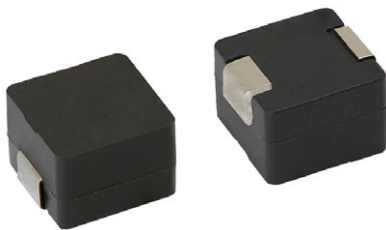




## SGIHLP® - Space Grade (MIL-STD-981 Compliant) IHLP® Inductors



### FEATURES

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

### LINKS TO ADDITIONAL RESOURCES



| STANDARD ELECTRICAL SPECIFICATIONS                                  |                              |                              |                                                            |                                                        |                      |
|---------------------------------------------------------------------|------------------------------|------------------------------|------------------------------------------------------------|--------------------------------------------------------|----------------------|
| $L_0$<br>INDUCTANCE<br>± 20 %<br>AT 100 kHz,<br>0.25 V, 0 A<br>(μH) | DCR<br>TYP.<br>25 °C<br>(mΩ) | DCR<br>MAX.<br>25 °C<br>(mΩ) | HEAT<br>RATING<br>CURRENT<br>DC TYP.<br>(A) <sup>(1)</sup> | SATURATION<br>CURRENT<br>DC TYP.<br>(A) <sup>(2)</sup> | SRF<br>TYP.<br>(MHz) |
| 0.22                                                                | 1.74                         | 1.93                         | 36.0                                                       | 32.0                                                   | 117                  |
| 0.47                                                                | 2.45                         | 2.62                         | 27.0                                                       | 19.0                                                   | 77                   |
| 0.68                                                                | 3.37                         | 3.60                         | 21.5                                                       | 16.2                                                   | 51                   |
| 0.82                                                                | 3.77                         | 4.07                         | 20.0                                                       | 16.0                                                   | 49                   |
| 1.0                                                                 | 4.65                         | 4.97                         | 19.0                                                       | 16.2                                                   | 45                   |
| 1.5                                                                 | 6.85                         | 7.32                         | 15.5                                                       | 14.0                                                   | 35                   |
| 2.2                                                                 | 11.77                        | 12.57                        | 11.5                                                       | 14.0                                                   | 32                   |
| 3.3                                                                 | 15.47                        | 16.55                        | 11.3                                                       | 11.8                                                   | 23                   |
| 4.7                                                                 | 26.67                        | 28.63                        | 7.2                                                        | 9.1                                                    | 18                   |
| 5.6                                                                 | 29.67                        | 31.74                        | 6.9                                                        | 9.0                                                    | 18                   |
| 10                                                                  | 50.07                        | 53.57                        | 5.1                                                        | 5.2                                                    | 13                   |
| 15                                                                  | 62.07                        | 66.41                        | 4.8                                                        | 3.6                                                    | 10                   |
| 22                                                                  | 103.07                       | 110.28                       | 3.7                                                        | 3.8                                                    | 9                    |
| 33                                                                  | 149.07                       | 159.50                       | 3.1                                                        | 3.2                                                    | 6.1                  |

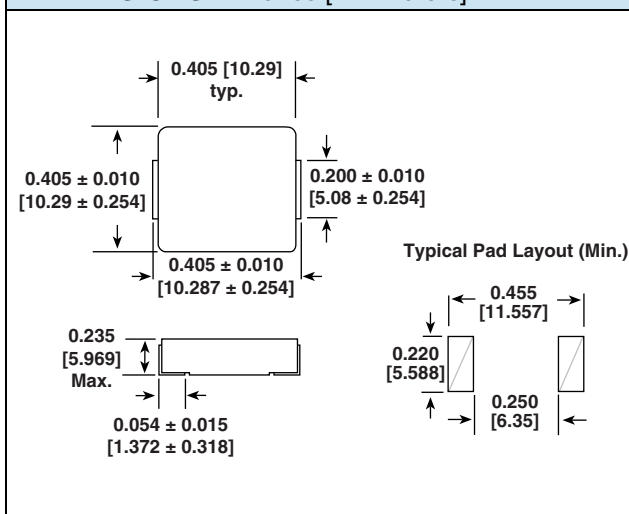
### Notes

- 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) = 50 V
  - Maximum net weight = 3.5 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 %

