

# SGIHLP® - Space Grade (MIL-STD-981 Compliant) IHLP® Inductors



## LINKS TO ADDITIONAL RESOURCES



STANDARD ELECTRICAL SPECIFICATIONS					
$L_0$ INDUCTANCE $\pm 20\%$ AT 100 kHz, 0.25 V, 0 A ( $\mu\text{H}$ )	DCR TYP. 25 °C ( $\text{m}\Omega$ )	DCR MAX. 25 °C ( $\text{m}\Omega$ )	HEAT RATING CURRENT DC TYP. (A) <sup>(1)</sup>	SATURATION CURRENT DC TYP. (A) <sup>(2)</sup>	SRF TYP. (MHz)
0.22	0.95	1.12	53.6	68	113
0.33	1.05	1.23	49	44	79.6
0.47	1.27	1.47	43	42	65.6
1.0	1.88	2.08	32	26	33.4
1.2	2.21	2.44	29	24.5	32.0
1.5	2.63	2.89	27.5	23.5	29.2
1.8	2.98	3.26	26	22.5	25.9
2.2	3.66	3.99	25.5	21.5	23.3
3.3	5.31	5.76	20.2	16.7	17.8
4.7	7.64	8.25	17.4	18.5	15.8
5.6	8.74	9.43	15.7	14.2	12.3
6.8	11.53	12.41	14.2	8.7	13.4
7.8	12.72	13.68	13.5	8.5	13.6
8.2	13.32	14.32	13.2	7.6	10.3
10	16.72	17.96	10.9	7.2	10.7
12	19.12	20.53	10.6	6.9	7.59
15	24.12	25.88	8.7	6.8	8.30
22	31.42	33.69	8.3	5.5	6.43

### 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
  - Maximum net weight = 8.5 g
- (1) DC current (A) that will cause an approximate  $\Delta T$  of 40 °C  
 (2) DC current (A) that will cause  $L_0$  to drop approximately 20 %

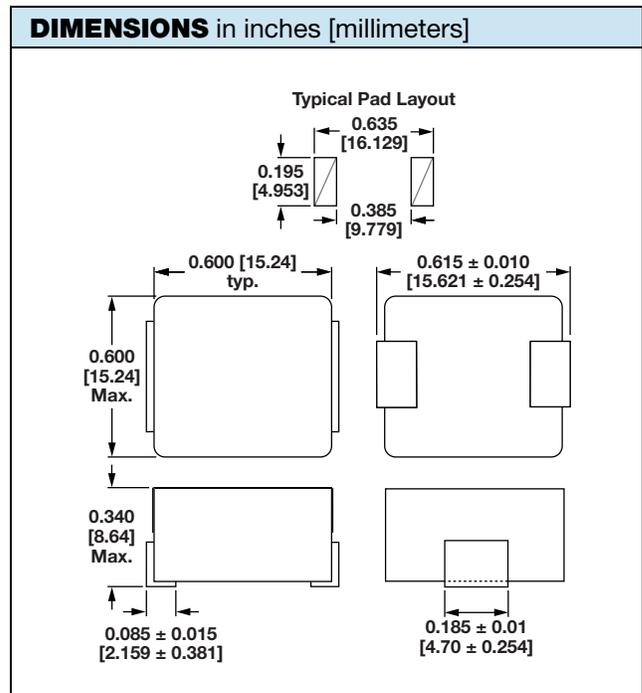
## FEATURES

- MIL-STD-981 class S compliant (see “Screening Codes”)
- High temperature rating, up to 180 °C
- Shielded construction
- Lowest DCR/ $\mu\text{H}$ , in this package size
- Handles high transient current spikes without saturation
- Low profile package with high current saturation levels

## APPLICATIONS

- Low profile, high current power supplies
- High current POL converters
- DC/DC converters in distributed power systems
- Power converter for solar panels
- Noise suppression

