

# IHLP® Automotive Inductors, High Temperature (180 °C) Series



## LINKS TO ADDITIONAL RESOURCES



STANDARD ELECTRICAL SPECIFICATIONS					
$L_0$ INDUCTANCE ± 20 % AT 100 kHz, 0.25 V, 0 A ( $\mu\text{H}$ )	DCR TYP. 25 °C (m $\Omega$ )	DCR MAX. 25 °C (m $\Omega$ )	HEAT RATING CURRENT DC TYP. (A) <sup>(1)</sup>	SATURATION CURRENT DC TYP. (A) <sup>(2)</sup>	SRF TYP. (MHz)
0.47	1.55	1.66	30.0	28.5	72.1
1.0	2.87	3.07	23.5	24.0	37.2
1.5	4.2	4.5	22.0	17.9	32
2.2	8.15	8.76	15	12	30.1
3.3	11.0	11.81	11.0	12.0	25.5
4.7	14.3	15.32	9.8	9.2	20.1
5.6	16.5	17.60	9.3	9.0	16.3
6.8	20.9	22.36	8.0	9.0	16.3
10	30.9	33.06	6.5	8.5	11.5
15	47.0	50.29	5.1	7.7	10.4
22	70.5	75.44	4.1	6.4	8.30
33	110	117.70	3.7	4.2	5.79
47	167	178	3.1	4.1	5.22
68	240	252	2.4	3.5	4.02

### Notes

- All test data is referenced to 25 °C ambient
- Operating temperature range -55 °C to +180 °C
- The part temperature (ambient + temp. rise) should not exceed 180 °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

- High temperature, up to 180 °C
- Shielded construction
- Excellent DC/DC energy storage up to 1 MHz to 2 MHz. Filter inductor applications up the SRF (see Standard Electrical Specifications table).
- Lowest DCR/ $\mu\text{H}$ , in this package size
- Handles high transient current spikes up to 10 times the current rating, depending on the duration
- 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)

 AUTOMOTIVE  
GRADE

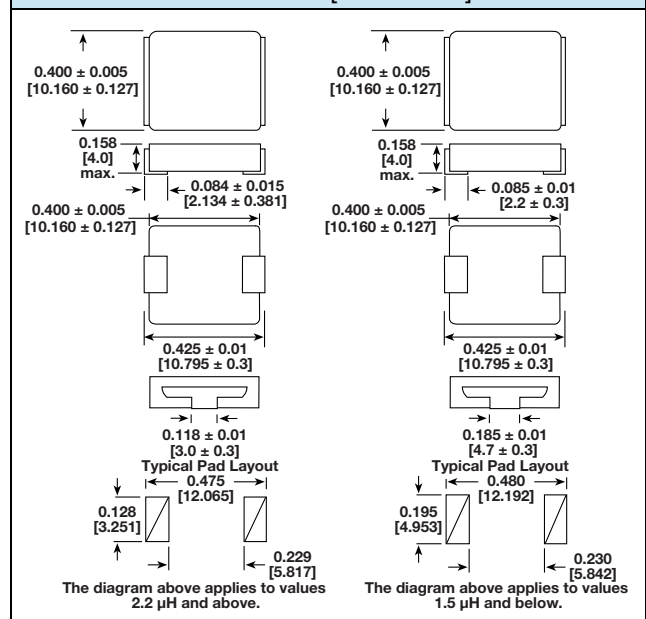
**RoHS**  
COMPLIANT

 HALOGEN  
**FREE**
**GREEN**  
(5-2008)

## APPLICATIONS

- Brushless DC motor for auto EGR (exhaust gas recycle) pump
- ADAS (advanced driver-assistance systems)
- Body electronics
  - LED lighting
  - Infotainment / driver information
  - Mirror / window / door soft close control
- EMI filter up to 180 °C
- Storage inductors for GaN switched-mode power supply applications