### 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**

|                      |                              |                               |                                  |
|----------------------|------------------------------|-------------------------------|----------------------------------|
| <b>SGIHLP-41FZ-8</b> | <b>2.2 <math>\mu</math>H</b> | <b><math>\pm 20 \%</math></b> | <b>B = bulk / tray, T = tape</b> |
| MODEL                | INDUCTANCE VALUE             | INDUCTANCE TOLERANCE          | PACKAGE CODE                     |

**GLOBAL PART NUMBER**

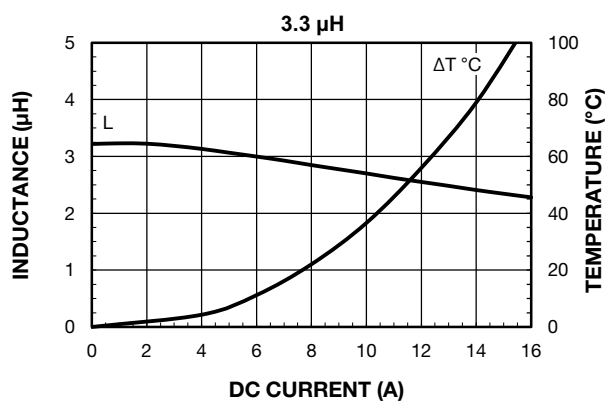
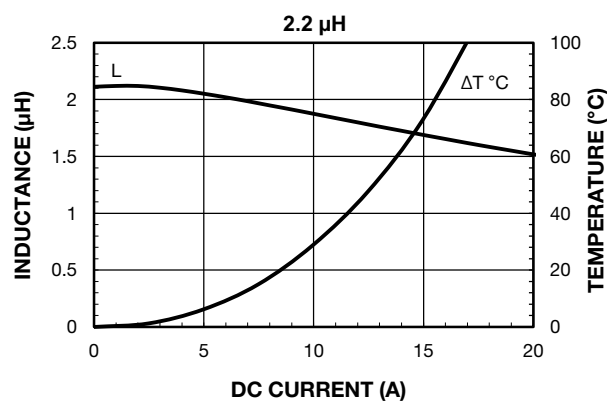
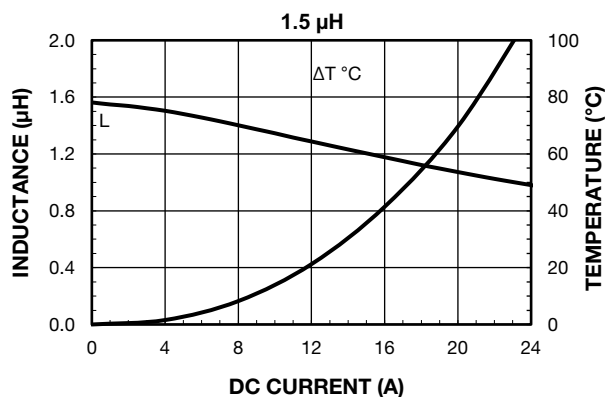
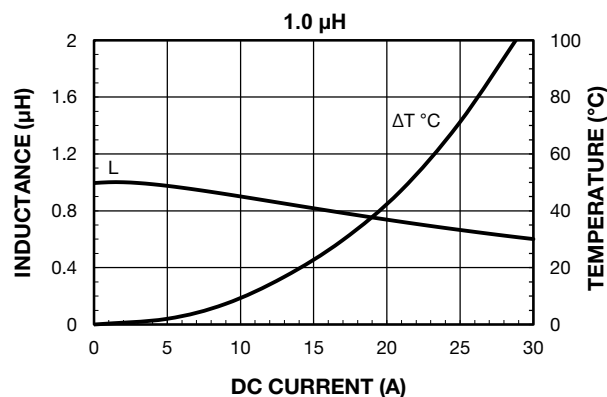
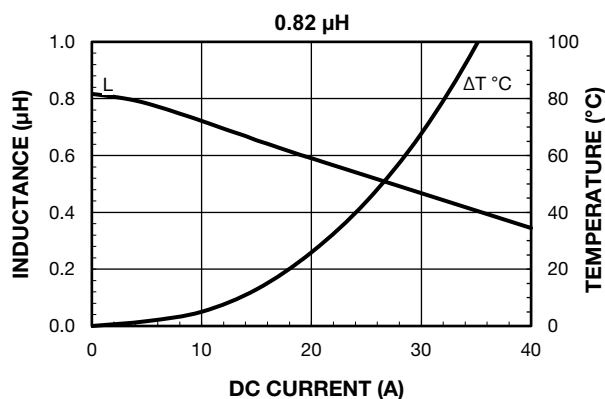
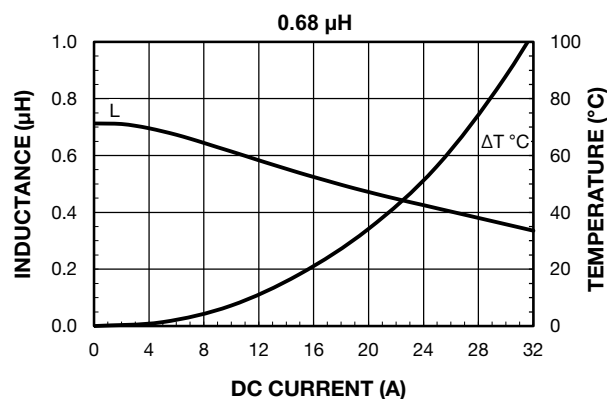
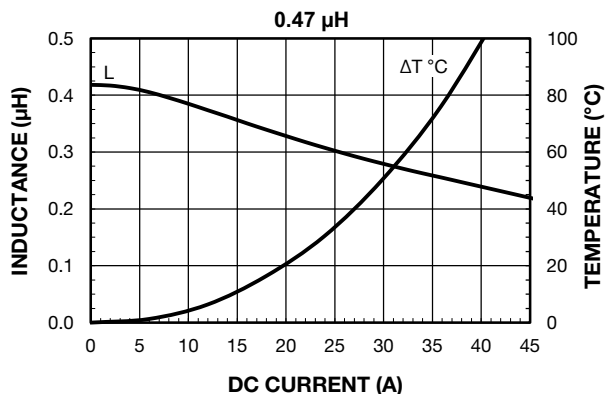
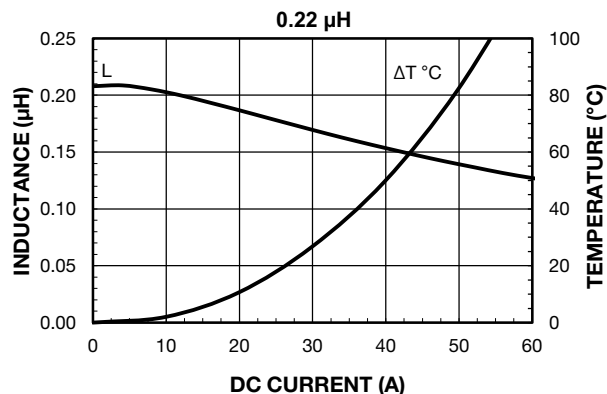
|                |          |          |          |          |          |          |          |          |          |                                           |                          |          |          |                                                |          |           |          |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------------------------------------|--------------------------|----------|----------|------------------------------------------------|----------|-----------|----------|
| <b>S</b>       | <b>G</b> | <b>I</b> | <b>H</b> | <b>L</b> | <b>P</b> | <b>4</b> | <b>1</b> | <b>F</b> | <b>A</b> | <b>B</b>                                  | <b>2</b>                 | <b>R</b> | <b>2</b> | <b>M</b>                                       | <b>8</b> | <b>1</b>  | <b>S</b> |
| PRODUCT FAMILY |          |          |          |          |          | SIZE     |          |          |          | PACKAGE CODE                              | INDUCTANCE VALUE         |          |          | TOLERANCE                                      | SERIES   | SCREENING |          |
|                |          |          |          |          |          |          |          |          |          | <b>B</b> = bulk / tape<br><b>T</b> = tape | <b>2R2</b> = 2.2 $\mu$ H |          |          | <b>M</b> = $\pm$ 20 %<br><b>N</b> = $\pm$ 30 % |          |           |          |

