**High Current Through-Hole Inductor, High Temperature Series**

**FEATURES**
- Shielded construction
- Excellent DC/DC energy storage up to 1 MHz to 2 MHz
- Filter inductor applications up to SRF (see “Standard Electrical Specifications” table)
- Handles high transient current spikes without saturation
- Ultra low buzz noise, due to composite construction
- High temperature, up to 155 °C
- AEC-Q200 qualified
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

**APPLICATIONS**
- Engine and transmission control units
- Diesel injection drivers
- DC/DC converters for entertainment/navigation systems
- Noise suppression for motors: windshield wipers / power seats / power mirrors / heating and ventilation blowers / HID lighting
- LED drivers

**STANDARD ELECTRICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>INDUCTANCE VALUE</th>
<th>DCR TYP. AT 100 kHz, 0.25 V, 0 A (μH)</th>
<th>DCR MAX. AT 155 °C (mΩ)</th>
<th>HEAT RATING CURRENT AT DC TYP. (A)</th>
<th>SATURATION CURRENT AT DC TYP. (A)</th>
<th>SRF TYP. (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.47 μH</td>
<td>0.26 0.30 125 112 57.25</td>
<td>0.26 0.30 90 65 29.30</td>
<td>0.77 72 64 17.25</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
</tr>
<tr>
<td>1.0 μH</td>
<td>0.43 0.50 90 65 29.30</td>
<td>0.43 0.50 72 64 17.25</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
</tr>
<tr>
<td>2.2 μH</td>
<td>0.70 0.77 72 64 17.25</td>
<td>0.70 0.77 72 64 17.25</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
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<tr>
<td>3.3 μH</td>
<td>1.40 1.50 57 62 15.8</td>
<td>1.40 1.50 57 62 15.8</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
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<tr>
<td>4.7 μH</td>
<td>1.70 1.82 50 52 11.36</td>
<td>1.70 1.82 50 52 11.36</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
</tr>
<tr>
<td>6.8 μH</td>
<td>1.84 1.97 44.5 44 9.35</td>
<td>1.84 1.97 44.5 44 9.35</td>
<td>1.50 57 62 15.8</td>
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<td>1.84 44.5 44 9.35</td>
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<tr>
<td>8.2 μH</td>
<td>2.82 3.00 34.5 32 9.24</td>
<td>2.82 3.00 34.5 32 9.24</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
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<td>10 μH</td>
<td>3.20 3.64 33 30 7.76</td>
<td>3.20 3.64 33 30 7.76</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
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<tr>
<td>15 μH</td>
<td>4.45 4.76 26 20 6.17</td>
<td>4.45 4.76 26 20 6.17</td>
<td>1.50 57 62 15.8</td>
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<td>1.84 44.5 44 9.35</td>
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<tr>
<td>22 μH</td>
<td>6.39 6.83 21.0 23 5.61</td>
<td>6.39 6.83 21.0 23 5.61</td>
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<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
</tr>
<tr>
<td>33 μH</td>
<td>10.6 11.3 15.9 18 4.20</td>
<td>10.6 11.3 15.9 18 4.20</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
</tr>
<tr>
<td>47 μH</td>
<td>13.2 14.6 14.0 16.2 2.99</td>
<td>13.2 14.6 14.0 16.2 2.99</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
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<tr>
<td>68 μH</td>
<td>25.6 27.4 10.5 9.6 2.95</td>
<td>25.6 27.4 10.5 9.6 2.95</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
</tr>
<tr>
<td>82 μH</td>
<td>30.7 32.2 8.8 6.0 2.04</td>
<td>30.7 32.2 8.8 6.0 2.04</td>
<td>1.50 57 62 15.8</td>
<td>1.82 50 52 11.36</td>
<td>1.84 44.5 44 9.35</td>
<td>1.84 44.5 44 9.35</td>
</tr>
</tbody>
</table>

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.

(1) DC current (A) that will cause an approximate ΔT of 40 °C
(2) DC current (A) that will cause L0 to drop approximately 20 %

**DESCRIPTION**

<table>
<thead>
<tr>
<th>ITHH-1125KZ-5A</th>
<th>4.7 μH</th>
<th>± 20 %</th>
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</table>

**GLOBAL PART NUMBER**

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<th>MODEL</th>
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<th>PACKAGE CODE</th>
<th>INDUCTANCE VALUE</th>
<th>INDUCTANCE TOLERANCE</th>
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<td>1</td>
<td>H</td>
<td>1</td>
<td>1</td>
<td>5</td>
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</tbody>
</table>

**PATENT(S):** www.vishay.com/patents
This Vishay product is protected by one or more United States and international patents.

Revision: 21-Jan-2020

For technical questions, contact: magnetics@vishay.com
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PERFORMANCE GRAPHS

0.47 μH

2.2 μH

4.7 μH

8.2 μH

1.0 μH

3.3 μH

6.8 μH

10 μH

Temperature (°C)

Inductance (μH)

DC Current (A)

ΔT °C
PERFORMANCE GRAPHS

15 µH

22 µH

33 µH

47 µH

68 µH

100 µH

INDUCTANCE (μH)

TEMPERATURE (°C)

DC CURRENT (A)

ΔT °C
PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY

- **0.47 µH**
- **1.0 µH**
- **2.2 µH**
- **3.3 µH**
- **4.7 µH**
- **6.8 µH**
- **8.2 µH**
- **10 µH**

The graphs show the inductance and Q factor as functions of frequency for different inductance values, ranging from 0.47 µH to 10 µH. Each graph represents a specific inductance value and illustrates how the inductance and Q factor change with frequency.
PERFORMANCE GRAPHS: INDUCTANCE AND Q VS. FREQUENCY

15 μH

22 μH

33 μH

47 μH

68 μH

100 μH

INDUCTANCE (μH) vs. FREQUENCY (MHz)

Q

L

INDUCTANCE (μH) vs. FREQUENCY (MHz)

Q

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INDUCTANCE (μH) vs. FREQUENCY (MHz)

Q

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INDUCTANCE (μH) vs. FREQUENCY (MHz)

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INDUCTANCE (μH) vs. FREQUENCY (MHz)

Q

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INDUCTANCE (μH) vs. FREQUENCY (MHz)
INTERACTIVE 3D MODEL (0.47 µH)

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INTERACTIVE 3D MODEL (1.0 µH)

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INTERACTIVE 3D MODEL (2.2 µH)

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INTERACTIVE 3D MODEL (3.3 µH)

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INTERACTIVE 3D MODEL (4.7 µH)

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INTERACTIVE 3D MODEL (6.8 µH)

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INTERACTIVE 3D MODEL (8.2 µH)

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INTERACTIVE 3D MODEL (10 µH)

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INTERACTIVE 3D MODEL (15 µH)

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INTERACTIVE 3D MODEL (22 µH)

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INTERACTIVE 3D MODEL (33 µH)

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INTERACTIVE 3D MODEL (47 µH)

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INTERACTIVE 3D MODEL (68 µH)

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INTERACTIVE 3D MODEL (100 µH)

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