## DIMENSIONS in inches [millimeters]





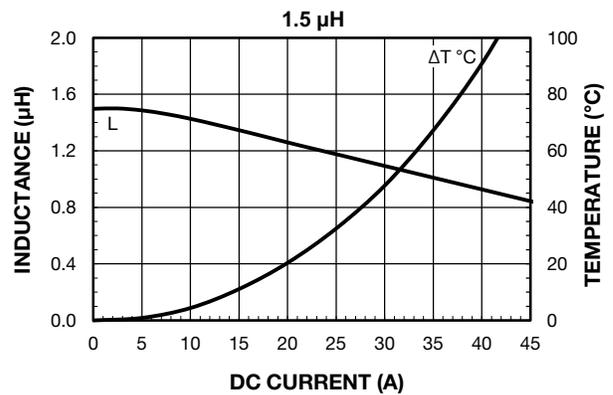
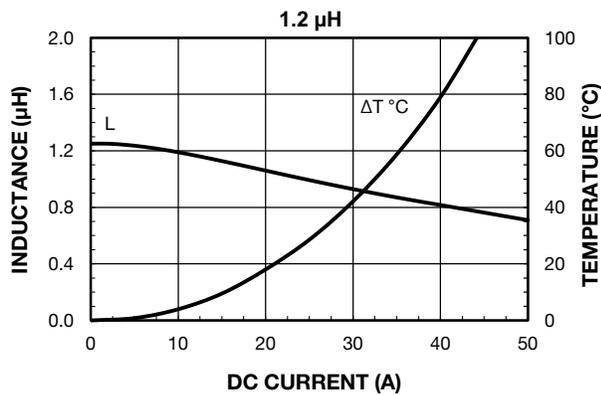
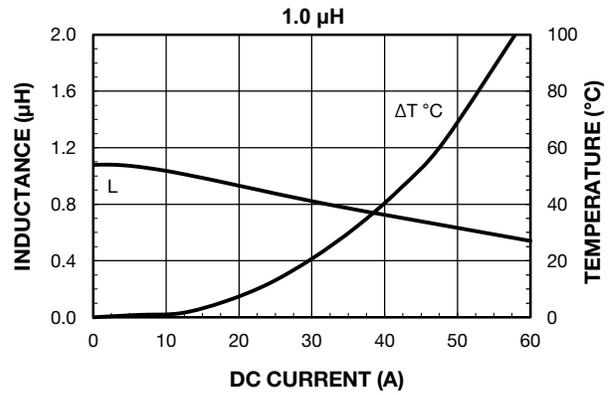
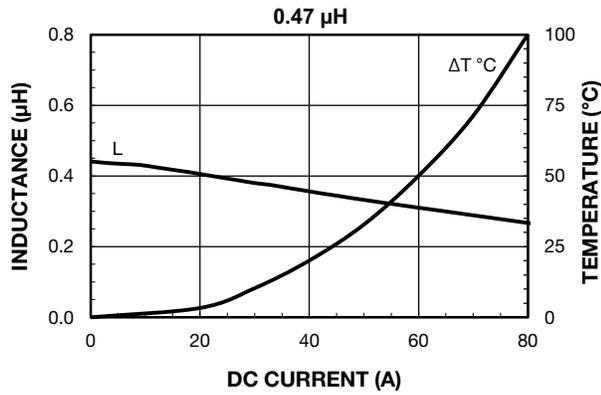
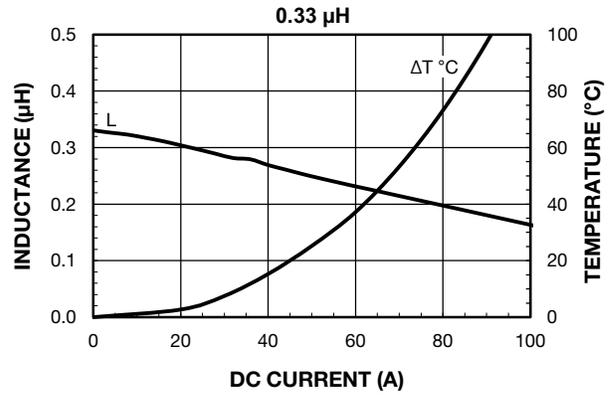
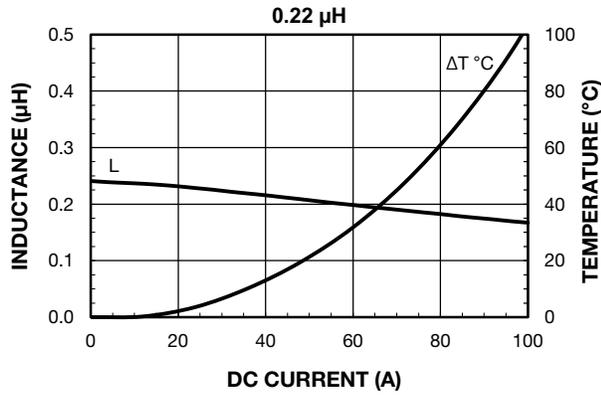
DESCRIPTION			
SGIHLP-60HE-8 MODEL	4.7 $\mu$ H INDUCTANCE VALUE	$\pm 20\%$ INDUCTANCE TOLERANCE	B = bulk / tray, T = tape PACKAGE CODE