**SCREENING BREAKDOWN**

|                                                                                                                                        | <b>P =<br/>PRODUCTION<br/>SCREENED</b> | <b>L =<br/>LOW EARTH<br/>ORBIT (LEO)<br/>SCREENED</b> | <b>E3 =<br/>EEE-INST-002<br/>LEVEL 3<br/>SCREENED</b> | <b>E2 =<br/>EEE-INST-002<br/>LEVEL 2<br/>SCREENED</b> | <b>B =<br/>MIL-STD-981<br/>TABLE VI CLASS B<br/>SCREENED</b> | <b>S =<br/>MIL-STD-981<br/>TABLE VI AND XII<br/>CLASS S<br/>SCREENED</b> |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------|
| <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                                                   |                                                              |                                                                          |
| 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                                                                      |

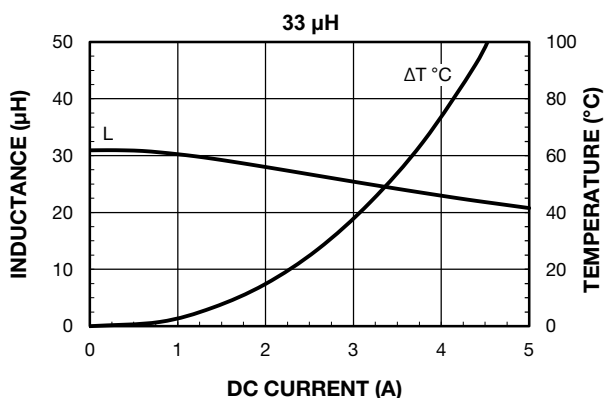
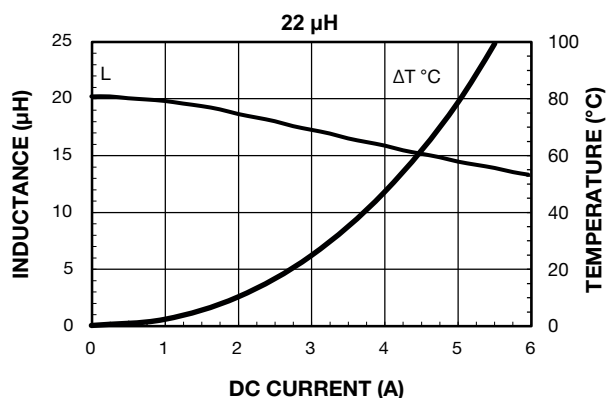
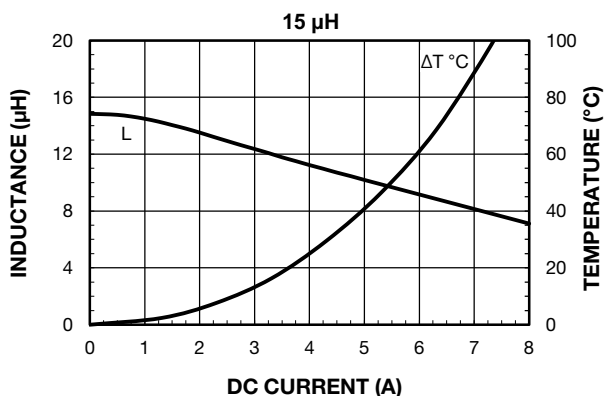
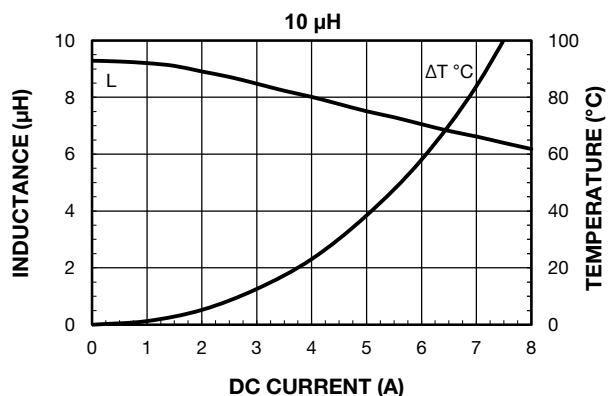
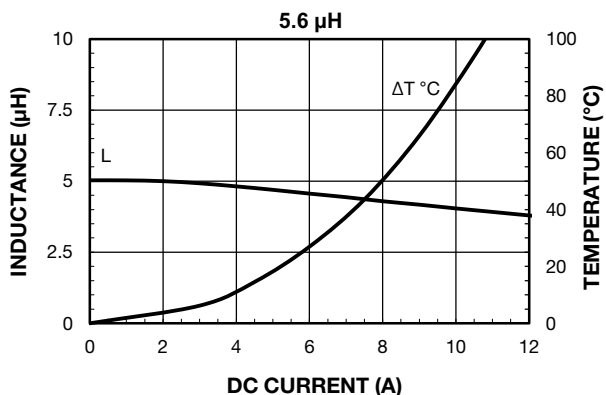
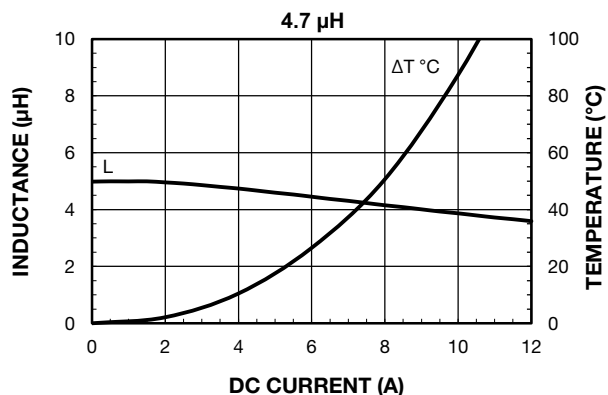


