



# IHLP® Automotive Inductors, High Temperature (155 °C) Series



## FEATURES

- High temperature, up to 155 °C
- 10.8 mm x 10.2 mm x 4.0 mm SMD package
- Magnetically shielded construction
- Metal alloy core
- 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)



## LINKS TO ADDITIONAL RESOURCES



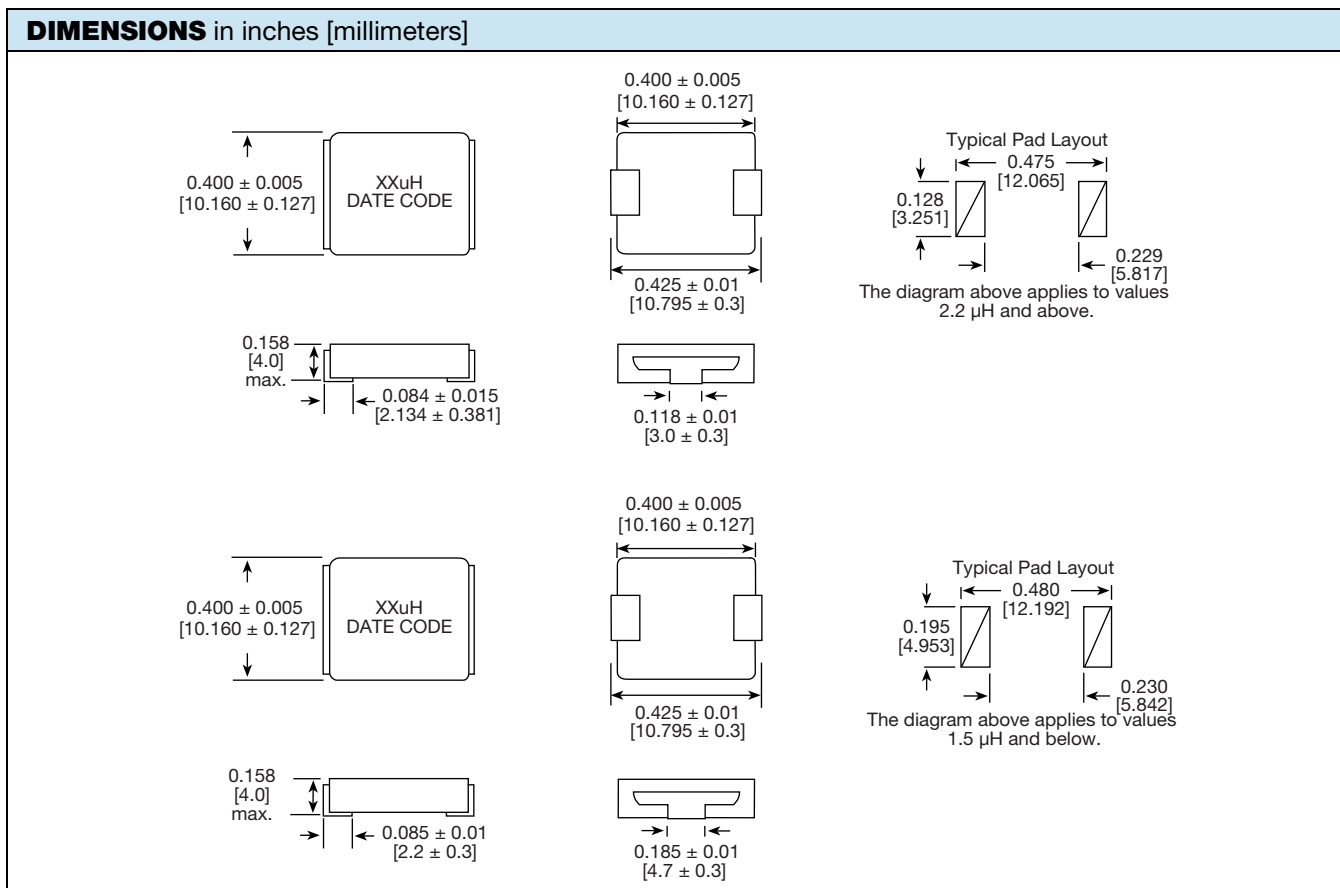
## APPLICATIONS

- Engine and transmission control units
- DC/DC converters for infotainment, navigation systems, lighting
- Noise suppression and filtering
- LED drivers

