7. Specifications

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8. Magnetic Properties

- Fig.12 Core loss - Flux density

- Fig.14 AL Value - NI

NOTICES

1. When designing a component using this product and applying the designated components in any system, use the product only in accordance with the application range specified for Hitachi Metals, Ltd. Hitachi Metals, Ltd. will not be responsible for any damage or accident when this product is used beyond the application range specified for Hitachi Metals, Ltd. As a part of the reliability assurance, Hitachi Metals, Ltd. makes no warranties for this product against any defects or errors in the design or effect of this product due to use beyond the application range specified for Hitachi Metals, Ltd. Hitachi Metals, Ltd. makes no warranties or conditions for any defects or errors in the design or effect of this product due to use beyond the application range specified for Hitachi Metals, Ltd.

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3. The user is responsible for checking the effectiveness of the product in radiation environment.

4. If no warranty, right or license in connection with any patent, trademark, copyright, or any other intellectual property right shall be expressed or implied, given or granted to any party by Hitachi Metals, Ltd. under this catalog.

5. When designing a component using this product and applying the designated components in any system, use the product only in accordance with the application range specified for Hitachi Metals, Ltd. Hitachi Metals, Ltd. will not be responsible for any damage or accident when this product is used beyond the application range specified for Hitachi Metals, Ltd.

6. This series is suited to coils for higher switching power electronics applications.

7. The user is responsible for checking the effectiveness of the product in radiation environment.

8. This series is suited to coils for higher switching power electronics applications.

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The user is responsible for checking the effectiveness of the product in radiation environment.

For safety and the proper usage, you are requested to approve our product specifications or to request the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice. This series is suited to coils for higher switching power electronics applications.
High Performance Amorphous Powder Core HLM50

1. Features

- Low loss amorphous powder core suitable for high efficiency power converter.
- High Saturation Flux Density, suitable for high efficiency power converter. Suitable for PFC Circuit and Boost/Buck Converter.
- Lower core loss than Sendust powder core.
- Higher saturation flux density compared to Sendust powder core.

2. Comparison

For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.

3. Specifications

<table>
<thead>
<tr>
<th>Material Name</th>
<th>OD size(mm)</th>
<th>Height(mm)</th>
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4. Magnetic Properties

For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.

5. Specifications

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6. Magnetic Properties

For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.

Load loss amorphous powder core suitable for high efficiency power converter.
Low loss amorphous powder core suitable for high efficiency power converter.

1. Features

1. High Saturation Flux Density B_s:
   Higher saturation flux density compared to Sendust powder core.

2. Low Core Loss:
   Lower core loss than Sendust powder core.

3. For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.

4. Three Types of Core are in Production Lineup
   Bare core, cased core and over-coated core can be applied depending on your applications.

2. Comparison

For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.

3. Specifications

Designation of P/N

Amorphous Powder Core HLM50

Material Name

– Fe-6.5%Si

Class: F

Incremental permeability $\mu'$ vs Magnetic Field

Flux density $B_m$ vs Magnetic Field

Core loss $P_{cv}$ vs Frequency

AL Value $(nH/N^2)$ vs Magnetic Field

Magnetic Properties

Material Name

– Fe-6.5%Si

Class: F

Incremental permeability $\mu'$ vs Magnetic Field

Flux density $B_m$ vs Magnetic Field

Core loss $P_{cv}$ vs Frequency

AL Value $(nH/N^2)$ vs Magnetic Field

Magnetic Properties

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4. Magnetic Properties

Material Name

– Fe-6.5%Si

Class: F

Incremental permeability $\mu'$ vs Magnetic Field

Flux density $B_m$ vs Magnetic Field

Core loss $P_{cv}$ vs Frequency

AL Value $(nH/N^2)$ vs Magnetic Field

Magnetic Properties

For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.

5. Specifications

Amorphous Powder Core HLM50 case

Material Name

– Fe-6.5%Si

Class: F

Incremental permeability $\mu'$ vs Magnetic Field

Flux density $B_m$ vs Magnetic Field

Core loss $P_{cv}$ vs Frequency

AL Value $(nH/N^2)$ vs Magnetic Field

Magnetic Properties

For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.