## DIMENSIONS in inches [millimeters]

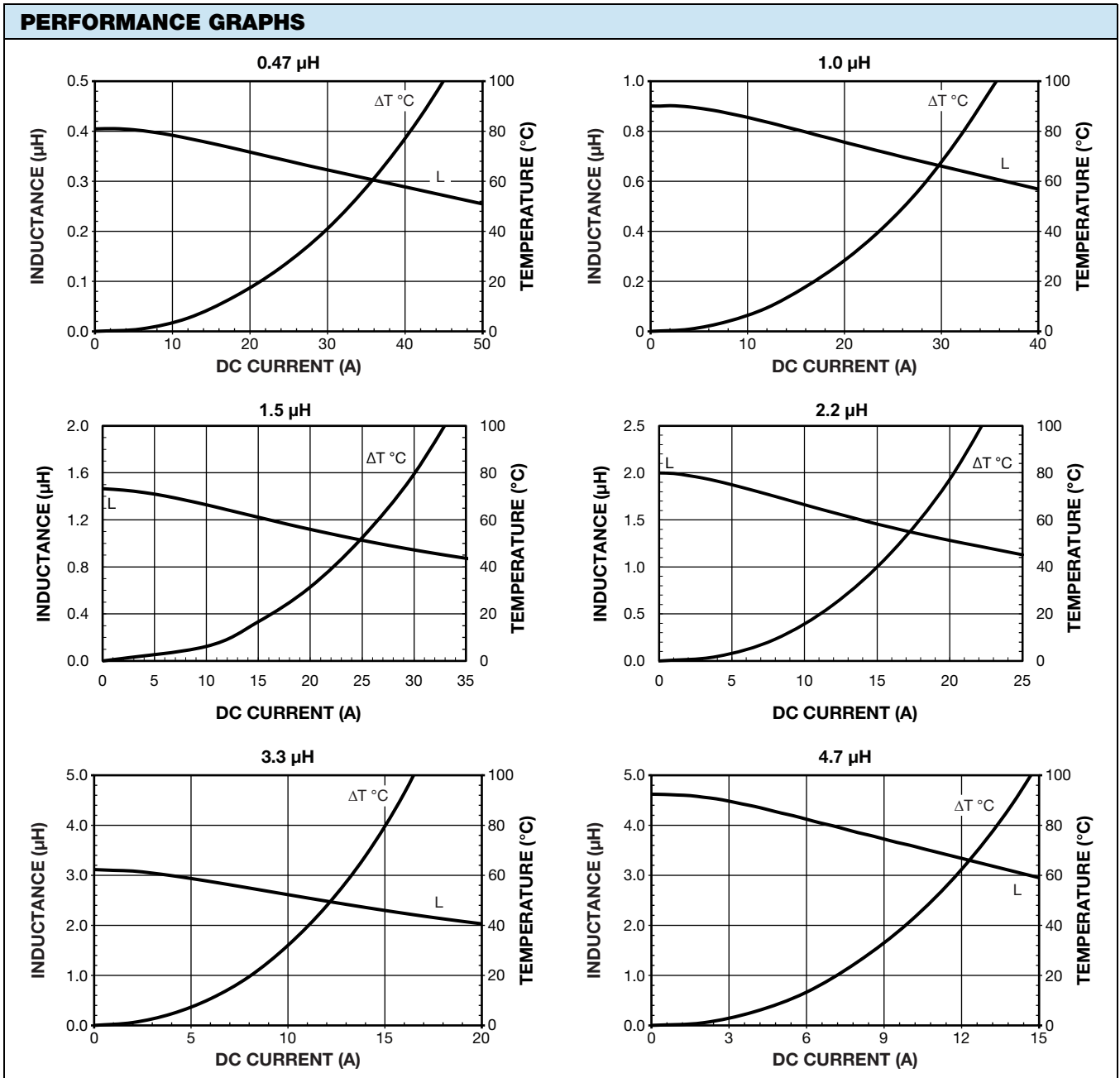

**PATENT(S):** [www.vishay.com/patents](http://www.vishay.com/patents)

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