STANDARD ELECTRICAL SPECIFICATIONS							
PART NUMBER	INDUCTANCE ± 20 % (µH) AT 0 A	DCR 25 °C (mΩ)		HEAT RATING CURRENT DC TYP. (A) <sup>(1)</sup>	SATURATION CURRENT DC TYP. (A) <sup>(2)</sup>		SRF TYP. (MHz)
		TYP.	MAX.		20 % DROP	30 % DROP	
IHLP4040DZ**R47M5A	0.47	1.55	1.66	35.5	28.5	38.0	72.1
IHLP4040DZ**R68M5A	0.68	2.17	2.32	35.0	24.0	32.0	42.5
IHLP4040DZ**1R0M5A	1.0	2.87	3.07	23.5	24.0	32.0	37.2
IHLP4040DZ**1R5M5A	1.5	4.20	4.50	22.0	17.9	24.2	32
IHLP4040DZ**2R2M5A	2.2	8.15	8.76	15.0	12.0	16.2	30.1
IHLP4040DZ**3R3M5A	3.3	11	11.81	11.0	12.0	16.2	25.5
IHLP4040DZ**4R7M5A	4.7	14.3	15.32	9.8	9.2	12.4	20.1
IHLP4040DZ**5R6M5A	5.6	16.5	17.60	9.3	9.0	12.2	16.3
IHLP4040DZ**6R8M5A	6.8	20.9	22.36	8.0	9.0	12.2	16.3
IHLP4040DZ**100M5A	10	30.9	33.06	6.5	8.5	11.5	11.5
IHLP4040DZ**150M5A	15	47	50.29	5.1	7.7	10.4	10.4
IHLP4040DZ**220M5A	22	70.5	75.44	4.1	6.4	8.6	8.3
IHLP4040DZ**330M5A	33	110	117.7	3.7	4.2	5.7	5.79
IHLP4040DZ**470M5A	47	167	178	3.1	4.1	5.5	5.22
IHLP4040DZ**680M5A	68	240	252	2.4	3.5	4.7	4.02

### Notes

- All test data is referenced to 25 °C ambient
  - Test condition: 100 kHz, 0.25 V
  - 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) = 75 V
- <sup>(1)</sup> DC current (A) that will cause an approximate ΔT of 40 °C  
<sup>(2)</sup> DC current (A) that will cause L<sub>0</sub> to drop approximately 20 %



DESCRIPTION					
IHLP-4040DZ-5A	4.7 µH	± 20 %	TAPE AND REEL	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 K	4 R 7	M	5 A
PRODUCT FAMILY	SIZE	PACKAGE CODE	INDUCTANCE VALUE	INDUCTANCE TOLERANCE	SERIES
		EK = tape and reel	4R7 = 4.7 µH	M = ± 20 %	

PACKAGE CODE OPTIONS
<b>EK</b> = tape and reel packaging (1000 pieces on 13-inch reel)
<b>EE</b> = tape and reel packaging (900 pieces on 13-inch reel)
<b>ER</b> = tape and reel packaging (500 pieces on 13-inch reel)
<b>EP</b> = tape and reel packaging (1000 pieces on 13-inch reel), includes polarity part marking
<b>PE</b> = tape and reel packaging (900 pieces on 13-inch reel), includes polarity part marking

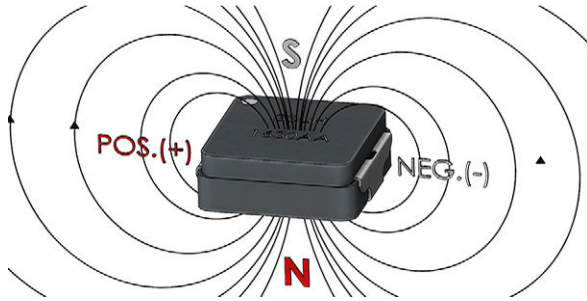
**Notes**

- 1000 piece reels for IHLP4040DZ models contain narrower tape pitch
- 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.