GLOBAL PART NUMBER						
S G I H L P	6 0 H E	B	4 R 7	M	8	1 S
PRODUCT FAMILY	SIZE	PACKAGE CODE	INDUCTANCE VALUE	TOLERANCE	SERIES	SCREENING
		B = bulk / tape T = tape	4R7 = 4.7 $\mu$ H	M = $\pm 20\%$ N = $\pm 30\%$		

SCREENING BREAKDOWN						
	P = PRODUCTION SCREENED	L = LOW EARTH ORBIT (LEO) SCREENED	E3 = EEE-INST-002 LEVEL 3 SCREENED	E2 = EEE-INST-002 LEVEL 2 SCREENED	B = MIL-STD-981 TABLE VI CLASS B SCREENED	S = MIL-STD-981 TABLE VI AND XII CLASS S SCREENED
<b>PRODUCTION SCREENING (sample size = 100 %)</b>						
Electrical characteristics (continuity, inductance (LS), turns ratio (TR), phase, leakage inductance, DWV, insulation resistance, DCR)	✓	✓	✓	✓	✓	✓
Mechanical inspection	✓	✓	✓	✓	✓	✓
Visual inspection	✓	✓	✓	✓	✓	✓
<b>QUALITY CONFORMANCE SCREENING (group A) (sample size = 100 %)</b>						
5 cycle thermal shock (-55 °C to +155 °C)	n/a	n/a	✓	n/a	n/a	n/a
10 cycle thermal shock (-55 °C to +155 °C)	n/a	✓	n/a	✓	n/a	n/a
96 hour burn-in at 155 °C (unpowered)	n/a	✓	n/a	✓	✓	✓
25 cycle thermal shock (-55 °C to +155 °C)	n/a	n/a	n/a	n/a	✓	✓
Dielectric withstanding voltage (DWV)	n/a	✓	✓	✓	✓	✓
Dielectric withstanding voltage (DWV) at Altitude	n/a	n/a	✓	✓	n/a	n/a
Insulation resistance (IR)	n/a	✓	✓	✓	✓	✓
Electrical characteristics (continuity, LS, TR, phase, leakage inductance, DCR)	n/a	✓	✓	✓	✓	✓
Radiographic inspection	n/a	n/a	n/a	n/a	n/a	✓
Mechanical inspection (sampled per table V; MIL-STD-981)	n/a	✓	n/a	n/a	✓	✓
Visual inspection (100 %)	n/a	✓	✓	✓	✓	✓
<b>QUALIFICATION INSPECTION (group B) (lot sampling)</b>						
MIL-STD-981 table XII	n/a	n/a	n/a	n/a	n/a	✓
EEE-INST-002 Table 3	n/a	n/a	n/a	Optional	n/a	n/a