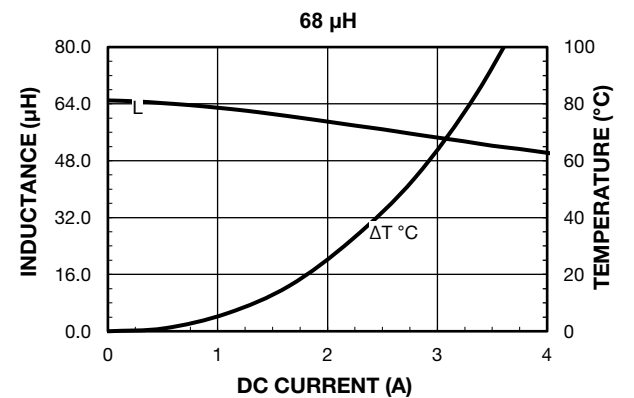
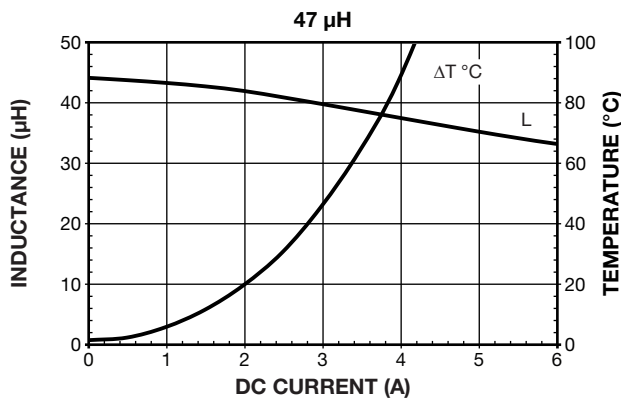
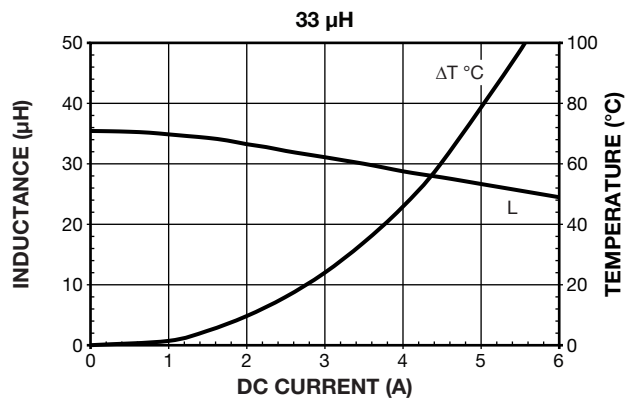
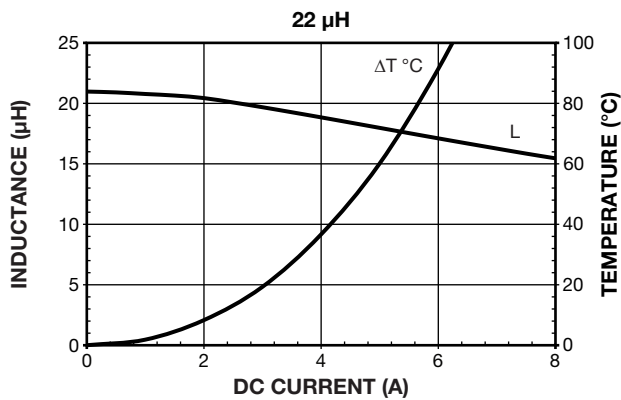
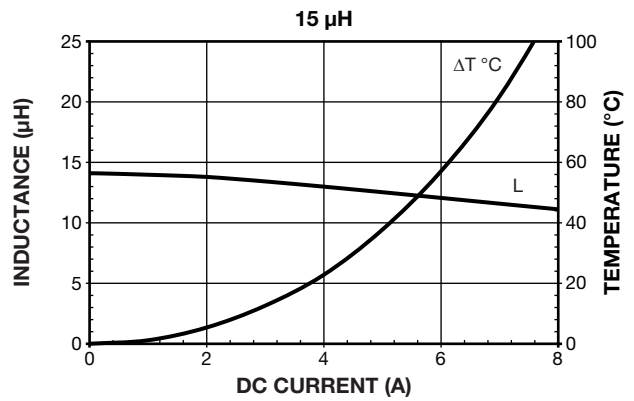
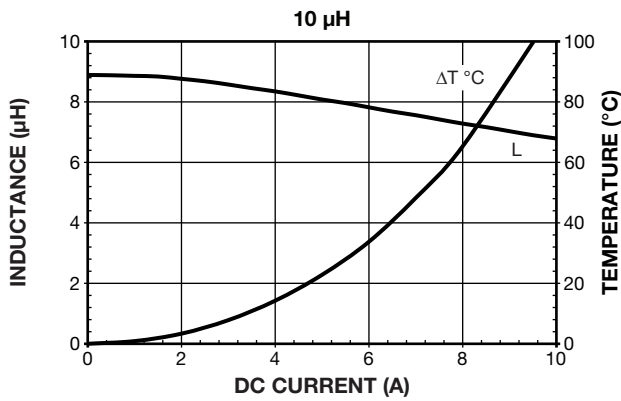