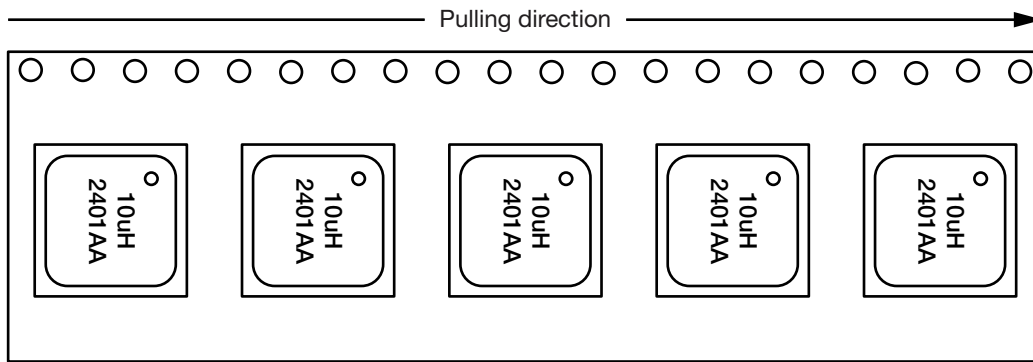
For the IHLP-4040DZ-5A series, the polarity mark also indicates the "start" or "inside" lead of the winding.

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.

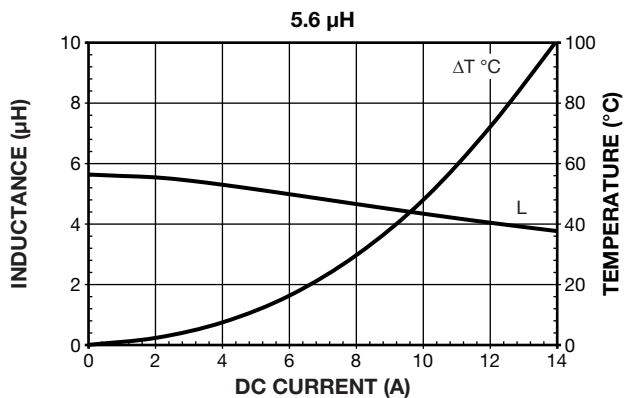
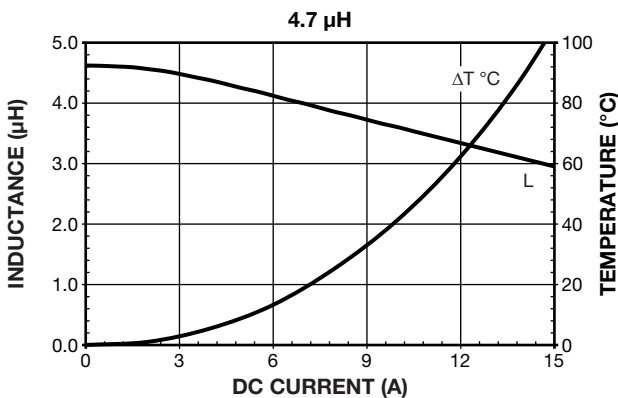
