

⚠ NOTICES

1. When designing a component using this product and applying the designed components in any system, use this product only in the guaranteed range specified by Proterial, Ltd. Do not use the product beyond guaranteed values specified by Proterial, Ltd. Proterial, Ltd. will not be responsible for any damage or accident when this product is used beyond guaranteed values specified by Proterial, Ltd. Even when the product is used within the specification given by Proterial, Ltd., take appropriate measures for system, such as failsafe, to avoid any accident resulting in any bodily injury and/or property damage. It is the responsibility of a user to take such measures.
2. These products are designed to be used for general electronic devices (e.g. office machinery, communication devices, measurement devices, household appliances, etc.). Performance and safety of this product for applications in the special fields which require particularly high reliability and quality, and whose application is potentially life threatening or could lead to physical harm in the event of malfunction is not confirmed. Such fields may include: space science, aviation, nuclear energy, combustion control, transportation, safety devices and medical equipment. Be sure to examine the performance and safety when the product is used for these applications, and take appropriate measures for system, such as failsafe, to avoid any accident resulting in any bodily injury and/or property damage. It is the responsibility of a user to take such measures.
3. Take appropriate measures, such as using an overvoltage protective device to prevent high voltage surge from being applied to the product if direct lightning surge, inductive lightning surge, switching surge, etc. is likely to be applied to this product. This product may deteriorate in function when high-voltage surge is applied. It is the responsibility of the user to take such measures.
4. The user is responsible for checking the fitness of the production in radiation environment.
5. In no event shall Proterial, Ltd. be responsible for any claim, loss or damages caused by defect in design by the user.
6. The products and their specifications are subject to change without notice. Please check the latest catalog, technical documents or specifications before your final design, procurement or use of the products.
7. No warranty, right or license in connection with any patent, trademark, copyright, or any other intellectual property right shall be, expressly or impliedly, given or granted to any party by Proterial, Ltd. under this catalog.
8. Please contact with Advanced Components and Materials Division Power Electronics Materials Business Unit, Proterial, Ltd., for any inquiry.

Proterial, Ltd.
<https://www.proterial.com/>

Advanced Components and Materials Division
Power Electronics Materials Business Unit

Click here for
the website



Head Office

Toyosu Prime Squire, 5-6-36 Toyosu, Koto-ku,
Tokyo 135-0061, Japan

North America

Proterial America, Ltd. Chicago Office

85W. Algonquin Road Suite 499 Arlington Heights,
IL60005-4142, U.S.A.
Tel: +1-847-364-7200 Fax: +1-847-364-7279

Europe

Proterial Europe GmbH Head Office

Immermannstrasse 14-16, 40210 Duesseldorf, Germany
Tel: +49-211-16009-0 Fax: +49-211-16009-29

Milano Branch Office

Via Modigliani 45, 20090 Segrate, Milano, Italy
Tel: +39-02-7530188/7532613/7533782
Fax: +39-02-7532558

Asia

Proterial Hong Kong Ltd.

Suites 706-11, 7th Floor, South Tower, World Finance
Centre, Harbour City, Tsimshatsui, Kowloon, Hong Kong
Tel: +852-2724-4183 Fax: +852-2311-2095

Proterial (Shanghai), Ltd.

Room 1501, T1 of Raffles City, No.1133,
Chingning Road Shanghai, 200051, P.R.China
Tel: +86-21-3366-3000

Proterial Taiwan, Ltd.

Taipei Branch Office
11F, No.9 Xiangyang Road, Zhongzheng Dist.,
Taipei, Taiwan
Tel: +886-2-2311-2777 Fax: +886-2-2381-5210

Proterial (Thailand) Ltd.

Bangkok Sales Office
Unit 13B, 13th Floor, Ploenchit Tower, 898 Ploenchit Road,
Lumpini, Pathumwan, Bangkok 10330, Thailand
Tel: +66-2-263-0889~0890 Fax: +66-2-263-0891

Do not duplicate any part of this catalog without written
permission from Proterial, Ltd.

PROTERIAL

Power Electronics
Components
[Catalog]

January '23



High Performance Amorphous Powder Core HLM50 Series

HLM50 series have low loss, high magnetic flux density, and high reliability using our uniquely processed amorphous powder. This series is suited to coils for higher switching power electronics applications.

Amorphous HLM50

Proterial, Ltd.