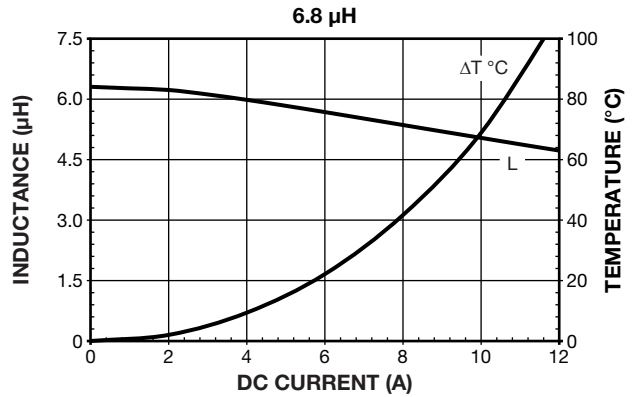
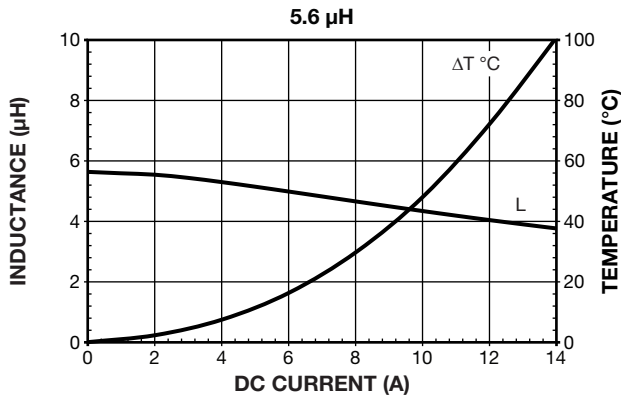
DESCRIPTION					
IHLP-4040DZ-8A	4.7 $\mu$ H	$\pm 20\%$	ER	e3	
MODEL	INDUCTANCE VALUE	INDUCTANCE TOLERANCE	PACKAGE CODE	JEDEC® LEAD (Pb)-FREE STANDARD	