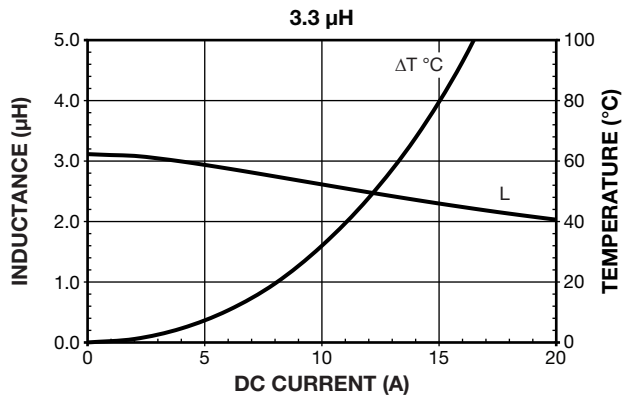
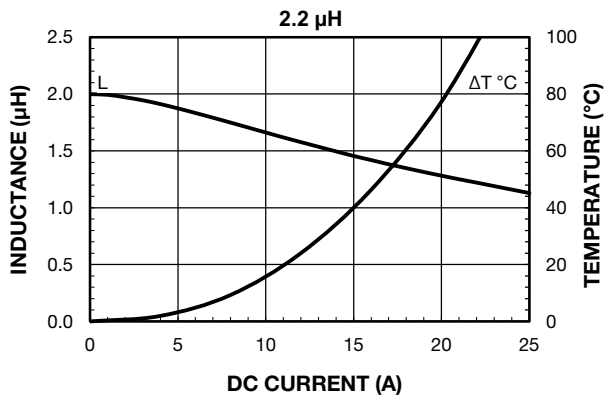
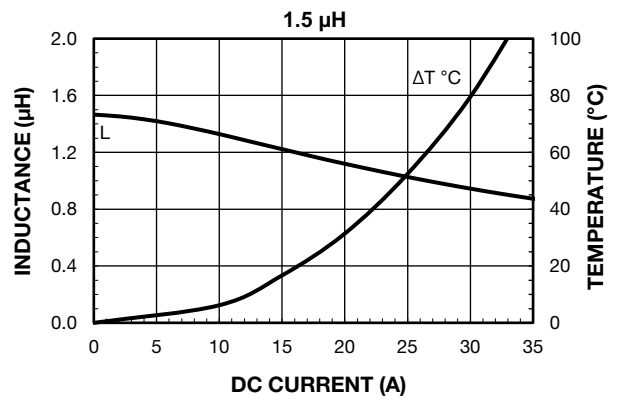
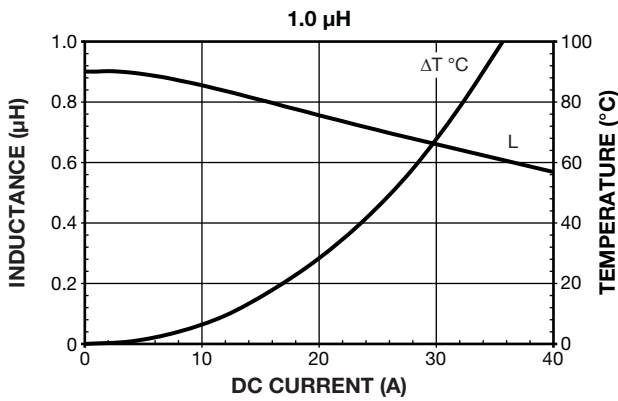
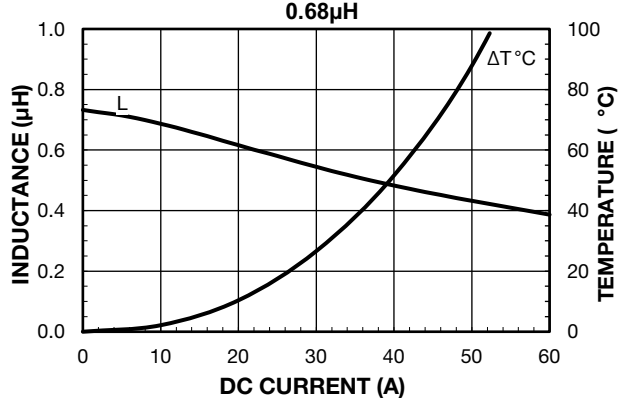
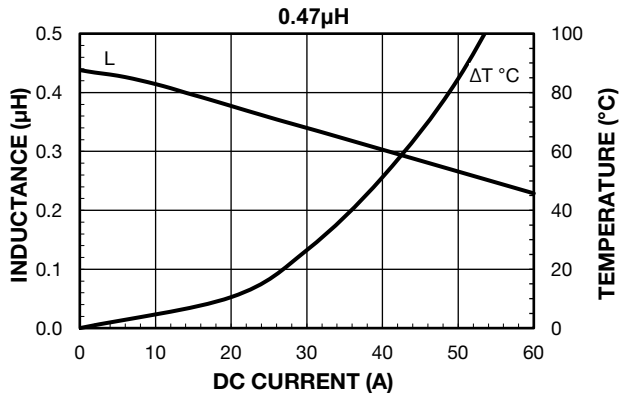
**PART MARKING / POCKET TAPE ORIENTATION**