PERFORMANCE GRAPHS



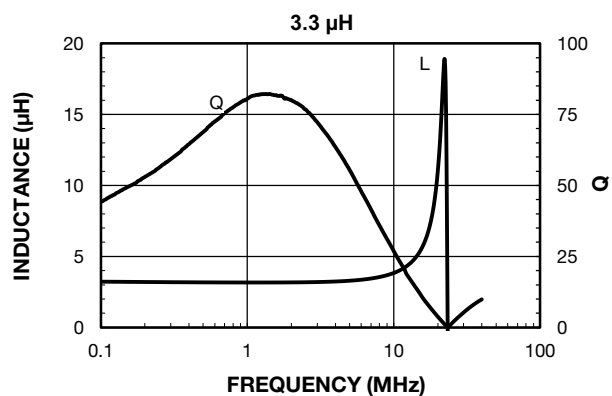
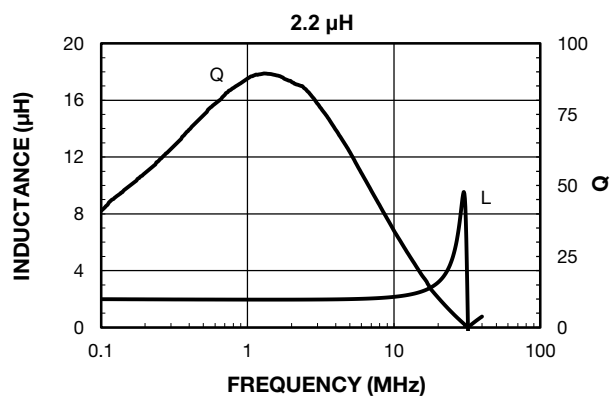
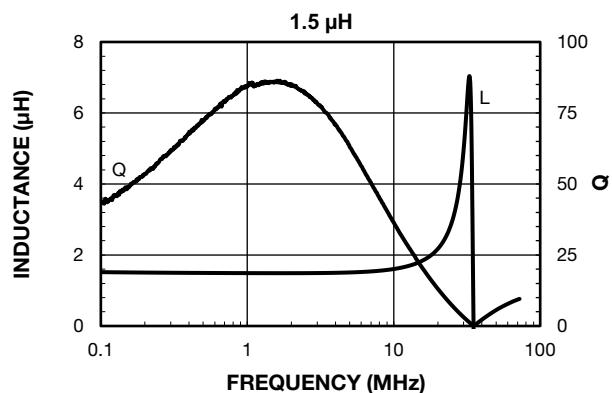
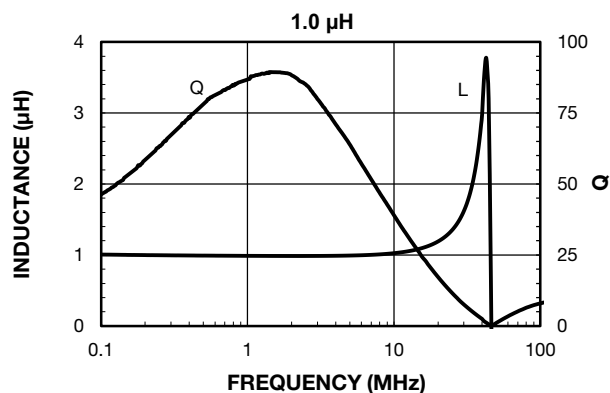