GLOBAL PART NUMBER																	
I	H	L	P	4	0	4	0	D	Z	E	R	4	R	7	M	8	A
PRODUCT FAMILY				SIZE				PACKAGE CODE		INDUCTANCE VALUE			TOL.	SERIES			



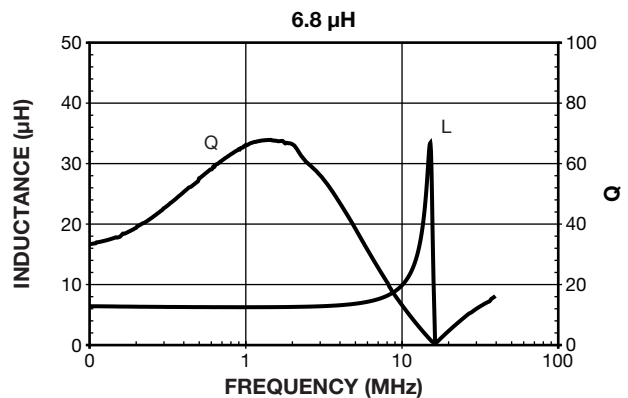
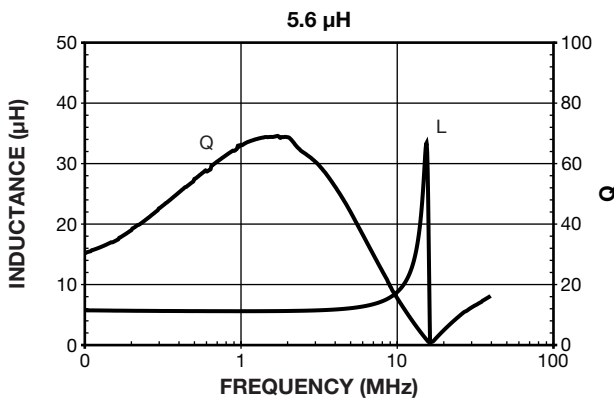