Part marking and tape orientation for IHLP with polarity marking



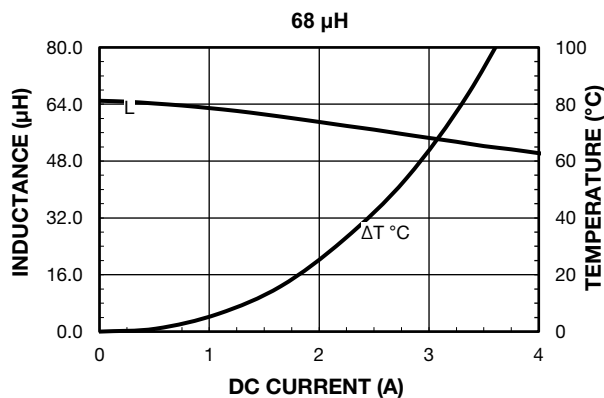
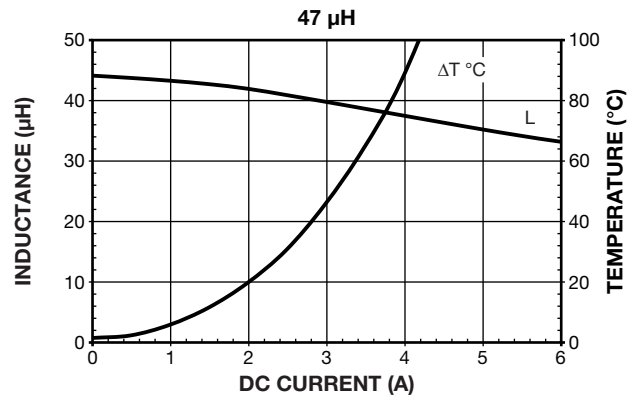
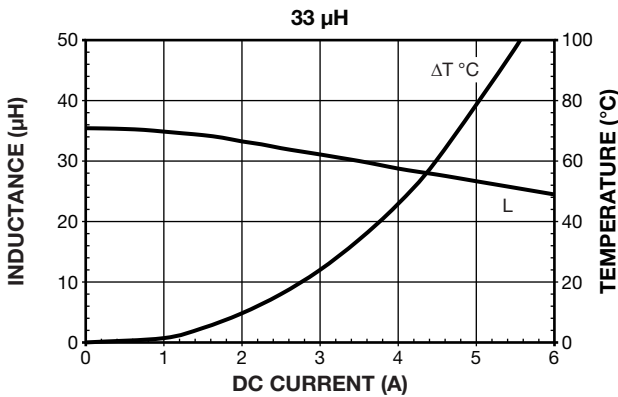
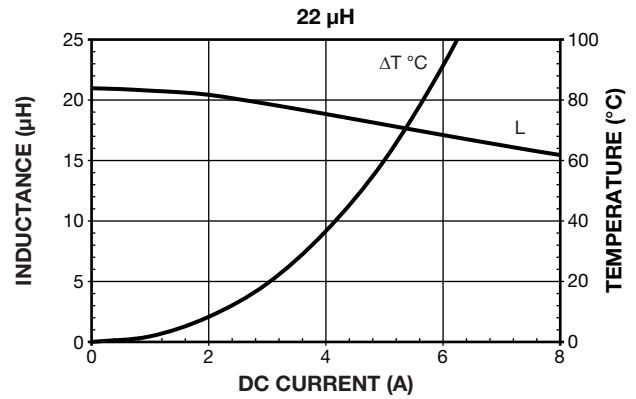
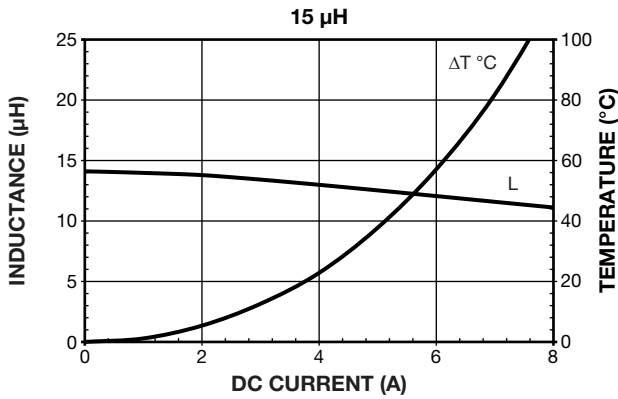
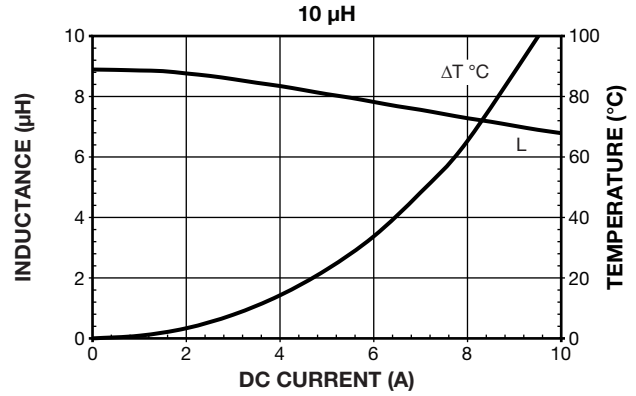
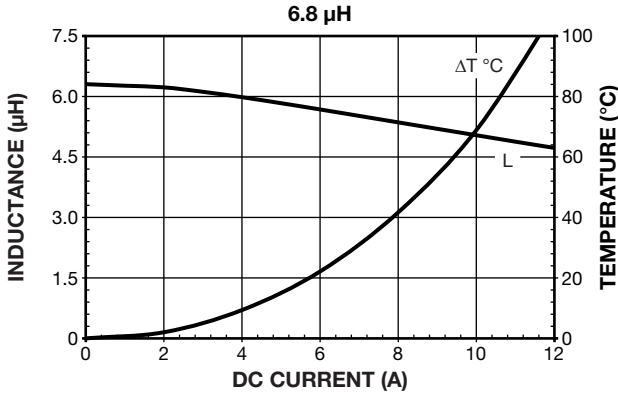