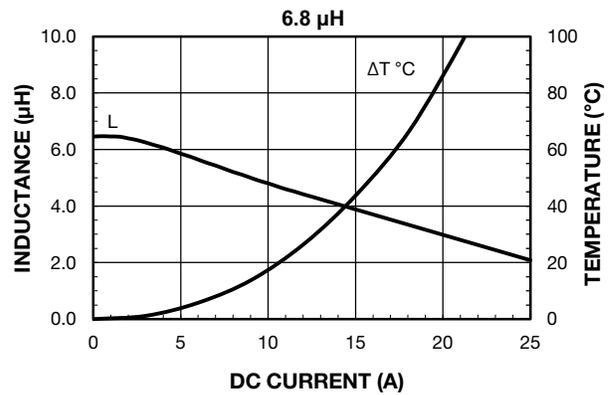
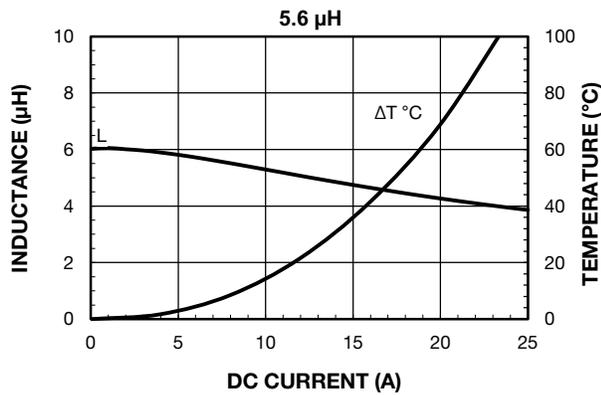
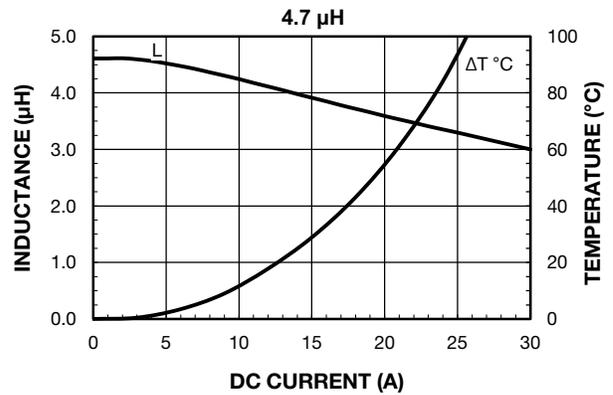
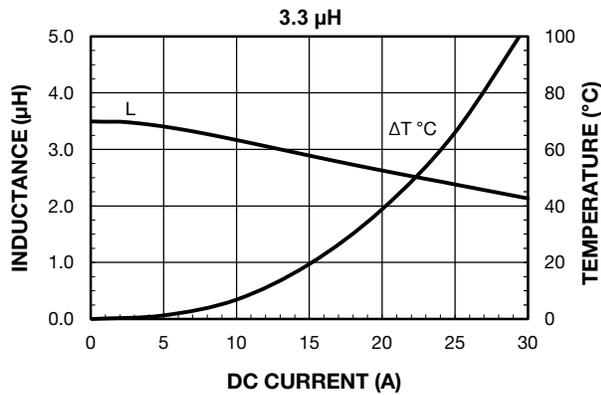
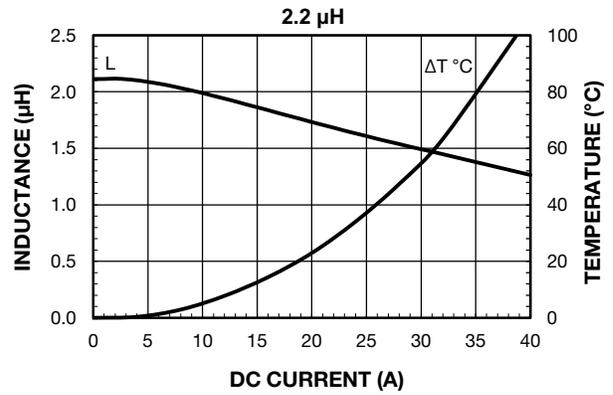
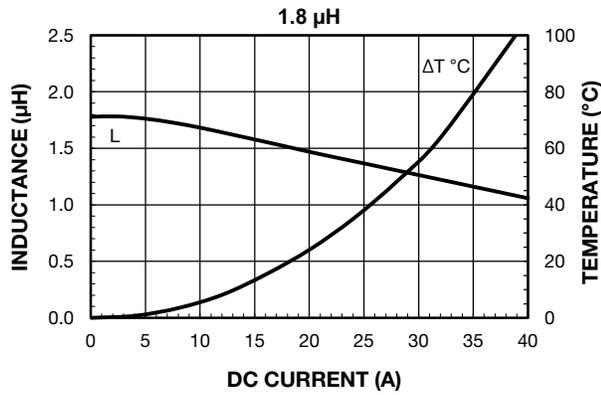