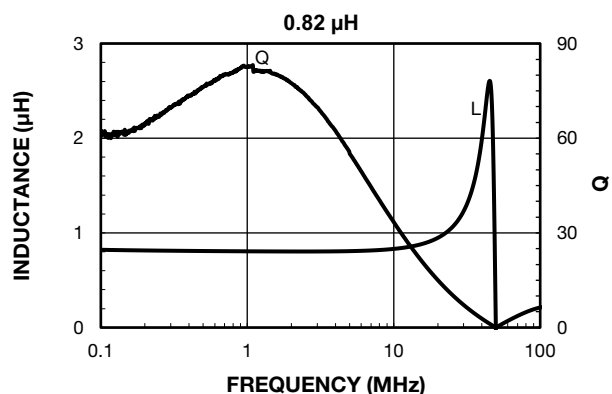
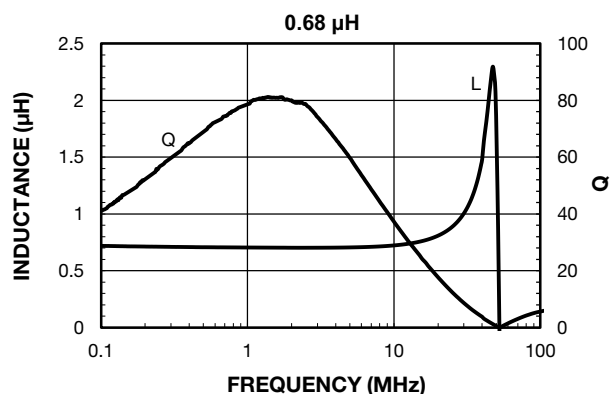
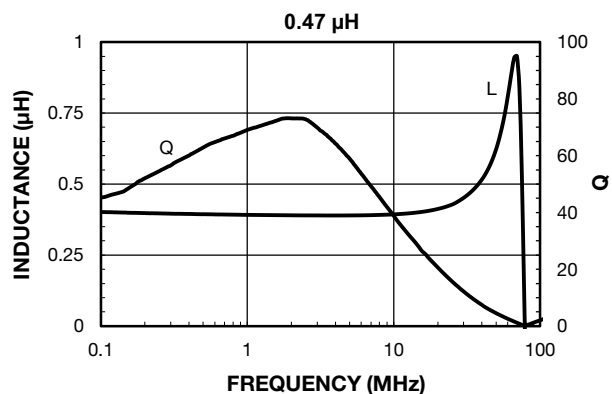
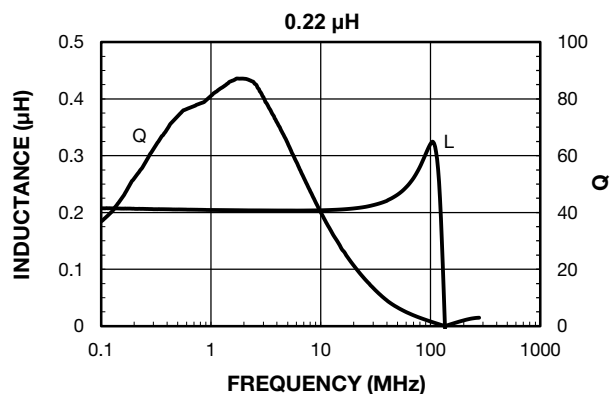