PERFORMANCE GRAPHS



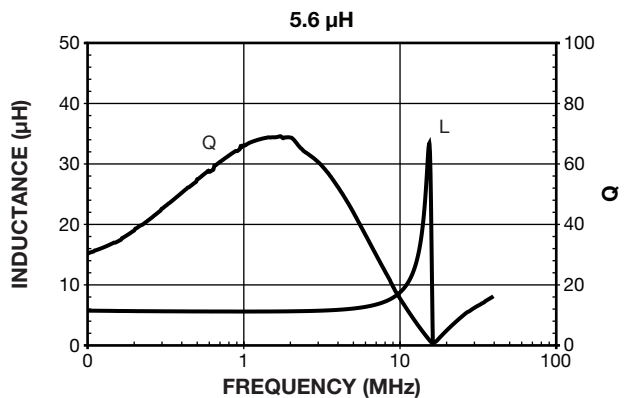
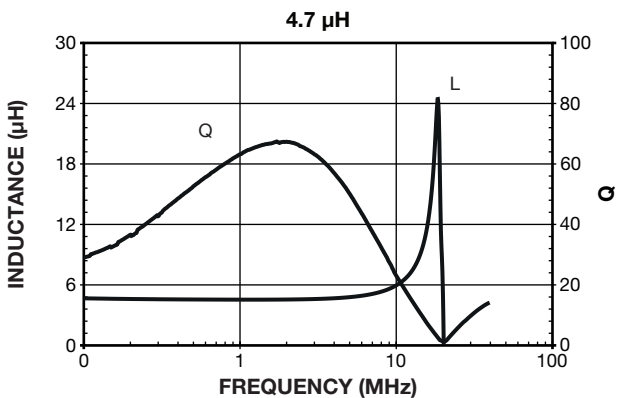
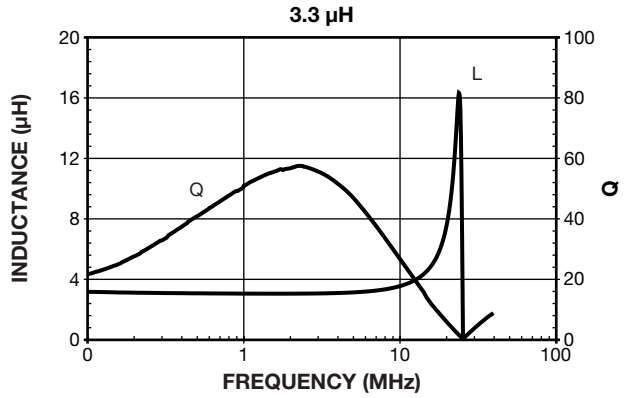
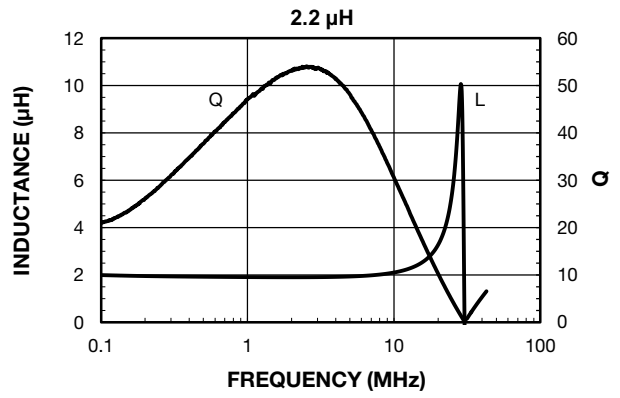