PERFORMANCE GRAPHS



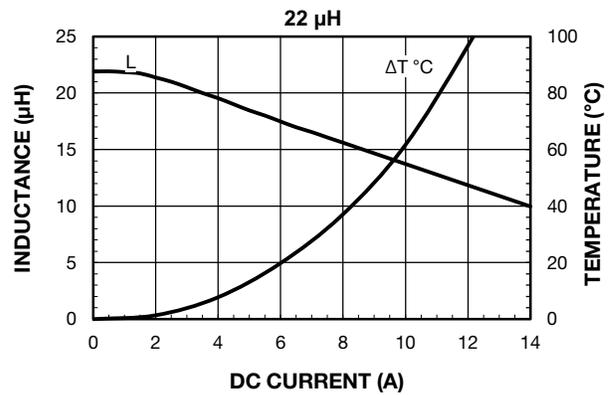
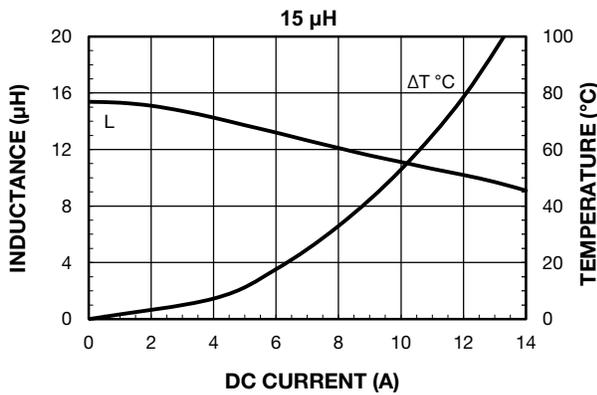
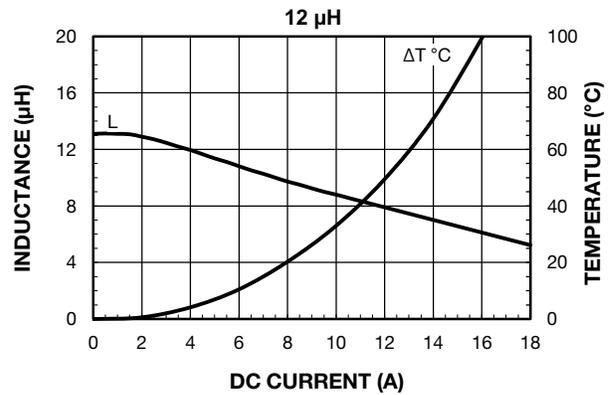
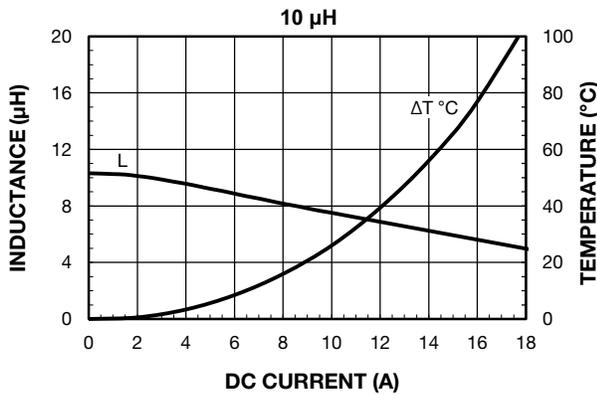
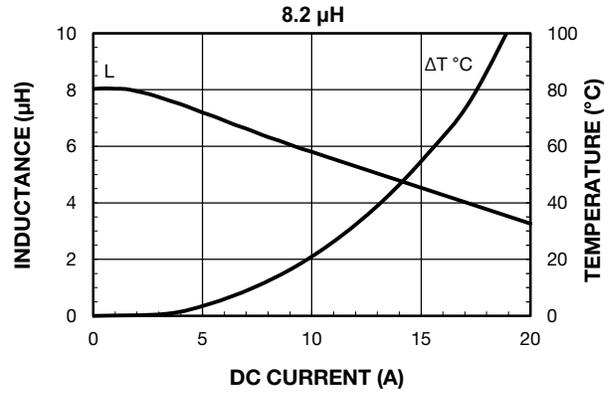
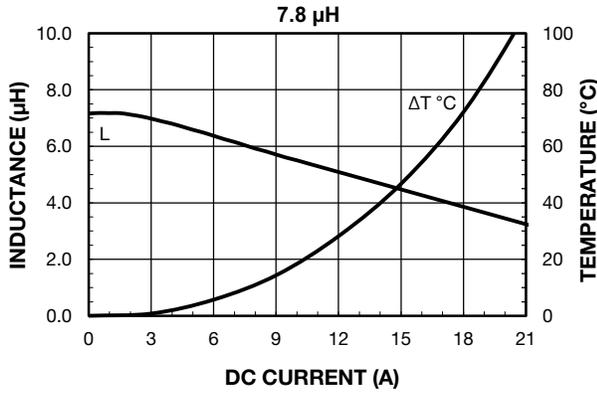