PERFORMANCE GRAPHS



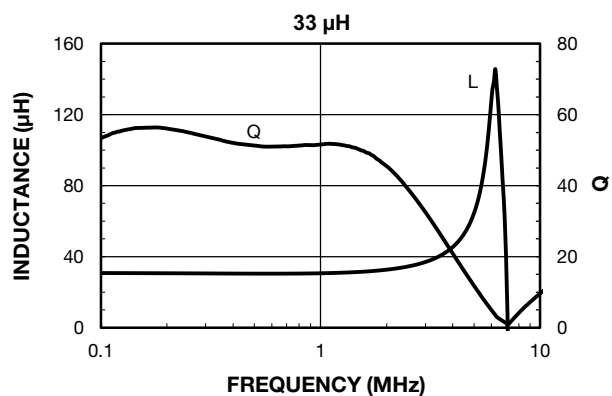
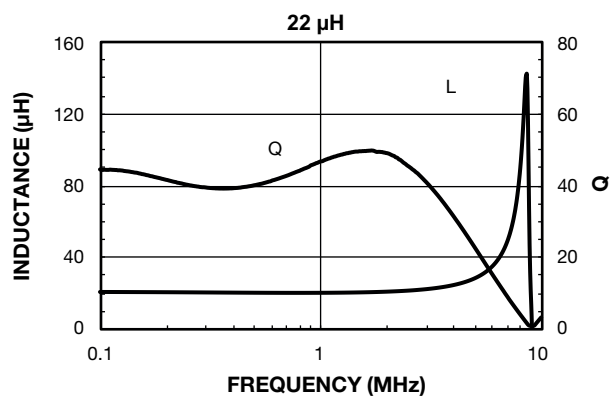
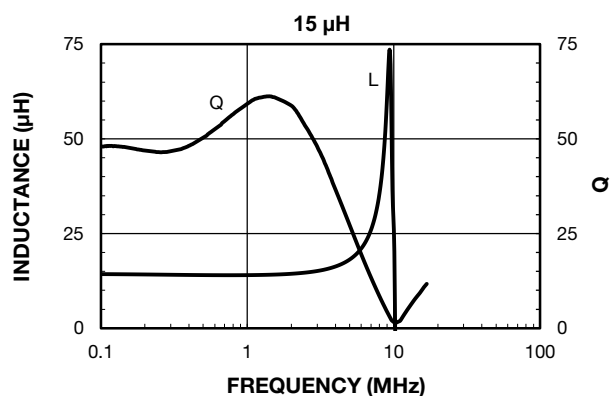
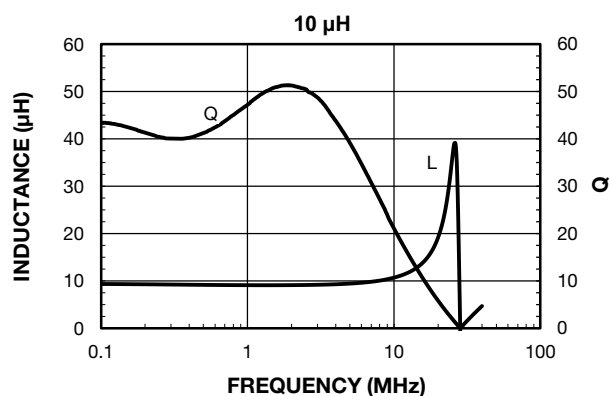
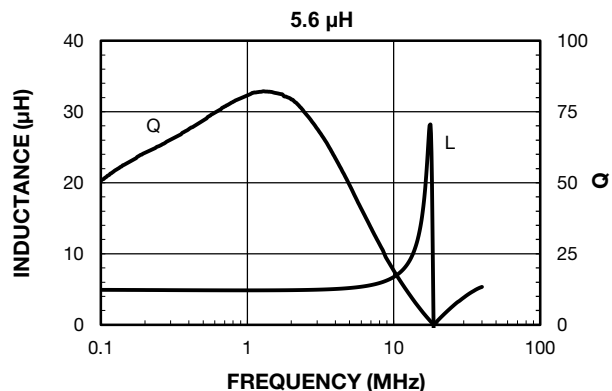
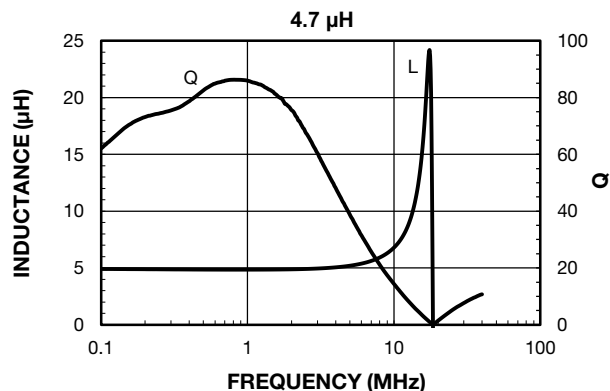


PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY





PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY





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