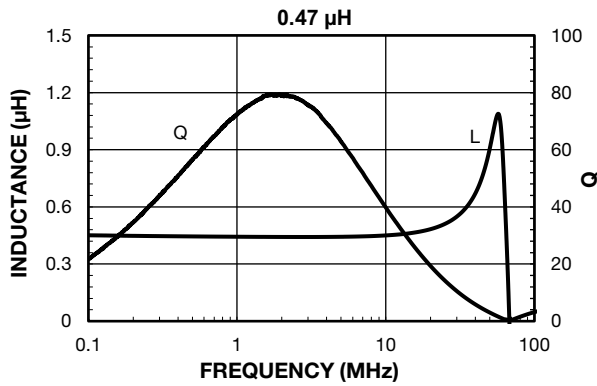




PERFORMANCE GRAPHS

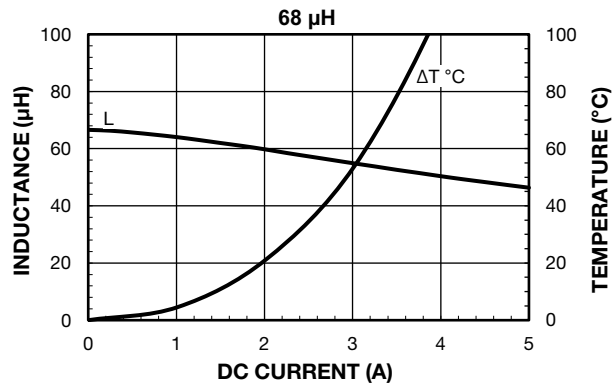
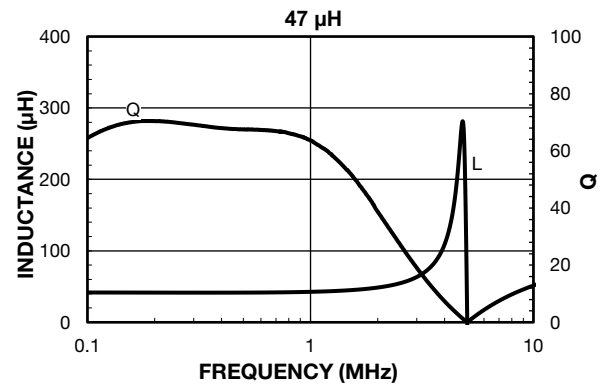
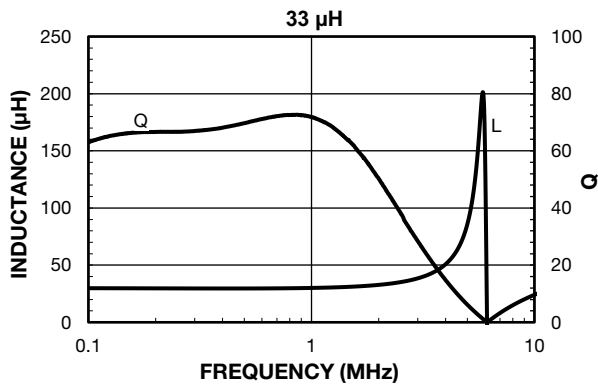
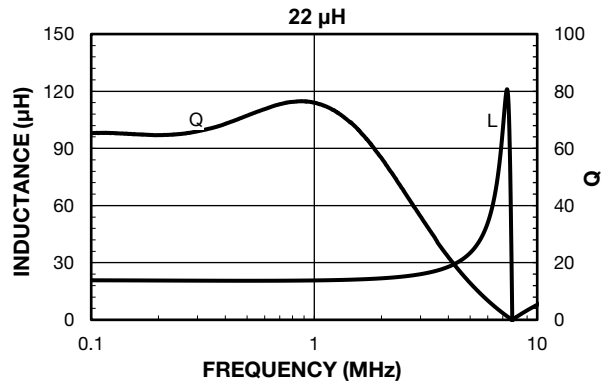
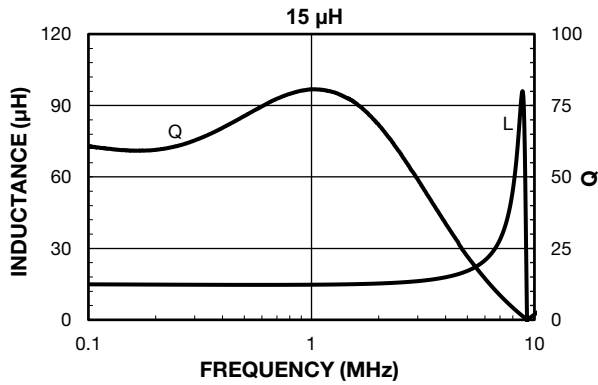


**PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY**





PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY







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