PERFORMANCE GRAPHS



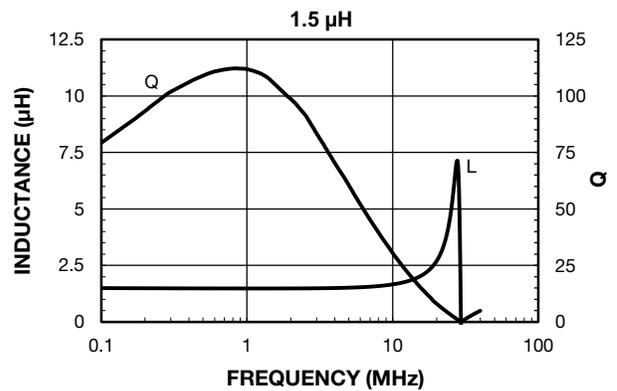
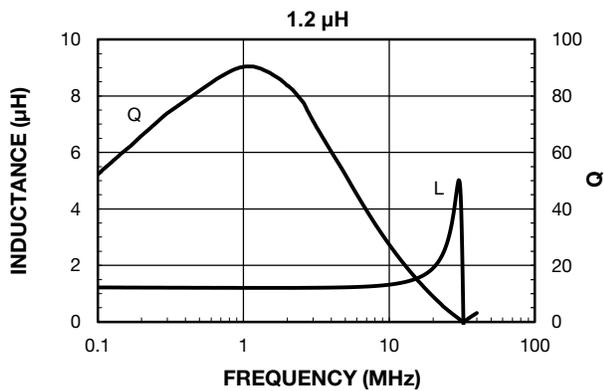
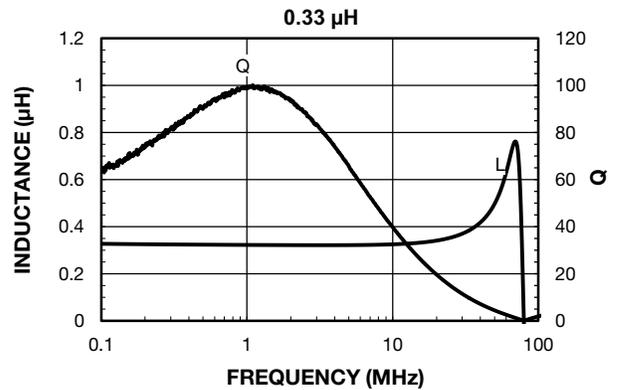
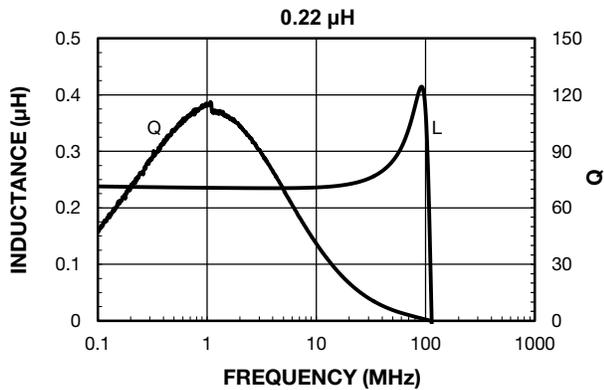
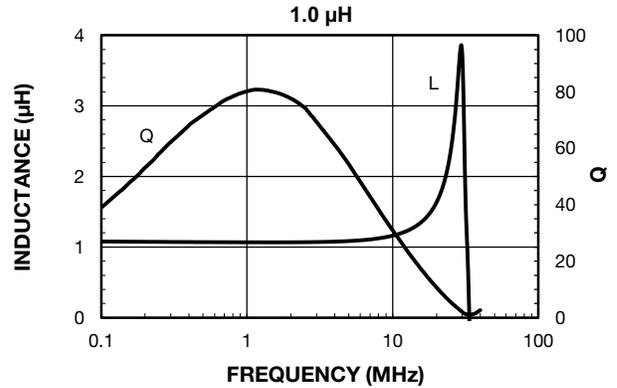
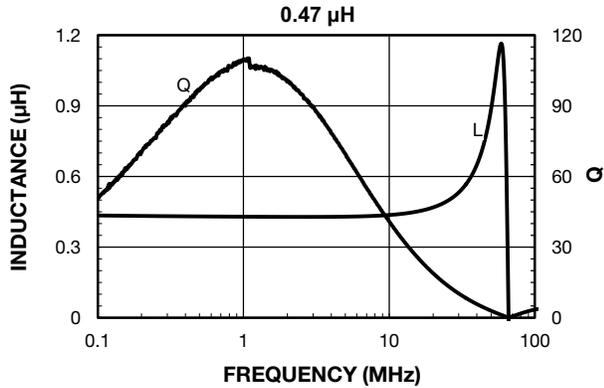