High Performance Amorphous Powder Core HLM50

Amorphous Powder Core HLM50

1. Features

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

- 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. Suitable for PFC Circuit and Boost/Buck Converter**
- 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

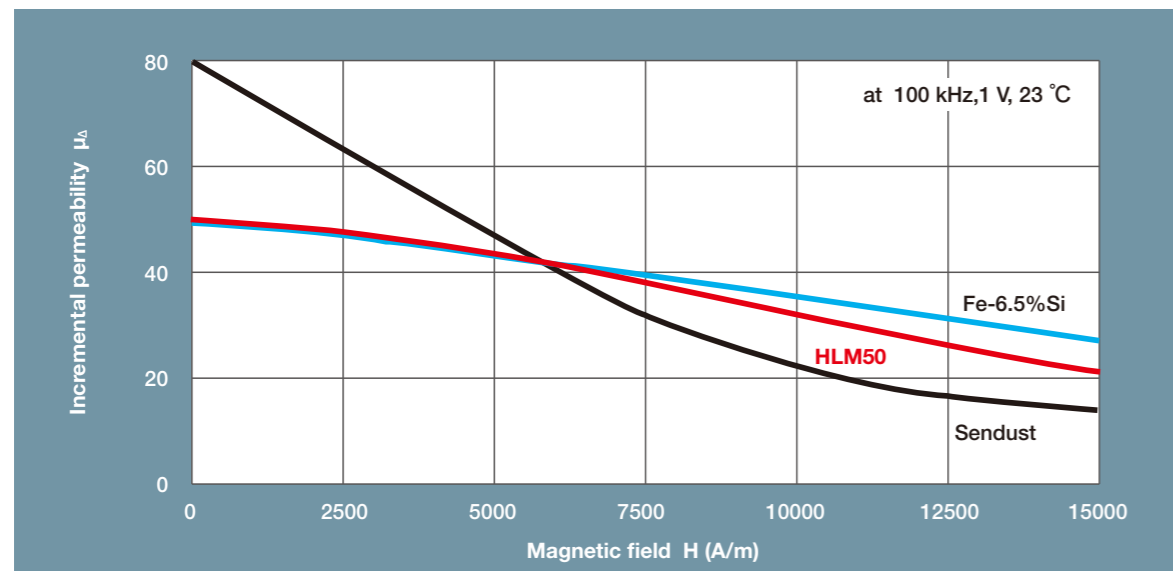


Fig.1 Incremental permeability - Magnetic Field

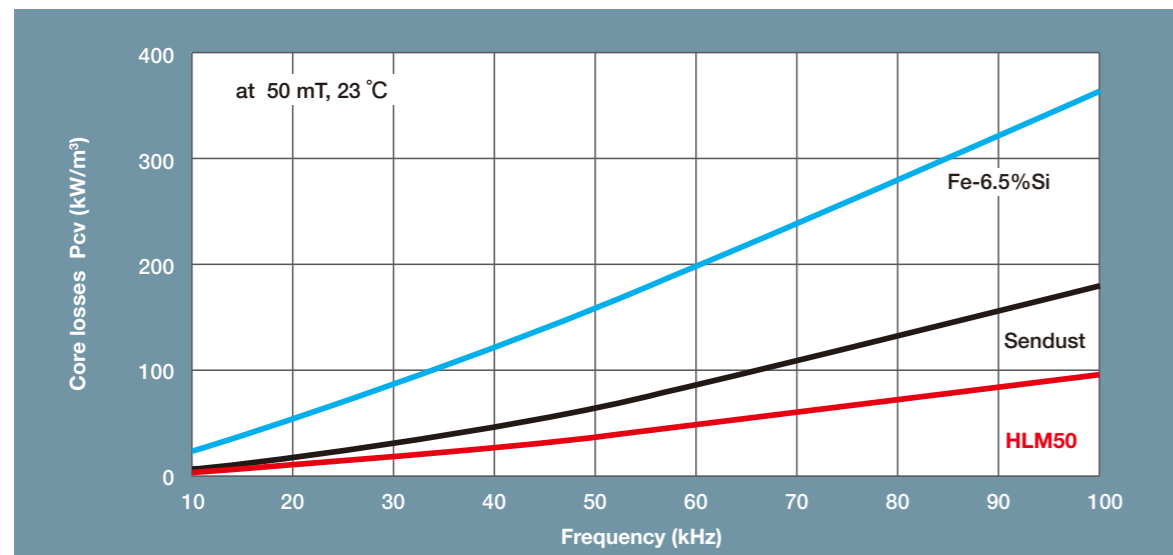



Fig.2 Core losses - Frequency

Amorphous Powder Core HLM50 case

3. Specifications



Designation of P/N
HLM50 OR-34.8-13.7-19H-CA

- Case: PET^{*1}
- ID size(mm)
- Height(mm)
- OD size(mm)
- Shape: Toroidal
- Material Name

*1: UL94-V0, RTI 155 °C (Class F).