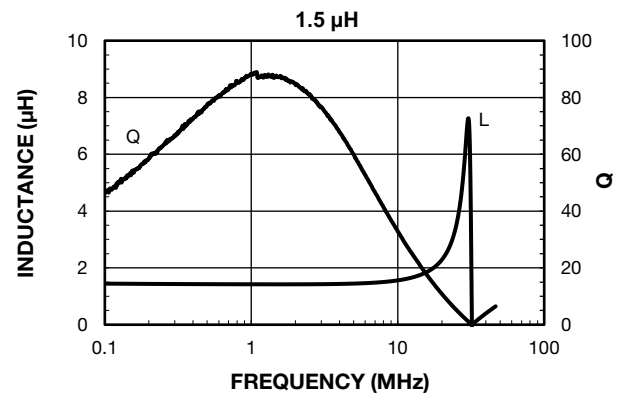
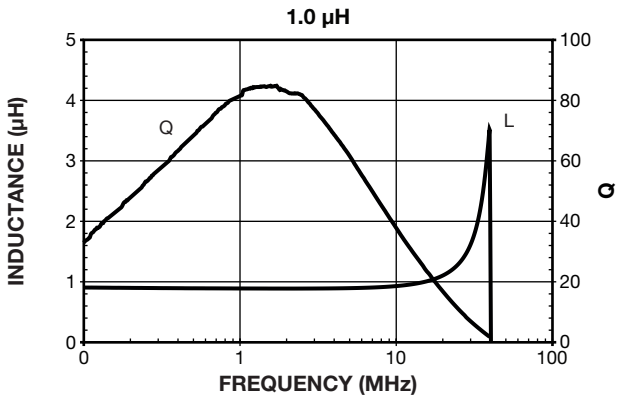
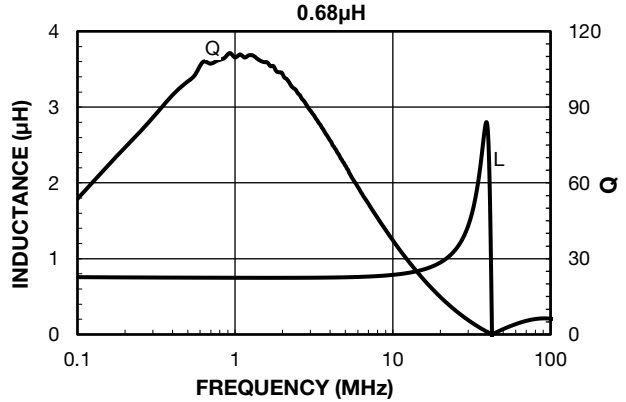
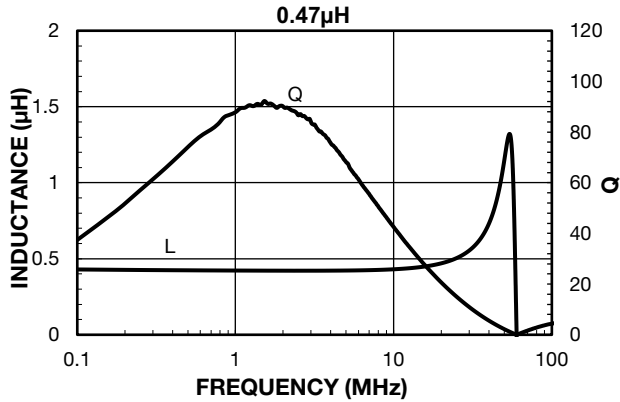