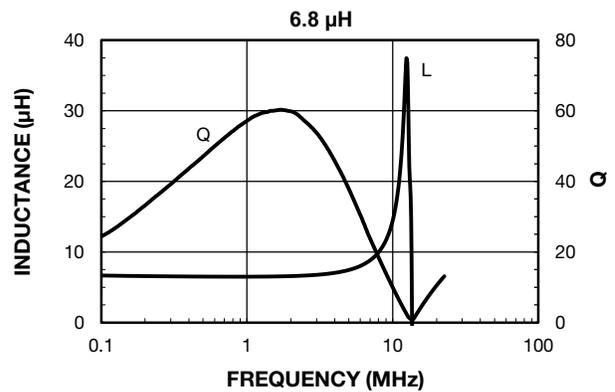
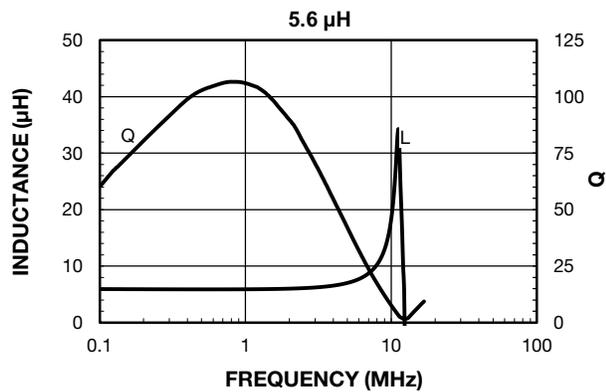
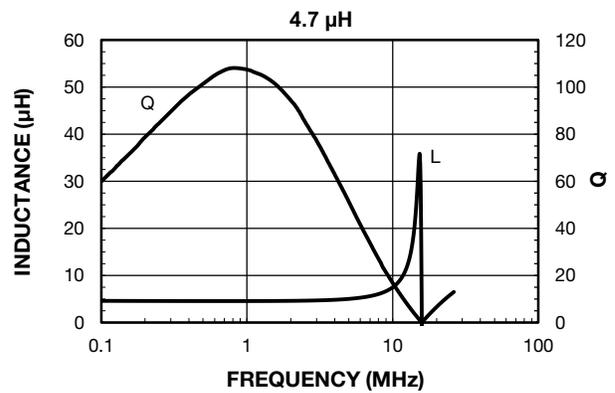
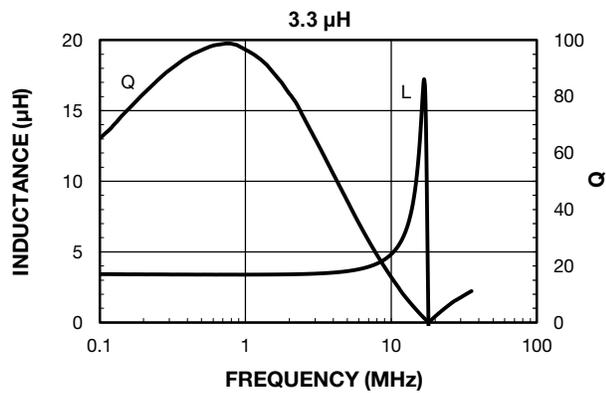
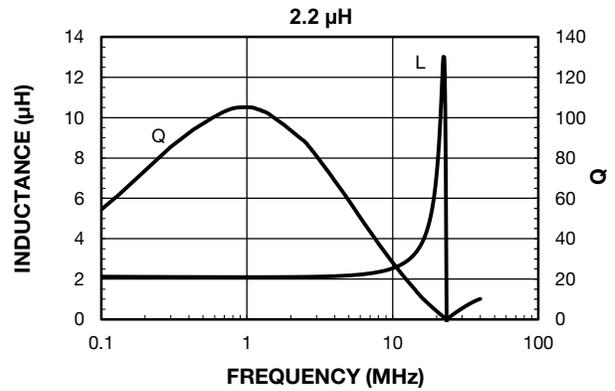
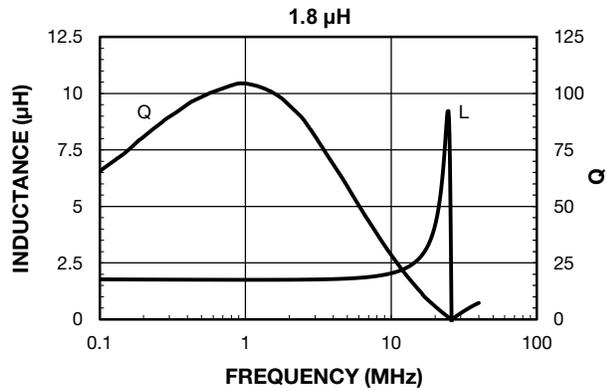
PERFORMANCE GRAPHS