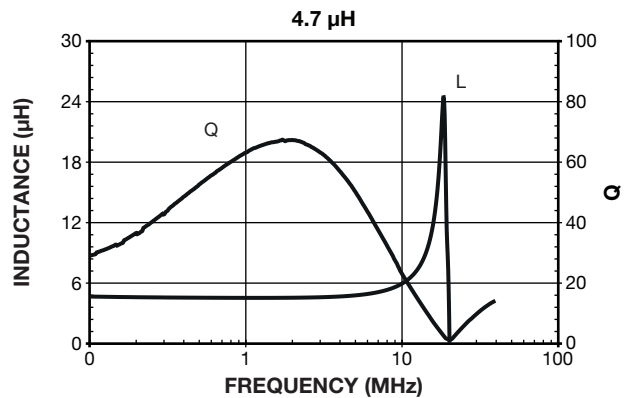
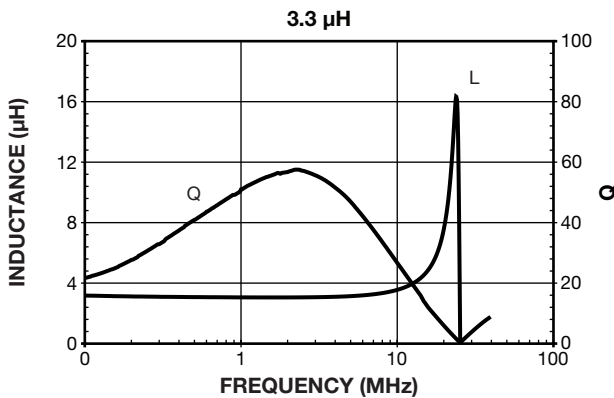
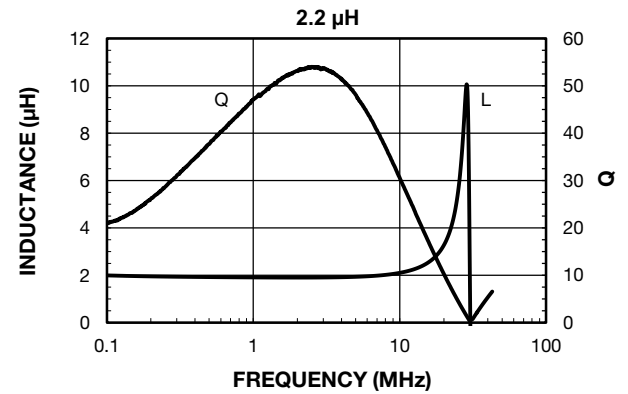
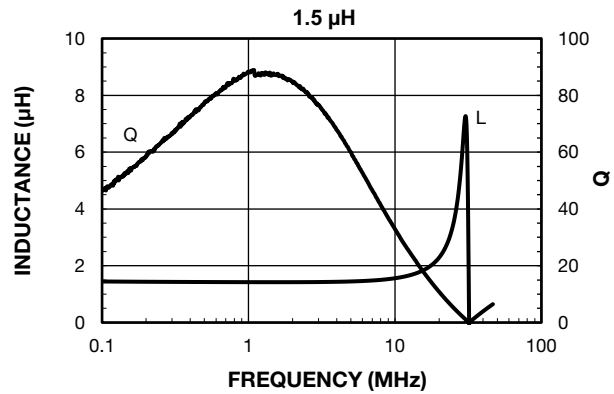
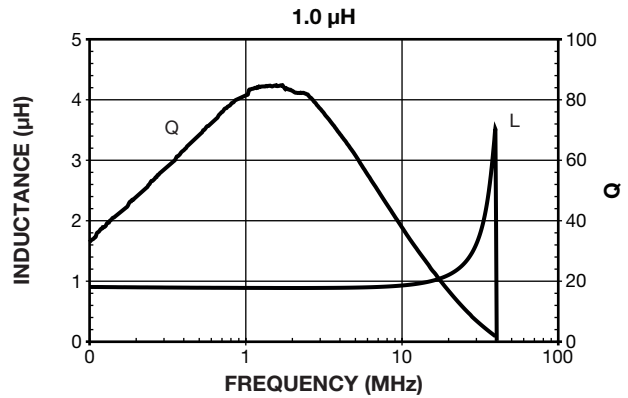
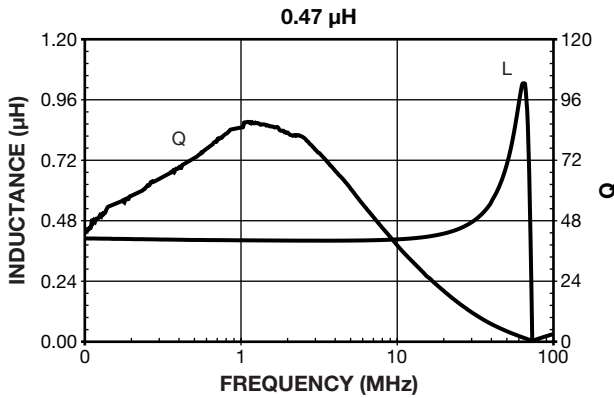