Part Number	Dimensions			Magnetic Dimensions			μ_i	A_L value (nH/N ²)
	OD (mm)	ID (mm)	HT (mm)	L_o (mm)	A_o (mm ²)	V_o (mm ³)		
HLM50 OR-23.5-8.1-11.2H-CA	23.5	11.2	8.1	51.29	32.55	1669.4	50	39.7
HLM50 OR-25.5-9.3-10.8H-CA	25.5	10.8	9.3	52.17	46.33	2417.0		55.6
HLM50 OR-28.8-13.3-13.7H-CA	28.8	13.7	13.3	62.99	69.42	4372.4		68.9
HLM50 OR-35.2-14.1-18.5H-CA	35.2	18.5	14.1	80.75	80.78	6523.1		62.6
HLM50 OR-42.6-16.8-22H-CA	42.6	22.0	16.8	95.95	125.81	12070.8		83.5
HLM50 OR-50.2-19.5-23.4H-CA	50.2	23.4	19.5	107.12	200.34	21460.6		117.0
HLM50 OR-60.5-18.2-32.7H-CA	60.5	32.7	18.2	140.15	178.59	25029.0		80.0

4. Magnetic Properties

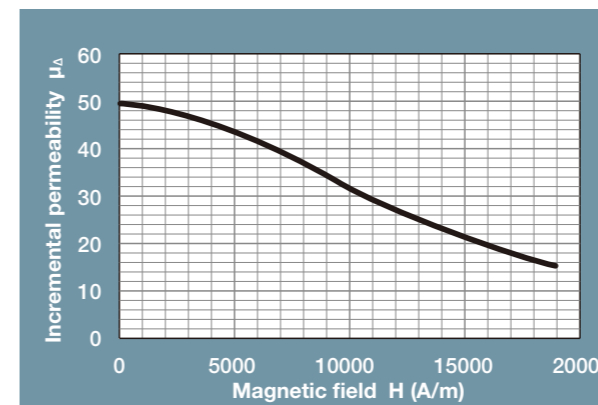


Fig.7 Incremental permeability - Magnetic field

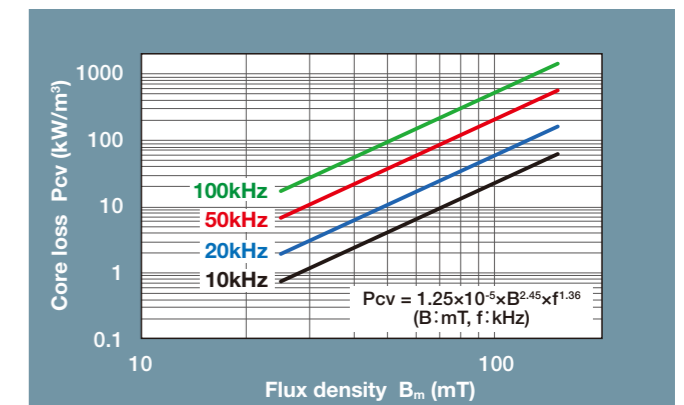


Fig.8 Core loss - Flux density

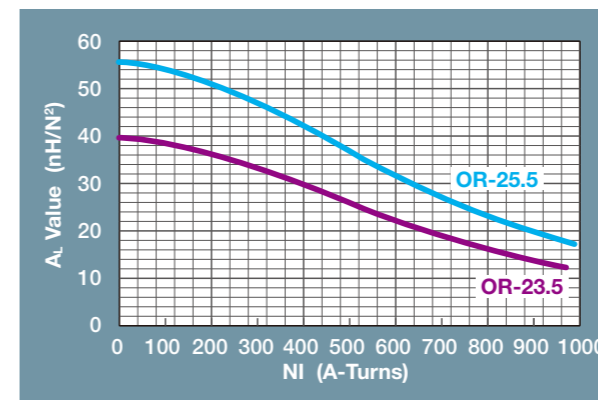


Fig.9 A_L Value - NI

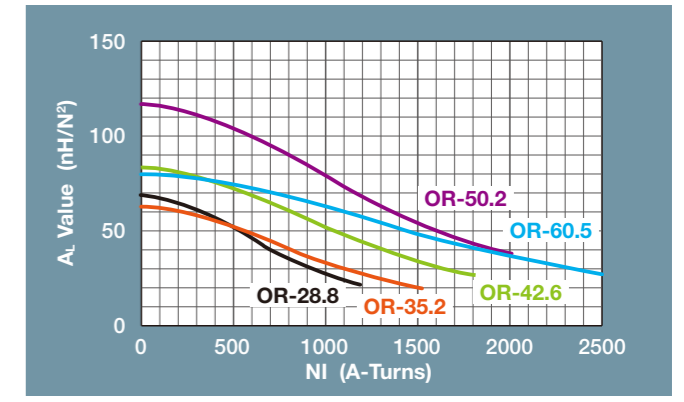




Fig.10 A_L Value - NI

 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.

 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.