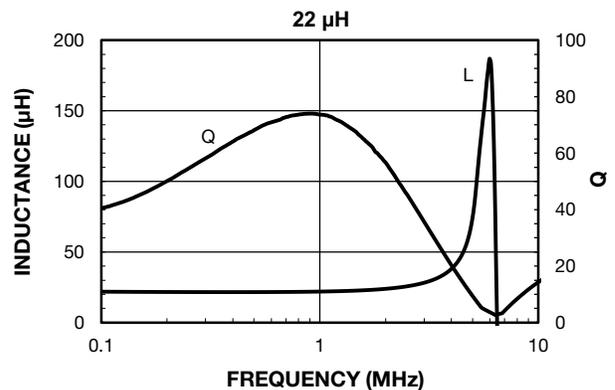
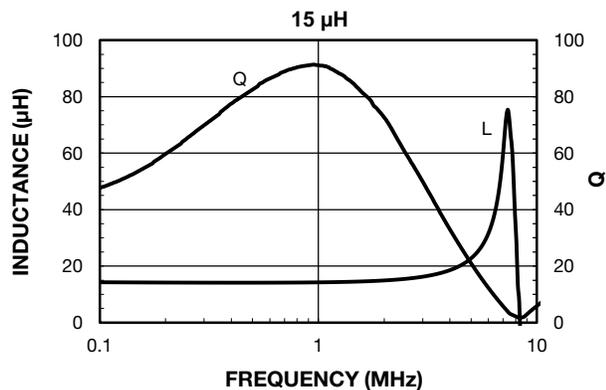
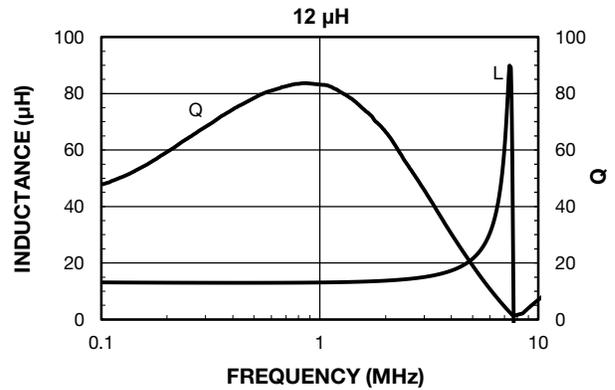
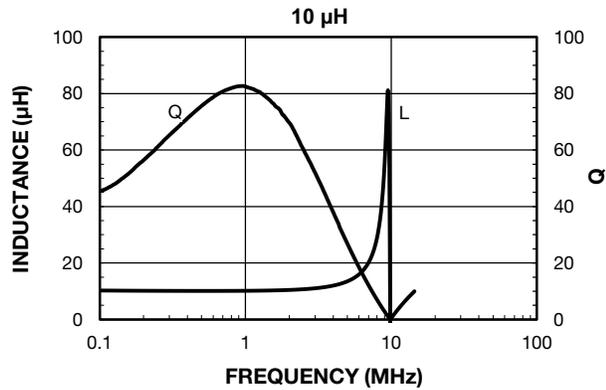
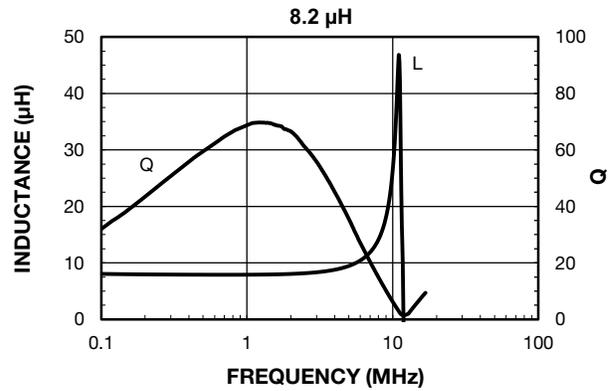
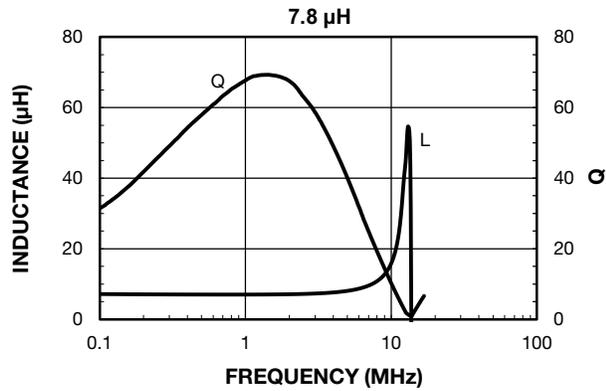
PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY



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




PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY





## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.