6. Magnetic Properties

Material Name

– Fe-6.5%Si

Class: F

Incremental permeability $\mu'$ vs Magnetic Field

Flux density $B_m$ vs Magnetic Field

Core loss $P_{cv}$ vs Frequency

AL Value $(nH/N^2)$ vs Magnetic Field

Magnetic Properties

For safety and the proper usage, you are requested to approve our product specifications or to transact the approval sheet for product specification before ordering. This catalog and its contents are subject to change without notice.
### Specifications

#### HLM50 Series

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#### Designation of P/N

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- **HLM50 OR-41.3-15.6-22.9H-CE**
- **HLM50 OR-48.8-18.5-24.4H-CE**
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- **HLM50 OR-22.7-7.5-11.8H-CE**

### Magnetic Properties

#### Fig. 11: Incremental permeability - Magnetic field

#### Fig. 12: Core loss - Flux density

#### Fig. 13: AL Value - NI

### Power Electronics Components [Catalog]

**NOTICES**

1. When designing a component using this product and applying the designed components in any system, use this product only under the conditions specified in Hitachi Metals Ltd’s Catalogue. The condition of coil ferrite is defined in the Catalogue, and the condition of ferromagnetic powder core in this Catalogue is not defined. Once the conditions for using a component are changed, the values of the product characteristics, such as the magnetic permeability, vary. In order to ensure the reliability of the product, take appropriate measures for systems, such as coils, to avoid any accident resulting in any bodily injury and/or property damage. The user is responsible for safety measures such as using a resistor to prevent current spikes, creating a safety circuit, and keeping the physical state of the component under control in the radiation environment.

2. The user is responsible for checking the fitness of the product for radiation environment. The fitness of the product for radiation environment shall be determined by the user and Hitachi Metals Ltd. will not be responsible for any damage or accident when this product is used beyond the specified condition. Ensure that the user will check the fitness of the product for radiation environment before use. Safety measures necessary for system protection, such as using an overvoltage protective device to prevent high voltage surge from being applied to the product, should be taken. The user is responsible for taking such measures.

3. The user is responsible for checking the fitness of the component for a radiation environment. The fitness of the component for a radiation environment shall be determined by the user and Hitachi Metals Ltd. will not be responsible for any damage or accident when this product is used beyond the specified condition. Ensure that the user will check the fitness of the product for radiation environment before use. Safety measures necessary for system protection, such as using an overvoltage protective device to prevent high voltage surge from being applied to the product, should be taken. The user is responsible for taking such measures.

4. The user is responsible for checking the fitness of the product for vibration environment. The fitness of the product for vibration environment shall be determined by the user and Hitachi Metals Ltd. will not be responsible for any damage or accident when this product is used beyond the specified condition. Ensure that the user will check the fitness of the product for vibration environment before use. Safety measures necessary for system protection, such as using an overvoltage protective device to prevent high voltage surge from being applied to the product, should be taken. The user is responsible for taking such measures.

5. The user is responsible for checking the fitness of the product for shock environment. The fitness of the product for shock environment shall be determined by the user and Hitachi Metals Ltd. will not be responsible for any damage or accident when this product is used beyond the specified condition. Ensure that the user will check the fitness of the product for shock environment before use. Safety measures necessary for system protection, such as using an overvoltage protective device to prevent high voltage surge from being applied to the product, should be taken. The user is responsible for taking such measures.

6. The user is responsible for checking the fitness of the product for acceleration environment. The fitness of the product for acceleration environment shall be determined by the user and Hitachi Metals Ltd. will not be responsible for any damage or accident when this product is used beyond the specified condition. Ensure that the user will check the fitness of the product for acceleration environment before use. Safety measures necessary for system protection, such as using an overvoltage protective device to prevent high voltage surge from being applied to the product, should be taken. The user is responsible for taking such measures.

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**Fig. 11 Incremental permeability - Magnetic field**

**Fig. 12 Core loss - Flux density**

**Fig. 13 AL Value - NI**