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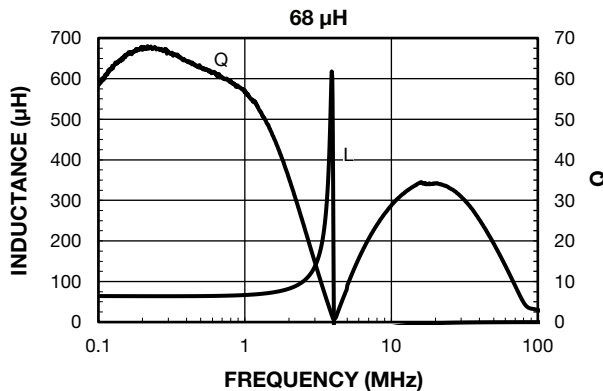
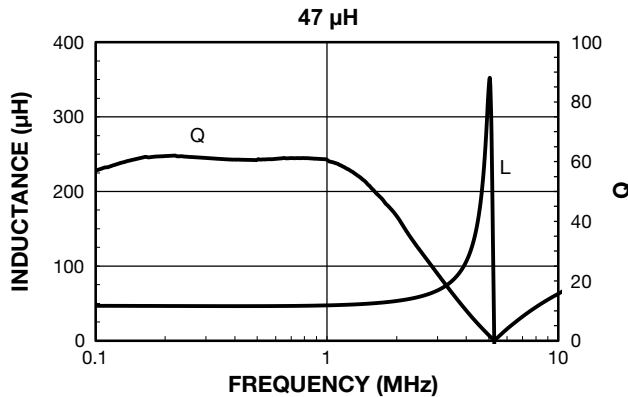
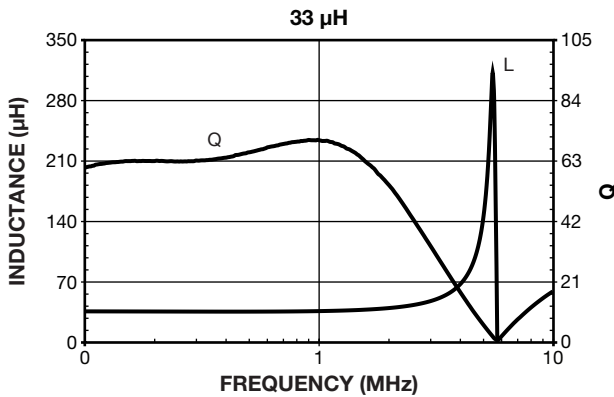
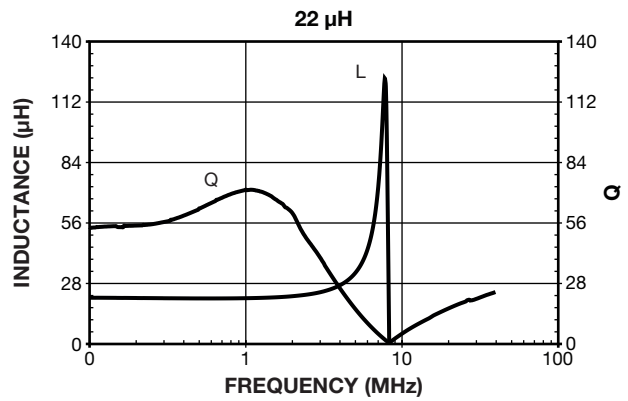
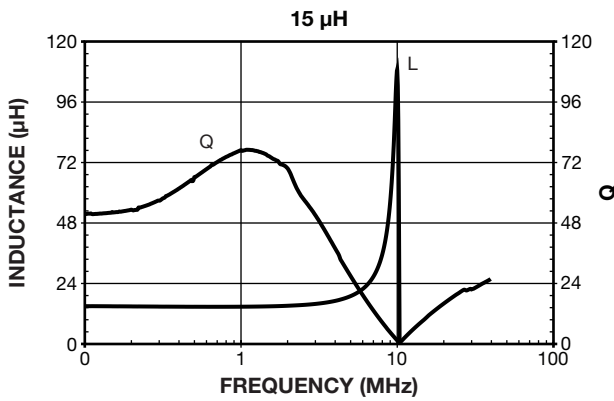
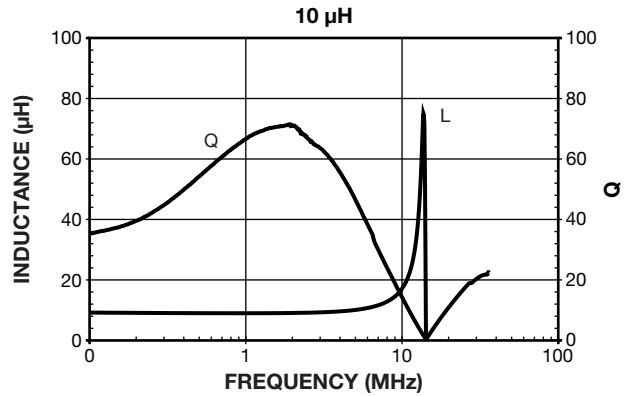
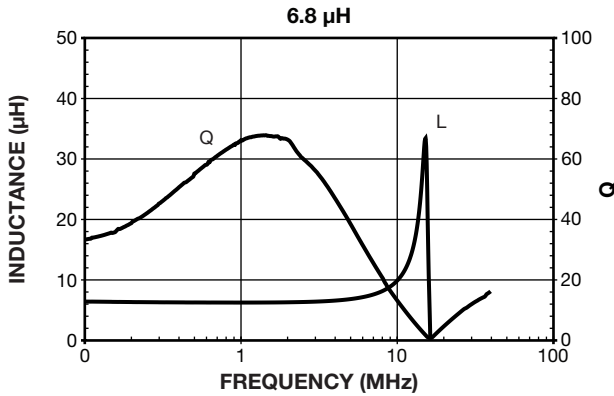


**PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY**





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





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