PERFORMANCE GRAPHS



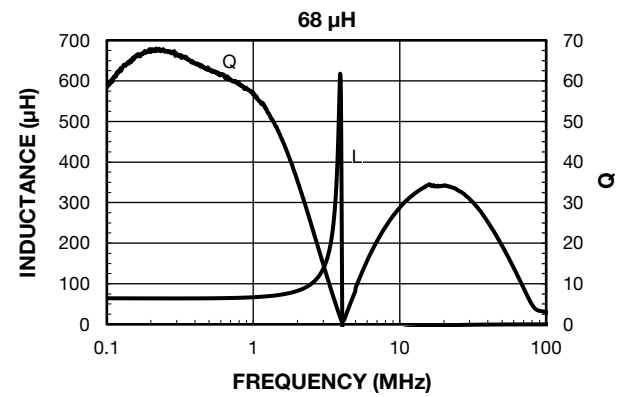
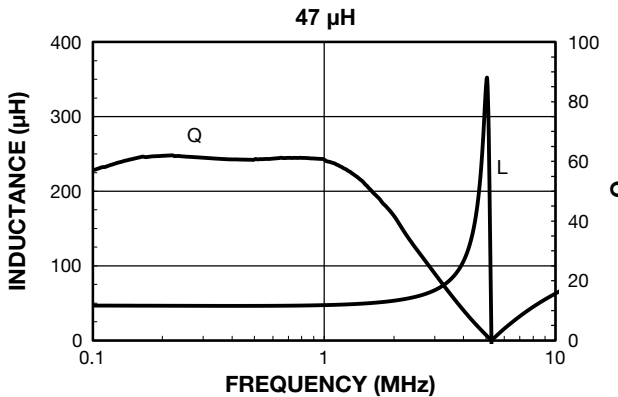
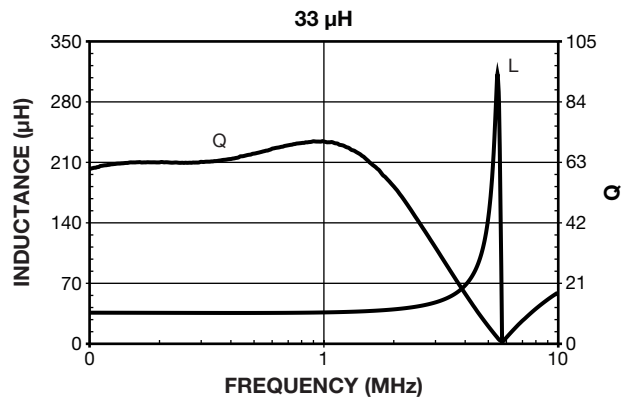
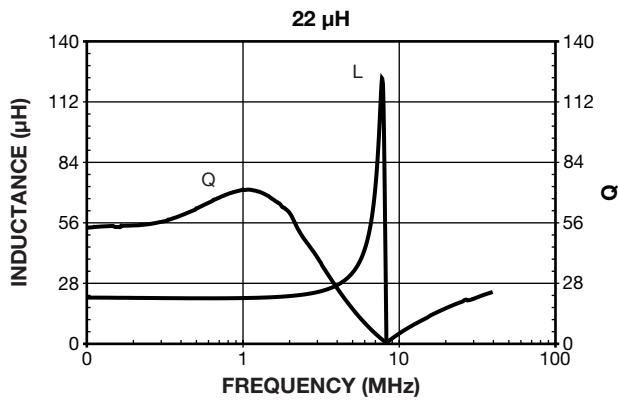
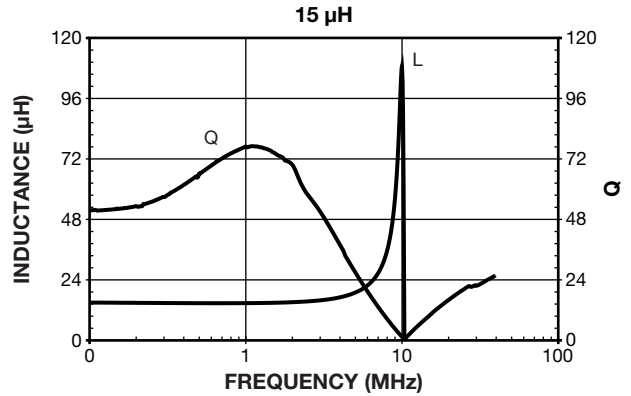
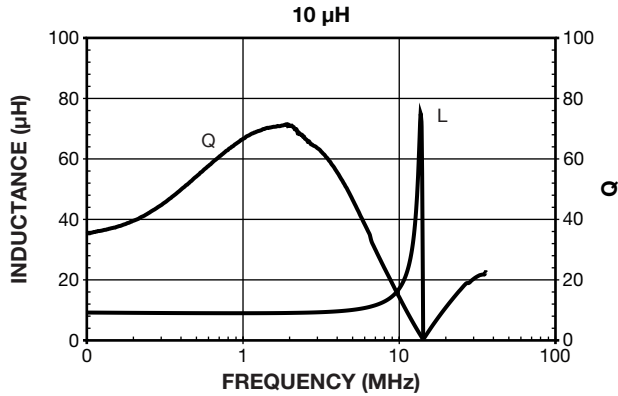


PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY





PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY





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